



United States Department of Agriculture  
National Agricultural Statistics Service



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# Price Program

History, Concepts, Methodology,  
Analysis, Estimates, and Dissemination

A large, stylized graphic composed of overlapping, semi-transparent geometric shapes in shades of blue and grey. The year "2011" is prominently displayed in a large, black, serif font on the right side of the graphic.

2011



## Preface

NASS maintains a program of independent external review of its Agricultural Statistics Programs. In April 2008, USDA NASS asked the Council on Food, Agriculture & Resource Economics (C-FARE) to assemble a panel of expert social scientists from academia, government, and the private sector to conduct an “independent, comprehensive, and objective review” of the Agricultural Prices Program. The purpose of the review was to identify the strengths and weaknesses of the program and to recommend changes. One of the five key findings the C-Fare panel documented was that increased transparency is essential to all aspects of the Agricultural Prices Program. It is important that the purposes and conceptual basis for price statistics be apparent to users. The following documentation has been prepared to meet that need.

Other reviews of the NASS program can occur when requested. These include the Government Accounting Office (GAO) and the Office of Inspector General (OIG) program audits. The authority for government audits is provided through the following:

- Departmental Regulation (DR) 1700-1 (2/9/89), Basic Office of Inspector General Investigation (OIG)/Audit Organization and Procedures
- DR 1700-2 (6/17/97), OIG Organization and Procedures
- DR 1720-1 (3/8/90), Audit Follow-up, Management Decisions and Final Actions
- Office of Management and Budget Circular NO. A-50, Audit Follow-up

The GAO and OIG audit reports are limited to “OFFICIAL USE” of departmental and agency officials. Authority for making or approving additional releases of OIG reports is reserved to the Assistant Inspector General, Administration, and OIG. The Research, Education, and Economics Liaison Officer for audits oversees requests made for OIG and GAO audit reports on a “need to know” basis and coordinates any requests for audit reports by interested parties.

These audits seek to document accountability and accuracy of Government statistics. The NASS price data is key agricultural economic data required by law and is subject to such audits. NASS price data is used in many Government programs. The impacts can be substantial for both producers and the Government when the data is incorrect. It is critical that the NASS price program be a sound one. The NASS Price Program has undergone several audits through history. The last audit occurred in the early 1980s for the prices received for grains program. Cotton prices were reviewed by the OIG in the 1990s.



# Chapter One. Overview of the NASS Price Program

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The purpose of the National Agricultural Statistics Service (NASS) is the collection and dissemination of timely, relevant, accurate, and useful agricultural statistics. The structure of farming and the agricultural industry has changed dramatically over the 145 year history of agricultural data collection. However, the NASS mission has remained the same over time.

Farmers, ranchers, producers and others involved in agriculture require reliable information on production, supplies, marketings, prices, weather, and a vast array of other inputs. To meet their needs, NASS maintains a network of 46 State field offices, serving all 50 States and Puerto Rico through cooperative agreements with State departments of agriculture and universities. The State field offices regularly survey thousands of farm and ranch operators, and agribusinesses who voluntarily provide information on a confidential basis. Statisticians consolidate the collected reports with field observations, objective yield measurements, and other data to produce State estimates. The State estimates are forwarded to NASS headquarters in Washington, D.C. to establish and release national level data.

NASS issues nearly 500 national and thousands of State reports each year. NASS reports cover virtually every facet of U.S. agriculture, including:

- Production and supplies of food and fiber
- Prices received and paid by farmers
- Farm labor and wages
- Farm income and finances
- Chemical use
- Demographic data

Several NASS reports contain agricultural price data such as: *Crop Values* (February), *Annual Vegetables* (January), *Annual Non-Citrus Fruits and Nuts* (July), *Meat Animals Production, Disposition, and Income (PDI)* (April), *Poultry Production and Value* (April), *Milk PDI* (April), *Potatoes* (September), *Citrus Fruits* (September), *Peanut Prices* (Weekly), *Dairy Products Prices* (Weekly), and *Monthly Agricultural Prices*. The content and month published of *Monthly Agricultural Price* reports are in Appendix A. Each report is released on a fixed schedule according to an annual calendar of release dates. See <http://www.nass.usda.gov/Publications/catalog.pdf> for the annual calendar. Strict security measures are followed to ensure that no one gains premature access to the data.

One set of particularly important data are the price data because those provide a link between agricultural production and distribution. Three distinct price series are presented in this document, in the order in which they originated. The series are: Prices Received (Chapter Two), Prices Paid (Chapter Three), and Parity Program (Chapter Four). This document provides users of agricultural price data with extensive details of NASS's estimation program for prices that farmers receive for commodities produced and the prices paid for production goods and services. Federal regulations require that NASS publish parity prices, indexes, and relevant price data monthly in *Agricultural Prices*.

## History of NASS

Price data provide a link between agricultural production and distribution. In colonial days agricultural leaders recognized this, especially as it pertained to the tie between farming and market-

ing. Realization of the farmers' dependence upon prices as guides for planning their production and selling their products led by the Federal Government, after the Civil War, to supply such information. Price information was introduced as one of a series of services provided to farmers as means for encouraging production, especially for export, to pay for debts acquired during the war. Agricultural production also represented the best alternative to obtain foreign exchange to aid industrial development.

In succeeding decades, additional agricultural price information was provided as a public service to help guide farmers in expanding agricultural markets and to help them cope during periods of adversity. The need for price information was accentuated as farming spread and became more commercialized. Efforts on the part of the Federal Government to meet this need were stepped up with the outbreak in Europe of World War I, and received even greater impetus when the U.S. entered the conflict and acquired greater responsibility for supplying food and fiber.

The recession following World War I, with its heavy impact upon agriculture through curtailment of exports, placed still greater stress upon price information for both current management and for future plans for agricultural output. Agricultural reform and Government policies instituted during that period, calling for reliable price guides, reached a pinnacle during the depression of the 1930s. The concept of parity prices became a symbolic outcome.

Government programs adopted during World War II, to encourage expansion in contrast to the contraction of farm production in the two preceding decades, called for even more detailed

price statistics. Additional data requirements were also necessary because of the trend toward larger, more specialized, and mechanized farms. Subsequent growth of vertically integrated agriculture, requiring greater cohesion between farming operations' and marketing agents' supplying factors of production, processing, and distribution services, necessitated modifications in the means for acquiring and reporting price information without any relaxation in the dependence placed upon it. The price series have changed over the years, reflecting the radical changes that have occurred in agriculture.

In their present form, the series represent the current adaptation of federally supplied price information to meet the needs of agriculture. In view of the rapid technological, organizational, and structural changes that are occurring, the adaptation is incomplete. Imperfections are clearly apparent and prospects for adequate adjustments are unfavorable in the immediate future. Consequently, it is important that users of these price statistics are aware of the scope and methods employed in their construction so the information is used judiciously in analyzing the current market situation, agricultural policy, and other issues facing the agricultural sector.

As technology and agriculture advances, the market basket of goods and services needed to measure price changes also requires updating. These technological advances result in the index being revised periodically to keep abreast of current agricultural practices. The last overall revision and update to the indexes of prices paid and prices received by farmers used in the computation of parity prices occurred in 1995. Similar changes in the prices paid and prices received indexes were adopted with the 1995 revision to maintain consistency in the construction of the indexes and their joint use in parity price computations.

The universe for agricultural commodities is all sales from producers to first buyers. Prices for points of first sale are obtained either from producers or first buyers. NASS collects price information from buyers rather than sellers as a single buyer can provide data from many transactions. Buyers also are more likely to be active market participants on a continuing basis. Individual producers normally market commodities only a few times during the year.

NASS does conduct some surveys directly through producers. Surveys of growers, packers, and processors for the end-of-season estimates for fruits, nuts, and vegetables are conducted annually. The survey data are used to calculate market year average (MYA) prices. NASS also conducts a hay sales survey every other year in all monthly program States. Some States conduct the survey during even number crop years only and other States conduct the survey during odd number crop years. The biennial hay survey data are used for setting monthly revisions and final MYA prices.

State field offices maintain universe lists of operations which purchase grain, oilseeds, rice, peanuts, dry beans, pulse crops, or cotton directly from producers in addition to establishments that sell production inputs. Each operation on the list must be appropriately classified for samples to be properly drawn and to allow for correct expansion of data to provide representative price indications for setting State and national estimates.

The relationship of the NASS' price program to agribusinesses, producers, and data users is discussed for each these areas. Each area provides useful and needed information for assembling statistically reliable prices and indexes to serve the agricultural industry.

## Overview of Scope, Data Sources and Data Collection

NASS collects prices received and prices paid from producers to calculate indexes from those prices. It also uses the data that are collected to determine parity prices and parity indexes. Chapters Two and Three provide the methodology for the collection of the prices paid and prices received data. Chapter Four provides details about the parity program. Following is a short overview of the scope, data sources and collection methods that are used to collect the price information. More detail on these topics will be provided in the chapters that follow.

### Scope

Prices Received statistics cover relevant statistical data for principal crops, livestock, livestock products, indexes of prices received, and parity prices. Prices paid statistics cover pertinent statistical data for indexes of input components, livestock and poultry feed price ratios, and production input items prices. For prices received, the universe for agricultural commodities is all sales from producers to first buyers. The universe for prices paid is agribusinesses.

### Data Sources

Prices for points of first sale are obtained either from producers or first buyers. For prices received, NASS collects price information usually from buyers rather than sellers because a single buyer can generally report on many transactions. Buyers also are more likely to be active market participants on a continuing basis. Individual producers normally market commodities few times

during a year. For similar reasons, NASS generally obtains prices paid from sellers.

To collect information from buyers, it is necessary to have a list of the potential buyers of farm products. State field offices take responsibility for updating and maintaining the list of operations that purchase grain, oilseeds, rice, peanuts, dry beans, pulse crops or cotton directly from farmers in addition to the establishments that sell to farmers. Each operation on the list must be appropriately classified for samples to be properly drawn and to allow for correct expansion of data to provide representative price indications for setting State and national estimates. The classification of sampling units in a population is by homogeneous groups. The NASS prices sampling frame is classified based on operation control data, such as grain storage capacity, commodities produced, and items sold or purchased.

Grain elevators, both private and cooperative, are agribusinesses buying commodities directly from farmers and ranchers. These facilities have equipment for the handling and storage of grains, dried beans, and other seed crops. Ethanol plants or facilities constructed to produce ethanol by converting crops such as corn, sugarcane, or wood into alcohol sugar purchase directly from producers. An ethanol plant can range in size from a backyard operation to a large factory. Terminal markets are establishments in a city or market where large quantities of production are brought for sale and distribution.

Additional price data are obtained from dealers or cooperatives. A dealer is a person or firm buying commodities for speculative purposes. The commodities are for immediate resale and are usually held for only a short time. Dealers take



title to the commodity. Cooperatives are voluntarily organized associations which are controlled by its members or patrons that pool their resources and share in the profits. Dealers and cooperatives provide price data for fruits, vegetables, milk, cotton, grains, retail seeds, machinery, fertilizer, chemicals, and feed.

Administrative data are also used in setting mid-month prices rather than relying solely on mid-month data directly from buyers and sellers. The data are used for setting national price estimates for fruits, vegetables, livestock, poultry, and feeder livestock. See Chapter Two for information about the administrative data used in the Prices Received program. Prices paid items such as autos, trucks, building materials, supplies, repairs, fuel, and services also use administrative data to measure price changes. See Chapter Three for information about the administrative data used in the Prices Paid program.

Administrative sources provide adequate price coverage when resources limit data collection. Administrative sources utilized include commodity associations, market orders, and government (State and Federal) agencies. The administrative data are documented and approved according to agency policy to meet the needs of the price program.

Other coverage sources for collecting price data include producers and manufacturers of input items needed to produce agricultural food and fiber, agricultural services, such as fertilizer and farm equipment manufacturers and dealers, wholesalers, processors, transporters, marketers, and retail outlets. Auction houses or auction pools where commodities are sold through competitive bidding to the highest bidder also provide prices

that producers receive. An auction pool is a cooperative method of marketing where individually owned products are pooled and sold to the highest bidder.

## **Data Collection**

Prices Received Surveys are primarily self administered surveys (mail, fax, and electronic data reporting). Phone enumeration is used when necessary to ensure adequate coverage and a good response rate. Field enumeration is used for certain phases and when a respondent requests a personal visit.

Prices received for products sold by producers are collected with voluntary cooperation of buyers and sellers. Buyers can provide information covering transactions of many sellers and is the preferred contact for collecting prices received data.

Prices Paid Surveys are primarily telephone enumerated surveys. Farm input prices paid are collected annually through a survey of establishments selling production input items to producers. Monthly data sources are administrative.

Administrative data are also used to set mid-month prices rather than using mid-month data directly from buyers and sellers. The data are used for setting national price estimates for fruit, vegetables, livestock, poultry, feeder livestock, and fuel. Several prices paid items incorporate administrative data. See the Prices Paid, Chapter Three, for more details. Administrative sources provide adequate price coverage when resources limit data collection. Administrative sources in-

clude commodity associations, market orders, and government (State and Federal) agencies. The administrative data are documented and approved to meet the price program needs according to agency policy.

## **Price Indexes**

### **Calculation of the Price Indexes**

The Prices Received Index aggregates the individual prices received together into one measure. The Prices Paid Index aggregates the individual prices paid together into one measure. A price index is a tool that simplifies the measure of movements in a numerical series.

Prices received and prices paid by farms indexes currently have a 1990-1992 reference base. NASS sets the average index level (representing the average price level) for the 36-month period covering the years 1990, 1991, and 1992 equal to 100. For example, an index of 105 means there was a 5 percent increase in price since the reference period; similarly, an index of 95 means there was a 5 percent decrease. Movements of the index from one month to another can be expressed as changes in index points, but the percent changes of an index will be more useful to express the movements of the price level. This is because index points are affected by the level of the index in relation to its base period, while percent changes are not.

The indexes of prices received and prices paid are based on five-year average weights. Index weights are updated every year to capture the continual shift in agricultural commodities sold and agricultural inputs bought. The annual weight base

is derived from farm's cash receipts and expenditures series. The years used to construct weights are the latest five years of data available from cash receipts and farm expenditures.

The formula for the prices received index is a modified Rothwell formula. The formula used to calculate prices paid indexes is a modified Young index. Details about the formulas are in Chapters Two and Three, respectively.

### **Analytical Ratios Produced from the Data**

Several analytical ratios are calculated from the agricultural price indexes. A ratio measures the relationship of one price (or price index) to another price (or price index). For example, the ratio of prices received to prices paid by producers is a measure of the prices received index relative to the 1990-1992 = 100 base reference period. A ratio of 80 means the level of prices received by producers is 20 percent lower than the level of prices paid by farms in comparison to the 1990-1992 ratio.

### **Price Index Limitations**

Factors such as changes in quality, utilization, and movement of old and new crops affect month to month price changes. Shifting areas of marketing, world markets, trade policies, and changing market functions performed by the producer affect longer term price analysis. New varieties or breeds, specialized uses of products, and changing market arrangements are all reflected in the average prices received by farmers. Analysts should keep these factors in perspective when analyzing the data series on prices received by farm-

ers. Analysts should also understand that the comparison between month to month price changes based on the prices received indexes may not represent the same market basket. The market baskets may differ each month of the year with seasonal crop development changes. A more consistent comparison of the price received indexes is the relationship for the same month across different years.

Price data based on statistical surveys are subject to sampling and nonsampling errors. Sampling errors are defined as differences between the population estimates from different samples and the population value. They measure the probability of an estimate's departure from the values obtained with a complete enumeration. Sampling errors can be measured statistically based on probability samples. For major commodities, standard errors for NASS price estimates at the U.S. level are generally in the one to two percent range. Efforts are made to control the level of sampling errors by list stratification and increased sample size as resources and respondent burden permit.

Nonsampling errors include nonresponse errors introduced when survey respondents refuse to cooperate or cannot be located during the survey period; errors introduced by an interviewer's "leading" the respondent or otherwise influencing the respondent's answer; and errors resulting from incorrectly recording or transferring data, whether done manually or with data processing equipment. Errors may also arise from the questionnaire when questions are unclear, definitions are imprecise, or the order of questions is not logical. Nonsampling errors are minimized through standardized questionnaires, instruction manuals, training, manual review of reported data, and automated edit checks during summarization.

The prices paid index does not adjust for changes in item quality or other product enhancements. The quality and enhancements of input products can change significantly over time. With farm machinery, for example, the basic functions have not changed, but current models are much different from those 30 or 40 years ago. Prices for items producers sell used in the received index represent all grades, qualities, and classes. No modifications are made to these prices.

## **Forecast Uses**

NASS has maintained the historical price index series, 1910-1914=100, as prescribed by permanent legislation. These indexes have been linked to the current base period of 1990-1992=100 which maintains the usefulness of the NASS price indexes for forecasting. Economists, analysts, and researchers often times require a consistent long time price index series for forecasting and modeling. Almost all series, except the Rent index are available from 1975 to current for the base period of 1990-1992=100. Most major indexes series can be traced back to 1910 for the base reference period 1910-1914=100. Price index data from 1997 to current for both base periods are available from NASS's online Quick Stats data base. Data prior to 1997 which are not currently available from the online data base are available on request.

## **Users of the Price Statistics Price Program Relationship to the Producers**

Commodity prices are essential economic statistics for farm operators. Producers use price data when making decisions on purchases, sales, capital investments, and annual production contract agreements. Agricultural price data provide reliable information to keep farmers on equal footing with agribusinesses, bankers, credit associations, and policy makers. Price data are the link between production and distribution.

In addition, price data are used to formulate government policy which governs any subsidy payments a farm receives. Current government price support programs and Federal marketing orders use NASS price data in setting market standards and level of program payments. Prices Received for grains, oilseeds, rice, peanuts, and cotton data are used to establish payments to producers for those commodities.

In today's ever changing environment, producers must constantly keep abreast of prices. The data assist farmers and managers in determining the best time to buy seed, fertilizer, chemicals, and other farm inputs as well as assisting in marketing decisions. Price data also helps producers to determine when and if they should expand or scale back their operation.

Farmers, government agencies, and policymakers use prices paid data to evaluate the costs of inputs used in agriculture compared to other sectors of the economy. Economists and farm operators alike use these data to adjust agricultural productivity, to analyze net gains or losses from agricultural production, and to measure alternative

input production costs. Analysts use the statistics to project current trends, interpret their economic implications, and evaluate courses of action to aid in making farm management decisions.

Reliable reports on agricultural prices are an invaluable aid to financial institutions in serving agricultural credit needs. Available credit can be used more effectively if lending institutions can monitor trends in the agricultural sector. Banks, the Farm Credit Service, and other lending institutions use prices paid data as they determine loan requirements and develop production budgets for agricultural producers seeking credit.

Firms and individuals actively involved in the production, distribution, processing, and marketing of farm products use prices paid data to determine market potential and allocation of research and advertising funds. The location of a new dealership or the potential of a new product is contingent upon an evaluation of future income. NASS price data provide the only unbiased source of agricultural input prices to serve the Nation's needs.

## **Price Program Relationship to Data Users**

NASS is part of the Federal Statistical System of the U.S. government. NASS data have a variety of uses. Forecasts of expected production of crops and livestock enable commodity markets to operate efficiently as price discovery mechanisms. End-of-year price estimates establish commodity values used to measure the farm economy and its economic impact.

The U.S. Government is a major consumer of NASS price program data. USDA Economic

Research Service (ERS) uses price data in estimating and forecasting farm income. The farm income data are then used by the Bureau of Economic Analysis (BEA) to measure the size and change in the size of the U.S. economy.

Other USDA agencies use NASS price program data to administer market orders, distribute income loss payments, and gauge the health of the farm economy. The monthly publication containing the price data of the NASS Price Program is entitled *Agricultural Prices*. The report is part of the Principal Federal Economic Indicators as designated by the Office of Management and Budget.

Organizations outside the U.S. are users of the NASS Price Program data. The Food and Agriculture Organization (FAO) of the United Nations uses the data to provide comparative analysis among countries. The Agricultural Division of Statistics Canada referenced the methodology of the NASS Price Program in redesign of their price index.

Private sector firms and individual farmers and ranchers are also users of the data. Commodity production contracts are written that use price program data to establish prices each growing season. Farmers and ranchers use the data to help with their commodity marketing decisions. Researchers use the data to study farm cost trends, farm income trends, and dozens of other macro and micro agricultural issues. The banking and finance services industry, which is critical to U.S. agriculture, also uses price data in their business forecasts. Literally, every business that is involved directly or indirectly with U.S. agriculture reviews agricultural price data in planning their own business needs as well as the products and services they provide.

## Research

NASS is committed to improving the price program, recognizing the importance of the price program and the need for continuous improvement to keep pace with the rapidly changing agricultural sector. The research component of the price program strives to identify its strengths and weaknesses and to recommend changes to make the published statistics more accurate and useful.

The research plan incorporated areas recognized in the Council on Food, Agricultural, and Resource Economics (C-FARE) report (C-FARE, 2009). Potential survey methodology areas for research are use of administrative data, sample and questionnaire design, edit and imputation, and estimation procedures. Future research projects include investigating economic issues such as indexes, weights, seasonality, and quality adjustments. To further develop the research agenda, the price program research team investigated the research areas by feasibility, budget, importance to the price program, and resources available. NASS continuously seeks expertise from other resources outside of NASS such as a cooperative agreement with the National Institute of Statistical Sciences (NISS). Information about NISS can be found at <http://www.niss.org/>. The collaboration between the outside sources along with NASS resources seeks to pool expertise to carry out the price program research agenda.

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## Appendix A: Commodity Prices Published by Month

### Calendar of Prices Received Features in the 2010 Agricultural Price Reports

Annual or Marketing Year Average Prices	Month Published
Austrian Winter Peas, United States .....	September
Barley, United States .....	June
by State and United States .....	August
Broilers, by State and United States.....	April
Canola, by State and United States .....	November
Cattle, by State and United States .....	February
Chickens, Other by State and United States .....	April
Chickpeas, by State and United States.....	November
Corn, United States .....	September
by State and United State .....	November
Cotton, by Type, State and United States .....	October
Cottonseed, by State and United States .....	October
Dry Beans, by State and United States .....	November
Dry Edible Peas, United States .....	September
Eggs, by State and United States .....	April
Flaxseed, by State and United States .....	November
Goats, by State and United States .....	February
Hay, by State and United States.....	August
Other Hay, 3-year Average by Region .....	February
Hogs, by State and United States .....	February
Hops, by State and United States .....	December
Lentils, United States .....	September
Milk, Sold to Plants, by Grade, Price and Fat Test, b State and United States.....	April
Mohair, by State and United States.....	February
Mustard Seed, United States .....	November
Oats, United States.....	June
by State and United States.....	August
Peanuts, by State and United States .....	August
Potatoes, by State and U.S., Preliminary .....	February
Proso Millet, by State and United States.....	November
Rapeseed, United States.....	November
Rice, United States (year-to-date) .....	August
by State and United States, by Length of Grain .....	January
Safflower, United States .....	November
Sheep and Lambs, by State and United States .....	February
Sorghum, by State and United States.....	September
Soybeans, by State and United States .....	September
Sweetpotatoes, by State and United States, Preliminary .....	January
Final and Revised .....	June
Sugarbeets, United States.....	July
Sugarcane, United States .....	July
Sunflower, by State and United States.....	November
Turkeys, by State and United States .....	April
Wheat, by Class, United States .....	June
by State and United States .....	August
Wool, by State and United States.....	February

## Calendar of Prices Received Features in the 2010 Agricultural Price Reports

<b>Monthly Prices Received - Revised</b>	<b>Month Published</b>
Austrian Winter Peas, United States .....	September
Barley, by State and United States.....	August
Broilers, United States .....	April
Cattle, by State and United States.....	February
Chickens, by State and United States.....	April
Chickpeas, by State and United States.....	November
Corn, by State and United States .....	November
Cotton, by Type, State and United States .....	October
Cottonseed, by State and United States .....	October
Dry Beans, by State and United States .....	November
Dry Edible Peas, United States .....	September
Eggs, by State and United States .....	April
Flaxseed, by State and United States .....	November
Hay, by State and United States.....	August
Hogs, by State and United States.....	February
Hops, by State and United States .....	December
Lentils, United States .....	September
Milk, Sold to Plants, by Grade, Price and Fat Test by State and United States.....	April
Milk Cows, by Quarter, by State and United States .....	February
Oats, by State and United States .....	August
Peanuts, by State and United States .....	August
Potatoes, by State and United States, Preliminary .....	February
Rice, United States (year-to-date) .....	August
by State and United States, by Length of Grain .....	January
Sheep and Lambs, by State and United States .....	February
Sorghum, by State and United States.....	September
Soybeans, by State and United States .....	September
Sunflower, by State and United States.....	November
Wheat, by State and United States .....	August



## Calendar of Prices Received Features in the 2010 Agricultural Price Reports

<b>Monthly Marketing Percents</b>	Month(s) Published
Austrian Winter Peas, United States .....	September
Barley, United States .....	June
by State and United States .....	August
Chickpeas, by State and United States .....	November
Corn, United States .....	September
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Dry Beans, by State and United States .....	November
Dry Edible Peas, United States .....	September
Flaxseed, by State and United States .....	November
Hay, by State and United States .....	August
Lentils, United States .....	September
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Wage Rates, Family Living, Farm and Non-Farm Origin, Crop and

Livestock Sectors, Adjusted for Productivity, Ratio, Parity Ratio

and Adjusted Parity Ratio

Annual Average (2006-2010) .....

By Month (2006-2010) .....

United States Current Month, Previous Month, Previous Year .....

## Calendar of Prices Received Features in the 2010 Agricultural Price Reports

<b>Indexes (1990-1992=100)</b>	Month(s) Published
PPITW, PITW, Production Items, Component and Subcomponent Items, Interest, Taxes and Wage Rates, Family Living Farm and Non-Farm Origin, Crop and Livestock Sectors, Adjusted for Productivity, Ratio, Parity Ratio and Adjusted Parity Ratio	
Annual Average (2006-2010) .....	Jan, Apr, Jul, Oct
By Month (2006-2010) .....	Jan, Apr, Jul, Oct
United States Current Month, Previous Month, Previous Year .....	Monthly
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## Appendix B: Monthly Schedule for Commodity Prices

The National Agricultural Statistics Services (NASS) publishes current month, previous month, and previous year prices in the monthly *Agricultural Prices* release. In addition, index revisions, monthly price revisions, marketing year average prices, monthly marketing percentages, and other related information for many commodities are published as soon as possible after the end of the marketing year. The following schedule shows the month in which these additional data are featured.

<p><b>January</b></p> <p>Rice, Noncitrus Fruit, Sweetpotatoes, Vegetables, Parity Prices, Grazing Fees, and Index Revisions</p>	<p><b>May</b></p> <p>Tobacco and Feed Price Ratios</p>	<p><b>September</b></p> <p>Citrus, Potatoes, Soybeans, Sorghum, Dry Edible Peas, Lentils, Austrian Winter Peas, and US MYA Corn</p>
<p><b>February</b></p> <p>Other Hay, Meat Animals, Potatoes, Noncitrus Fruit, and <i>Crop Values</i>*</p>	<p><b>June</b></p> <p>US MYA Wheat, US MYA Barley, US MYA Oats, Sweet potatoes</p>	<p><b>October</b></p> <p>Cotton, Cottonseed, and Index Revisions</p>
<p><b>March</b></p> <p>None</p>	<p><b>July</b></p> <p>Noncitrus Fruit, Onions, Cranberries, Sugarbeets, Sugarcane, Seasonal Adjustment Factors, and Index Revisions</p>	<p><b>November</b></p> <p>Corn, Sunflower, All Dry Beans, Chickpeas, and Flaxseed</p>
<p><b>April</b></p> <p>Poultry, Milk, Farm Machinery, Feed, Feeder Livestock, Fertilizer, Field Seeds, Fuels, Ag Chemicals, Seasonally Adjusted Prices, and Index Revisions</p>	<p><b>August</b></p> <p>Wheat, Oats, Barley, Rye, Peanuts, Hay, and US MYA Rice (year-to-date)</p>	<p><b>December</b></p> <p>Prices Paid Index for Beef Cattle Production, Hops, and Public Lands Grazing Fees</p>

## Appendix C: Selected International Agricultural Price Programs

Other countries with long robust histories of agricultural prices and indexes are Australia, Canada, and the European Union. How does the NASS price program compare to the programs of these other countries? The following briefly highlights differences without going into any detailed analysis. Information about each country's agricultural price program is provided for quick reference.

### International Agricultural Price Program Comparisons

Canada has a centralized statistical agency, Statistics Canada, with emphasis on compatibility of all economic statistics programs. Statistics Canada's philosophy is to keep the Farm Product Price Index (FPPI) series comparable with other published price indexes. The statistical programs between Canada and the U.S. differ in this respect for agricultural price indexes.

A guide to the redesign of the Statistics Canada Farm Product Price Index (FPPI) was the 1995 reconstruction of the U.S. Prices Received Index. Improvements in the U.S. index followed in the Statistics Canada redesign were:

- Seasonal weighting pattern for the 12 months of the year for all commodities,
- Update of the index basket every year based on marketings for the last five years prior to the previous year, and
- Increase in commodity coverage for the index.

The FPPI is a chain index with a new annual basket linked into the index every year. The link is at the previous year and month and not the previous month. The NASS index has a new annual basket every year without linking. This means the index is not a true measure of only price change.

The weights for the FPPI are an average of five-year cash receipts at base year prices. The weighting pattern of the FPPI reflects the pattern of marketings of the five different years but the price structure only of the base year. Weights for aggregating the NASS indexes are a five-year average of cash receipts using the equivalent price for each year. The weighting pattern of the NASS index reflects the pattern of marketing as well as the price structure of the five different years.

Annual FPPI indexes are calculated as weighted averages of monthly FPPIs, consistent with the monthly basket concept of the index. NASS annual indexes are calculated as simple means of the monthly indexes. Federal regulations relating to the calculation of parity prices require NASS to calculate its annual indexes as a simple average of the monthly indexes. This approach, however, is inconsistent with the monthly basket approach to calculating the monthly index series and may not adequately represent each month's index in the annual average.

The FPPI includes commodities for which there are farm cash receipts but no marketings in the index basket and allows respective

influence to the relative importance of the category grouping. The NASS index only includes those commodities with monthly cash receipts in the index group.

The Australian and European Union price programs also share many commonalities with the NASS price program. Some differences exist in index groupings, items in market basket, level of index computation published, and methodology of index computation. These indexes are based on aggregation of price relatives rather than aggregation of change in average prices received or paid. Australia publishes commodity level indexes.

The Australian Bureau of Agricultural and Resource Economics (ABARE) revised the method for calculating agricultural price indexes in October 1999. The indexes for commodity groups are now calculated on a chained weight basis using Fishers' ideal index with a reference year of 1997-1998 = 100. The indexes for most commodities are based on annual gross unit value of production. Chain weighted indexes account for product shifting as consumer needs change.

The European Union (EU) agricultural policy was designed to meet two objectives. The first was to guarantee the lowest possible food prices to the consumer in the European Union. The second was to secure farmers' incomes with guaranteed prices, which required harmonized statistics on agricultural prices. Eurostat therefore collects data on agricultural prices, which began in the 1960s, to analyze price developments and their effect on agricultural income.

EU agricultural price indexes are ob-

tained by a base-weighted Laspeyres calculation (2000=100), and are expressed both in nominal terms, and deflated using an implicit harmonized index of consumer prices (HICP) deflator. Methodology for the price program is based on the Handbook for EU agricultural price statistics.

The NASS price program, unlike these other countries, must compute and publish parity prices for most major agricultural program commodities as governed by permanent legislation. Parity prices, as prescribed in legislation, are calculated utilizing commodity prices and both the prices received and paid indexes. The construction of the indexes to meet this legislative requirement is a responsibility of NASS. The NASS price program utilizes price data to meet the needs of not only producing indexes to compute required commodity parity prices but to provide a means of deriving total value of commodities produced. These values are important to measuring agriculture's contribution to the Gross Domestic Product for the U.S. and other countries.

The statistical programs for other countries publish only one index series referenced to one base period. The EU indexes are expressed both in nominal and deflated terms. NASS, on the other hand, publishes two series. One based on the 1910-1914 base reference period, as prescribed by legislation, and a more recent reference period of (1990-1992 = 100.)

Additional information of these country's price programs follows.

## Australia

Market prices and marketing costs are collected through two separate annual Australian Bureau of Statistics (ABS) surveys. Market prices are used in combination with the quantities collected from the agriculture census / survey to calculate gross value where gross value represents the value placed on commodities at the point of sale (i.e. in the market place). These prices are inclusive of any product taxes paid and any product subsidies received which is a different valuation basis compared with farm gate prices. The ABS also collects economic and financial data on agriculture and services to agriculture through its annual economic activity survey. For more information about the Australian Bureau of Statistics, go to <http://abs.gov.au/>.

In addition to these annual collections, the ABS runs a quarterly livestock products survey which collects current price and quantity information on livestock slaughter, meat production, exports of live sheep and live cattle, exports of fresh, chilled, frozen and processed meat, and whole milk intake by factories, market milk sales by factories, and orders of wool by wool brokers and dealers.

Australia presents its annual estimates on a fiscal year (July-June) basis and not on a calendar year basis. A large amount of agriculture data on annual farm production, annual farm costs, and annual farm prices is published by the Australian Bureau of Agricultural and Resource Economics (ABARE). The ABARE data include forecasts for the latest year and, in some cases, forecasts are available five years out from the latest year.

ABARE revised the method for calculating agricultural price indexes in October 1999. The indexes for commodity groups are now calculated on a chained weight basis using Fishers' ideal index with a reference year of 1997-1998 = 100. The index for most individual commodities is based on annual gross unit value of production.

## Canada

The Farm Product Price Index (FPPI) is a monthly series that measures the changes in prices that farmers receive for the agriculture commodities they produce and sell. The price index has separate crop and livestock indexes, a variety of commodity group indexes such as cereals, oilseeds, specialty crops, cattle and hogs, and an overall index. All are available monthly and annually for the provinces and for Canada.

The FPPI is an important indicator of the economic activity in the agricultural sector. The series is used by agricultural economists and analysts interested in the health of the agricultural sector, deflating agricultural commodity prices, and policy development. The information provided by FPPI is useful to producers, producer groups, commodity analysts from the private sector such as grain companies and meat processors, international exporters, the banking sector, and government agencies responsible for agriculture policies. The index expresses current farm prices from the Farm Product Prices Survey as a percentage of prices prevailing in the base period, 1997=100.

The universe includes all Canadian agriculture operations as defined by the Census of Agriculture, as well as all marketing boards, agencies, commissions and federal and provincial government departments that collect data on producer prices or data from which prices can be calculated. A sample survey with a longitudinal design is employed to represent the universe.

Prices are based on either administrative data sources or monthly surveys of agricultural producers or commodity purchasers. Administrative price data come from a wide variety of sources. Some administrative sources are from marketing boards such as the Ontario Wheat Producers Marketing Board and the Nova Scotia Grain Marketing Board. Market associations such as CANFAX also provide price data.

Commodities are priced at point of first transaction, where the fees deducted before a producer is paid are excluded (e.g., storage, transportation, and administrative costs), but bonuses and premiums that can be attributed to specific commodities are included. Commodity-specific program payments are not included in the price.

The FPPI is based on a five-year basket that is updated every year. This captures the continual shift in agricultural commodities produced and sold. The annual weight base is derived from the farm cash receipts series. There is a two-year lag in the years used to construct the basket because of the availability of farm cash receipts data and to reduce the number of revisions made to the index.

The seasonal weighting pattern was derived using the monthly marketings from 1994 to 1998. This weighting pattern remains constant and will only be updated periodically, for instance during intercensal revisions or when the time base is revised.

The FPPI is not adjusted for seasonality, but the seasonal basket is used since the marketing of virtually all farm products is seasonal. The index reflects the mix of agriculture commodities sold in a given month. The FPPI allows the comparison, in percentage terms, of prices in any given time period to prices in the base period, which at present is 1997=100. For more information about the FPPI from Statistics Canada, go to <http://www.statcan.gc.ca/>.

The Farm Input Price Index (FIPI) measures the annual price movement of specified farm inputs at the farm gate. As such, the FIPI can be used to monitor price changes, which are considered in the operations of marketing boards and in price stabilization programs. The index is also useful in transforming current dollar farm expenditures into constant dollar estimates through deflation.

The accuracy of the quality evaluation depends on price and weight data. The methodology of the index and the price series which construct the index have been designed to control error and to reduce the potential effects of these. However, both administrative and survey data are subject to various kinds of error. Survey data are mainly subject to response and data capture errors. In reporting prices each month, farm survey respondents are asked to report the average prices prevailing in their neighborhood, taking into account the various grades of each

commodity marketed. Thus, average prices reported by these respondents may differ from month-to-month due to changes in price, quality, or both.

The universe for the FIPI consists of the distributors of all inputs (goods and services) going into the farming sector. This includes distributors of farm machinery, petroleum products, crop inputs (e.g. seeds and fertilizers), veterinary services, etc.

Prices are collected at different points in the year, depending on when a given input is likely to see its prices change. Price information is collected by several means including direct mail survey, telephone interview, other sources within Statistics Canada, and from other agencies related to agriculture (e.g. Agriculture and Agri-Food Canada, Canadian Turkey Marketing Board). The questionnaires are customized with regards to what respondents sell.

The main source for the FIPI weights is the 1992 estimates of farm operating expenses and depreciation charges provided by Agriculture Division of Statistics Canada. These estimates correspond generally to the group level. To obtain detail below this level, other sources are used that are associated with the estimates of production or distribution.

The FIPI measures the change through time in the prices of goods and services purchased by Canadian farmers for use in agricultural production. These prices include the effect of applicable taxes, subsidies, and any bonuses and premiums that can be attributed to specific commodities, but they exclude any storage,

transportation, processing, and handling charges. Those prices are collected directly and are actual transaction prices.

The quality of this index is maintained through the expertise of the few trained analysts assigned to it. They develop a thorough knowledge of the domain, which is supplemented by outside personal contacts for particular goods or services. Much time and effort is devoted to detecting and following up unusual fluctuations over time in the pricing patterns of goods and services. Prior to dissemination, the price indexes are analyzed and historical trends reviewed.

## **European Union**

The European Union (EU) is a supranational organization of 27 countries across the European continent. The countries are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

The common EU agricultural policy was designed to meet two objectives. The first was to guarantee the lowest possible food prices to the consumer in the European Union. The second was to secure farmers' incomes with guaranteed prices, which required harmonized statistics on agricultural prices. Eurostat therefore collects data on agricultural prices, which began in the 1960s, to analyze price developments and their effect on agricultural income. For information about Eurostat, go to <http://epp.eurostat.ec.eu>



[ropa.eu/portal/page/portal/eurostat/home](http://ropa.eu/portal/page/portal/eurostat/home) .

The agricultural price indices (API) cover a wide range of products going into and coming out of the farm. The output products range from cereals, vegetables, and meat to milk and eggs. The input products range from animal feed, fertilizers, and seeds to energy and pesticides.

The output price indexes reflect the variations in the level of prices received by farmers from products sold. As most agricultural products are processed before they are consumed and almost always change hands more than once before they arrive at the consumer's table, they are different from the consumer price indices which measure the change of price directly paid by consumers. The input price indexes reflect what the farmer pays for feed and fertilizer.

Agricultural prices are collected through so called "gentlemen's agreements," which means that the data collection is not based on EU legislation. Despite this, methods are harmonized and based on the Handbook for EU agricultural price statistics. There are no major problems with delays or coverage as the data are needed. Go to [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-BH-02-003/EN/KS-BH-02-003-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-BH-02-003/EN/KS-BH-02-003-EN.PDF) for the handbook.

The quarterly agricultural price indexes are used by the European Commission's Directorate-General (DG) for Agriculture to form and evaluate agricultural policy. Farming organizations such as the European Committee of Professional Agricultural Organizations (COPA) are also users. Following the European Commis-

sion's drive to simplify and reduce the administrative burden for respondents, agricultural input and output prices are collected quarterly and absolute prices annually since 2006.

Since 2006, the frequency and details in some agricultural price data collections have been reduced. API now produces quarterly price statistics instead of monthly, and collection of monthly absolute prices is now an annual collection. The list of variables for the collection of annual absolute prices has been reduced to half, from 414 products to 201. This follows the European Commission's approach to simplifying and reducing the administrative burden for respondents.

Although no legislation is planned for the near future, it is quite likely that agricultural price statistics will be regulated. The trend at Eurostat is to base data collection on legislation which many Member States also support. In times of scarce resources, it is easier to collect data that are mandatory rather than voluntary. Methodology for the price program is based on the Handbook for EU agricultural price statistics.

EU agricultural price indices are obtained by a base-weighted Laspeyres calculation (2000=100), and are expressed both in nominal terms, and deflated using an implicit harmonized index of consumer prices (HICP) deflator.

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## Chapter Two. Prices Received Program

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This chapter presents program history and background information and the current methodology used in NASS's Prices Received program. This program covers the prices received by producers for the commodities they sell in their local market or at the point where they deliver their product. Since the program's inception, modifications are necessary to address the changing environment and market in agriculture. The need for timely and accurate price data is more demanding than ever.

USDA's National Agricultural Statistics Service (NASS) estimates monthly prices received by producers for about 60 crop and livestock items and annual or market year average (MYA) prices for 35 additional items. MYA prices are estimated for States where sample surveys do not allow monthly estimates because of limited sales. Prices for fruit and vegetable crops for processing are estimated on a market year average basis as most production is contracted. Contract prices do not become final until after crop delivery. Prices received by producers and Prices Received indexes are published each month in *Agricultural Prices*.

The index series has maintained the 1910-1914 base reference period as prescribed in permanent legislation. A more recent base period is provided and has undergone a number of updates through the years. The current program survey methodology to include universe development and maintenance, survey sample design and selection, survey instrument design, data collection means, use of administrative data, data review, analysis, and summarization, estimate construction, estimate revisions, and public availability of the price estimates are presented. To provide as much detail and transparency in this document as possible, overlapping discussion is necessary. This chapter also provides a presentation of data needs and uses

for the data as well as limitations with the data series.

## History and background

The U.S. Department of Agriculture (USDA) began collecting prices received by farmers in 1866. The early reports covered December 1 prices for 10 crops. Collection for six species of livestock farm values (January 1) began in 1867. Prices as of the first of each month were collected in 1908 for eight crops, and during the next 2 years, monthly prices received for livestock, poultry, and their products were added.

Monthly prices weighted to season-average prices have replaced the December 1 prices for valuing crop production and sales. January 1 values have continued to be used for livestock inventories, except for hogs and poultry. Hogs and poultry inventory values as of December 1 began in the late 1960s.

In 1924, monthly prices received were collected as of the middle of the month instead of the first. The series for the earlier years were converted to a mid-month basis to maintain continuity.

From time to time, commodities have been added to or dropped from the price program because of their changing importance. While few commodities have been added since the middle 1930s, some have been divided into marketing or utilization classes. In 1944, weights for aggregating State prices to a U.S. price were shifted from production to estimated sales. Most regional prices were discontinued in January 1973.

In 1977, the grain price survey began using a probability sample. Actual quantities sold and dollars received from those sales are collected for the entire preceding month. For the current month, preliminary month (mid-month) price estimates are based on market quotations, grower surveys, and data published by Government agencies and private associations.

The last price program review for Prices Received along with Prices Paid occurred in 1995. In this review, no changes were made to the coverage of Prices Received data. Several changes, however, were made to the Prices Received index which include using five year moving weights, seasonal marketing adjustments, changing the base reference period to 1990-1992 = 100, and index commodity coverage. This is further explained in the Prices Received index section

The current series of Prices Received by farmers include monthly prices for most major agricultural commodities. MYA prices are estimated for agricultural commodities that have production estimates. Milk, fruits, and vegetables have prices by product use. State prices are available for many commodities. Equivalent prices by location in the marketing channel are calculated for citrus fruits.

## Survey Methodology

The universe for agricultural commodity prices is all sales from producers to first buyers. Prices for points of first sale can be obtained from either producers or first buyers. Individual producers generally market commodities relatively few times during the year. A single buyer is a more active participant on a continuing basis and can

report on many transactions. Buyers, then, are the preferred data collection contacts.

Price reporters include independent local buyers like grain elevators and produce dealers, cooperative marketing organizations, Federal milk market administrators, State fruit boards, other marketing agencies, processors, canneries, slaughtering plants, other Government agencies, and producers or growers. Data furnished by the different types of reporters vary in usefulness, depending on accessibility, timeliness, and completeness. The cost of developing a complete sampling frame of all buyers of farm products far exceeds any available resources. Market channel surveys provide information on major sales localities of major agricultural products. Sample surveys are then concentrated in the market channels accounting for the bulk of commercial sales.

The sampling frames for agricultural commodities are segmented into several commodity areas. Grain price information is obtained from grain elevators and buyers. Hay price indications are gathered from surveys of dealers, hay auctions, and other buyers or other lists such as dairies or cattle feeders. Cotton price information is obtained from contacts to cotton buyers, including cooperatives and private merchants. Peanut price data is gathered from all known peanut buyers. Firms are stratified or grouped according to size or volume of products purchased. A probability sample proportionate to size is selected from each stratum. This universe and sample process allows NASS to cover a high proportion of products sold at minimum cost. Livestock prices are collected by the Agricultural Marketing Service (AMS).

Probability sample surveys used to collect price data for most major crops increase accuracy, give greater quality control, provide a method for

estimating sampling error, and use smaller but more representative samples.

Price surveys for prices received for corn, wheat, soybeans, cotton, and rice are designed to provide a coefficient of variation (CV) of less than one percent at the U.S. level and less than five percent at the State level. State level CVs for major producing States run as low as two to three percent. Nonsampling errors in conducting the surveys may be larger than the sampling errors. Current methods of summarization for non-probability commodities are not designed to calculate sampling errors. Analytical measures, however, approximate the U.S. relative sampling errors at around five percent. Any nonsampling errors are attributed to obtaining correct data, differences in interpreting questions and definitions, and mistakes in coding or processing the data. Efforts are made at each step in the survey process to minimize nonsampling errors.

Primary sales data used to determine grain prices are obtained from probability samples of some 1,900 mills and elevators. The probability survey procedures ensure that virtually all grain moving into commercial channels has a chance of selection in the survey. States surveyed account for 90 percent or more of total U.S. production. Livestock prices are obtained from USDA's Agricultural Marketing Service (AMS). Sales between farms are not included since they represent very small percentages of the total marketings. Grain marketed for seed is also excluded. Fruit and vegetable prices are obtained from sample surveys and market data from private marketing organizations, State agencies, universities, and from USDA's AMS.

## Frame Development

The universe for agricultural commodity prices is all sales from producers to first buyers. The universe for Prices Received by producers for commodities sold, therefore, is comprised from various sources. Sample units for frame construction are classified in the following categories: merchants, farm produce dealers at local shipping points, mills, and elevators, Federal Milk Order Administrators, State milk control agencies, milk distribution and manufacturing plants, cooperative marketing organizations, bankers, and farm and ranch operators.

The frame development for the following Prices Received commodity groups vary dependent on business type and commodity. A commodity type is one of the following five groups.

- Livestock and Livestock Products
- Poultry and Specialty Commodities
- Field Crops
- Fruit and Nuts
- Commercial Vegetables

When building the frame for all five commodity types, responsibility for universe building is shared between the list frame developers, commodity analysts, and survey statisticians.

*Livestock and Livestock Products.* The target population for livestock products like milk contains any entity involved with the purchase of livestock products from producers. Livestock prices are obtained from AMS; so, a frame for livestock is not needed.

Sources for the frame development and maintenance of livestock products include:

- Producers in the Quarterly Milk Production Survey .
- Buyers, cooperatives, wool pools, and Farm Service Agency (FSA) records.
- Data from AMS, State Departments of Agriculture, and State universities

*Poultry and Specialty Commodities.* NASS collects no price data from producers for the highly integrated poultry industry. A list frame of handlers, slaughtering plants, and packing plants is maintained for surveying when Agricultural Marketing Service / Market News Service (AMS/MNS) price data for chickens and live turkeys are not available. State departments of agriculture, national poultry associations, State poultry improvement associations, extension poultry agents at State universities and county agents provide names of egg handlers. A sampling frame of bee and honey producers is developed and maintained.

*Field Crops.* The target population for field crops includes establishments which sell or purchase field crops directly from the producer. Thirty-seven monthly program States are sampled on a probability basis.

NASS constructs field, oilseed, specialty and other crop Prices Received lists using the following procedures:

- Develop and maintain a list of elevators, dealers, and specialty buyers that purchase grain, oilseeds, rice, peanuts, dry beans, pulse crops or cotton for monthly and probability surveys that purchase directly from farmers. Information captured also includes capacity size and multi-unit

status for each operation. Lists are kept current and complete through processing of monthly updates.

- Develop and maintain a list of growers, buyers, ginners, and other agricultural entities for crops surveyed on a non-probability, non-monthly basis. Updates are processed on a regular basis to keep lists current and complete with priority given to the largest growers and buyers
- Develop and maintain universe lists to conduct supplementary surveys when additional price data are needed to strengthen price indications.
- Sources of operations, buyers, and other entities for the Prices Received probability and non-probability populations include:
  - Farm Service Agency,
  - Agricultural Marketing Service / Market New Service,
  - State Departments of Agriculture,
  - Various organizations such as licensing bureaus, grain associations, commodity associations, cooperatives, extension crop specialists at universities, dealers, auction facilities, factories, mills, buyers, feeders, brewers, ginners, processors, distributors and other related organizations.

*Fruit and Nuts.* The target population for fruits and nuts consists of entities involved with the sale or purchase of fruits and nuts at the first point of sale. NASS constructs fruit and nut Prices Received lists using the following procedures:

- Grower contacts originate from the following sources:
  - Farm Service Agency,
  - Agricultural Marketing Service (AMS), and
  - Various organizations like grower associations, marketing associations, cooperatives, dealers, packers, shippers, processors, wineries, exchanges, marketing boards, administrative committees, county extension agents and other related persons or groups.
- Maintain current grower lists and other non-grower lists related to the fruit and nut industries for commodities included in the NASS estimation program.
  - Direct purchases from producers by non-grower entities.
  - Maintain complete coverage of the largest growers and buyers as no area frame is utilized to supplement the list frame populations.
- Maintain a list of packers, processors, cooperatives, and other related entities purchasing directly from producers. Sources include:
  - AMS,
  - State Departments of Agriculture,
  - Extension fruit specialists at universities, Trade magazines.
- States with access to administrative data sources.
  - Utilize these sources and do not necessarily maintain a list of other contacts.
  - Maintain a list frame to conduct supplementary surveys when additional price data are needed to strengthen price indications.

*Commercial Vegetables.* The target population for vegetables consists of any entity involved with the sale or purchase of vegetables at point of first sale (POFS). POFS prices reflect the point in the marketing chain where the grower no longer owns the commodity. NASS constructs commercial vegetable contact lists using the following procedures:

- Maintain a list of contacts with knowledge of fresh market prices, to supplement administrative data or when these data are not available.
  - The list includes growers, roadside and farmer markets, U-pick sales, grower auctions, dealers, packers, commodity marketing associations, producer co-ops or market orders.
  - Other sources include terminal markets and packinghouses.
  - Maintain current and complete list frame, to help manage the variability within different vegetable industries and localities. Priority given to maintaining complete coverage of the largest growers and buyers.
- Maintain an up-to-date list of processors to represent plant door pricing.
  - Processor sources include canners' and freezers' associations, trade journals, State licensing boards, and health inspection records.
- Federal/State Market News Service provide sufficient coverage for major producing areas during the primary marketing season.
  - Maintain a list frame to conduct a survey when no administrative data and/or when administrative data needs strengthening.



## Frame Maintenance

NASS focuses on regular frame maintenance to maintain current and complete list frames to obtain complete coverage resulting in reliable indications for setting accurate official estimates. The following Prices Received commodity groups follow the same frame maintenance process.

- Livestock and Livestock Products
- Poultry and Specialty Commodities
- Field Crops
- Fruits and Nuts
- Commercial Vegetables

NASS reviews and updates the list frame universe for the five commodity groups using the following procedures:

- Annually and prior to the sampling cycle, review and update frame with new and existing records and control data.
  - Review established lists checking for omissions, name changes, mergers and consolidations.
  - Add new plants.
  - Add new products by established plants.
  - Update record profile type information identifying plant closings (both temporary and permanent), and any contact changes.
- Check for duplication between list frame units at least once a year
- Process survey data and list frame control data through a NASS sampling application.
  - During the annual sampling cycle, these data are processed through the sampling application with the most re-

cent/largest control data selected for each associated list frame record.

- Update control data for use in selecting the Prices Received samples for the next survey year.
- Add new control data to list frame records.
- Directly after program surveys are completed, NASS manually updates name, address, status codes, and control data. Surveys occur on a weekly, monthly, quarterly, annual or intermittent basis.
  - Manually updating records through a NASS database application. Name, address, status code and other data from surveys are entered one record at a time. Data from new lists received in non-electronic form follow the same process.
- Collect control data through NASS program surveys and the list maintenance surveys. Records with control data become eligible for survey sample selection. Survey control data are captured to list frame records through automated or manual means.
- A resolution application that processes databases obtained through list building efforts.
  - After duplication between the list frame and the outside database is removed, new records automatically get appended to the list frame data base.
  - New list frame records cannot be used for surveys unless the appropriate status code and control data are present.

## Sample Design and Selection

A sample process is utilized for field crops, milk, and honey. Other Livestock and Livestock products use administrative sources and State Field Offices (FO) determined agribusinesses. Fruits & Nuts and Commercial Vegetables use administrative sources and survey growers for MYA data and monthly revisions.

***Livestock and Livestock Products.*** No Headquarters (HQ) sampling for Livestock and Livestock products except for milk.

Milk production estimates are made for all fifty States. There are currently twenty-three States in the monthly estimating program covering 93 percent of the total milk production. All other States are estimated quarterly (January, April, July, and October). State coverage is reviewed every five years after the Census of Agriculture. The milk survey uses a stratified random sample within a State based on the size of the operation. Sample sizes are based on historical response rates, number of milk operations, and coefficients of variation (CVs).

***Poultry and Specialty Commodities.*** No HQ sampling for poultry and specialty commodities except for honey. Mink, catfish, and trout are completely enumerated annually.

Bee and honey data are sampled in all 50 States. Beekeepers must have more than five total colonies to be in the population. The sample is stratified by number of colonies, a honey producer indicator, and a multi-State operation indicator.

***Field Crops.*** Thirty-seven States are sampled across six groups of commodities: grains, oilseeds,

pulse crops, peanuts, cotton, and hay. Table 2.1 shows the list of States by the commodity groups.

***Cotton.*** Seventeen States are sampled for the upland cotton survey. The sample cycle begins in September. Seven States are sampled for the annual survey. The seven States involved are Florida, Kansas, New Mexico, Missouri, Oklahoma, South Carolina, and Virginia. Ten States are sampled for the monthly survey. The ten States are Alabama, Arizona, Arkansas, California, Georgia, Louisiana, Mississippi, North Carolina, Tennessee, and Texas.

The number of bales of cotton produced by the universe operator is the primary stratification variable for the 17 States. One stratum is for extreme operators which are sampled with a probability of one because of their importance. Table 2.2 shows the strata used for cotton by the States.

***Feed Grains and Oilseeds.*** NASS samples feed grains and oilseeds together on the grain survey. The sample cycle begins in October. Thirteen States are sampled for feed grains and oilseeds. The 13 States are Illinois, Indiana, Iowa, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, North Carolina, Ohio, Pennsylvania, Tennessee, and Wisconsin.

The stratification for each State is unique to that State. The commodities within the State determine the strata. Stratification is based on the storage capacity of the facility and elevator type. Specialty elevators are stratified to insure adequate coverage for rare commodities. Table 2.3 shows the types of elevator indicators for stratification.

*Small Grains and Pulse Crops.* Nineteen States are sampled for small grains. The sample cycle begins in July. The 19 States are Arizona, Arkansas, California, Colorado, Idaho, Kansas, Michigan, Minnesota, Montana, North Dakota, Nebraska, New York, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming. All the States except Nebraska are sampled for pulse crops.

Like feed grains and oilseeds, the stratification for each State is unique to that State for small grains and pulse crops. The commodities within the State determine the strata. Stratification is based on the storage capacity of the facility and elevator type. Specialty elevators are stratified to insure adequate coverage for rare commodities. Table 2.3 shows the types of elevator indicators for stratification.

*Peanuts.* Seven States are sampled for peanuts. The seven States are Alabama, Florida, Georgia, New Mexico, North Carolina, Texas, and Virginia. The sample cycle begins in August. Data for Mississippi, Oklahoma, and South Carolina are collected by other States.

Prior to any data collection operations, State FOs compare the peanut buyers with Farm Service Agency (FSA) known buyers. Go to <http://www.fsa.usda.gov/FSA/> for more information about the FSA.

*Fruit and Nuts.* No sampling is conducted from HQ for fruit and nuts. Administrative data is used to establish price estimates.

*Commercial Vegetables.* No sampling is conducted from HQ for commercial vegetables. Administrative data is used to establish price estimates.

*Coefficients of Variation by Reference Months for Sampling Process.* Target coefficients of variation (CVs) are specified for the U.S. for selected months, where the U.S. is defined to be the States in the Prices Received estimating program for a specific commodity. These months were chosen based on their relative ability to monitor survey performance. The target CVs are for the re-weighted ratio price estimator from the list frame. Table 2.4 shows the target CVs by commodity and reference month.

*State Level Sample Size.* Once a U.S. sample count is determined, NASS uses CVs defined at the stratum level within the State to calculate the sample size at the State level. The stratum level CVs within the State are loosely defined. Then NASS adjusts the State allocations (if needed) to assure the CVs meet the U.S. target level.

Year to year samples at the State level are fairly consistent. If the target CVs at the U.S. level are not met, then the sample sizes are increased in states with high CVs. Likewise to maintain reasonable sample sizes, if a sample consistently maintains a low CV, the sample size for that state is lowered.

NASS follows a work schedule for each commodity. State FOs are notified by HQ when the sample process is complete. The State FOs can then begin sample preparations for data collection.

## Questionnaire

Under provisions of the Federal Reports Act, all federally funded survey questionnaires must be cleared in advance by the Office of Management and Budget (OMB) and must carry an OMB approval number and expiration date. New questions, questionnaires, and/or requests for revisions in present questionnaires are submitted to the Questionnaire Design Section at least 6 months prior to the scheduled use of the questionnaire along with appropriate “supporting statement”.

Monthly and annual master questionnaires contain the questions approved by OMB. A check sheet sometimes accompanies the master questionnaires mailed to each State FO indicating the questions approved for a particular State FO and the month(s) each question is to be used. Some questions are specifically approved for a particular State FO and are so noted. All other questions may be used in any State, provided approval is obtained from the Questionnaire Design Section. All questionnaires whether HQ or State FO generated must use the question wording contained on the master questionnaire.

Paper forms or computerized instruments (CATI, CAPI) are used for collecting data. The questionnaires and computerized instruments include an introductory paragraph about the importance and need for the data being collected. This introduction also informs the respondent of the confidentiality of the data provided and that response is voluntary and not required by law.

Questionnaires are used to collect information from respondents. NASS uses paper forms or computerized instruments like CATI or CAPI for this purpose. CATI and CAPI are computerized assisted interviewing techniques using telephone or personal interview, respectively. The questionnaires and computerized instruments include an introductory paragraph about the importance and need for the data being collected. This introduction also informs the respondent of the confidentiality of the data provided and that response is voluntary and not required by law.

A general questionnaire once used for a number of commodities is no longer adequate for estimating prices received by producers. Specialized inquiries are now used for most farm produced commodities. Price data alone do not provide sufficient information to adequately estimate prices for most commodities. Information on quantities and uses are also needed for developing reliable weighted average prices at State and National levels.

The State FOs design questionnaires for commodities in fruit and nuts and vegetables specific to their State. For other commodities, NASS prepares a master questionnaire for distribution to the State FOs. Questionnaires are prepared for the five commodity groups: livestock & livestock products, poultry & specialty commodities, field crops, fruit & nuts, and vegetables.

***Livestock and Livestock Products.*** NASS does not conduct data collection activities for livestock. NASS obtains livestock data from AMS. For livestock products such as milk and honey, questionnaires are prepared for data collection activities. Agency policy is followed when using Administrative or outside data sources. See the Use of Administrative Data Section of this chapter for details.

***Milk.*** NASS conducts monthly and quarterly milk production surveys collecting information on the number of milk cows, number of cows milked, and total milk produced. Each State Field Office also conducts milk price inquiries either by contacting dairy programs at State agricultural offices, Agricultural Marketing Service (AMS), or non-government sources.

NASS prepares a master questionnaire for use by all the States in the milk production program. The reference date for the monthly or quarterly milk production surveys is the first day of the month or at the beginning of a quarter. The quarters include January, April, July, and October.

The State FOs collect two grades of milk, fluid grade and manufacturing grade. Within each grade, information about the quantity of milk produced and price received are collected. The milk price inquiries conducted by the States use a month as the reference period.

***Poultry and Specialty Commodities - Honey.*** NASS prepares a master questionnaire for use by all program States. December 15<sup>th</sup> is the reference date for honey stocks in the Bee and Honey survey. All other questions use the calendar year as the reference date. To prevent duplication across States, data for operations within a State are collected for all States individually. Data for production including number of bee colonies, pounds of honey harvested for sale, and total dollars received are collected.

Sales of honey are by four color classes. The Pfund scale expressed in millimeters is a scale used in the honey industry to describe the color of honey. Color is not a factor in grades of honey in the U.S. but the color description which accompanies the grade. August Herman Pfund, American physicist, discovered the hydrogen Pfund lines used in the scale to measure color classes. Table 2.5 shows the color classes. Specialty areas include sourwood, tupelo, and buckwheat.

The pounds of honey produced and dollars received from sales are by marketing channels. The four marketing channels include sales to cooperatives, sales to private processing companies, wholesale, and retail.

***Mink.*** The Utah and Wisconsin FOs handle the distribution of questionnaires and the data collection for mink. Prices are collected at the first point of sale before marketing costs are deducted. Other data collected include sales of pelts by color class by State, number of farms, females bred, and value of mink pelt production. The questionnaire lists the colors by trade names known in the industry. The trade names are categorized by color class during the editing process. Table 2.6 shows the color classes by trade names.

*Catfish.* States in the catfish program are Alabama, Arkansas, California, Louisiana, Mississippi, North Carolina, and Texas. Data collected include number of farms, water area devoted to production, number, pounds, and value of catfish produced, point of first sale, and inventory by size of fish. Table 2.7 shows the size categories.

*Trout.* Trout includes all freshwater species of trout as well as sea run trout and steelhead that are raised in a controlled environment. Fish caught in the wild are excluded. Data collected include number of farms, inventory by size, pounds, and value of trout produced for trout sold and distributed for restoration, conservation, or recreational purposes. Table 2.7 shows the size categories.

**Field Crops – Cotton.** NASS prepares a master questionnaire for use by States in the monthly and annual cotton surveys. Two versions of cotton questionnaires are used, one version for private merchants and the other for cotton cooperatives. Private merchant questionnaires collect cash purchases, contract deliveries, and cotton under loan acquired from producers by option payment. Cooperative questionnaires gather data for pool marketings and cash purchases. The monthly survey uses the first half of the month as a reference period for mid-month data and the previous month as the reference period for full month data.

Questions in the survey include number of bales, average price in cents per pound for cash purchases and contract deliveries, and type of cotton. The two types of cotton produced in the U.S. are Upland cotton and American Pima cotton.

*Grains (except Rice), Pulse Crops, and Oilseeds.* NASS prepares a master questionnaire for use by States in the monthly grain, pulse crops, and oilseed survey. The monthly survey uses the first half of the month as a reference period for mid-month data and the previous month as the reference period for full month data.

Questions in the survey include quantity purchased, average price purchased in dollars, and the total value received for the type of grain, pulse crop, or oilseed. The respondent specifies the unit of measure for which the commodity is purchased. There are four units of measure, bushels, pounds, tons, or hundredweight.

Price data for corn, wheat, oats, barley, soybeans, sorghum, and proso millet are collected monthly. Corn includes yellow and white corn. Wheat includes winter, Durum, other spring, hard red winter, soft red winter, and white. Barley includes feed and malting barley. Price data are collected for pulse crops, including lentils, dry edible peas, chick peas, Austrian winter peas, and wrinkled seed peas.

Price data are collected for oilseeds, including canola, flaxseed, mustard seed, rapeseed, safflower, soybeans, and sunflowers. Sunflower types include oil and non-oil.

*Rice.* NASS prepares two master questionnaires for rice, one for cooperatives and one for private merchants. Both surveys use the first half of the month as a reference period for mid-month data and the previous month as the reference period for full month data. All States in the rice estimating program submit rice prices monthly.

Prices for the three types of rice - long, medium, and short grain - are collected for both questionnaires. The questionnaire for cooperatives allows respondents to report an "all rice" price.

Questions in the private merchant survey include quantity purchased and total dollars paid for the three types of rice. The respondent specifies the unit of measure used. There are three units of measure: bushels, barrels, or hundredweight.

Questions in the cooperative survey include quantity shipped and average value per hundredweight in dollars and cents for the three types of rice. Items to be deducted from the reported price are government payments, storage costs, losses from hedging, interest expenses, and handling and processing until the product is sold. Items included in the price are interest income, gains from hedging, storage income, capital retains from rice marketings, producer check-off fees, and transportation costs prior to the cooperative acquisition.

*Peanuts.* NASS prepares a master questionnaire for use by States in the weekly peanut survey. The survey includes all known peanut buyers. The weekly survey uses the previous week as the reference period and each week, the previous three survey periods are open for revision. All ten peanut-producing States are included on the weekly survey.

Questions in the survey include pounds purchased and dollars paid for the purchase, by type of peanut. There are four types of peanuts in the survey: Runner, Spanish, Valencia, and Virginia. Purchases and dollars paid are broken into two categories: peanuts under loan acquired from

producers by option contract and peanuts acquired from producers by transactions other than an option contract (direct cash purchases and direct marketing contracts). Discounts for quality factors, transportation charges from farm to buying points, and freight differentials are deducted from the weekly gross value of purchases from producers. Premiums for producers delivering the peanuts and quality factors are added to weekly gross value of purchases. Options for peanuts redeemed from CCC loan and seed bonus for peanuts redeemed from CCC loan are also added to the gross value of purchases from producers.

There is no monthly survey for peanuts. Quantity and price recommendations for the previous entire month and current mid-month are generated based on the weighted averages from the weekly survey.

*Fruit and Nuts.* No master questionnaires are prepared by Headquarters and distributed to the States for prices of fruit and nuts.

*Commercial Vegetables.* No master questionnaires are prepared by Headquarters and distributed to the States for prices of vegetables.

## **Data Collection**

Grain Prices Received surveys are primarily self administered (mail, fax, EDR). Electronic Data Reporting (EDR) through the Internet begins on the first business day of the month for States that use check data for their mid-month prices and begins on the last day of the mid-month reference period for States that use survey data for mid-month prices. Grain Prices Received surveys be-

gan using EDR in July of 2005. The price data collected from producers and agribusinesses are confidential and responses are voluntary. Live-stock price data are collected through AMS which include statistics compiled by Agricultural Marketing Service / Market News Service (AMS/MNS).

Each State FO prints the questionnaires made available from NASS Headquarters. NASS uses a standardized questionnaire to ensure that data is comparable across States. State FOs submit any questionnaire changes to NASS for approval. Paper questionnaires are kept identical to the EDR version. States and NASS Headquarters work together to have concise and efficient instruments to collect statistically sound data.

Several State Field Offices collect data via their office fax number. The fax number appears on all questionnaires. Each year respondents receive a letter explaining the importance of the Prices Received surveys and stresses the use of the fax phone number as well as the EDR option for questionnaire submission.

State FOs collecting data for another State FO forward them to the State FO to which the data pertains. Instruction cards on how to complete the paper questionnaire or the EDR version get included to insure consistency across questionnaires.

Phone enumeration follow-up is used to ensure a good response rate and survey coverage. Field enumeration is used when requested by the respondent and for those who are reluctant to participate.

State FO editing adjusts questionable data prior to key entry when respondent information is not clear. A call back is made to verify the validity of the data. Justification codes and comments show the reasons for the data changes and who authorized the change.

Enumerators verify questionable data while conducting a telephone or field interview. Enumerators ask probing questions about ambiguous data. Enumerators post written validation comments for any questionable data revised or verified to be correct. For example, when an organic operation reports an extremely high price, the enumerator writes a comment to support why the response is valid.

Prices Received data is never imputed any time during the data collection or data review process. Missing data can be coded in the following circumstances:

- A respondent reports data for one commodity, but data for a second commodity seems unreasonable., the good commodity data can be used by coding the unreasonable data as missing.
- A report with suspect data can have the data cell coded as missing and later submit the valid data as a late report.
- A respondent reports corn and soybean data but does not know the wheat purchases. A missing data code is valid for the wheat cells.
- A respondent cannot report both the quantity and dollars for a commodity (i.e., knows the quantity but not dollars or vice versa). A missing data code is valid for the unknown data.



Rice and peanut price surveys contact all known buyers. Inaccessible or respondent refusal reports are edited based on prior knowledge of the operation and other completed operations of similar size. Outlier data verified by the respondent is coded to be included as reported.

Respondents have the option of reporting in bushels, pounds, tons, or hundredweight (cwt). The computer edit converts the reported unit to the standard published unit of bushels for feed and small grains and cwt. for most oilseeds and pulse crops.

*Honey Data Collection Process.* The collection of honey price data differs from the collection of price data for other commodities. Honey price data is collected by Data Collection Centers (DCC) and estimated in Estimation Centers (EC). Honey quantity data are converted from pints and quarts to pounds during data collection.

In 2006, the data collection and estimation activities for the Bee and Honey Inquiry survey were consolidated regionally, with one DCC and four EC. In 2009, two DCCs began data collection activities. The Bee and Honey Inquiry survey collects prices for the current and previous year honey crops marketed in the current calendar year. There is a Wyoming Data Collection Center (WY DCC) and an Arkansas Data Collection Center (AR DCC). Florida, Wisconsin, North Dakota, and California have an Estimation Center. The Bee and Honey survey covers all States except Puerto Rico. Table 2.8 shows the relationship between the DCCs and ECs and the States covered by each.

The WY DCC is responsible for the following:

- Receive data collection method codes from all Client States (CS).
- Transmit data collection method codes to Print Mail Center.
- Transmit data collection method codes to the AR DCC in preparation for follow-up phoning.
- Process all mail returns and paper forms for all Client States.

All paper forms held and completed by CS will be sent in to the WY DCC for check-in, processing, keying, scanning, and loading to the NASS developed edit and analysis tool. The following processes are completed.

- Load national sample to EDR.
- Transmit final EDR codes back to all Client States to use in data collection.
- Process all EDR data for the nation, load into Blaise and transmit EDR data to EC.
- Phone follow-up for West & West Central EC regions.
- Transmit daily check-in files to the AR DCC.
- Transmit data daily to the EC for editing.

Before data collection begins, the WY DCC processes all CS data collection method codes for each record. Each State field office assigns a data collection method code for each record in their sample, and transmits these to the WY DCC. Before phone follow-up begins, the WY DCC transmits data collection method codes to the AR DCC which assists with the telephone follow-up.

The WY DCC is responsible for submitting to the Print Mail Center, the U.S. file for all States containing name and address data for potential mail respondents. The WY DCC is responsible for submitting final EDR codes back to all States so they can offer EDR to those respondents they wish to hold and mail themselves. The States must not mail before the final EDR codes are received from the WY DCC.

The AR DCC is responsible for the following:

- Phone follow-up on East and East Central EC Region.
- Transmit data daily to the EC for editing.

The AR DCC receives a daily check-in file from the WY DCC of mail and EDR receipts, to facilitate management of Computer Assisted Telephone Interview (CATI).

## **Use of Administrative data**

External survey data and administrative data are used by NASS to measure the performance of Agency surveys and, in some cases, to set official estimates. Evaluation of external and administrative data occurs before use in the estimation process. The use of administrative data to set official estimates is valid under NASS policy providing the differences including reliability, coverage, and definitions are understood and documented.

The following four areas are evaluated and documented before the administrative data is used to establish price estimates.

**Frame Maintenance.** Define and evaluate the universe represented by the external and administrative data in order to:

- identify differences between that universe and the target population used in NASS indications and estimates,
- ensure the universe is current,
- determine the degree of incompleteness,
- identify the potential for duplication within the universe,
- recognize potential maintenance problems, and
- determine whether a census or sample was used.

**Data Collection.** Review the conditions under which the data are collected to determine whether:

- the data supplied by the respondent are voluntary or required by law,
- data represents Point Of First Sale prices; therefore no NASS surveys or adjustments are needed,
- the forms used to collect the data are well designed and worded in such a way that accurate data are obtained,
- the terms and definitions used are consistent with those used by NASS in developing its indications and estimates,
- the reference date, survey period, cut-off dates, and time of release are adequate for comparison with NASS data,
- the method of data collection is identified,
- potential nonsampling errors are identified and minimized,
- follow-up methodology for refusals and inaccessible units is used, and
- the actual coverage approached the targeted coverage.

**Data Validation and Summary.** Review the handling of data after data collection to determine:

- what validation procedures and edit checks are used,
- how refusals and nonrespondents are treated and what imputation procedures are used in the summary process,
- how invalid data are handled,
- how the data are expanded and/or summarized,
- how sampling errors are estimated when sampling is used,
- how outliers or unusual data situations are identified and handled in the summary,
- if data are correctly updated when errors are found, or if later period totals are adjusted to account for corrections and late reports.

For some commodities, administrative data may be incomplete. In these cases, survey data are used to revise price estimates. For example, the January Sheep & Goat and Mink surveys are used to revise wool, mohair, and mink prices, respectively. Government program support is provided if the average price received by all producers for shorn wool marketed during the year is below the support price. Producers need to be surveyed because program participation is incomplete and may not reflect an accurate market price.

The 2008 farm bill (P.L. 110-246, Title I, subtitle B) provides wool and mohair producers with nine-month nonrecourse marketing assistance loans and loan deficiency payments for crop years 2008-2012. Producers who obtain nonrecourse loans pledge their crop as collateral and can forfeit their crop in full payment of the loan. USDA determines the loan repayment rate based on either the lesser of the loan rate plus interest, or a rate that will limit loan forfeitures, stock accumu-

lation, and storage costs, and will allow competitive marketing of the commodity. Producers who agree not to take out a loan can receive loan deficiency instead. The loan deficiency payment rate is the difference between the loan rate and the repayment rate.

**Data Quality and Consistency.** Determine the overall quality of the administrative series by:

- reviewing the nonresponse rate for impact on both the overall level and the change in level between reporting periods,
- examining year-to-year procedures to verify consistency of the data over time, and
- identifying and documenting quality control procedures.

State directors and Statistics Division branch chiefs have the responsibility for ensuring that the above factors are used to the extent possible to evaluate and document all external surveys and administrative data used in the preparation or review of official estimates. Documentation of national or multi-state data will be prepared by the appropriate Headquarters branch and then placed in the estimation manual where it will be available to all State Field Offices (FOs). Documentation of data used in individual States will be prepared and maintained by the FO. Similarly, a State field office's reasons for not using data provided by Headquarters should be documented in the FO.

## **Edit, Analysis, and Estimation**

USDA's National Agricultural Statistics Service (NASS) estimates monthly prices received for about 60 major crop and livestock commodities and market year average prices for an additional 35 items. Market year average prices are made for States where sample surveys or administrative data

do not allow monthly estimates because of limited marketings.

The concept used to estimate prices received by producers is a price if multiplied by the total quantity of a commodity sold would give the total amount received by all producers for that commodity. The estimated price reflects prices received by producers for all classes and grades of the commodity being sold, including quality premiums or discounts. Estimates generally relate to prices producers receive for their products at the point of first sale, usually a local market, or the point to which producers deliver their products.

One of the primary uses of the price data is to value commodities marketed and develop estimates of income to agriculture, which are part of the national income accounts. For the result of multiplying quantity sold by price to be meaningful in terms of cash receipts, the price must represent the average of all grades of the commodity sold.

The various series of prices received by producers include monthly prices for most major agricultural commodities, market year average prices for all commodities having production estimates, prices by utilization for milk, fruits, and vegetables, and prices by States for most commodities and by specific area for a few commodities.

Equivalent returns are when adjustments are made in actual prices to shift to a point of sale different from the reported one. An example is free on board (FOB) shipping point to packing-house door. Equivalent returns by location in the marketing channel for citrus fruit, and December 1 or January 1 inventory values for livestock and poultry.

State preliminary month (mid-month) prices are weighted by historic average marketings by month to determine the U.S. preliminary prices. For commodities that have multiple types (classes), such as hay, sunflowers, and wheat, historic average marketings by type (class) are used as weights. An “All” price is calculated for these commodities using historic average marketings.

Estimates of prices for major crops are based on data from probability sample surveys of firms that purchase directly from producers. Prices for commodities such as fruits, vegetables, and livestock come primarily from market check data or producer and buyer reports. See Table 2.14 for a summary of estimates by selected commodities.

**Monthly Prices.** Preliminary month (mid-month) price estimates reflect prices based on data reported for the first 2 weeks of the month or at the middle of the month, generally the 13<sup>th</sup> through the 17<sup>th</sup>. Preliminary month prices are subject to revision the following month when data for the entire month becomes available. Entire month prices represent a weighted price based on associated reported marketings or purchases.

Reported “average” prices may not reflect the actual proportion of sales by various end uses and method of sale. Available price and quantity data by utilization are used to weight the price for each method of sale or utilization by the appropriate quantity sold.

**Market Year Average Prices.** Commodities include varying months in their market year. See Tables 9 through 13 for the months in the commodity market year. Only a market average price is estimated for States where monthly marketings are not adequate to obtain reliable prices using sample surveys. For commodities having only

MYA prices, no monthly prices are estimated. The U.S. prices for those commodities are determined by weighting each State's price by its production. In other words, the sum of the value of production for each State divided by the U.S. production yields the U.S. MYA price. The weighted product of prices and monthly marketings represent market year average prices. For poultry, eggs, and hogs the 12 month marketing year begins with December. The calendar year provides the 12 month marketing year for other livestock species and products.

Sales during the marketing season weight monthly prices to derive at the market year average price for crops. For a given crop the market season for a State is the 12 month period beginning in the month in which harvest is usually actively underway. See tables 9 through 13 for crop market years.

In some years, the Government acquires ownership of agricultural commodities under price support or income programs. Market year prices include an allowance for the value of the quantities acquired by the Government, but monthly prices are not adjusted to include this allowance. For some commodities, the Government makes supplemental payments on all or a part of the actual production, or potential production. These payments, such as deficiency payments for grain, are not included in monthly or market year average prices. The payments are shown under "Government payments" for farm income calculations.

**U.S. Prices.** The U.S. monthly and annual prices for all commodities are derived from weighting State prices by their respective sales. Estimates of quantities sold in each State during the month provide the weights for computing the monthly prices. The quantities sold changes each month, especially for crops which have seasonal marketing patterns. The relative weight for each State in the computation of the U.S. price varies from month to month. Price level differences and shifts in weights between States may change the U.S. price more or less than the sum of changes for individual States. Other factors influencing changes in the U.S. price include commodity quality, shifts in utilization, change in type of commodity marketed, relative importance of old and new crops, and importance of contract deliveries.

**Price Revisions.** Published prices are subject to annual revision if additional data become available. Revisions of monthly prices get published at scheduled times. The December issue of *Agricultural Prices* contains this schedule in the index of special features. Monthly price revisions generally occur during the setting of market year average prices. Livestock and poultry market year average prices get set after the market year is complete. Preliminary market year average prices get published prior to the end of the market year for most crops. Except for cotton, preliminary market year average prices are based on monthly prices to date with an estimate for the remainder of the season. Forecasting of cotton prices is prohibited by law.

The monthly prices or other indications for the entire year are included in the averages when the market year is over. End of season average prices are subject to further revision the following year or in the five year review. In this review very few prices get revised. Revisions, however, in the production, sales, or utilization estimates do occur. These revisions result in changes

in the U.S. prices. Estimates become final with no further revision following the five year revision review.

***Methods of Computation, Summarization, and Estimation.*** NASS uses both probability and non-probability surveys, each of which has its advantages. A textbook definition of a probability survey is that every element in the population has a chance of being selected. A population is a well-defined collection of all the items to be surveyed. In the population of all licensed grain elevators in a State, each elevator is an element of the population. The target population tries to be specific about who belongs to the population, and "licensed" achieves that for the population of grain elevators. For separate surveys of catfish producers and rice farmers, a grower who raises and sells both belongs to two populations.

In a probability survey, each operation must have a chance of selection. When data are obtained from every operation the result is a census of the population. In other words, for a census every operation in the population is in the survey. For a probability sample, every operation in the population has a chance to be in the survey. The probability survey will estimate the same farm characteristics as the census but will only survey a subset of the population chosen by chance.

With only a subset of the population chosen for a probability survey, each interview is vital because many other elements of the population are represented by that one interview. The sample weights are used to expand the individual responses up to an estimate for the entire population. A sample weight of 293 means that one respondent in the probability survey represents 293 operations in the population.

A non-probability survey is any survey which does not conform to the definition of a probability survey. For example, NASS usually tries to pretest new procedures before their adoption into the operational program. Rather than use a random sample for the pretest, NASS will often use a preselected set of producers in a few specified States because these interviews are likely to expose as many potential problems as possible in the proposed procedures. NASS uses non-probability surveys for needs such as crop weather, monthly dairy, off-farm grain stocks, cattle on feed, crop yield, and many commodity price surveys.

If it is reported there are 4.7 million acres of corn for grain, how much confidence is there in that estimate? A unique feature of an estimate from a probability survey is that a measure of the precision for the estimate is available. In other words, a measure of how much the estimate might "deviate" because a sample was used rather than a census.

The precision of probability estimates is measured by the standard error. The major indication from a probability survey is usually the direct expansion of the data reported by each respondent. Although NASS usually incorporates several indications before releasing an estimate, a direct expansion could be published as an estimate. Data users could then draw their own conclusions in comparisons with previous indications.

The indication from a non-probability survey is usually judged in relation to a previous month's or year's indication before an estimate is published. The indication is not expected to stand alone but instead to show the change that has occurred. Thus, there is a great reliance on seasonal cycles or changes from a base period. An example

is the Monthly Dairy Survey where producers who return the January questionnaire become the group which is tracked from month-to-month during the year. Thus, non-probability surveys rely heavily on being able to model the relationships from one-time period to another. The probability surveys tend to rely on direct expansions while non-probability surveys tend to rely on ratios or percent changes.

A complex set of procedures is used to ensure that each operation is defined to avoid duplicate reporting. Probability surveys usually require stringent follow-up procedures for producers who do not respond. An effort is made to convert refusals to meet Office of Management and Budget (OMB) standard of 80 percent response rate.

Non-probability surveys may be difficult and complex also, but they do not have to obey the requirements of a probability survey. Sometimes there is little or no follow-up required, and the survey process might be complete as soon as the questionnaires are received. Other times stringent follow-up procedures are required. It is more a subjective decision of how much effort NASS places on the survey. Probability surveys, however, are always required to have fairly stringent follow-up.

Probability surveys demand that procedures are followed exactly from statistician to statistician and from State to State. The surveys that NASS conducts nationwide tend to be probability surveys. NASS strives to ensure the same procedures are used in all States and Regional centers. In contrast, a non-probability survey may or may not have strict consistency requirements. NASS places strict demands on non-probability surveys.

The objective of any survey is to provide information on the characteristics of the population by examining a subset of the population. By analyzing the data from that subset, called a sample, estimates of population parameters such as means, totals, and ratios are determined. The goal of estimation is to analyze the characteristics of the population while recognizing sample limitations.

Sample surveys have two primary limiting factors, sampling error and non-sampling error. Sampling error is controlled by the sample design, especially the sample size. Non-sampling error causes a sample to misrepresent the true characteristics of the population. The sum of the sampling error and the non-sampling error defines the total error associated with a particular sample. This total error limits how much useful information can be obtained from the sample about the population.

The estimation process has two components, the estimator and the indication. The estimator is derived from the sample data using formulas. In other words, the formula(s) is the estimator and the actual number produced from the sample data is the estimate. NASS has created a variation on this terminology by using indication to refer to the number produced from the data and letting estimate refer only to the Board estimate, the official number that is set after reviewing all indications.

There are two types of indications in general use, point indications and interval indications. A point indication is a single value calculated from the sample data. An interval indication has two values to provide upper and lower bounds on the population parameter. A confidence interval is an example of an interval indication. NASS uses point indications. Whenever coefficients of variations (CVs) are utilized, the indication is edging

toward the interval concept rather than the point concept.

The sample design can yield several estimators. Different estimators may be a better fit in certain situations. The Board process is a tool used by NASS to evaluate multiple indications along with available administrative data to produce an official estimate. The Board process considers the relative strengths and weaknesses of each indication.

State indications from survey and administrative data collected provide the framework for State recommended price estimates. The State's recommended estimates generally follow the average reported prices. If there is conclusive evidence that the sample is biased or incomplete, the State field office can make an adjustment to the indicated price estimates. In such cases, explanations for any adjustments are submitted to Headquarters along with data indications, administrative data, and recommended price estimates.

Commodity price estimates at the State and U.S. level are produced using NASS developed analytical and estimation tools. These tools provide a standard basis for establishing State and U.S. prices. The NASS developed tools for data handling, analysis, and generating State and National estimates. The tools populate commodity databases with survey and administrative data, provide a standardized framework for reviewing, analyzing, and establishing estimates. The tools also provide trend chart analysis, estimate validation, estimate tracking, and supportive comments for the estimation process.

In setting U.S. prices, analysis of State recommended prices and U.S. level indications

provide the framework for establishing a U.S. commodity prices. Some State recommended prices require adjustment in order for the State prices to weight to the national price level. The tool provides for a State rebuttal process of National Board changes to State recommended prices. The commodity operational data base maintains an official record of State submitted recommendations and Board estimates.

***Livestock and Livestock Products.*** Livestock estimates refer to cattle, milk cows, hogs, sheep, wool, and mohair. Estimates of prices received for meat animals refer to cattle, hogs, sheep, and lambs sold within a State. Registered or purebred breeding stock, and diseased or crippled animals are excluded. The source of data for meat animal prices includes data compiled by USDA's Agricultural Marketing Service.

Each month cattle and pig data are obtained from the Agricultural Marketing Service (AMS). AMS collects livestock data required by the Livestock Mandatory Reporting Rule Act of 1999 (The Act) as an amendment to the Agricultural Marketing Act of 1946. Livestock data covered under The Act are comprised of cattle, swine, and lambs. Cattle include cows, steers, heifers, and calves. Swine include hogs, barrows, gilts, and sows. Lambs include only lambs. The Act mandates the Secretary of Agriculture to produce national reports pertaining to the marketing of cattle, swine, and lambs.

Under The Act, certain livestock packers, processors, and importers, specifically those organizations meeting or exceeding volume thresholds established for each type of livestock, are required to report on a daily and weekly basis. The Act also establishes the format and content for the information to be reported. To comply with The



Act, AMS developed the Livestock Mandatory Price Reporting (LMPR) system. The LMPR provides timely, accurate, and reliable market information. Information about The Act is at <http://www.ers.usda.gov/Data/meatscanner/LivestockMandatoryReportingAct.pdf>.

USDA requires federally inspected processing facilities to comply with the LMPR reporting schedule if average annual slaughter over the preceding 5 years reached 125,000 head of cattle, 100,000 head of hogs, or 75,000 head of lambs. Any processing plant or person engaged in the business of purchasing livestock for purposes of slaughter must report to the AMS when purchases exceed any of these annual limits. The LMPR system requires cattle packers to report specific price and quantity information twice daily. Hog packers must report three times per day. Lamb processors must report once daily. All livestock packers supply a weekly summary.

AMS collects livestock data on a voluntary basis from facilities that are not required to report to the LMPR. The livestock data collected on a voluntarily basis include cattle, swine, and lambs as well as sheep and goats. The voluntarily collection includes quality of the meat, weight, and number of head.

AMS field office staff prepares electronic reports of agricultural market news activities. The AMS market news employee or reporter maintains a list of industry and trade contact information including names and telephone numbers. At the market locations, like auction markets, the reporters observe enough sales of each class to obtain a complete cross section of the trading. The reporters do not report strictly by tabulating observed sales. Reporters interview as many trade members, producers, distributors, and others as possible, be-

USDA, National Agricultural Statistics Service

fore, during, and after trading. The information gathered includes facility locations, demand, supply, movement of commodities, prices, number of livestock, and situations that would affect supply or prices such as weather conditions, insect damage, transportation problems, etc. Other information collected includes time of trade, discounts or premiums, volume, date of delivery, and weight. Demand may be described as “very good,” “good,” “moderate,” “light,” or “very light,” in relation to normal demand at each market. Terms for supply are “light,” “moderate,” and “heavy.” The reporters combine information obtained from the trade with the data derived from sales observed. Livestock that are “passed out,” “bid in,” or “buy back” at the auction are not used in the reports. Individual head sales that are more than \$1 above or below the bulk of sales are not reported. Weighted average programs are used for feeder and slaughter sections.

Prices received for milk cows includes only cows sold by producers for dairy herd replacements. Milk cow replacement prices are estimated on a quarterly basis in January, April, July, and October in the twenty largest milk producing States. All 50 States estimate a market year average (calendar) price in January. Annual wool and mohair prices represent yearly producer sales.

Quarterly milk cow replacement price estimates are set using four indications:

- Ratio to Base;
- Direct Expansion;
- Ratio to Previous Quarter; and
- Unexpanded Average.

The January sample size is increased to provide sound base period estimates and future

ratio to base indications for the smaller samples used in the other three quarters. The four previous quarter milk cow replacement price estimates are reviewed and revised in January each year. New or additional data support any needed revisions.

Administrative data used for estimating livestock specie and product prices must be consistent and meet definitional requirements. Meat animal prices are rounded to the nearest dime for prices less \$100 per cwt and to the nearest dollar when equal to or greater than \$100 per cwt. Milk cow prices below \$1,000 per head are rounded to the nearest five dollars and to the nearest 10 dollars when \$1,000 or greater per head. Wool and mohair prices are rounded to the nearest penny.

Estimates for hogs and cattle require classes of prices along with weights to derive a total price for each month and preliminary month estimates. Monthly meat animal prices for the past two calendar years are reviewed and revised if any additional or new data supports the price revision.

The weighted average price received for fluid or manufacturing grade milk sold during the calendar year is the MYA price. The U.S. MYA price is calculated by weighting each State's MYA price by the total pounds of milk marketed from each State. At the State level, each month's fluid or manufacturing grade price is weighted by the monthly marketing percents for each grade. The pounds of milk purchased from milk producers by milk processors in each month divided by the total pounds purchased from milk producers during the year provides an indication of the monthly marketing percentages. For each month, the percent fluid grade and percent manufacturing grade are estimated based on the quantity of each grade purchased by milk handlers and processors. For each State, the monthly all milk price is calculated by

weighting the monthly fluid and manufacturing grade prices by the monthly percent fluid grade or percent manufacturing grade. The MYA all milk price for each State is weighted by the all milk monthly marketing percentages.

***Poultry and Specialty Commodities.*** Poultry estimates refer to eggs, broilers, and turkeys. The source for poultry prices includes data compiled by USDA's Agricultural Marketing Service. See the Use of Administrative Data section for details.

The honey MYA price is a weighted average based on actual reported sales of honey. At the U.S. level, prices are published by class and marketing channel. At the state level, an all price is estimated. Table 2.5 shows the classes.

The U.S. mink MYA prices is a weighted average based on actual mink pelt sales from major auction houses. At the State level, an average price is estimated. Prices are collected at the first point of sale before marketing costs are deducted.

The catfish and trout Market Year Average prices are weighted averages based on actual reported fish sales. U.S. and state level prices are published by size category. Table 2.7 shows the size categories.

***Field Crops.*** State monthly Prices Received estimates originate in the State Field Offices (FO) except for tobacco. No monthly commodity price estimate is made when sales account for less than 0.5 percent of total market year sales.

Prices producers receive for ten grain and oilseed crops (canola, corn, soybeans, oats, barley, flaxseed, wheat, grain sorghum, and sunflowers) are estimated using a weighted average from a monthly probability sample of more than 1,900 mills, elevators, and other buyers that purchase grain from producers in 35 States. States surveyed account for 90 percent of U.S. sales for each commodity. The probability grain price surveys began in 1977.

From the Grain Prices Received survey, the indications are:

- The full month expanded quantity is the total indicated amount of the commodity sold by farmers during the previous month. This indication is calculated by taking the reported quantity purchased for each reporting operation (buyer, elevator, etc.) and multiplying it by the expansion factor for the stratum and summarizing at the stratum and State level.
- The full month expanded dollars are the total indicated amount of dollars paid to farmers during the previous month. The expanded dollars are calculated by taking the reported dollars paid by each operation and multiplying by the stratum expansion factor for the operation. This data are summarized at the stratum and State level and used to calculate the full month price.
- The full month price is the weighted average price for a commodity for the previous month. The weighted average price is calculated by dividing the full month expanded dollars by the full month expanded quantity (unit value).

- The mid-month weighted price is the weighted average price of all reports that contain a mid-month price. The calculation of the mid-month weighted price is calculated differently than the full month weighted price. A straight average of the reported mid-month price is first calculated at the stratum level and then weighted by the full month expanded quantity to derive a State mid-month price indication.

Prices are for “open market sales” at first point of sale and do not include adjustments for CCC loans or government payments. These prices provide the basic component of market year average prices. The prices represent crops moving into the commercial channels for feed, food, and fuel. Crops purchased for resale as seed are excluded.

In February of each year, annual market year average prices and value of production for field crops estimates are published. The value of production is the product of the market year average price and its corresponding production. For crops having an “all” category such as hay and sunflowers, the “all” value of production will not equal the product of the “all” market year price and the “all” production for States that are in the monthly price program for those crops. The “all” value of production for these crops will equal the sum of the values of production by type.

**Cotton.** The probability cotton price survey, initiated in 1974 to provide more reliable data, gathers information on monthly marketings and ensures that all types of sales (including contract sales) are represented.

The universe of about 800 cotton buyers is updated annually and is used to develop a stratified random sample of buyers in major cotton-producing States. Bales reported on the sample survey normally account for more than half of the cotton production. Each month, a questionnaire is mailed to sampled cotton buyers. Nonrespondents are contacted by telephone or personally enumerated. The questionnaire asks for bales purchased and dollars paid for the first 2 weeks of the current month and bales for the previous month. Procedures for computing State and U.S. monthly prices and later revisions are similar to the grain and livestock surveys.

**Hay.** Estimates of prices received for hay are based on sales of baled hay on a per ton basis. Weights, however, are based on total sales which include baled hay, stacked hay, or loose hay, all of which are included in hay production estimates. Hay production consists of cured grasses, small grains, and legumes. Hay must be fully cured before utilization. Crops that are not fully cured and thus not included in production or sales include silage, green chop, and haylage. Alfalfa or other forage crops sold standing in the field, pelleted, or other forms are not included as hay, either for prices or sales. Sales of baled hay include all sizes of bales. Estimates submitted include (1) alfalfa and alfalfa mixtures, (2) other hay, and (3) all hay, as appropriate depending upon hay production estimates in each State. The "all" hay price is a weighted average of alfalfa and other hay estimates of price per ton, if the State has both types. Otherwise, the "all" hay price represents the alfalfa or other hay price, respectively. Every other year, the biennial survey of farmers will furnish data on monthly hay sales (weights) for revision purposes and computation of market year average prices. Monthly hay sales percentages are carried forward for the year not surveyed.

Estimates for the current month prices are considered a mid-month price. The estimates are based on sales by producers around the middle of the month or during the first half of the month and currently vary by State. Indications are derived from surveys of dealers, hay auctions, and other buyers or other commodity survey lists such as dairies or cattle feeders. Data sources in a given State will depend upon the importance of the marketing channel(s) in that State, availability of universe lists, and the need for more than one survey. States with very few hay dealers, for example, depend more heavily on surveys of those who purchase hay such as dairies or feedlots and the biennial survey to provide data on the proportions of alfalfa and other hay sold.

Administrative data, if available, may be used to derive a estimator. Administrative data, where quantities as well as prices are available for actual sales by producers, may be the sole indicator providing geographic coverage is adequate. Estimators are reviewed with particular attention to circumstances affecting changes in supply and demand and the relationship between alfalfa and other hay price levels. Administrative data used in estimators should be closely related to prices received by producers. These sources vary from State to State based on marketing channels commonly used.

Estimates of the percent of all hay marketed that is alfalfa hay and the percent of all hay marketed that is other hay are used to weight the component prices to the all hay price. Data available from the biennial survey allows weights to be based on sales rather than production.

**Tobacco.** Tobacco price estimates are set annually. Data are collected from growers in the Program States to set a U.S. MYA price. The estimation and publication program for tobacco prices received by farmers includes prices for each tobacco type, class, and all tobacco by State and U.S. There are no U.S. or State prices for tobacco published on a monthly basis. See Table 2.1 for the States and see Table 2.9 for the months in the market year of the tobacco program.

Preliminary market year average prices for the current year's crop include types grown in each State. When sales data are less than two percent of production, the average price estimated for the previous year's crop is used to compute value of production.

The tobacco buyout in 2005 eliminated the need for MNS auction and contract sales price data. MYA prices are based on a survey of growers, leaf dealers, tobacco companies, and other industry sources. Price and quantity weights are used from these sources in establishing tobacco prices.

**Fruit and Nuts.** Producers of fruits, tree nuts, and vegetables are usually concentrated in small, often scattered, production areas, and the number of marketing channels is limited. Price and quantity information is obtained from growers, marketing points, and processors.

In States where fruits, tree nuts, and vegetables are of major importance, prices are obtained separately for fresh market and processing sales, except for citrus fruits. Average prices of deciduous fruits sold for processing usually apply to bulk fruit delivered to processing plants. Most deciduous fruit sold by growers for processing changes

ownership at processing plants. Prices are also estimated for major uses, such as canning, drying, freezing, and crushing.

Reported average prices may not reflect the actual proportion of sales by the various end uses and method-of-sale categories. Thus, when price and quantity data by use are available, average prices for all sales are derived by weighting the price for each method of sale by the appropriate quantities sold.

For fruit, adjustments are made in prices to shift to a point of sale other than that at which the sale occurred (such as "f.o.b. (free on board) shipping point" or "packinghouse door"). These estimates are called equivalent per unit returns to growers and are usually calculated for two points of sale. Equivalent "packinghouse door" returns refer to the price for all fruit, regardless of method of sale, converted to a price at the packinghouse door. Equivalent "on-tree" returns refer to the price for all fruit, converted to a price that would be received if the fruit were sold on the tree. States converting to equivalent returns contact growers, handlers, and shippers to determine harvesting and marketing costs. In some cases, industry cost studies may be used. Based on historic data, conversion factors are established for calculating equivalent returns for the next marketing season. Use of more than one pricing point is determined by industry request and the need for parity computations for use in the administration of Federal marketing orders.

**Citrus Fruits.** The fruit crops in the monthly and MYA price programs are grapefruits, lemons, oranges, tangelos, and tangerines. The table below shows the monthly price estimating States for each commodity.

Commodity	STATE			
	AZ	CA	FL	TX
Grapefruit (all)		X	X	X
Grapefruit, white			X	
Grapefruit, colored			X	
Lemons	X	X		
Oranges (all)		X	X	X
Oranges, Valencia		X	X	X
Oranges <sup>1</sup> ,		X	X	X
Tangelos			X	
Tangerines	X	X	X	

x= monthly price estimating State  
<sup>1</sup>early, mid-season, Navel, and miscellaneous

Citrus fruit prices are set for the current month and are subject to revision at the end of the growing season and again at the end of the next growing season. Estimates and comments that document analysis perspective along with any supporting survey indications and administrative data used to track citrus fruit prices are entered into the citrus fruit analytical data base using NASS developed tools.

The analytical and estimation tools show relationships between survey indications and

board estimates. Seasonal price fluctuation and quantity marketed throughout the growing season are analyzed through the tool. Trend charts provide a useful review tool for analyzing survey prices. These charts show deviations from trends as the result of economic and weather related situations and help to determine validity of fluctuating prices.

Complete documentation is provided for every citrus fruit revision or preliminary estimate. Documentation comments are specific and include as many details as necessary to support the estimates.

**Noncitrus Fruit and Tree Nuts.** The fruit crops under the MYA price program are apples, apricots, avocados, bananas, blackberries (Evergreen, Marion, and other), blueberries, boysenberries, cherries (tart and sweet), cranberries, dates, figs, grapes, guavas, kiwifruit, loganberries, nectarines, olives, papayas, peaches, pears (Bartlett, all and other), , prunes and plums, and raspberries (black, red, and all).

The following shows the monthly price estimating States for each commodity.

Commodity	STATE										
	CA	GA	MI	NJ	NY	OH	OR	PA	SC	VA	WA
Apples	X		X		X	X		X		X	X
Grapes	X										
Peaches	X	X		X				X	X		X
Pears	X						X				X

x = monthly price estimating State

Noncitrus fruit prices are set for the current month and are subject to revision at the end of the growing season. Estimates and comments documenting the analysis perspective along with any supporting survey indications and administrative data used to track noncitrus fruit prices are entered into the citrus fruit analytical data base using NASS developed tools.

Complete documentation is provided for every noncitrus fruit revision or preliminary estimate. Documentation comments are specific and include as many details as necessary to support the estimates.

*Tree Nuts.* The tree nut crops in the MYA price program are almonds, hazelnuts, macadamia nuts, pecans, pistachios, and walnuts.

MYA price estimates are set along with acreage and production for publication in the January *Noncitrus Fruits and Nuts, Preliminary Summary* and the July *Noncitrus Fruits and Nuts, Summary*. MYA prices are first estimated for January following the year of harvest. The Walnut MYA price is first estimated for July following the year of harvest. Pecan prices are required for improved, native and seedling, and all pecans. All price estimates are subject to revision whenever production revisions are made. California uses handler surveys to estimate almond prices while pistachio and walnut prices are derived from grower surveys. The Federal Marketing Orders for these crops provide administrative data for production only; no price data are collected by the Market Order Administrators.

***Commercial Vegetables.*** Market News Service (MNS) FOB prices are used to set monthly prices. Occasionally, the point of first sale for commodity-  
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ties is not at the FOB level. In these situations, prices are adjusted for costs to arrive at the point of first sale. During the analysis and estimation process, the NASS price reflects the point of first sale price of all grades, sizes, and varieties being sold that month. Fresh market prices can fluctuate widely in a short time period. Price fluctuations generally result from unusual supply situations such as beginning or end of season shortages, weather induced shortages, or over-supply from large crops.

Unusually high or low price quotes during normal supply/demand periods are verified with the source. These high or low price quotes are generally associated with a very small quantity of unusually high or low quality produce or with a special class or variety. These prices are weighted to the total marketings the price represents. The average price is one which represents all grades and qualities sold.

Price estimates are weighted averages. Price and quantity are gathered by survey or from MNS. MNS publishes daily "mostly" price quotes and shipment totals for a number of markets. The "mostly" range contains the prices where most produce is being sold. The midpoint of the daily price range is weighted with the daily shipment data to calculate first half and full month FOB prices. When the point of first sale price is not at the FOB level, adjustments to the weighted FOB price are made. In the complete absence of weighted data, straight averages are calculated from quoted prices or from the midpoint of quoted price ranges. The "mostly" price ranges and price quotes for the container sizes most commonly used in the market are selected. Analysts must be knowledgeable of the commodity market and exercise good judgment when analyzing available indications to set a price.

**Market Year Prices.** Comprehensive administrative data and/or an end of year survey provide the indications for establishing MYA prices for commercial vegetables. Compilation and summarization of MYA price data are completed in FO's developed systems.

States with crops in the monthly price program submit monthly prices with monthly weights. The monthly weights must add to 100 percent and the weighted average of the monthly prices must equal the MYA fresh price.

**End of Season Monthly Prices.** The following example shows how the end of year monthly prices and weights are determined. In this example, more than 2 percent of the fresh market tomato crop in State A was marketed during July, August, September and October. The in season prices represent point of first sale level prices that were arrived at by adjusting FOB prices obtained from MNS. The end of year weights are also obtained from MNS shipments data accumulated throughout the marketing year and summarized at the end of the year. When applying weights to each month, the monthly weights (percents) must add to 100. The MYA price was obtained from end of season surveys or other data only available at the end of the year. An end of season survey is useful in collecting prices which become known only at the season's end. Contract prices are not know until the end of the season. So in many cases the in season monthly prices will have to be adjusted to arrive at the end of season MYA price. End of year surveys are conducted in States where the point of first sale for significant amounts of production is something other than the FOB.

Example: The in season monthly FOB prices were obtained from MNS and adjusted to arrive at an in season point of first sale price and submitted to HQ for the monthly Prices Received program. At the end of the season monthly weights were calculated using MNS shipment data. New end of season data were obtained showing the end of season MYA to be \$34.70 per cwt. Since monthly prices are required to be submitted to HQ for States in the monthly price programs, new monthly prices need to be calculated to arrive at the \$34.70 per cwt price. The procedures for arriving at new monthly prices are:

- Obtain a weighted average price by multiplying the in-season monthly prices by the appropriate monthly MNS weight. In this example, the monthly in-season weighted average price is \$36.90 per cwt.
- Next, take the ratio between the end of season MYA and the in-season weighted average price  $\$34.70 / \$36.90 * 100 = 94\%$ .
- Next, multiply this percentage (.94 for this example) by each in-season monthly price to arrive at the final End of Season Monthly Prices.
- Then, calculate the weighted average of the final End of Season Monthly Prices to make certain it calculates to the end of season MYA price (\$34.70).

Ex.: For Fresh Market Tomatoes when new end-of-season prices are available at the end of the year.

	In-Season Monthly Prices <sup>1</sup>	MNS Weights By Month (%)	Final Monthly Prices <sup>1</sup>
July	37.50	10	35.30
August	35.00	47	32.90
Sept.	38.40	35	36.10
October	40.80	8	38.40

<sup>1</sup> dollars per cwt

In-season MYA price is \$36.90.

MYA price is \$34.70

Ratio =  $\$34.70 / \$36.90$  or (94 %)



Revisions of monthly and MYA prices for fresh market vegetables are submitted annually in December via NASS developed analysis and estimation tools.

## Submission of Estimates

**Monthly Prices.** States submit price estimates for commodities in the monthly fresh vegetable price program, a preliminary month (mid-month) price for the current month and a full month price for the previous month for each month with sufficient crop marketings. No estimate is submitted when marketing represent less than 2 percent of the current year's production. At the beginning of a marketing season, FOs submit a preliminary current mid-month price only. At the end of a season, FOs submit a full month price for the previous month. States submit monthly prices for fresh market vegetables using standard NASS developed tools. States enter and submit indications, Administrative data, and estimates for the previous full Month and for the current mid Month. States are allowed to view and enter data for the commodities and the months within the marketing season only.

**MYA Prices.** States submit MYA prices to Headquarters for fresh market vegetable using standard NASS developed tools for Annual Vegetable Submission. MYA prices are submitted for each State and for each vegetable commodity in the National Vegetable Estimation Program.

## Agricultural Statistics Board Review

A Board review happens the day before the *Agricultural Prices* report is issued. The Board members include the Agricultural Statistics Board Chairperson, Statistics Division Director, Crops Branch Chief, Livestock Branch Chief, Environmental, Economics, and Demographics Branch Chief, and the Economics Section Head.

## Revisions

Price revisions are made to provide data users with the best possible estimates. These revisions are based on additional information such as late or corrected survey data (late reports); data from assessments, FSA data, or commodity check data from producer associations. All estimates are subject to further review at five-year intervals which coincides with the Census of Agriculture. The estimates following the five-year Census of Agriculture are final.

**Analytic and Program Relationships.** In using prices received by producers to compute receipts from sales, the monthly or season average price is multiplied by the estimated quantities sold. Estimates of receipts from other sources are added to this total to compute gross farm income which is part of the gross national product.

Data on prices received by producers have a close relationship to the various national programs of price and income support to American producers that have been developed over the last several decades. Some of these Federal programs operate directly through the price mechanism and reflect their effect through enhanced prices for

farm products. To the extent that a program affects the price that a producer receives when products are sold, it is reflected in the series on prices received by producers.

This is the situation, in the case of marketing agreement programs, which, by exerting controls over marketing, result in enhanced prices. It is, to a degree, the case for commodities affected by loan-purchase agreements. To the extent that producers can place their products under loan (with storage) they are relieved of the pressure to sell below the loan level, with a consequent buoyant effect on price. At the end of the marketing year, producers who wish to forfeit their collateral, and thus in effect sell to the Government, may do so. The prices received by producers for such sales are averaged with the open market prices that were reported throughout the year.

Most of the programs by which farm income is enhanced do not operate to affect prices of farm products. The non-price-influencing effects are not reflected in prices received by producers, nor are adjustments made in the price series to accomplish such a result. Their effects are included as supplements to income and reflected in the income series published by the Department. This set of programs includes conservation payments, wool incentive payments, direct, counter-cyclical, Average Crop Revenue Election (ACRE), loan deficiency payments (LDP), and several other similar programs.

## Limitations of Series

Most Prices Received data are collected by means of a mailed questionnaire. Because of the characteristic nonrandom nature of mail survey data, no precise estimates of standard errors and

therefore no statement about statistical precision can be made. However, the mail questionnaire technique and related procedures have worked reasonably well on the whole and have provided estimates of prices received for most commodities consistent with the known facts. Although there are several inherent weaknesses in such procedures, resource limitations have resulted in continuing mail survey data collection activities.

A large number of *t-tests* were made in connection with price research projects in North Carolina, Ohio, and Colorado to determine whether the prices collected by mail questionnaires differed significantly from those collected by enumeration. Results of these tests showed that the number of differences was somewhat greater than would have been expected if the null hypothesis of no difference were true, but not to the extent that serious doubt could be raised concerning the validity of mail survey data. (USDA, 1970)

One basic weakness of mail questionnaires in non-probability samples is that they do not provide the basis for a determination of the precision of the estimates. Response errors can bias the reported price. Reporters may misinterpret the question or may report a price when they do not have actual knowledge of the price information requested. Reporters may report in a unit of bushels when the question asks for a unit of hundredweight. A reported price for a particular grade, for example No. 2 yellow corn, may be provided when the request is for average price covering all grades and qualities being sold. These cover some examples of nonsampling errors involved in mail surveys. Their effect is difficult to measure, but judicious editing procedures can often prevent serious errors from occurring as a result of them. Market reports provide useful guides in editing, as a result of which gross misinterpretations can be eliminated.

Perhaps the greatest weaknesses of the present system are (1) the sampling errors associated with the mail survey procedures, and (2) the nonsampling errors introduced by use of judgment estimates rather than transaction data. An ideal solution would include the following: (a) The design of a sampling plan which would give to every unit of a commodity sold by producers in the U.S. an assignable probability of being included in the sample. The pattern of sales for one commodity is different from that for every other commodity, and, moreover, is different each month for a given commodity. Therefore, an ideal model would necessarily contemplate a different sample design for each month for each commodity. (b) Tabulation of prices and quantities sold from sales slips covering the selected sales. (c) Use of suitable expansion and weighting factors in summarizing the data. (d) Completion of the operation by publishing such prices by States, by regions, and for the U.S. on or near the last business day of the same month.

In practice, a number of compromises with the ideal solution are necessary, partly because of the physical impossibility of changing a sampling design month by month in the time limits imposed by the work schedule, partly because designing a separate sample for every commodity would escalate costs to astronomical levels, and partly because absolutely comprehensive lists of buyers of all farm commodities are difficult if not impossible to establish, particularly since not all of those active in the market one month are active in all months.

In any practical operating program it is necessary to design a sample in terms of groups of generally like items, with probabilities of selection representing their sum total of business over a year and for several commodities rather than for each commodity separately. Because of the competitive aspects of the price making process in the econo-

my, it is likely that these compromises cost relatively little in accuracy of reporting.

Other compromises are necessary. Although many businesses cooperate very fully in price reporting programs, some are reluctant to disclose finite details of their business to outsiders, or to the Government except as required by law. Some decline to permit inspection of sales documents; others decline to give price information; and others decline to give information on quantities sold. In such cases, either an alternate respondent must be selected, or perhaps an estimate must be accepted in lieu of documented transactions.

In sampling any complex population, it is necessary to consider whether an unrestricted random sample would provide the most efficient design. Considering the geographical distribution of agriculture and the marketing structure within any general area, there is considerable basis in fact for the belief that a stratified probability sample, a cluster sample, or some combination would be more efficient.

In view of the importance of the State as a unit of government, in terms of both the economic importance of State statistics and the administration of a Department program such as price support and marketing agreements, it seems reasonable to consider the State as one useful basis of stratification. Within States, types of farming may provide a guide to stratification. Almost certainly, the various elements in the marketing structure should be reflected in the strata.

A closely related procedure lies in stratifying questions. Thus, instead of asking for the average price of beef cattle, questionnaires ask for the

price of cows and steers & heifers. These are the two major component groups comprising all beef cattle. Variability within each group is generally less than the difference between them. Weights derived from available records of historical marketings, together with analysis of the inventory balance sheet, are used for combining the price of cows and the price of steers and heifers into an average price for all beef cattle.

A method employed to minimize response errors is the use of specialized mailing lists in preference to general or all purpose lists. This process has limits, however, since in its ultimate form it would mean a separate list for nearly every commodity which increases survey expenses. Consequently, the practical solution represents a workable compromise between the extremes. Special questionnaires are used for a number of commodities to reach handlers specializing in them. Separation of the crop price questionnaires from the livestock and livestock product questionnaires is also advantageous.

To the extent that satisfactory weights can be derived, this process generally results in improvement in the overall average price over that from an undifferentiated question. Prior to introducing this breakout, respondents normally tended to over-represent steers and heifers in their reported prices, forgetting that cows comprise a sizeable proportion of the cattle sold for slaughter.

The only limitations imposed by the concept of average price, sometimes called "unit value," as distinguished from price of a commodity specified in detail, is the obvious fact already suggested, that neither type of price is a complete substitute for the other. Each has its place. Although price changes of a closely specified commodity (barrows and gilts, U.S. No.2 & 3, 200-220 pounds, at Kansas City) will generally be highly

correlated with an average price (all hogs, Missouri) over almost any substantial time period, the correspondence between them will not be one-to-one. The difference may be either in terms of absolute level or in terms of magnitude of change from one time to another. Each price serves its specific purpose and neither serves well the specific uses of the other. (USDA, 1970)

## Prices Received Index

One of the major uses of the price received estimates is to calculate price index. The index of prices received by producers is a measure of changes in the average price level of the agricultural commodities that producers sell. It measures this level by averaging into one figure or index number the changes in prices of major agricultural commodities, so that comparisons in the price level of these commodities can be made from month to month and year to year. It is a measure of the U.S. average price level of this combined group of commodities relative to the level in a base period, rather than a measure of the level of the price of any one commodity or of any restricted group of agricultural commodities sold by any producer (USDA, 1952).

The index of Prices Received by farmers provides an estimate of the price change between two periods. The Prices Received index series are constructed and calculated monthly for a reference base of 1990-1992=100. The percentage change of the index represents the degree of the average agricultural products price changed to the base period. The prices receive index also links back to the reference base 1910-1914 = 100 by chain index for the purpose of parity price and parity ratio calculations.

NASS applies the index number method for seasonal adjustment to the Prices Received indexes (Diewart, 2009). Only seasonal adjusted indexes are published. It takes the seasonal marketing pattern as monthly share to adjust the index weight. The monthly pattern was obtained by the average monthly marketings of each commodity over the 1988-1992. The seasonal adjustment removes the fluctuation in price or quantity and to handle some commodities prices not available during part of year. It is also useful to remove the seasonal effects from price index for economic analysis and other purposes (Milton, 1995).

The structural framework for the Prices Received index contains the following indexes:

- Two top level indexes: all farm products and food commodities;
- Two component indexes: all crops and livestock & products;
- Twelve subcomponent indexes: food grains, food grains, hay, cotton, tobacco, oilseeds, fruits & nuts, commercial vegetables, potatoes & dry beans, other crops, meat animals, dairy products, and poultry & eggs.

The Prices Received index includes a total of 48 items. The price relatives are constructed from the U. S. average prices of the 48 items relative to the prices in the base period, 1990-1992 = 100. The price relatives are compiled with the five-year moving average weights to build the Prices Received index. Then the index is converted to the price index 1910-1914 = 100. See Table 2.15 for the relative weights of the 48 items in Prices Received index.

NASS publishes the price received indexes on the last working day or next to last working day of each month. NASS revises the price received indexes back three years or five years to

coordinate the revision of commodity prices. The revised price indexes are then published on NASS Quick Stats.

## History / background

Indexes of Prices Received by Farmers were first available to the public beginning in 1910. These indexes had their genesis in a set of computations based on 1909 prices for 10 crops. A second series was published in 1918 incorporating livestock prices. The third series of indexes was published in 1921 based on 31 farm products. The base period for this series was August 1909-July 1914, and the weights were based on census sales for 1909 (USDA, 1970).

The Bureau of Agricultural Economics published a new Prices Received index in 1924. This index included prices of 30 commodities. In addition, indexes were computed for each of six groups into which the 30 commodities were divided. The index used the period August 1909-July 1914 as a base period. The weights were quantities selected to represent average annual marketings for the period 1918-1923. The index was of the fixed-weight aggregative type. At least one reason for the selection of the weight-base period was to permit comparisons with the Bureau of Labor Statistics Index of wholesale prices of agricultural products and of all commodities which, at that time, were weighted with 1919 quantities.

The Prices Received index was revised in 1934. The principal changes were (1) the use of improved price series of dairy products and tobacco, (2) the addition of prices of 20 products including a group of truck crops, and (3) a shift in weights from marketings during the 1918-1923 period to those of the 1924-1929 period. Truck

crops were introduced into the index in 1924 at the level of all groups for the period 1924-1929 (Stauber, 1950).

A further major revision in the price received index was published in the January 1944 issue of *Agricultural Prices*. Price Received Indexes for 12 subgroups were set up and the subgroups were combined into two major groups of all crops, and livestock and livestock products. The quantity weights were shifted to marketings during the five-year period 1935-1939. Several of the price series were revised and the Prices Received index was extended to cover 48 commodities (USDA, 1970).

The 1950 index revisions put both the indexes of price received and prices paid on the same base, namely January 1910 - December 1914 = 100. Both indexes used weights representing the same weighting periods, for the period 1910-1934, index weights were based on marketings for 1924-1929, and beginning with January 1935, weights were based on 1937-1941 marketings. Both indexes were also computed in the same manner, using a modified aggregative formula (Laspeyres index). These changes brought the indexes into compliance with the Agricultural Adjustment Act of 1938 as amended by the Agricultural Acts of 1948 and 1949 (USDA, 1970).

Revision of the Prices Received index in 1959 maintained the same general pattern as the 1950 revision. Principal changes were the revision of weights based on 1953-1957 marketings and sales; the revision of the price system for vegetables and noncitrus fruit. Major commodities groups were unchanged, and shifts in commodities were minor (USDA, 1970).

The revision in 1976 retained the index structure and general method used for the 1959 revision. Principal changes were updating of weights, deleting several specialty commodities, adding broilers, and linking the new and old index series as of January, 1965 (USDA, 1970).

The 1995 revision was the most recent index revision. The changes of this revision included: (1) substituting the fixed base-year weights by the five-year moving average weights to capture the shift in agricultural commodities produced and sold; (2) using seasonal marketing monthly adjustment to adjust the five-year moving weights to reflect the "normal" marketing pattern during the year for each commodity in the index; (3) taking weighted 36-month prices to compute the base period prices (1990-1992=100) instead of computing simple average prices to represent base period prices as previous base prices.

## Reference period selection

The selection of the reference period is one where all prices are considered relatively stable and the agricultural economy is in a healthy state of equilibrium in agricultural production environment. The current Prices Received index reference period is 1990-1992 which replaced the prior reference period of 1977. Overall, the average prices received by producers for the period 1990-1992 are on the trend of the last 20 years, the new era of world markets for major crops. The average all farm products index for the period 1990-1992 is very close to the 20-year trend of overall prices received for farm products (Milton, 1995).

One of the advantages of the national policy of updating the reference and weight base period is to set the intervals of about 10 years. It intends to maintain the good measure of price relationship and to give a more precise comparison. NASS is currently planning a price program revision to move the reference period to a more recent base.

## Commodity selection

NASS selects a commodity when marketing data are available. The average value of marketings for the commodity during the three-year base-weight period of 1990-1992 must represent more than 0.1 percent of total cash receipts or more 2 percent of total value of commodities represented by the component index, such as fruits, vegetables, meat animals, etc.

NASS has expanded the coverage of all crops in the Prices Received index from 73 to 86 percent and all farm products from 85 to 91 percent in the 1995 revision. NASS also increased the coverage for vegetables from 52 to 66 percent and fruits and nuts from 51 to 74 percent. Coverage on a monthly basis was improved by adding sunflowers, grapes, broccoli, cucumbers, snap beans, cauliflower, and cantaloupes. Almonds were also included in the index, with its price change updated on a marketing year average basis. Monthly coverage was dropped for honeydew melons and annual coverage was dropped for green peas. Tables 2.15 and 2.16 show the coverage of commodity items and groups in the Prices Received indexes and relative weights for the 1971-1973 and 1990-1992 periods. Table 2.17 shows the weighted average price for the base price period.

NASS has added "All other crops" as a component index. Cash receipts for "all other crops" now account for 7.5 percent of total cash receipts compared with 4.3 percent in 1971-1973, the prior weighting period. The "other crops" index covers greenhouse/nursery products, sugar beets, sugarcane, mushrooms, and other specialty crops. Prices for many of these other crops are updated annually.

Coverage of the livestock items in the Prices Received index remains at 97 percent. Weights for items covered by the livestock component indexes (meat animals, dairy products, and poultry and eggs) are all factored up proportionally to account for the 3 percent incompleteness (USDA, 1970).

## Basis of Weights

Weights for the index of Prices Received by farmers were determined from USDA official estimates of farmer cash receipts. NASS calculates the weights based on a method of the five-year moving average which means it is updated every year by adding the most recent available year of farm cash receipt data and dropping the earliest year. The five-year moving average weight is designed to capture the continual shift in agricultural commodities produced and sold and to reflect the current agricultural market structure. The five-year moving weights have a two-year lag because of the availability of farm cash receipts data.

Seasonal variation of agricultural commodities in both prices and quantity weights presents a major challenge to price index construction. The annual weights, or five-year average weights, will simply ignore the effect of seasonal

variation in production or consumption. The seasonal marketing pattern method was developed in the 1995 price index revision to adjust the five-year average weights to reflect seasonal variation of agricultural commodities. The seasonal weighting pattern was derived from the monthly marketings collected during 1988-1992 period. These monthly weights represent the percent of commodity normally marketed during each month in this period. The basis for the monthly weighting pattern is the quantities of commodities sold in markets obtained from monthly price surveys for grains, oilseeds, other major field crops, and poultry items, from USDA slaughter data for livestock items, and from State and Federal market news shipment data for fruits and vegetables (see Table 2.18). This weighting pattern remains constant and will be updated periodically such as during intercensal revision or when the time base is revised. The seasonal marketing adjustments intend to prevent a sharp increase in indexes when prices rise sharply but there is little seasonal product movement. Overall, the seasonal weighting tends to lower the all farm products index because, in general, a larger seasonal weight or marketing is associated with a lower price, and a light seasonal weight or marketing with a higher price.

The monthly weight of a commodity is defined as the five-year moving average cash receipts values which are weighted by its marketing pattern:

$$w_{y,m}^j = \frac{\alpha_m^j c_y^j}{\sum_j \alpha_m^j c_y^j}$$

where  $w_{y,m}^j$  is the five-year average weight of  $j^{\text{th}}$  commodity for the  $m^{\text{th}}$  month,  $c_y^j$  is the five-year total cash receipts of the  $j^{\text{th}}$  commodity and  $\alpha_m^j$  represents the base period average marketing share parameter of  $j^{\text{th}}$  commodity for the  $m^{\text{th}}$  month. The average weight for the  $m^{\text{th}}$  month is determined by

both the value of cash receipts and its correspondent base period seasonal marketing pattern parameter. It will be zero if the marketing pattern parameter is zero, which means there is no commodity marketed for that month.

It may be misleading to call  $w_{y,m}^j$  the five-year average cash receipts weight because from one year to another the farm cash receipts are evaluated at the different prices. Then cash receipt changes will include both price and quantity movements. Thus the five-year moving average farm cash receipts have to be evaluated at the same prices (such as base prices 1990-1992=100). (NASS will re-evaluate cash receipt weights to base year prices starting in 2011). The weights formula becomes:

$$w_{b,m}^j = \frac{p_b^j q_{y,m}^j}{\sum_{j=1}^n p_b^j q_{y,m}^j} \quad \text{and}$$

$$p_b^j q_{y,m}^j = p_b^j \alpha_m^j \sum_{k=1}^5 \frac{c_{y-k-1}^j}{p_{y-k-1}^j} = \alpha_m^j \sum_{k=1}^5 \frac{p_b^j}{p_{y-k-1}^j} c_{y-k-1}^j$$

where  $c_{y-k-1}^j$  represents a year cash receipt of  $j^{\text{th}}$  commodity within year-2 to year-6; and  $p_{y-k-1}^j$  represents the corresponding annual price of  $j^{\text{th}}$  commodity. The difference between the weights  $w_{y,m}^j$  and  $w_{b,m}^j$  is that the later is re-evaluated to the base price. Therefore, the weight  $w_{b,m}^j$  includes only the quantity movements of a commodity produced and sold in market.

The Prices Received indexes are constructed using the ratio of the current average price to the base price for each commodity and the 5-year moving average weight (adjusted to reflect seasonal marketing pattern). The following example indicates the August 2010 Food Grain index is 186 on a 1990-92=100 basis.



	<u>Aug. 2010 Price</u>	<u>Base Price 1990-92</u>	<u>Price Ratio (%) (Aug./base)</u>	<u>Weights (Aug.)</u>	<u>Price Ratio x Weight</u>
Wheat (bu.)	\$5.56	\$2.96	187.83	0.8862	166.45
Rice (cwt.)	\$12.10	\$7.07	171.14	0.1138	<u>19.47</u>
					185.92

(Food Grain Index 185.92 rounds to 186.)

### Link Date Selection and Link Process

NASS has constructed the 1990-1992=100 indexes back through 1975 using the moving average weights and monthly seasonal adjustments. The 1910-1914 indexes required for parity purposes have been revised to reflect the changes in the newly constructed 1990-1992 indexes. The 1910-1914 indexes were linked forward starting in February 1975 based on changes in the 1990-1992 indexes. February 1975 was selected as the link date since there was less difference in the new monthly index weights and resulting index levels than in January compared with using the 1971-1973 fixed weights without the monthly seasonal adjustments. A 1910-1914 other crops index for 1975 was established by multiplying the ratio of the 1990-1992 other crops to all crops indexes for February 1975 by the 1910-1914 all crops index for February 1975 (Milton, 1995).

For example, if the price base reference is 1977 (1977=100), the Food Grains average price index for 1990-1992 is 120. If the price base reference changes to 1990-1992 (1990-1992 = 100), then the Food Grains price index becomes 83. To convert the 1977 base index to 1990-1992, divide 100 by 120 to equal 83.

### Index computation

The construction of a price index for agricultural products generally, crops in particular, is

more difficult because of two circumstances: 1) marked seasonal pattern which may shift over year by year for some commodities; and 2) volatility in price and production from year to year which is caused by external conditions such as the weather or economic influences as well as impact of sharply changes in the international market. These two problems have to be addressed by building the indexes into a method for dealing with gaps in the supply of prices and for smoothing volatile elements. At the same time, it has to reflect changes in the trend of agricultural product prices.

The Prices Received index is based on five-year moving average weights which are updated every year to capture shifts in the agricultural market. When the base reference period is updated, the commodities are also updated. This results in a linking process to the prior base reference period. The base prices of commodities are computed from weighted average monthly prices in the period 1990-1992. The seasonal weighting pattern was derived from monthly marketing over the period 1988-1992, which is used to adjust the five-year weights to reflect the mix of producers sell in a given month. These provide some smoothing for handling volatility and seasonality of agricultural commodities sold. As the result of these modifications, the formula of compiling the index of Prices Received becomes close to a Young's index instead of a Laspeyres index because the reference date of the index weights is between the base year period and the current period. However, the weight, often referred to as the market basket, in both the Young and Laspeyres

formula is based on a year or multiple year average. The weight of the prices received index is based on a month because the seasonal marketing pattern is monthly. Consequently, the formula to construct the Prices Received index is not a Young formula, but rather a modified Rothwell formula which was proposed by Doris Rothwell (1958) to incorporate characteristics of seasonal variation. The formula was originally proposed in 1924 by two economists with the USDA, Louis H. Bean and O. C. Stine. The prices received index formula becomes:

$$P_{m/b}^i = \frac{\sum_j^n P_m^j q_{y,m}^j}{\sum_j^n P_b^j q_{y,m}^j} = \sum_j^n w_{b,m}^j \frac{P_m^j}{P_b^j}$$

where  $P_{m/b}^i$  stands for a component  $I$  price index, and the subscript  $b$  indicates as the base period and  $m$  is for month;  $P_b^j$  is the weighted average monthly base price (1990-1992=100) of the  $j^{\text{th}}$  commodity; the  $w_{b,m}^j$  represents the five-year moving average weight of the  $j^{\text{th}}$  commodity in the  $m^{\text{th}}$  month and evaluated at the base period prices.

In the literature of index numbers, it is generally agreed that a price relative should be “weighted” by “values”, since the importance of a

price change in a given context is usually proportional to the value of the commodity price change of which is measured by the relative. Similarly, in the aggregative type of index, prices are weighted by quantities, for the same reason. Under certain conditions, the weighted average of a relative is identical to an aggregative index. The average of relatives derives from the concept that the purpose of an index number is to measure the average price change of a certain phenomenon over a given period; the price change for a particular commodity is indicated by the corresponding price relative; and that, in consequence, an average of relative gives a measure of average change. This explains the concept of second equation in the above formula.

The previous example showed the way to construct the price index by weighted price relatives. In the example, the price relative of wheat is 187.83 and rice is 171.14, weighted by 0.8862 and 0.1138 respectively. The Food Grain price index is 186. The aggregate method to construct the price index is to multiply the item price by its quantity. Suppose the quantity sold is 210 million bushels for wheat and 800 million pounds for rice. Then Food Grain price index will be 186 on a 1990-1992 = 100 basis.

	Base Price (1990 – 92)	Aug. 2010 Price	Quantity (million)	Total Value Base	Total Value Aug.
Wheat (bu.)	\$2.96	\$5.56	210 (bu.)	\$621.60	\$1,167.60
Rice (cwt.)	\$7.07	\$12.10	8 (cwt.)	\$56.56	\$96.80
				\$678.16	\$1,264.40
Food Grain Index = \$1,264.40 / \$678.16 or 186					

Table 2.19 shows relative weights of the component indexes for Prices Received for selected years. The All Farm Products index is the top level index which contains all commodities. The All Crops index includes the components, Food Grains, Feed Grains Hay, Oilseeds, Cotton, Tobacco, Fruits & Nuts, Commercial Vegetables, Potatoes & Dry beans, and Other Crops. The Livestock & Products index covers Meat Animals, Dairy Products, and Poultry & Eggs components. The Food Commodities index is another high level index which includes the components, Food Grains, Oil Crops, Fruit & Nuts, Commercial Vegetables, Potatoes & Dry Beans, Meat Animals, Dairy Products, and Poultry & Eggs. The formula of the up-level index is a weighted average of component indexes within the group, which is identical to a component index except the last terms in summation are indexes instead of price relatives.

## Uses and Limitations

Estimates of agricultural commodity prices received by producers are an important part of the Nation's economic database. They are used by industry management, economists, farmers, farm organizations, legislators, and Government officials for analyses of price trends, production, and sales of agricultural commodities. They are also important for calculating deficiency payments or support payments for Government programs, computing cash receipts from farm marketings, and estimating agriculture's contribution to the gross national product. Further, the series are used in administering marketing orders, including those for milk, fruit, nuts, and vegetables (USDA, 1970).

Factors such as changes in quality, utilization, and movement of old versus new crops affect month-to-month price changes. Shifting areas of marketing, world markets, trade policies, and

changing marketing functions performed by the producer affect longer term price analysis. New varieties or breeds, specialized uses of products, and changing marketing arrangements are all reflected in the average prices received by producers. Analysts should keep these factors in perspective when analyzing data series on Prices Received by farmers (USDA, 1970).

Price data based on statistical surveys are subject to sampling and non-sampling errors. Sampling errors are defined as differences between the population estimates from different samples and the population value. They measure the probability of an estimate's departure from the values obtained with a complete enumeration. Sampling errors can be measured statistically based on probability samples. For major commodities, standard errors for NASS price estimates at the U.S. level are generally in the 1-2 percent range. Efforts are made to control the level of sampling errors by list stratification and increased sample size as resources and respondent burden permit (USDA, 1970).

Non-sampling errors include nonresponse errors introduced when survey respondents refuse to cooperate or cannot be located during the survey period; errors introduced by an interviewer's "leading" the respondent or otherwise influencing the respondent's answer; errors resulting from incorrectly recording or transferring data, whether done manually or with data processing equipment. Errors may also arise from the questionnaire when questions are unclear, definitions are imprecise, or the order of questions is not logical. Non-sampling errors are minimized through standardized questionnaires, instruction manuals, training, manual review of reported data, and automated edit checks during summarization (USDA, 1970).

## Publication and Dissemination

NASS publishes Prices Received estimates which includes the current month in the monthly *Agricultural Prices* report. Issuance occurs at 3:00 p.m. on or near the last business day of each month.

### Publication Process

**Publication process.** NASS developed software to structure the Prices Received estimates in tabular format. A composed draft copy of the *Agricultural Prices* report is prepared 2-3 weeks prior to publication release for program and format review. Commodity Statisticians review the final estimates again in the published formatted tables.

NASS creates a file for the Quick Stats database at the time of composition of the published report. A final review occurs prior to release of the report at 3:00 p.m. on the scheduled day of release. Go to [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp) for the Quick Stats database.

In addition to *Agricultural Prices* and the on-line Quick Stats data base, a number of commodity reports publish agricultural price data. They include:

- Crop Values
- Noncitrus Fruits and Nuts
- Citrus Fruits
- Vegetables - Annual
- Meat Animals - Production, Disposition, and Income
- Milk - Production, Disposition, and Income
- Poultry - Production and Value

Other USDA agencies also publish NASS *Agricultural Prices* data.

**Publication Constraints.** NASS strives to establish and publish estimates on all data series. There are situations, however, that require an aggregation of the estimates. Also, estimates may not be published if disclosure of an individual operation is possible. Reported data is protected by Title 7 of the U.S. Code. Title 7 can be found at <http://www.law.cornell.edu/uscode/7/>.

NASS Prices Received estimates may be published at the U.S. level or at the State level. No regional level estimates are published for Prices Received. Current month prices are mid-month; prices for previous months and years are entire month.

In the event of a publication constraint, footnotes are used to inform the reader of the reason. The two most common reasons for not publishing data are:

- (D) Withheld to avoid disclosing data for individual operations
- (S) Insufficient number of reports to establish an estimate.

**Revisions.** Prices Received estimates may be revised in subsequent months and years. Data collection is for the current year/period as well as the previous “full-month” price.

Mid-month estimates are based on data for the first two weeks or the 5 business days around the 15<sup>th</sup> of the month in order to publish price estimates by the end of the month. The preliminary month (mid-month) estimates are revised based on

full month data and published the following month.

## Dissemination

*Agricultural Prices* estimates are disseminated to the public through monthly reports. The monthly report is issued each month at 3:00 p.m. Eastern time, on or near the last business day of each month. The 3:00 p.m. embargo and simultaneous access applies to all forms of dissemination. Electronic data and hard copy publications are made available simultaneously. Prior disclosure of data is unlawful, with penalties of fine and imprisonment.

The publication is available in hard copy (printed product); however the main method of dissemination is via the USDA-NASS website. The website address is: [www.nass.usda.gov](http://www.nass.usda.gov).

The main method of dissemination for reports is from the USDA-NASS website. The reports are available at [www.nass.usda.gov](http://www.nass.usda.gov). The reports and data are in the following formats:

- in a text format,
- in a pdf format,
- in a downloadable format for spreadsheets or databases via a comma separated value (csv) format, and
- QuickStats searchable database.

Quick Stats is NASS's on-line searchable database. Customers can obtain the specific data items of interest. These data items of interest are also available historically with some items available back into the 1800s. Historic data can be downloaded for each item of interest.

In addition to *Agricultural Prices* and the on-line Quick Stats data base, a number of commodity reports also publish agricultural price data and include:

- Crop Values
- Noncitrus Fruits and Nuts
- Citrus Fruits
- Vegetables-Annual
- Meat Animals-Production, Disposition, and Income
- Milk-Production, Disposition, and Income
- Poultry-Production and Value

**Historic Data.** The last five years of indexes are published quarterly (January, April, July, and October) in *Agricultural Prices*. However, revised indexes are calculated monthly and posted to the Quick Stats database. These monthly revisions are meant to improve the timeliness of the data series. These revised estimates are official NASS estimates.

Electronic versions (pdf files) are also available for *Agricultural Prices* reports dating back to 1964. These files contained "scanned" copies of the original hard copy reports.

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## Appendix of Tables

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual**

State	Austrian Winter Peas	Barley			Canola	All Chick- peas	Corn
		Feed	Malt	All			
Alabama .....							A
Alaska .....							
Arizona.....				A			A
Arkansas.....							A
California .....		M	M	M		A	A
Colorado.....		M	M	M	A		M
Connecticut....							
Delaware .....				A			A
Florida.....							A
Georgia.....							A
Hawaii.....							
Idaho .....	M	M	M	M	A	A	A
Illinois .....							M
Indiana .....							M
Iowa .....							M
Kansas.....				A	A		M
Kentucky.....							M
Louisiana.....							A
Maine .....				A			
Maryland.....				A			A
Massachusetts							
Michigan .....				A			M
Minnesota.....		M	M	M	M		M
Mississippi .....							A
Missouri .....							M
Montana .....	M	M	M	M	A	A	A

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual**

State	Austrian Winter Peas	Barley			Canola	All Chickpeas	Corn
		Feed	Malt	All			
Nebraska .....							M
Nevada .....							
New England..							
New Jersey .....							A
New Mexico...							A
New York.....				A			A
North Carolina				A			M
North Dakota..		M	M	M	M	A	M
Ohio .....							M
Oklahoma.....					A		A
Oregon .....	M	M	M	M	A	A	A
Pennsylvania..				A			M
Rhode Island ..							
South Carolina							A
South Dakota..				A		A	M
Tennessee.....							M
Texas .....							M
Utah.....		M	M	M			A
Vermont .....							
Virginia .....				A			A
Washington ....		M	M	M	A	A	A
West Virginia .							A
Wisconsin.....				A			M
Wyoming .....		M					A

Monthly program States designated as M and Annual program States as A



**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Cotton			Dry Beans	Dry Edible Peas	Flaxseed
	Upland	Pima	Seed			
Alabama .....	M		M			
Alaska .....				A		
Arizona.....	M	A	M			
Arkansas.....	M		M	M		
California .....	M	A	M	M		
Colorado.....						
Connecticut....						
Delaware .....						
Florida.....	A		A			
Georgia.....	M		M			
Hawaii .....						
Idaho .....				M	A	
Illinois .....						
Indiana .....						
Iowa .....						
Kansas.....	A		A	A		
Kentucky .....						
Louisiana.....	M		M			
Maine .....						
Maryland.....						
Massachusetts						
Michigan .....						
Minnesota.....						
Mississippi .....	M		M			
Missouri .....	A		A	M		A
Montana .....						

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Cotton			Dry Beans	Dry Edible Peas	Flaxseed
	Upland	Pima	Seed			
Nebraska .....				M		
Nevada .....						
New England..						
New Jersey .....				A		
New Mexico...	A	A	A	A		
New York.....						
North Carolina	M		M	M	A	M
North Dakota..						
Ohio .....						
Oklahoma.....	A		A	A	A	
Oregon .....						
Pennsylvania..						
Rhode Island ..						
South Carolina	A		A			
South Dakota..				A		A
Tennessee.....	M		M			
Texas .....	M	A	M	A		
Utah.....						
Vermont .....						
Virginia .....	A		A			
Washington ....						
West Virginia .				A	A	
Wisconsin.....						
Wyoming .....				A		

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Hay			Hops	Lentils <sup>1</sup>	Oats	Oil		Mustard Seed
	Alfalfa	Other	All				Peppermint	Spearmint	
Alabama .....		A	A			A			
Alaska .....	M	M	M						
Arizona.....	A	A	A			A			
Arkansas.....	M	M	M			A	A		
California .....	M	M	M			A			
Colorado.....	A	A	A						
Connecticut....									
Delaware .....	A	A	A						
Florida.....		A	A						
Georgia.....		A	A			A			
Hawaii.....									
Idaho .....	M	M	M	A	M	A	A	A	A
Illinois .....	M	M	M			M			
Indiana .....	A	A	A			A	A	A	
Iowa .....	M	M	M			M			
Kansas.....	M	M	M			A			
Kentucky .....	M	M	M						
Louisiana.....		A	A						
Maine .....	A	A	A						
Maryland.....	A	A	A			A			
Massachusetts									
Michigan .....	A	A	A					A	
Minnesota.....	A	A	A						
Mississippi .....	M	M	M			M	A		
Missouri .....	M	M	M			M			
Montana .....		A	A						A

<sup>1</sup> Only United States prices published monthly

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Hay			Hops	Lentils <sup>1</sup>	Oats	Oil		Mustard Seed
	Alfalfa	Other	All				Peppermint	Spear-mint	
Nebraska .....	M	M	M			M			
Nevada .....	M	M	M						
New England..	A	A	A						
New Jersey.....	M	M	M						
New Mexico...	M	M	M			M			
New York.....	A	A	A			A			
North Carolina	M	M	M		M	M			
North Dakota..	M	M	M			A			A
Ohio .....	M	M	M			A			
Oklahoma.....	M	M	M	A		M	A		
Oregon .....	M	M	M			M		A	A
Pennsylvania..	A	A	A						
Rhode Island ..									
South Carolina		A	A			A			
South Dakota..	M	M	M			M			
Tennessee.....	A	A	A						
Texas .....	M	M	M			M			
Utah.....	M	M	M			A			
Vermont .....	A	A	A						
Virginia .....	A	A	A			A			
Washington ....	M	M	M	A	M	A	A	A	A
West Virginia .	A	A	A						
Wisconsin.....	M	M	M			M	A	A	A
Wyoming .....	M	M	M			A			

<sup>1</sup> Only United States prices published monthly

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Peanuts	Proso Millet	Rapeseed	Rice				
				Short Grain	Medium Grain	Medium/Short Grain	Long Grain	All
Alabama.....	M							
Alaska .....								
Arizona .....								
Arkansas .....				M	M	M	M	M
California .....				M	M	M	M	M
Colorado .....		A						
Connecticut ....								
Delaware.....								
Florida .....	M							
Georgia .....	M							
Hawaii .....								
Idaho .....			A					
Illinois.....								
Indiana .....								
Iowa .....								
Kansas .....								
Kentucky.....								
Louisiana .....					M	M	M	M
Maine.....								
Maryland.....								
Massachusetts								
Michigan.....								
Minnesota .....			A					
Mississippi.....	M				M	M	M	M
Missouri.....					M	M	M	M
Montana.....								

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Peanuts	Proso Millet	Rapeseed	Rice				
				Short Grain	Medium Grain	Medium/Short Grain	Long Grain	All
Nebraska .....		A						
Nevada.....								
New England ...								
New Jersey.....								
New Mexico ....	M							
New York .....								
North Carolina .	M							
North Dakota ...								
Ohio .....								
Oklahoma .....	M							
Oregon .....			A					
Pennsylvania....								
Rhode Island ..								
South Carolina .	M							
South Dakota ...		A						
Tennessee .....								
Texas .....	M			M	M	M	M	M
Utah .....								
Vermont .....								
Virginia.....	M							
Washington.....			A					
West Virginia...								
Wisconsin .....								
Wyoming .....								

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Potatoes				Rye	Safflower	Sorghum Grain
	Spring	Summer	Fall	Winter			
Alabama.....							
Alaska .....							
Arizona .....							A
Arkansas .....							M
California .....	M	M	M	M		A	
Colorado .....		M	M			A	A
Connecticut ....							
Delaware.....		A					
Florida .....	M						
Georgia .....					A		A
Hawaii .....							
Idaho.....			M			A	
Illinois.....		A					M
Indiana .....							
Iowa .....							
Kansas .....		A					M
Kentucky.....							
Louisiana .....							M
Maine.....			M				
Maryland.....		A					
Massachusetts ..			A				
Michigan.....							
Minnesota .....							
Mississippi.....							A
Missouri.....		A					M
Montana.....			A			A	

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Potatoes				Rye	Safflower	Sorghum Grain
	Spring	Summer	Fall	Winter			
Nebraska .....			A		A		M
Nevada .....			A				
New England..							
New Jersey .....		A					
New Mexico...			A				A
New York.....			M		A		
North Carolina					A		
North Dakota..	M		M			A	
Ohio .....			A				
Oklahoma .....					A		M
Oregon .....			M				
Pennsylvania..			A		A		
Rhode Island..			A				
South Carolina					A		
South Dakota..					A	A	A
Tennessee.....							
Texas .....	M	M			A		M
Utah.....						A	
Vermont .....							
Virginia .....		M					
Washington ....			M				
West Virginia.							
Wisconsin.....			M		A		
Wyoming .....							

Monthly program States designated as M and Annual program States as A



**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Soybeans	Sugarbeets	Sugarcane	Sunflowers			Sweet Potatoes
				Oil	Non-Oil	All	
Alabama .....	A						A
Alaska .....							
Arizona.....							
Arkansas.....	M						A
California .....		A		A	A	A	A
Colorado.....		A		M	M	M	
Connecticut ...							
Delaware .....	A						
Florida .....	A		A				A
Georgia.....	A						
Hawaii .....			A				
Idaho .....		A					
Illinois .....	M						
Indiana .....	M						
Iowa .....	M						
Kansas .....	M			M	M	M	
Kentucky .....							
Louisiana.....	M		A				A
Maine .....							
Maryland.....	A						
Massachusetts							
Michigan .....	M	A					
Minnesota.....	M	A		M	M	M	
Mississippi .....	M						A
Missouri .....	M						
Montana .....		A					

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Soybeans	Sugarbeets	Sugarcane	Sunflowers			Sweet Potatoes
				Oil	Non-Oil	All	
Nebraska .....	M	A					
Nevada .....							
New England..							
New Jersey .....	A						A
New Mexico...							
New York.....	A						
North Carolina	M						A
North Dakota..	M	A		M	M	M	
Ohio .....	M						
Oklahoma.....	A			A	A	A	
Oregon .....		A					
Pennsylvania..	A						
Rhode Island ..							
South Carolina	A						
South Dakota..	M			M	M	M	
Tennessee.....	M						
Texas .....	A		A				A
Utah.....							
Vermont .....							
Virginia .....	A						
Washington ....							
West Virginia.	A						
Wisconsin.....	M						
Wyoming .....		A					

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Tobacco						
	Flue Cure	Fire Cured	Light-Air Cured	Dark-Air Cured	Cigar Binder	Cigar Wrapper	All
Alabama.....							
Alaska .....							
Arizona .....							
Arkansas .....							
California.....							
Colorado .....							
Connecticut.....						A	A
Delaware.....							
Florida .....	A						A
Georgia .....	A						A
Hawaii .....							
Idaho .....							
Illinois.....							
Indiana .....							
Iowa .....							
Kansas .....							
Kentucky.....		A	A	A			A
Louisiana .....							
Maine.....							
Maryland.....							
Massachusetts..						A	A
Michigan.....							
Minnesota .....							
Mississippi.....							
Missouri.....							
Montana.....							

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Tobacco						
	Flue Cure	Fire Cured	Light-Air Cured	Dark-Air Cured	Cigar Binder	Cigar Wrapper	All
Nebraska .....							
Nevada.....							
New England ...							
New Jersey.....							
New Mexico ....							
New York .....							
North Carolina .	A		A				A
North Dakota ...							
Ohio .....			A				A
Oklahoma .....							
Oregon .....							
Pennsylvania....			A		A		A
Rhode Island ..							
South Carolina .	A						A
South Dakota ...							
Tennessee .....		A	A	A			A
Texas .....							
Utah .....							
Vermont .....							
Virginia.....	A	A		A			A
Washington.....							
West Virginia...			A				A
Wisconsin .....							
Wyoming .....							

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Wheat							
	Winter	Hard Red Winter	Soft Red Winter	Other Spring	Hard Red Spring	Durum	Soft White	All
Alabama.....	A							A
Alaska.....								
Arizona.....	A					M		M
Arkansas.....			M					M
California.....	M	M						M
Colorado.....	M	M		M	M	M		M
Connecticut.....								
Delaware.....	A							A
Florida.....	A							A
Georgia.....	A							A
Hawaii.....								
Idaho.....	M	M		M	M	M		M
Illinois.....	M		M					M
Indiana.....	M		M					M
Iowa.....	A							A
Kansas.....	M	M						M
Kentucky.....	A							A
Louisiana.....	A							A
Maine.....								
Maryland.....	A							A
Massachusetts..								
Michigan.....	M		M					M
Minnesota.....	M	M		M	M			M
Mississippi.....	A							A
Missouri.....	M		M					M
Montana.....	M	M		M	M	M		M

Monthly program States designated as M and Annual program States as A

**Table 2.1. Prices Received Program States by Commodity, Monthly and Annual (cont.)**

State	Wheat							
	Winter	Hard Red Winter	Soft Red Winter	Other Spring	Hard Red Spring	Durum	Soft White	All
Nebraska .....	M	M						M
Nevada.....	A			A				A
New England ...								
New Jersey.....	A							A
New Mexico ....	A							A
New York .....	A							A
North Carolina .	M							M
North Dakota ...	M	M		M	M	M		M
Ohio .....	M		M					M
Oklahoma .....	M	M						M
Oregon.....	M	M		M	M			M
Pennsylvania....	A							A
Rhode Island ..								
South Carolina .	A							A
South Dakota ...	M	M		M	M	A		M
Tennessee .....	A							A
Texas .....	M	M						M
Utah .....	A			A				A
Vermont .....								
Virginia.....	A							A
Washington.....	M	M		M	M			M
West Virginia...	A							A
Wisconsin .....	A							A
Wyoming .....	A							A

Monthly program States designated as M and Annual program States as A

**Table 2.2. Strata for Cotton**

Stratum	Description
1 .....	1 – 999 Bales
2 .....	1,000 – 2,499 Bales
3 .....	2,500 – 4,999 Bales
4 .....	5,000 – 7,499 Bales
5 .....	7,500 – 9,999 Bales
6 .....	10,000 – 19,999 Bales
7 .....	20,000 – 49,999 Bales
8 .....	50,000 – 74,999 Bales
9 .....	75,000 – 99,999 Bales
10 .....	100,000 + Bales
11 .....	Cooperative
12 .....	Extreme Operator

**Table 2.3. Specialty Elevator Indicator for Grain Stratification**

Stratum	Description
1 .....	Processing Mill
2 .....	Small Dry Bean Elevator
3 .....	Large Dry Bean Elevator
4 .....	Flax
5 .....	Barley
6 .....	Barley (Malting)
7 .....	Sunflower (Non-oil)
8 .....	Sunflower (Oil)
9 .....	Small White Corn
10 .....	Large White Corn
11 .....	Small Ethanol Plant
12 .....	Large Ethanol Plant
13 .....	Feed Mill
14 .....	Oilseed Processor
15 .....	Railroad Spur
16 .....	Small Buyer/Dealer
17 .....	Large Buyer/Dealer
18 .....	Small Wheat
19 .....	Large Wheat
20 .....	Soybean Crusher
21 .....	Soybeans
22 .....	Oats
23 .....	Wheat (Durum)
24 .....	Terminal
25 .....	Corn
26 .....	Large Livestock or Poultry Grain Buyer
27 .....	Pulse Buyer
28 .....	Large Grain and Large Dry Bean or Pulse Buyer
29 .....	Organic Crops



**Table 2.4. Reference Months and Target CVs for Grain Prices Commodities**

Commodity	Reference Month*	United States
Yellow Corn .....	January, October	0.5
Soybeans .....	January, October	0.5
All Wheat .....	June, July	1.0
Upland Cotton .....	November, December	1.0
Barley .....	August, September	2.5
Oats .....	July, August	2.5
Sorghum .....	November, December	1.5
All Sunflowers .....	November, December	2.5

\* Data are collected in the month following the reference month. Selected months used to measure survey performance.

**Table 2.5. Honey Color Class with Pfund Scale**

Honey Color Class	Pfund Scale (mm)
Water white, extra white, and white	0 - 34
Extra light amber	35 - 50
Light amber, amber, and dark amber	51 +
Specialty areas	any

**Table 2.6. Mink Color Class by Trade Names**

Mink Color Class	Trade Names
Black	Blackgama <sup>1</sup>
Blue Iris	Aleutian <sup>1</sup> , Lutetia <sup>1</sup>
Demi/Wild	Dark Brown, Lunaraine <sup>1</sup> , Ranch Wild
Lavender	Arcturus <sup>1</sup> , Liana, Morning Light
Pastel	Autumn Haze, Dawn, Natural Brown, Orchid
Pearl	Tourmaline <sup>1</sup>
Sapphire	Aeolian <sup>1</sup> , Cerulean <sup>1</sup> , Diaden, Fawn, Palomino
Violet	Azurene <sup>1</sup>
White	Jasmine <sup>1</sup>
Miscellaneous	Pink, Rose, Rovalia <sup>1</sup>

<sup>1</sup> American Legend Trademark Colors

**Table 2.7. Size and Descriptions for Catfish and Trout**

Type	Description
Catfish	
Broodfish	Fish kept for egg production, including males. Broodfish produce the fertilized eggs which go to hatcheries. The desirable size is three to ten pounds or four to six years of age.
Fry	Fish under two inches in length weighing 2 pounds per 1,000 fish
Fingerlings	Fish two to six inches in length weighing 2 pounds to 60 pounds per 1,000 fish
Small Stockers	Fish over six inches in length weighing 60 to 180 pounds per 1,000 fish
Large Stockers	Fish over six inches in length weighing 180 to 750 pounds per 1,000 fish
Small Foodsize	Fish weighing over $\frac{3}{4}$ pound to 1 $\frac{1}{2}$ pounds
Medium Foodsize	Fish weighing over 1 $\frac{1}{2}$ pounds to 3 pounds
Large Foodsize	Fish weighing over three pounds
Trout	
1" to less than 6"	Usually fingerlings
6" to less than 12"	Usually stockers and weigh less than $\frac{3}{4}$ pound
12" or longer	Grown commercially for food usually weighing $\frac{3}{4}$ pound to 1 $\frac{1}{2}$ pounds

**Table 2.8. Data Collection and Estimation Centers by Region and State**

Region	Estimation Center (EC)	Arkansas Data Collection Center	Wyoming Data Collection Center
East	Florida EC: Alabama, Delaware, Georgia, Maryland, Mississippi, North Carolina, New Jersey, South Carolina, Virginia, New England, Florida	Alabama, Delaware, Georgia, Maryland, Mississippi, North Carolina, New Jersey, South Carolina, Virginia, New England, Florida	
East Central	Wisconsin EC: Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, Tennessee, West Virginia, Wisconsin	Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, Tennessee, West Virginia, Wisconsin	
West Central	North Dakota EC: Arkansas, Iowa, Illinois, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma, South Dakota, Texas, North Dakota		Arkansas, Iowa, Illinois, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma, South Dakota, Texas, North Dakota
West	California EC: Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming, California		Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming, California

**Table 2.9. Market Year for Selected Field Crop Commodities by Geographic Areas**

Selected Commodity	Market Year	Geographic Area
Barley	June 1 to May 31	U.S. Arizona, California, Delaware, Kentucky, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia
	Aug. 1 to July 31 July 1 to June 30	Alaska, Maine Other Program States
Canola	July 1 to June 30	U.S. and Program States
Chickpeas (Garbanzo Beans)	Sept. 1 to Aug. 31	U.S.
Corn for Grain	Sept. 1 to Aug 31 July 1 to June 30	U.S. Texas
	Aug. 1 to July 31	Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee
	Sept. 1 to Aug. 31	Arizona, California, Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Missouri, Nebraska, New Mexico, Ohio, Pennsylvania, South Dakota,
	Oct. 1 to Sept. 30	Virginia, West Virginia, and Other Program States
Cotton	Aug. 1 to July 31	U.S. and Program States
Cottonseed	Aug. 1 to Feb. 28	U.S. and Program States
Dry Edible Beans	Sept. 1 to Aug. 31	U.S. and Program States
Flaxseed	July 1 to June 30	U.S. and Program States
Hay	May 1 to April 30	U.S.
	April 1 to Mar. 31	Arizona and California
	May 1 to April 30	Alabama, Arkansas, Colorado, Florida, Georgia, Kansas, Ken- tucky, Louisiana, Mississippi, Missouri, Nevada, New Mexico, North Carolina, Oklahoma, Pennsylvania, South Carolina, Ten- nessee, Texas, Utah, Virginia
	June 1 to May 31	Other Program States
Hops	Sept. 1 to Aug 31	United States and Program States

**Table 2.9. Market Year for Selected Field Crop Commodities by Geographic Areas (cont.)**

Selected Commodity	Market Year	Geographic Area
Oats	June 1 to May 31 May 1 to April 30 June 1 to May 31 Aug 1 to July 31 Sept. 1 to Aug 31 July 1 to June 30	U.S. Alabama, Georgia, Texas North Carolina, Oklahoma, South Carolina, Virginia Maine and New York Alaska Other Program States
Peanuts	Aug. 1 to July 31	U.S. and Program States
Potatoes Winter/Spring Summer Fall	Nov. 1 to Aug 31 June 1 to Dec 31 July 1 to June 30	U.S. and Program States
Rice	Aug. 1 to July 31 July 1 to June 30 Aug. 1 to July 31 Oct. 1 to Sept. 30 Sept. 1 to Aug. 31	U.S. Louisiana and Texas Arkansas and Mississippi California Missouri
Sorghum for Grain	Sept. 1 to Aug. 31 June 1 to May 31 Aug. 1 to July 31 Sept. 1 to Aug. 31	U.S. Texas Alabama, Arkansas, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee Other Program States
Soybeans	Sept. 1 to Aug. 31 July 1 to June 30 Aug. 1 to July 31 Sept. 1 to Aug. 31	U.S. Texas Louisiana and Mississippi Other Program States
Sunflowers	Sept. 1 to Aug. 31 July 1 to June 30 Sept. 1 to Aug. 31	U.S. Texas Other Program States
Sweet Potatoes	July 1 to June 30 July 1 to May 31 August 1 to May 31 August 1 to July 31	U.S., Alabama, and California Georgia, Louisiana, North Carolina, and Texas South Carolina and Virginia New Jersey

**Table 2.9. Market Year for Selected Field Crop Commodities by Geographic Areas (cont.)**

Tobacco	Dark Air-Cured	Dec. 1 to Feb. 28	U.S. and Program States
	Flue-Cured	July 1 to Nov. 30	U.S. and Program States
	Fire-Cured	Dec. 1 to Mar. 31	U.S.
		Jan. 1 to Mar. 31	Kentucky and Tennessee
Light Air-Cured	Dec. 1 to Jan. 31	Virginia	
	Nov. 1 to May 31	U.S.	
	Nov. 1 to Feb. 28	Indiana, Kentucky, Missouri, North Carolina, Ohio, Tennessee, Virginia, West Virginia	
	Mar. 1 to May 31	Maryland and Pennsylvania	
Wheat		June 1 to May 31	U.S.
		May 1 to April 30	Alabama, Florida, Georgia, Louisiana, Mississippi, Texas
		June 1 to May 31	Arizona, Arkansas, California, Delaware, Illinois, Indiana, Kansas, Kentucky, Maryland, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, and Virginia
		July 1 to June 30	Other Program States

**Table 2.10. Market Year for Selected Vegetable Commodities by Geographic Areas**

Selected Commodity	Market Year	Geographic Area
Asparagus	Jan. 1 to Oct. 31 May 1 to July 31 April 1 to July 31	U.S. California Michigan and Washington
Broccoli	Jan. 1 to Oct. 31	U.S. and California
Cantaloups	May 1 to Dec. 31 Oct. 1 to Dec. 31 May 1 to Dec. 31 May 1 to Aug. 31	U.S. Arizona California Texas
Carrots	Jan. 1 to Dec. 31 July 1 to Dec. 31 April 1 to Aug. 31	U.S. and California Michigan Texas
Cauliflower	Jan. 1 to Dec. 31 Nov. 1 to April 30 July 1 to Oct. 31	U.S. and California Arizona New York
Celery	Jan. 1 to Dec. 31 July 1 to Oct. 31	U.S. and California Michigan
Cucumbers	Mar. 1 to Dec. 31 May 1 to Nov. 30	U.S. California
	Mar. 1 to May 31 Oct. 1 to Dec. 31	Florida Florida
	May 1 to June 30 Sept. 1 to Nov. 30	Georgia Georgia
	June 1 to Sept. 30 July 1 to Oct. 31	Michigan New York
	June 1 to July 31 Sept. 1 to Oct. 31	Virginia Virginia
Honeydew Melons	May 1 to Nov. 30 May 1 to Sept. 30	U.S., Arizona, and California Texas
Lettuce	Jan. 1 to Dec. 31 Nov. 1 to April 30 Oct. 1 to April 30 April 1 to Nov. 30	U.S. and California Yuma, Arizona Other Areas in Arizona New Jersey
Onions Spring Onions Summer Onions (non-storage) Summer Onions (storage)	Jan. 1 to Dec. 31 April 1 to July 31 May 1 to Sept. 30 Sept. 1 to April 30	U.S.

**Table 2.10. Market Year for Selected Vegetable Commodities by Geographic Areas (cont.)**

Selected Commodity	Market Year	Geographic Area
Snap Beans	April 1 to July 31 Oct. 1 to May 31 July 1 to Oct. 31	U.S. and California Florida New York
Sweet Corn	Jan. 1 to Dec. 31 April 1 to Nov. 30  Jan. 1 to June 30 & Nov. 1 to Dec. 31  July 1 to Oct. 31	U.S. California  Florida  All Other Monthly States
Tomatoes	Jan. 1 to Dec. 31 May 1 to Nov. 30  Jan. 1 to June 30 Oct. 1 to Dec. 31  Jan. 1 to Dec. 31	U.S. California  Florida  All Other Monthly States



**Table 2.11. Market Year for Selected Noncitrus Fruit Commodities by Geographic Areas**

Selected Commodity	Market Year	Geographic Area
Apples (fresh)	July 1 to January 31	Arizona, Minnesota, Illinois, Iowa, Missouri, Maine, New Jersey, Tennessee, Wisconsin
	Sept 1 to Aug 31	Idaho, Oregon, Utah, Washington, West Virginia California, Colorado, Connecticut, Indiana, Maryland
	July 1 to June 30	Massachusetts, Michigan, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia
Apricots	May 25 to Aug. 20	Utah and Washington
Fresh	May 25 to Aug. 20	California
processed	June 15 to Aug. 15	
Dried	June 20 to Aug. 20	
Dried Figs	June 5 to Oct. 31	U.S. and California
Grapes Concord	Sept 1 to Nov. 1	New York and Pennsylvania
Fresh	May 25 to April 30	U.S. and California
	June 5 to July 15	Arizona
	July 10 to Oct. 31	Arkansas, Georgia, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania
Raisin	Sept. 1 to May 31	U.S. and California
Nectarines	April 30 to Oct. 15	U.S. and California
Peaches (fresh)	May 1 to Oct. 31	U.S. Georgia and South Carolina Alabama, Arkansas, California, Colorado, Illinois, Kentucky, Louisiana, Missouri, North Carolina, Ohio, Oklahoma, Tennessee, Texas, Utah, Virginia
	May 20 to Aug. 31	
	June 1 to Sept 30	
Pears (fresh)	Aug. 1 to Sept 30	Connecticut, Massachusetts, Idaho, Michigan, New York Indiana, Maryland, New Jersey, Oregon, Pennsylvania, Washington, West Virginia
	July 1 to Sept 30	U.S. and California
	July 1 to June 30	Oregon and Washington
	July 1 to April 30	Colorado and Connecticut
	Aug. 10 to May 31	Michigan and New York
July 1 to April 30	Pennsylvania and Utah	
Plums fresh	May 20 to Sept. 30	California
processed	June 1 to Sept. 30	

**Table 2.12. Market Year for Selected Citrus Fruit Commodities by Geographic Areas**

Selected Commodity	Market Year	Geographic Area
Grapefruit	Nov. 1 to June 30 Nov. 1 to Oct. 31 Sept. 10 to July 1 Oct. 1 to May 30	Arizona California Florida Texas
Lemons	Sept. 1 to March 31 Aug. 1 to July 31	Arizona California
Oranges Navel	Nov 1 to March 31 Nov. 1 to June 15	Arizona California
Valencia	Jan. 1 to June 30 March 15 to Dec. 20 Jan. 1 to July 31 Jan. 15 to May 15	Arizona California Florida Texas
Early and Mid-season	Jan. 1 to Dec. 31 Sept. 25 to Feb. 15	Florida Texas
Tangelos	Oct. 15 to March 1	Florida
Tangerines and Mandarins	Nov. 1 to April 30 Nov. 1 to May 15 Oct. 1 to May1	Arizona California Florida
Temples	Jan. 1 to March 1	Florida

**Table 2.13. Market Year for Selected Livestock Commodities by Geographic Areas**

Selected Commodity	Market Year	Geographic Area
Cattle Honey Lambs Milk Mohair Sheep Turkeys Wool	Jan. 1 to Dec. 31	U.S. and Program States
Broilers Eggs Hogs Other Chickens	Dec. 1 to Nov. 30	U.S. and Program States

**Table 2.14. Summary of Estimates by Selected Commodity**

Commodity	Summary	Level	Class or Type	Time Period
Avocado	State	State & U.S.	No	MYA
Broilers	Weighted average by week	U.S.	No	Month
Citrus	By States	State	Grapefruit (white & color) Lemons, Oranges (navel & Valencia) Tangerines, Tangelos	Month / MYA
Cotton	Weighted Average by State	State	Upland Cotton Pima Cotton	Month / MYA
Date, Kiwi, Olive	State	CA	No	MYA
Floriculture	15 states	State	No (except Hawaii)	MYA
Grain	Weighted Average by Strata Many commodities collapsed.	State	Strata	Month / MYA
Grape	State	State	Raisin, Table, Wine, Concord Juice, Niagara	Month / MYA
Honey	Color Class & Marketing Channel	State	White, Amber, Dark, Other, Coop, Private, Retail	Full year prior sales
Hops	Quantity & Value to calculate average price	State	No	MYA
Market Eggs	Regional price based on AMS data Weighted by state level pro- duction	U.S.	Market and All	Month /
Mushroom	State	Chester Coun- ty, PA Region & U.S.	Agaricus (CA, PA, WA) Regional (East, Central, West) Brown, Shiitake, Oyster, All Other All Specialty	MYA Around Aug 20 <sup>th</sup>
Peach & Pear (Noncitrus)	States	State	Fresh Peaches Fresh pears	Month / MYA
Peanuts	Weighted average by variety	State & U.S.	Runner Spanish Valencia Virginia	Weekly Monthly MYA

**Table 2.14. Summary of Analysis by Commodity (cont.)**

Peppermint / Spearmint	Price data	State & U.S.	Yes (WA by Native & Scotch)	MYA
Potato	States (unique for each state)	State	None	Month / MYA
Rice	Weighted average by grain length and State with no non-response	State & U.S.	Short, Medium, Medium + Short Long	Month / MYA
Sweet Potatoes	States (Unique for each state)	Program States	No	MYA
Tree Nuts	Unique by state and nut	Program States	Almonds, Hazelnuts, Pistachio, Walnuts, Macademia, Pecans (improved, native)	MYA
Turkeys	Weighted average by week	U.S.	No	Month
Wrinkled Seed Peas	States	U.S.	No	MYA

**Table 2.15. Relative Weights of Commodities in the Indexes of Prices Received  
By Farmers, Base Periods 1971-73 and 1990-92**

Commodity and Group	Relative Weights		Commodity and Group	Relative Weights	
	1971-73:	1990-92 <sup>3/</sup>		1971-73:	1990-92 <sup>3/</sup>
	Percent			Percent	
Wheat	6.1	4.0	Green Peas <sup>1/</sup>	.2	
Rice	1.1	.7	Sweet Corn	.4	.4
Food Grains	7.2	4.7	Tomatoes	1.4	1.6
			Broccoli <sup>2/</sup>		.2
Corn	8.0	8.3	Cantaloupes <sup>2/</sup>		.2
Oats	.4	.1	Cauliflower <sup>2/</sup>		.2
Barley	.7	.5	Cucumbers <sup>2/</sup>		.3
Grain Sorghum	1.6	.7	Snap Beans <sup>2/</sup>		.3
All Hay	1.4	1.8	Commercial Vegetables	4.1	5.1
Feed Grains and Hay	12.1	11.4			
			Dry Edible Beans	.4	.3
American Upland	2.9	2.8	Potatoes	1.4	1.3
Cotton	2.9	2.8	Potatoes and Dry Beans		
			Beans	1.8	1.6
Tobacco	2.4	1.7			
			All Other Crops <sup>2/</sup>		7.5
Cottonseed	.5	.3			
Peanuts	.8	.8	All Crops	44.2	48.4
Flaxseed <sup>1/</sup>	.1	.1			
Soybeans	7.8	6.4			
Sunflowers <sup>2/</sup>		.2	Beef Cattle	25.8	22.0
Oil-Bearing Crops	9.2	7.8	Calves	2.6	1.9
			Hogs	8.8	6.7
Apples	1.1	1.2	Meat Animals	37.2	30.6
Grapefruit	.5	.3			
Lemons	.3	.2	Milk, Wholesale	11.1	11.7
Oranges	1.5	1.2	Dairy Products	11.1	11.7
Peaches	.5	.3			
Pears	.2	.2	Eggs	3.4	2.4
Strawberries	.4	.5	Broilers	3.1	5.4
Grapes <sup>2/</sup>		1.4	Turkeys	1.0	1.5
Almonds <sup>2/</sup>		.5	Poultry and Eggs	7.5	9.3
All Fruit and Nut	4.5	5.8			
			Livestock and		
Asparagus	.2	.1	Livestock Products	55.8	51.6
Carrots	.3	.3			
Celery	.3	.2			
Lettuce	.9	.8			
Onions	.4	.5	All Farm Products	100.0	100.0

<sup>1/</sup> Not included in the 1990-92 index.

<sup>2/</sup> Not included in the 1971-73 index. All Other crops include greenhouse/nursery products, sugarbeets, sugarcane, and other specialty crops

<sup>3/</sup> Simple average of 1990-92 for comparison purposes with the prior 1971-73 base price and weight period.

**Table 2.16. Percent Coverage of Index Commodity Groups for Prior Versus Revised Prices Received Indexes <sup>1/</sup>**

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<u>Commodity Groups</u>	<u>Prior (1977=100) (%)</u>	<u>Revised (1990-92) (%)</u>	<u>% of Total Cash Receipts <sup>1/</sup></u>
All Crops	73	86	48.4
Food Grains	100	100	4.7
Feed Grains & Hay	100	100	11.4
Cotton	100	100	2.8
Tobacco	100	100	1.7
Oil-Bearing Crops	98	100	7.8
Fruits and Nuts	51	74	5.8
Commercial Vegetables	52	66	5.1
Potatoes & Dry Beans	100	100	1.6
Other Crops	0	50	7.5
Livestock & Products	97	97	51.6
Meat Animals	100	100	29.7
Dairy Products	100	100	11.4
Poultry & Eggs	97	97	9.0
Other Livestock	-	-	1.5
All Farm Products	85	91	100.0

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<sup>1/</sup> Calculated using 1990-92 cash receipts.

**Table 2.17. 1990-92 Base Price Period Weighted Average Prices Received**

Commodity	Unit	Price	Commodity	Unit	Price
		Dollars			Dollars
WHEAT	(bu)	2.96	ALMONDS	(lb)	1.12
RICE	(cwt)	7.07	ASPARAGUS	(cwt)	65.70
CORN	(bu)	2.30	BROCCOLI	(cwt)	22.00
OATS	(bu)	1.22	CARROTS	(cwt)	10.10
BARLEY	(bu)	2.12	CAULIFLOWER	(cwt)	26.10
SORGHUM GRAIN	(cwt)	3.75	CELERY	(cwt)	11.60
HAY	(ton)	76.30	CUCUMBERS	(cwt)	12.60
COTTON, UPLAND	(lb)	0.606	LETTUCE	(cwt)	11.90
COTTONSEED	(ton)	96.00	ONIONS	(cwt)	11.50
TOBACCO	(lb)	1.74	BEANS, SNAP	(cwt)	13.90
FLAXSEED	(bu)	4.27	CORN, SWEET	(cwt)	5.91
PEANUTS	(lb)	0.304	TOMATOES	(cwt)	7.66
SOYBEANS	(bu)	5.61	CANTALOUPE	(cwt)	13.90
SUNFLOWER	(cwt)	9.50	POTATOES	(cwt)	5.82
APPLES	(lb)	0.151	DRY BEANS	(cwt)	19.10
GRAPEFRUIT	(box)	5.77	CATTLE	(cwt)	72.90
LEMONS	(box)	10.10	CALVES	(cwt)	94.30
ORANGES	(box)	5.79	HOGS	(cwt)	47.70
PEACHES	(lb)	0.155	MILK, WHOLESALE	(cwt)	13.06
PEARS	(ton)	292.00	BROILERS	(lb)	0.317
STRAWBERRIES	(cwt)	47.90	TURKEYS	(lb)	0.380
GRAPES	(ton)	305.00	CHICKEN EGGS	(doz)	0.643



**Table 2.18 Prices Received Monthly Marketing for Index Commodities  
United States:1990-1992 Average**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WHEAT	9	5	5	4	5	14	17	11	9	7	6	8
RICE	12	10	10	8	7	6	6	7	8	9	9	8
CORN	13	7	7	6	6	6	6	6	8	14	12	9
OATS	7	6	6	6	6	7	20	20	9	5	4	4
BARLEY	10	6	7	5	5	6	7	17	11	8	9	9
SORGHUM GRAIN	11	5	5	3	3	4	9	8	7	20	14	11
HAY	8	7	7	6	7	11	12	10	9	8	7	8
COTTON, UPLAND	15	8	6	4	3	2	2	3	6	13	19	19
COTTONSEED	4	2	0	0	0	0	0	3	6	25	38	22
TOBACCO	12	2	1	1	0	0	5	18	19	13	11	18
PEANUTS	1	0	0	0	0	0	0	1	36	48	11	3
FLAXSEED	6	4	5	4	3	4	3	10	29	21	7	4
SOYBEAN	12	6	7	5	5	5	5	5	8	25	10	7
SUNFLOWER	9	7	7	4	3	6	4	3	6	28	14	9
APPLES	9	8	9	8	6	5	3	4	11	14	13	10
GRAPEFRUIT	13	19	20	11	6	2	2	2	2	6	8	9
LEMONS	9	8	9	8	9	8	8	7	6	9	9	10
ORANGES	18	11	9	13	12	4	2	2	2	3	8	16
PEACHES	0	0	0	0	12	21	27	26	14	0	0	0
PEARS	8	8	6	6	4	2	7	14	7	14	14	10
STRAWBERRIES	3	5	12	19	20	13	10	7	5	3	2	1
GRAPES	1	0	0	0	3	9	16	21	18	15	12	5
ALMONDS	8	8	8	8	8	8	8	9	9	9	9	8
ASPARAGUS	1	6	24	30	21	13	2	1	1	1	0	0
BROCCOLI	8	8	8	10	10	10	8	7	7	8	8	8
CARROTS	8	8	10	10	9	9	8	7	7	8	8	8
CAULIFLOWER	7	6	8	9	11	9	8	7	8	11	10	6
CELERY	8	7	9	8	9	9	7	7	7	9	11	9
CUCUMBERS	2	1	4	11	17	12	8	11	11	10	9	4
LETTUCE	8	7	8	9	10	9	8	9	8	9	7	8
ONIONS	9	8	6	6	7	8	9	9	9	11	9	9
BEANS, SNAP	5	6	8	10	14	9	6	9	7	9	10	7
CORN, SWEET	1	1	2	6	18	12	14	23	16	4	2	1
TOMATOES	6	5	8	9	12	7	11	9	8	8	9	8
CANTALOUPE	0	0	0	0	26	39	16	6	4	6	3	0
POTATOES	7	7	8	8	8	6	4	7	14	16	8	7
DRY BEANS	9	6	6	6	6	5	4	5	18	17	10	8
HORTICULTURAL	8	8	9	9	9	9	8	8	8	8	8	8
SUGAR BEETS	9	8	8	8	8	8	8	8	8	9	9	9
CANE FOR SUGAR	9	9	8	8	8	8	8	8	8	8	9	9
MUSHROOMS	9	9	8	8	8	8	8	8	8	8	9	9
CATTLE	9	8	8	8	8	8	8	9	8	10	9	7
CALVES	8	7	8	7	6	6	6	9	10	14	12	7
HOGS	9	8	9	8	8	8	8	8	9	9	8	8
MILK, WHOLESALE	8	8	9	9	9	9	8	8	8	8	8	8

**Table 2.19 Revised and Prior Prices Received Indexes  
Relative Weights of Component Indexes**

Commodity Groups	Prior Base	Revised Base	5-Year Moving Average Weights: <u>2/</u>				
	Period (1971-73) (%)	Period <u>1/</u> (1990-92) (%)	1990	1995	2000	2005	2010
All Crops	44.2	48.4	47.0	47.7	52.2	48.9	53.5
Food Grains	7.2	4.7	5.4	4.8	5.2	3.5	5.4
Feed Grains & Hay	12.1	11.4	10.6	11.0	12.4	11.0	15.9
Cotton	2.9	2.8	2.4	2.7	2.9	1.8	1.6
Tobacco	2.4	1.7	1.5	1.6	1.3	1.0	0.4
Oil-Bearing Crops	9.2	7.8	8.4	7.2	8.3	7.2	8.2
Fruits & Nuts	4.5	5.8	5.4	5.8	6.0	6.4	6.5
Commercial Vegetables	4.1	5.1	5.2	5.4	6.0	6.6	5.6
Potatoes & Dry Beans	1.8	1.6	1.4	1.6	1.6	1.5	1.4
Other Crops	0	7.5	6.7	7.6	8.5	10.0	8.5
Livestock & Products	55.8	51.6	53.0	52.3	47.8	51.1	46.5
Meat Animals	37.2	30.6	30.8	30.6	24.6	27.1	23.8
Dairy Products	11.1	11.7	30.8	30.6	11.8	11.8	10.9
Poultry & Eggs	7.5	9.3	8.9	9.7	11.4	12.2	11.8
All Farm Products	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Food Commodities <u>3/</u>			78.8	77.1	74.9	76.3	73.6

1/ Weights represent simple 3-year averages for 1990-92 base price period for comparison purposes with 1971-73, prior base price and weight period.

2/ Examples of 5-year moving weights for constructing 1990-92=100 index numbers. Weights used for 1995 based upon 1989-1993 cash receipts, weights for 1990 based upon 1984-88 cash receipts, etc.

3/ Food Commodities include components, Food Grains, Oil Crops, Fruit & Nuts, Commercial Vegetables, Potatoes & Dry Beans, Meat Animals, Dairy Products and Poultry & Eggs.

# **Glossary of Selected Terms**

## **Advance Recourse Loan**

A price-support loan made early in a crop year that enables a farmer to hold his crops for later sale, usually within the marketing year. Farmers must repay the loan with interest and reclaim their collateral.

## **Agribusiness**

Producers and sellers of agricultural food, fiber, and services. Agribusinesses include manufacturers, processors, wholesalers, dealers, transporters, marketers, and retail outlets.

## **Agricultural Commodity**

Any plant or part of a plant, or animal or part of an animal product, produced by a person primarily for sale, consumption, propagation or other use by humans or animals.

## **Agricultural Marketing Service (AMS)**

A USDA agency that sets standards for grades of cotton, tobacco, meat, dairy products, eggs, fruits, and vegetables; operates grading services; and administers Federal marketing orders.

## **Agricultural Production**

The classification of agricultural production includes: establishments (farms, ranches, dairies, orchards, nurseries, greenhouses, etc.) primarily engaged in the production of crops, plants, vines, or trees (excluding trees for lumber production) and the keeping, grazing or feeding of livestock or livestock products for sale. Livestock include cattle, sheep, goats, hogs, and poultry. Also, included are animal specialties such as horses, rabbits, bees, fur bearing animals and fish in captivity. The classification includes establishments engaged in the production of bulbs, flower seeds, vegetable seeds, and also specialty operations such as sod farms, mushroom cellars, and cranberry bogs.

## **Agricultural Options**

A marketing tool using the Chicago Board of Trade options market, whereby a producer has the opportunity to increase his price if the futures market moves above a predetermined price level, known as a strike price.

## **Agricultural Policy**

A broad term used to encompass those government programs most directly affecting the prices and incomes received by farmers.

## **Agricultural Statistics Board (ASB)**

A selected panel from the National Agricultural Statistics Service (NASS) staff dedicated to providing effective and efficient review of statistics covering all aspects of U.S. agriculture. The ASB acts on behalf of the Secretary of Agriculture.

**Air Cured**

Drying and curing tobacco either outside or in a tobacco barn with natural air.

**American Farm Bureau**

A farmer organization founded in the early twentieth century for the purpose of protecting the economic interests of farmers and ranchers.

**American Pima Cotton**

An extra long staple cotton formerly known as American Egyptian cotton in the U.S., grown chiefly in California, along with some acreage in Arizona, New Mexico, and Texas. Represents only 2 percent of the U.S. cotton crop. Used chiefly for thread and high valued fabrics and apparel. Developed as the Sea Island cotton became extinct in the U.S.

**Artichokes**

A thistle like, herbaceous perennial, cynara scolymus, also known as the globe artichoke. Common United States varieties/types: Green Globe (year round, peak spring), Desert Globe (Dec Mar, Jul Sep), Big Heart (year round, lull in April), Imperial Star (year round, peak spring).

**Asparagus**

A hardy perennial of the Lily family that grows best in cool spring temperatures after having experienced a dormant or resting period. Commercial fields produce for 15 to 18 years with the best crops taken from 5 to 10 year old plants.

**Auction**

A public sale of assets or commodities through competitive bidding to the highest bidder.

**Auction Barn**

A facility for gathering livestock or other commodities for sale by auction. The auction bidding and sale are conducted at the facility. Also, referred to as Sale Barn.

**Auction Pool**

A cooperative method of marketing where individually owned products are pooled and sold to the highest bidder.

**The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)**

ABARES is a research bureau within the Department of Agriculture, Fisheries and Forestry that provide research and analysis about Australia's primary industries.

**Backfat**

The amount of fat covering on the back of a live animal or a carcass. The measurement is usually taken over the ribs and is used to determine yield grade.

## **Balance of Trade**

The difference between the amount of exports and imports. The balance is positive if exports exceed imports or negative when imports exceed exports.

## **Balance Sheet**

A list of assets and liabilities in dollar terms to show the equity or net worth of an individual or business.

## **Barrel (Bbl.)**

A volume unit of measure, used as a standard for selling and trading certain commodities in certain areas of the country.

## **Barrow [Hogs]**

A male hog who was castrated before reaching breeding age and before the development of secondary sex characteristics.

## **Base period**

The base period generally is understood to be the period with which other periods are compared and whose value provide the weights for a price index. However, the concept of the “base period” is not a precise one and may be used to mean the different things. Three types of base periods may be distinguished:

- The *price reference period*, that is, the period whose prices appear in the denominators of the price relatives used to calculate the index, or
- The *weight reference period*, that is, the period, usually a year, but a month for price received index, whose values serve as weights for the index. However, when a hybrid expenditure weights are used in which the quantities of one period are valued at the prices of some other period, there is no unique weight reference period, or
- The *index reference period*, that is, the period for which the index is set equal to 100.

## **Basis**

The difference between two prices, such as a commodity cash price and its futures price assuming the same quality standards. Basis reflects the marketing costs of storage, transportation, and supply and demand.

## **Beans, Lima**

Lima beans are grown for fresh market and processing. Pole beans and Speckled butter beans are not included. Varieties/types: Butter, potato. The National vegetable program estimates only processing utilizations as of crop year 2002.

## **Beans, Snap**

Snap beans are also known as green beans, bush beans, and pole beans. Wax beans are included. Varieties/Types: Snap Beans; (round, also known as string beans), Green Beans; Triumph, Opus, Pod-squad, Strike, Bronco, and Prosperity (yearround, peak Apr Jun); Yellow Wax; Golden Rod, Gold Rush, Klondyke (Oct Jun), Pole Beans; Dade, 42s, 191 (year round).

## **Beef Cattle**

Any breed of cow, heifer, bull, or steer raised primarily for meat consumption.

## **Beef Cows**

Cows, regardless of breed, kept primarily to raise or nurse calves.

## **Board Estimate**

The official measure of the actual quantity or value of an item as derived from sample data or administrative data and approved by the Agricultural Statistics Board.

## **Board of Trade**

See "Chicago Board of Trade."

## **Breed**

Animals having a common origin and distinguishing characteristics.

## **Broccoli**

A cole crop derived from a species of wild cabbage. Through cultivation two types of broccoli have evolved, common broccoli and sprouting broccoli. *Common broccoli* was developed to have a dense central flowering head on a thick stem. *Sprouting broccoli* is a wild looking form that has loose, leafy stems and edible flower shoots but no central head. Exclude broccoli rabe or heading (cauliflower) broccoli.

## **Bushel (Bu.)**

A volume unit of measure, often used as a standard for selling and trading crop commodities. In practice, commodities are traded on a weight basis whereby, a USDA standard weight and moisture content representing a bushel has been established for each commodity.

## **Cabbage**

Cabbages belong to the mustard family and are related to broccoli, cauliflower, and other vegetable crops in the *Brassica* genus. Types included in the cabbage estimates are domestic, Danish, Dutch, Pointed, Red and Savoy types. Estimates do not include Chinese cabbage. Cabbage for fresh market includes cabbage that has been sliced or chopped for salad or slaw. Cabbage for kraut is only to include the cabbage used to make sauerkraut.

## **Calf**

Any young cattle weighing less than 500 pounds.

## **Cantaloups**

Cantaloups is one of the botanical varieties of muskmelons. Casaba, Crenshaw, Honeyball, Persian and Santa Claus are not included in cantaloup estimates. Honeydews are estimated separately. Varieties/Types: Hale's Best, Hymark, Mission.

## **CAPI**

Computer Assisted Personal Interviewing is when an interviewer records the answers from a respondent using a computer during a personal visit.

## **Carrots**

Biennials grown as annuals. Most commercial carrots are long, slender, and tapered. Crops may be handled as topped, short trimmed tops, or bunched with entire top. Carrots that have been trimmed and sold as "baby" carrots or that were sliced for salad trays, etc. are to be included as fresh. Separate acreage, yield, production, price and value are required for processing carrots.

## **Cash Price**

The actual price paid for an item, less any discounts or rebates.

## **Cash Grain Farm**

A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of the value of products sold.

## **CATI**

Computer Assisted Telephone Interviewing is when an interviewer records the answers from a respondent over the telephone using a computer.

## **Cattle on Feed**

Cattle or calves for slaughter market on full feed and expected to produce a carcass grading select or better.

## **Cauliflower**

Cauliflower grows on short, cabbage like plants that form large, flat central clusters of flower buds called curds. Varieties/Types:

Early Producing Early Snowball, Super Snowball, Midseason Snowdrift, Danish Giant.

Later Producing Veitch, Autumn Giant.

As the cauliflower head begins to form, field workers bunch the leaves around the head, using rubber bands, to prevent sunlight from yellowing the white cauliflower.

## **CCC Stocks**

Grains and oilseeds forfeited to the USDA Commodity Credit Corporation (CCC) as repayment of nonrecourse marketing loans. Producers may pledge their production as collateral to the CCC to obtain nonrecourse marketing loans. Producers may forfeit the commodity as repayment of the loan.

## **Celery**

A bushy, mounded plant grown year round. Crop estimated includes pascal, golden, Utah types and celery hearts. Celery is boxed in the field as it is harvested. Some of the celery are bagged in plastic and some are simply banded with rubber bands and boxed.

## **Chain Index**

An index number derived by relating the value at any given period to the value in the previous period rather than to a fixed base.

## **Chain Weighted Index**

The chain weighted CPI incorporates changes in both the quantities and prices of products. For example, let's examine clothing purchases between two years. Last year you bought a sweater for \$40 and two t-shirts at \$35 each. This year, two sweaters were purchased at \$35 each and one t-shirt for \$45.

Standard CPI calculations would produce an inflation level of 13.64%

$$((1 \times 35 + 2 \times 45) / (1 \times 40 + 2 \times 35)) = 1.1364.$$

The chain weighted approach estimates inflation to be 4.55%

$$((2 \times 35 + 1 \times 45) / (1 \times 40 + 2 \times 35)) = 1.0455.$$

Using the chain weighted approach reveals the impact of a customer purchasing more sweaters than t-shirts. The chain weighted CPI incorporates the average changes in the quantity of goods purchased, along with standard pricing effects. This allows the chain weighted CPI to reflect the expenditures change of customers shifting the weight of their purchases from one area of spending to another.

## **Check Data**

Information derived from inspections, marketings, acreages contracted or certified, assessments, ginnings, and other sources that have some direct relation to a commodity and can be used, with varying degrees of confidence, to supplement survey data in the preparation or revision of estimates.

## **Check Off**

A fee collected on each unit of a commodity going to market. Fees collected are administered by a producer selected board, usually to fund research and promotion of products made from the commodity.

## **Chicago Board of Trade (CBOT)**

A commodity exchange specializing in trading grain's futures contracts. The CBOT is located in Chicago, IL.



## **Chicken Market Year**

The average price received by farmers from December of the previous year through November of the current year.

## **Chicken Prices**

Price of mature hens and roosters sold for slaughter from egg laying flocks. Price represents a liveweight basis.

## **C.I.F.**

Abbreviation for Cost, Insurance, and Freight.

## **Cigar Binder**

A type of tobacco, usually broadleaf used to bind the filler portion of cigars.

## **Cigar Filler**

Tobacco leaves placed in the core of a cigar. The leaf fragments are as long as the cigar in superior brands and short or shredded in low priced cigars.

## **Cigar Wrapper**

A shade grown tobacco leaf of the Cuban variety tobacco group used as the outside wrapper of cigars. Plants are shaded by a screen of open mesh cotton fabric during growth to protect the leaves from getting holes.

## **Coefficient of Variation (CV)**

Is the ratio of the standard deviation to the mean.

## **Commission Charges**

Charges levied by a commission firm to the seller of the livestock. Charges are for freight, yardage, feed, and the collection of payment from the purchaser. It is generally a percentage of the gross value of sale.

## **Commission Firm**

A firm through which sellers can introduce their livestock into a terminal market. The firm collects a fee for each animal sold and does not take title to the livestock.

## **Commodity**

Any agricultural or agricultural by-product available for sale.

## **Commodity, Contract**

The crop specified in the production flexibility contract. Eligible commodities are wheat, corn, sorghum, barley, oats, Upland cotton, and rice.

### **Commodity Credit Corporation (CCC)**

A government owned and operated entity created to stabilize, support, and protect farm income and prices. CCC helps maintain balanced and adequate supplies of agricultural commodities and in their orderly distribution. It aides producers through loans, purchases, payments, and other operations, and makes available materials and facilities required in the production and marketing of agricultural commodities. CCC also is authorized to sell agricultural commodities to other government agencies or foreign governments, and make food donations to domestic, foreign, or international relief agencies. It assists in the development of new domestic and foreign markets and marketing facilities for agricultural commodities.

### **Commodity Exchange**

A brokerage house specializing in the trading of commodity futures contracts.

### **Commodity Futures Trading Commission (CFTC)**

An independent government commission which regulates commodity trading at U.S. futures exchanges. CFTC also regulates the activities of numerous commodity exchange members, public brokerage houses, commodity trading advisors, and commodity pool operators.

### **Confidentiality**

The assurance from NASS to respondents, backed by Federal law, that individual information collected on authorized USDA surveys will not be released to any person, organization or institution, including court subpoenas.

### **Contract**

A binding agreement, either written or verbal, between the farm operator (contractee) and another party (contractor) specifying one or more conditions for the production and/or marketing of a farm commodity.

### **Contractee or Contract Grower**

A person who is responsible for producing or raising a contractor's commodity (poultry, livestock, crops) for a fee or other financial considerations.

### **Contractor**

A person or firm offering a contract agreement to a producer (contractee). The contractor typically owns the commodity (crop, poultry, or livestock), and may supply the feed, medicine and other such items, but does not care for the commodity.

## **Contract Production**

Producing crops or livestock under an agreement where the owner of the commodity (contractor) supplies some or most of the inputs for production and the farmer (contractee) usually provides inputs such as labor, utilities, housing, machinery, and/or equipment. The contractee is limited in the control over the amount produced and the production practices used. Usually, the contract is established at the beginning of the production cycle for a given number of acres, or number of animals or birds. The contractee has a minimum amount of risk since the amount of payment to be received is agreed upon prior to or during the production period. The contractee does not receive the commodity's full market value and may have quality or other adjustments.

## **Contract Sale**

A sale negotiated for a future date. May be based on the delivery date market price or a predetermined price.

## **Control Data**

Information on file about individual farm or ranch operations which defines the type and size of the operation, i.e. acres of cropland, grain storage capacity, livestock numbers by species, etc.

## **Cooperative**

A voluntarily organized association controlled by its members or patrons. Individuals pool their resources and share in the profits.

## **Corn (Maize) for Grain**

An annual stemmed cereal plant that can grow to 7 or 8 feet tall with one or two large grain ears pollinated from tassels. Corn produces many more bushels of grain per acre than any other feed grain. It is used as a food crop, animal feed, and as a source of oil, syrup, ethanol, and other products. Corn, grown throughout the country, requires good soil and large amounts of water making the Midwest the best producing area. It also requires a large amount of fertilizer, more than any other crop, particularly nitrogen.

## **Corn, Sweet**

Estimates exclude field corn used for table use but include yellow, white and bicolor sweet and supersweet varieties. Exclude ornamental corn and popcorn.

## **Cotton**

A soft, white vegetable fiber obtained from the seed pod of the cotton plant. The two principal types of cotton grown in the United States are Upland cotton and American Pima cotton.

## **Cotton Board**

A quasi government organization whose members are appointed by the Secretary of Agriculture from nominees of cotton producer organizations. The board receives and disburses grower assessments to finance the Cotton Incorporated program.

## **Cotton Compress**

The equipment which forms the ginned raw cotton into a bale. The first compression, primarily to modified flat or universal bale dimensions, is performed at the gin. Further compression of flat or modified flat bales is performed at cotton warehouse locations.

## **Cotton Council**

See National Cotton Council of America. @ <http://www.cotton.org/>

## **Cotton Council International (CCI)**

The overseas operations of the National Council of America. The CCI's primary objective is to develop markets for U.S. exports.

## **Cotton Exchange**

A membership organization which provides facilities where cotton futures contracts are bought and sold.

## **Cotton Gin**

A machine that separates cotton fibers from the seed on which they were produced.

## **Cotton Incorporated**

A private corporation acting as the marketing and research organization representing United States cotton growers.

## **Cotton Quality**

Three major components of cotton quality, grade, staple and micronaire, are included in official USDA cotton quality classifications. Added fiber properties, including length, uniformity, and strength, are also recognized as important and are increasingly being measured by instrument testing. Grade depends on the color, trash content, and preparation (smoothness) of the cotton sample.

## **Cotton Staple**

Used in reference to the length and fineness of cotton fiber.

## **Cottonseed**

Seed of cotton with the lint removed. Cottonseed oil is extracted from the seed through a crushing process. The residue (cottonseed cake or meal) is used as livestock feed.

## **Counter Cyclical Payments**

The Farm Bill added Counter Cyclical Payments, which provide support counter to the cycle of market prices as part of a "safety net" in the event of low crop prices. Counter Cyclical Payments for a commodity are only issued if the effective price for a commodity is below the target price for the commodity.

## **Cow**

Female bovine that has had at least one calf.

## **Cow-Calf**

A cow with nursing calf.

## **Crop Insurance**

Farmers select from various types of insurance policies to partially protect their income. One common type of policy helps minimize losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. The farmer selects the amount of average yield to insure (usually 50 to 75%) and can select the percent of the predicted price he or she wants to insure (usually 55 to 100% of the crop price established annually by the Risk Management Agency). Expected or projected price guarantees are finalized by the USDA Risk Management Agency (RMA) on March 1. If the harvest is less than the yield insured, the farmer is paid an indemnity which is calculated by multiplying the yield difference by the insured percentage of the price selected when the insurance was purchased.

## **Cucumbers, Fresh Market**

Closely related to the melon. There are two classes of cucumbers, one for fresh market consumption and one for pickling. The slicing or table type is the fresh market cucumber. It can, especially in larger sizes, also be used for pickling. Only those sold for fresh market should be counted as fresh market. Do not include greenhouse production. Varieties/Types: The most popular slicing varieties include Dasher II, Hybrid Ashley, Palomar, Long Market, Marketmore, Poinsett, Straight Eight, Cherokee 7, Speedway, Gemini, and High Mark II.

## **Cucumbers for Pickles**

Processing estimates are made for pickled cucumbers only. Generally, special varieties are grown for pickles but some fresh market varieties are used. Pickles are made by three processes: 1) refrigeration, 2) fermentation or 3) pasteurization. Overnites are included in pickle estimates. Overnites are partially fermented about 2 days as salt stock, and then placed under refrigeration until sold. These are generally made from the same pickling varieties as other pickles. Fresh market slices are sometimes used for overnites in certain supply price situations. Cucumbers processed in any other way are not considered pickles.

## **Cwt.**

Abbreviation for Hundredweight or 100 pounds.

## **Dairy**

Businesses related to the production, processing, or distribution of milk and its products. Specifically, can refer to a plant in which milk is processed and where dairy products are manufactured and sold.

## **Dairy Cattle**

Cattle kept specifically for the production of milk used for sale or home use.

**Dairy Herd Improvement Association (DHIA)**

A cooperative organization of approximately 25 or more farmers. Its purpose is the testing of dairy cows for milk and fat production and recording feed consumed.

**Data Collection**

The process of completing interviews or field counts, or otherwise accounting for (refusal, inaccessible, out of business) all selected sample units in a survey.

**Date, Due - [Enumerators]**

The date assigned materials must be received in the State office.

**Date, Due - [State office]**

The date assigned materials must be received in Headquarters.

**Date, Reference**

The date used as a reference point for asking respondents survey questions.

**Date, Release**

The date survey results are published and released. See the NASS Webpage for a calendar of report release dates.

**DCP Program (Direct and Counter cyclical Program)**

There are two types of DCP payments: direct payments and counter cyclical payments. Both are computed using the base acres and payment yields established for the farm.

**Dealer**

A person or firm buying commodities for speculative purposes. The commodities are for immediate resale and usually held for only a short time. Dealer takes title to the commodity.

**Delayed Pricing (Priced Later or Deferred Price) Contracts**

A delayed price contract usually requires delivery at harvest time. The purchase price, however, is not determined until the farmer is ready to sell, which could occur several months later. This is different from storing grain at the elevator for sale at a later date, because the farmer gives up title/ownership when a delayed price contract is entered into. For this option, the producer is normally assessed a monthly per bushel fee by the elevator until the sale price is determined. Some producer risk is involved should the firm go into bankruptcy, since the grain is now titled in the name of the elevator.

## Direct Expansion

An estimator obtained by multiplying the sample data by the reciprocal of the probability of selecting the sample unit. The summation of expanded data for all selected sampling units is the direct expansion of the population.

## Direct Payments

The 2008 Farm Bill provides direct payments for the following eligible commodities:

Barley	\$0.24 per bushel
Corn	\$0.28 per bushel
Oats	\$0.024 per bushel
Other Oilseeds	\$0.80 per Cwt.
Peanuts	\$36 per ton
Rice	\$2.35 per Cwt.
Grain Sorghum	\$0.35 per bushel
Soybeans	\$0.44
Upland Cotton	\$0.0667 per pound
Wheat	\$0.52 per bushel

For each commodity, the direct payment for each crop year equals 85 percent of the farm's base acreage *times* the farm's direct payment yield *times* the direct payment rate. Direct payments are subject to change with each Farm Bill.

## Discount

[Buyer] A deduction from an original price or debt, allowed for paying promptly or in cash.

[Seller] A deduction from the market price for poor quality or less than market standard commodities. Price adjustments (to posted elevator board prices) may be made for grain of high or low quality. Deductions are often made for moldy, sprouted or light test weight grain.

## Dockage

Foreign material in marketable grain which is easily removed by normal cleaning methods.

## Dressed Weight

The weight of an animal carcass after slaughter but before cutting into retail cuts.

## Dressing Percent

The percentage which the dressed weight is of the live weight.

Dressed weight / Liveweight = Dressing Percent

### **Dry Cow**

A cow which has ceased to give milk from one lactation and is probably within 60 days of calving and beginning another lactation.

### **Economic Research Service (ERS)**

A USDA agency that is an important user of NASS data. ERS studies various topics related to agriculture and issues research publications and commodity outlook and situation reports.

### **Editing**

Reviewing entries for reasonableness. Unusual but correct responses should be flagged and explained with notes indicating it was verified with the respondent. With impossible data relationships, probe for the correct responses.

### **Effective Price**

The higher of the loan rate or the Market Year Average (MYA) price.

### **Elevator**

A business which buys grain from the farmers, and has facilities for the handling and storage of grains, dried beans, and other seed crops.

### **Enumerator**

A person trained to conduct interviews or make field counts and record the information gathered in the interviews or counts.

### **Equivalent Liveweight Price**

The equivalent liveweight price is derived from the whole bird, ready to cook (RTC) price.

### **Equivalent Return**

Adjustment made in actual data reported to generate an equal value for another item or commodity or to shift to a point of sale different from the reported one. An example is FOB shipping point to packing-house door.

### **Estimate**

An approximate measure of the value of an item, usually derived from sample data or administrative data.

### **Eurostat**

Eurostat is the statistical office of the European Union situated in Luxembourg. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.



### **Extra Long Staple Cotton (ELS)**

Cottons having a staple length of 1½ inches or more, according to the classification used by the International Cotton Advisory Committee (ICAC). Also characterized by fineness and high fiber strength, contributing to finer and stronger yarns, needed for certain end uses such as thread and higher valued fabrics. United States types include American Pima and, formerly, Sea Island cotton.

### **Farm Price**

The price a farmer receives for products sold at the point of first sale.

### **Farm Service Agency (FSA)**

An Agency of the USDA which administers farm commodity and conservation programs for farmers and makes loans. FSA programs are primarily directed at agricultural producers or, in the case of loans, at those with farming experience.

### **Farmer**

See "Operator."

### **Farmer Owned Reserve**

Government program designed to provide protection against wheat and feed grain production shortfalls and provide a buffer against unusually sharp price movements. Farmers place their grain in storage and receive extended nonrecourse loans for 3 years, with extensions as warranted by market conditions. Interest on the loan may be waived, and farmers may receive annual storage payments from the Government. Grain cannot be taken out of storage without penalty unless the market price reaches a specified release price. When the release price is reached, grain may be removed from the reserve but it is not required.

### **Federal Crop Insurance**

A voluntary risk management tool for farmers to protect them from the economic effects of unavoidable adverse natural events. Administrative costs are appropriated by the Congress and a portion of the insurance costs are federally subsidized.

### **Federal Crop Insurance Corporation (FCIC)**

A wholly owned Federal corporation within USDA that administers the Federal Crop Insurance Program.

### **Federal Grain Inspection Service (FGIS)**

A USDA agency that establishes official United States standards for grain and other assigned commodities and administers a nationwide inspection system to certify those grades.

### **Feed Grain**

Any of several grains commonly used for livestock or poultry feed, such as corn, sorghum, oats and barley.

**Fire Cured**

A method of curing tobacco leaves by using open fires in the tobacco barn. The leaves are exposed to the fire's smoke while drying.

**Fixed Weight Aggregative Index**

This index concentrates on measuring price changes from a base year. It is called a base weighted index due to the use of quantities purchased in the base year (1990) to weight the unit prices in both years. By keeping the quantities constant, the change in the calculated expenditure is due solely to price change.

**Flue Cured**

A method of curing tobacco leaves in which tobacco barns are heated through ducts or flues. The tobacco leaves are not exposed to smoke while drying.

**Flat Price Contract**

An agreement where all parts of the pricing contract have been settled.

**FOB (Free On Board)**

Used in quoting prices of goods at a certain location. Prices do not include transportation costs.

**FOB Destination**

A business agreement where the seller retains title of the goods until they are delivered. The seller selects the carrier and is responsible for the risk of transportation.

**FOB Origin**

A business agreement where the producer or handler is responsible for assembling and loading the cargo onto transportation that has been arranged and paid for by the receiver. The receiver takes title to the goods at the point of origin as they are loaded for transport.

**Fluid Milk**

The fluid product of a dairy farm or factory in contrast with the more solid products, such as cream, cheese, and butter.

**FDA**

Acronym for Food and Drug Administration.

**Food Grain**

Cereal seeds most commonly used for human food, chiefly wheat and rice.

**Forward Contract**

Selling and pricing procedure where the price received by the farmer is determined at the time the contract is made, with delivery to be made at a specified later date.

**Forward Pricing**

Contracting or agreeing with an input provider to purchase a given quantity of supplies at a given price.

**Free of charge**

An arrangement where a producer may use a resource owned by someone else and not have to pay for its use.

**Fresh Vegetable**

A vegetable is considered fresh if it is sold to the consumer in an unaltered state. However, lettuce that is picked, shredded, and bagged in the field is considered fresh.

**Full Price**

This includes all current and any future payments resulting from the grain sale.

**Futures Contract**

An agreement between two people, one who sells and agrees to deliver and one who buys and agrees to receive specific kinds and amounts of a particular commodity at a specific time, place and price.

**Futures Market**

The formal marketing system that lets farmers promise to deliver or purchase commodities at a set price.

**Grade**

[Livestock] An animal not eligible for registration; however, one or both of its parents may be purebred.

[Marketing] Various methods of classifying commodities as defined by industry standards; examples, according to type, use, fineness of fiber, amount of fat, etc.

**Gross Value**

Value of a commodity after adjusting for discounts and premiums, not including deductions for handling, cleaning (except dry edible beans), storage, grading, drying, etc.

**Harmonized index of consumer prices**

The harmonized index of consumer prices (HICP) is an economic indicator constructed to measure the changes over time in the prices of consumer goods and services acquired by households. The HICP gives comparable measures of inflation in the euro-zone, the EU, the European Economic Area and for other countries including accession and candidate countries. The HICP is calculated according to a harmonized approach and a single set of definitions. The HICP provides the official measure of consumer price inflation in the euro-zone for the purposes of monetary policy in the euro area and assessing inflation convergence as required under the euro convergence criteria (also known as Maastricht criteria).

## Hay

A crop which has been cut and cured by drying for storage; principally legumes, grasses, or grain crops.

## Headquarters

The National Agricultural Statistics Service (NASS) HQ is located in Washington D.C. NASS HQ coordinates the operations for collecting data and publishing estimates for agriculture.

## Hedging

In the futures market, the execution of opposite sales or purchases of contracts to offset purchases or sales of commodities. This practice gives some protection to sellers and buyers of grain against uncertainties that are the result of unstable grain prices.

## Heifer

Female bovine that has never given birth.

## Honeydew Melons

Total crop is classified as fresh. Honeydew is one of the botanical varieties of muskmelons. Estimates do not include Casaba, Honeyball, Persian or Santa Claus production. Cantaloups are estimated separately.

## Identical Ratio (or Current / Current Ratio)

A survey indication which measures change from the previous survey period. It is obtained by dividing the currently reported data by data reported for the same reporting unit in the preceding survey.

## Index Formulas

### Elementary price index Formula

Specially, an elementary price index is a price index for an elementary aggregate. As such, it is calculated from individual price observations and usually without using weights. Three examples of elementary index number formulas are the Carli, the Dutot, and the Jevons.

Carli (1804) suggested price index as an arithmetic mean of the price relative

$$P_{CA}(p_0, p_t) = \frac{1}{n} \sum_i^n \frac{p_{i,t}}{p_{i,0}}$$

Dutot (1738) suggested price index as a ratio of average prices

$$P_{DU}(p_0, p_t) = \frac{\sum_i p_{i,t} / n}{\sum_i p_{i,0} / n}$$

Jevons (1865) proposed a simple geometric mean index

$$P_{JE}(p_0, p_t) = \prod_i^n \left( \frac{p_{i,t}}{p_{i,0}} \right)^{1/n}$$

### Laspeyres price index

A price index defined as a fixed-weight, or fixed-basket, index that uses a basket of goods and services for the base period. The base period serves as both the weight reference period and the price reference period. It is identical with a weighted arithmetic average of the current to base period price relatives using the value shares of the base period as weights, also called a “base-weighted index.” It is defined as

$$P_L(p_t, p_0) = \frac{\sum_i p_t^i q_0^i}{\sum_i p_0^i q_0^i} = \sum_i \left( \frac{p_t^i}{p_0^i} \right) w_0^i, \text{ where } w_0^i = \frac{p_0^i q_0^i}{\sum_i p_0^i q_0^i}$$

### Lowe price index

A basket-type family of price indices that compares the prices of period  $t$  with those an earlier period 0, using a certain specified quantity basket  $q_n$ , where  $q_n$  is between period  $t$  and period 0.

$$P_{LO} = \frac{\sum p^t q_n}{\sum p^0 q_n}$$

The family of Lowe indices includes, for example, the Laspeyres index ( $q_n = q^0$ ) and Paasche index ( $q_n = q^t$ ).

### Paasche price index

A price index defined as a fixed-weight, or fixed-basket, index that uses a basket of goods and services for the current period. The current period serves as the weight reference period and the base period as the price reference period. It is identical with a weighted harmonic average of the current to base period price relatives using the value shares of the current period as weights, also called a “current weighted index.” It is defined as

$$P_P(p_t, p_0) = \frac{\sum_i p_t^i q_t^i}{\sum_i p_0^i q_t^i} = \left[ \sum_i \left( \frac{p_t^i}{p_0^i} \right)^{-1} w_t^i \right]^{-1}, \text{ where } w_t^i = \frac{p_t^i q_t^i}{\sum_i p_t^i q_t^i}$$

## Rothwell Formula

The formula for constructing the seasonal baskets in NASS prices received index is a variant of the Rothwell formula. Doris Rothwell, an economist with the U.S. Bureau of Labor Statistics, proposed it in a 1958 paper for the U.S. consumer price index (CPI). However, the formula was originally proposed in 1924 by two economists with USDA, Louis H. Bean and O. C. Stine, as an index number for farm prices. Thus the formula adopted for constructing seasonal baskets was originally designed as an indicator of farm price movements.

The Rothwell formula is defined as:

$$P_{y,m/0} = \frac{\sum p_{y,m}^j q_{c,m}^j}{\sum p_0^j q_{c,m}^j}$$

$$\text{where } p_0^j = \frac{\sum_{m=1}^{12} p_{0,m}^j q_{c,m}^j}{\sum_{m=1}^{12} q_{c,m}^j}$$

In the above formula,  $p_{y,m}^j$  is the price of the  $j$ th commodity for the  $m$ th month of year  $y$ ,  $p_0^j$  is its price in base year 0, and  $q_{c,m}^j$  is its quantity sold in the  $m$ th month of the basket reference period  $c$ .

## Index Numbers

A computed number measuring the relative change in the price of items included in the specific index from some base period. As an example, a price index for feed items of 250 (based on 1967=100) implies the current aggregated price for the items included in this feed index cost 2.5 times as much now, than the same or comparable items did in 1967.

## Indication

Results from a survey or administrative sources that serve to suggest, hint, or lead to the value of a statistic.

## Lamb

A young sheep, usually less than 1 year old.

## Layer

Hens (including those being molted) or pullets producing eggs. They are usually at least 20 weeks of age.

## **Lettuce, Head**

The most commonly cultivated kinds of lettuce are derived from the species *Lactuca sativa*, an annual originally from Eurasia and a member of the daisy family. Estimates include production from numerous varieties of heading type lettuce, sometimes called crisphead or iceberg. The butterhead varieties, mostly Bibb and Boston, are also included. Looseleaf, cos, and stem varieties are excluded. Total crop is classified as fresh market. Exclude greenhouse production. Bagged lettuce is included. Varieties/Types: Crisphead(Iceberg); Great Lakes Regular, Permier Great Lakes, Imperial 101, Imperial 615. Butterhead; Big Boston, White Boston, Bibb, May King.

## **Lettuce, Leaf**

Also a member of the daisy family. The looseleaf or bunching varieties do not form heads. The leaves cluster together but the young leaves at the center of the plant overlap to any extent. They are not adapted to long distance travel and have a short shelf life. The entire crop is classified as fresh market. Exclude greenhouse production. Bagged lettuce is included. Varieties/Types: (Red Leaf/Green Leaf) Black seeded Simpson, Prize Head, Grand Rapids, Salad Bowl.

## **Lettuce, Romaine**

Romaine is identified by an upright, cylindrical or torpedo-shaped head that is firmly wrapped at maturity. The entire crop is classified as fresh market. Exclude greenhouse production. Varieties/Types: Parris Island, Valmaine, Ballon.

## **List Sample**

A sample of potential farm operators or agribusinesses selected from a list sampling frame.

## **List Sampling Frame (LSF)**

A list of agricultural operators in a State. Each classified operator or operation name becomes a sampling unit. The name may be an individual, manager, farm or ranch, corporation, institution, etc.

## **Live Weight**

The gross weight of a live animal as compared to the slaughtered dressed weight.

## **Livestock**

Any domestic animal produced or kept primarily for farm, ranch, or market purposes, including beef and dairy cattle, hogs, sheep, goats, and horses.

## **Loan deficiency payments**

If the peanut marketing assistance loan rate exceeds the loan repayment rate, peanut producers can forego obtaining a loan and receive a Loan Deficiency Payment (LDP) equal to the difference.

## **Loan, Marketing**

A nonrecourse price support loan which may be repaid at less than the announced loan rate whenever the world market price or posted county price is less than the commodity loan rate.

## **Loan, Marketing Assistance**

A loan received from the CCC at a designated rate per unit of production. A quantity of commodity is pledged and stored as collateral. Most loan rates continue to be based on 85 percent of the preceding 5 year average of farm prices, excluding the high and the low. Maximum loan rates are specified for some crops.

## **Loan, Nonrecourse**

Eligible producers may obtain a loan from the CCC by pledging crops in storage as collateral. Farmers redeem their loans by paying them off with interest, or if a farmer cannot sell the commodity and repay the loan when it matures, turn the stored commodity over to the government. The government has no choice but to accept the pledged commodity as complete settlement for the loan.

## **Loan Rate**

The price per unit (bushel, bale, pound, or cwt.) at which the Commodity Credit Corporation (CCC) will provide loans to farmers to hold their crops for later sale.

## **Loan Repayment Rate**

The level at which producers may repay their loans to FSA.

## **Long Staple Cotton**

Refers to cotton fibers whose length ranges from 1 <sup>1</sup>/<sub>8</sub> inches to 1 <sup>3</sup>/<sub>8</sub> inches. Fibers whose length is 1 <sup>3</sup>/<sub>8</sub> inches or more are known as extra long staple (ELS).

## **Manufacturing Milk**

Raw milk produced or used for the manufacture of dairy products, such as cheese, butter, powdered milk, etc. It may or may not be of lower quality than milk used for bottled milk and may sell for less.

## **Marketing Contract**

An agreement between a producer and a firm or agent to market or purchase a commodity, usually for delivery or payment in the future. The terms of marketing contracts are generally determined by the producer (contractee) with the primary responsibility of the agent being to provide the market for the commodity. The producer may exercise a high degree of control over the production of the commodity and receives a payment close to the market value of the product. The buyer does not control the production of the commodity. The contract establishes for delivery and payment which may allow the buyer to take control of the commodity before the final price or payment is made.



## **Marketing Assistance Loans**

Loans for determined crops where the farmers decide how much of their current year's production they want a loan on and pledge that amount as collateral. Farmers can use funds for immediate needs and enables them to wait until prices have improved to settle their loans and market their commodities. They have a 9 month maturity and accrue interest. These loans are nonrecourse, meaning that the government must accept the collateral as full payment of the loan at loan maturity if a producer so chooses. Some commodities have a national loan rate while others have a county loan rate. Farmers can receive benefits from marketing assistance loans in four ways, two of which are now subject to payment limits: 1) Marketing Loan Gains (MLGs) 2) Loan Deficiency Payments (LDPs) 3) Gains from the certificate exchange process and 4) Forfeiture gains.

1) Marketing Loan Gains (MLGs) are when producers repay a marketing assistance loan anytime before loan maturity at the alternative loan repayment rate announced by USDA, if the alternative rate is less than the loan rate plus accrued interest. The alternative repayment rate for Upland cotton and rice are announced weekly and are commonly called adjusted world prices (AWPs). For most other crop, the alternative repayment rates are announce daily and are commonly called posted county prices (PCPs).

2) Loan Deficiency Payments (LDPs) are similar to MLGs except that farmers receive LDPs on current production not placed under loan.

3) Gains from the certificate exchange process. Another way for farmers to reestablish unencumbered control of their loan collateral. There are three steps 1) The producer takes out a marketing assistance loan 2) The producer turns the collateral over to the CCC. The certificate's unit price is the alternative loan repayment rate for the commodity (PCP or AWP) at the time of the certificate purchase. 3) The producer exchanges the certificates for the quantity of the commodity that was previously under loan and regains control of the collateral.

4) Forfeiture gains A gain when the market value of collateral forfeited is less than the loan balance. The producer forfeits ownership of the loan collateral to the government when the loan reaches maturity.

## **Market News Service (MNS)**

A branch of Agricultural Marketing Service. Its function is to provide market reports depicting current conditions on supply, demand, prices, trends, movement, and other pertinent information affecting the trade in livestock, meat, and wool.

## **Market Value**

The price real estate, other property or a commodity would receive in the current market.

## **Market Year Average**

Weighted average prices for crops, livestock, and poultry commodities sold during the market year.

## **Market Year or Marketing Year**

A one year period, beginning at the start of the new harvest for a commodity and extending to the same time in the following year. The beginning of harvest has been averaged to establish a standard U.S. marketing year for each commodity. For example, the U.S. cotton marketing year begins on August 1 and ends on July 31 of the following year.

June 1 - May 31	Rye, Wheat, Barley, Flaxseed, and Oats
September 1 - August 31	Corn, Sorghum, Soybeans, Sunflowers, and Dry Edible Beans
August 1 - July 31	Rice, Peanuts, and Cotton

## **Marketing Assessment**

Require producers to repay nonrecourse price support loans at less than the announced loan rates whenever the world market price or posted county price for the commodity is less than the commodity loan rate.

## **Marketing Order**

Federal authorization for agricultural producers to promote orderly marketing by influencing such factors as supply and quality, and to pool funds for promotion and research. Marketing orders are initiated by the industry, and are approved by the Secretary of Agriculture and by a vote among its members (usually a two thirds majority). Once approved, a marketing order is mandatory.

## **Metric Ton or Long Ton**

A measure of weight equal to 1,000 kilograms, or about 2,200 pounds.

## **Milk**

[Livestock] The natural food produced by female mammals to nurse their young.

## **Milk Cow**

Cow, excluding a nurse cow, regardless of breed kept primarily to produce milk for home use or for sale.

## **Milk: Grade A**

Raw milk produced on dairy farms in which the average bacterial plate count does not exceed Grade A standards. This milk is primarily for the fluid market, although it may be diverted to manufacturing use.

## **Milk: Grade B**

Raw milk which violates the bacterial standard for Grade A raw milk, but conforms with all other requirements for Grade A raw milk. Primarily, a manufacturing milk.

## **National Cotton Council of America (NCC)**

The central organization representing all seven sectors, or interests, of the raw cotton industry of the U.S.: producers, ginner, warehouses, merchants, seed crushers, cooperatives, and manufacturers (spinners). NCC is a voluntary private industry association established in 1939. NCC programs include technical services, foreign operations, communication services, economic services, and government liaison. Headquartered in Memphis, TN.

## **NAWG**

Acronym for National Association of Wheat Growers, an organization of wheat producers.

## **NCGA**

Acronym for National Corn Growers Association, an organization of corn producers.

## **National Turkey Federation (NTF)**

An organization of turkey producers.

## **NMPF**

Acronym for The National Milk Producers Federation, an organization of milk producers.

## **Nonresponse**

Failure of a respondent to reply to a survey questionnaire; may be item nonresponse (refuse to answer one or more questions), survey nonresponse (refuse to answer any or most of the questions), or inability of enumerator to locate respondent during the survey period.

## **NWG**

Acronym for the National Wool Growers, an organization of sheep and wool producers.

## **Oilseed Crops**

Primarily soybeans, cottonseed peanuts, sunflower seeds, and flaxseed used for the production of oils and high protein meals. Lesser oil crops are canola, safflower, rapeseed, mustard seed, castor beans, and sesame.

## **Onions**

Green onions, shallots and leeks are excluded. Estimates include only dry bulk for fresh market and processed dry onions. The majority of processed onions are for dehydration with only a small percentage being used for onion rings or other lightly processed products, such as, sliced, diced, and peeled. The dehydrator onion is a completely different onion with a much lower water content and cannot be used as a fresh market onion. Onions come in numerous shapes and colors (white, yellow, brown, or purple red). The color has little effect on the flavor, which depends more on whether the variety was developed for long storage. Short day onion varieties produce bulbs on short days during winter and early spring. Long day onion varieties bulb when days are longer, during summer. Onions are half hardy perennials grown as long season annuals. There are three ways to grow them: 1) from sets (small dry onion bulbs whose growth has been interrupted), 2) from transplanted seedlings, and 3) by direct seeding.

## **Open Fire Cure**

A method of curing tobacco by hanging it on scaffolds in a tobacco barn and building fires under it.

## **Operation**

Establishments primarily engaged in the production of crops or plants, vines and trees (excluding forestry operation) and/or the keeping, grazing or feeding of livestock or poultry for animal products, for animal increase or value increase.

## **Operator**

The person responsible for all or most of the day-to-day decisions such as planting, harvesting, feeding, or marketing for the tract or total land operated. The operator could be the owner, hired manager, cash tenant, share tenant or a partner. If land is rented or worked on shares, the tenant or renter is the operator.

## **Other Hay**

The Other Hay category should only be used if the harvested hay does not fit the other categories (i.e., alfalfa and alfalfa mixtures, wild hay, small grain hay) that may be identified on a questionnaire. Examples of Other Hay crops include bluegrass, timothy, fescue, bermuda, and sudan grasses and clover (if it is not part of an alfalfa mixture).

## **Packer**

[Livestock] A slaughter and meat processing business.

[Crops] Pertaining to the business of packing fresh or processed fruits and vegetables or meats.

## **Packinghouse**

An establishment where food products are prepared and packaged for market.

## **Packinghouse Door (PHD)**

Equivalent on tree prices including picking and hauling charges.

## **Parity for Economics**

A relationship which defines a level of purchasing power for farmers equal to an earlier base period. Some farmers, rather than using the technical definition above, think of parity as simply "a fair price plus a reasonable profit."

## **Parity Price**

The price giving a unit of a farm commodity the same purchasing power or exchange value in terms of goods and services bought by farmers, as farm commodities had in the base period, 1910 to 1914.

**Parity Ratio**

The ratio of the Prices Received index over the prices paid index, using 1910 to 1914 as the base period. It measures the relative purchasing power of products sold by farmers.

**Payment, Advanced**

A provision in the farm program where a program participant receiving payments may choose to receive a portion of the projected final payment early in the year. However, at the end of the program year, if the final payment is less than the advance amount, producers must refund the excess portion.

**Payment, Cost share**

Payments made under a program where a participant in the farm program receives partial cash assistance from the government when the participant pays for the cost of a service or good.

**Payment, Final**

This term is used in conjunction with deficiency payments and transition payments. Advanced payments are made to participants on the basis of projected payments. The final payment is the actual payment level that the participant is authorized under the terms of the program which is determined at the end of the year.

**Payment Limitations**

Limitations set by law on the amount of money any one person may receive in farm program payments each year under the feed grain, wheat, cotton, rice and other farm programs.

**Payment, Loan Deficiency**

Payments made to a producer who, although eligible to obtain a marketing assistance loan, agrees to forgo the loan in return for the payment. A loan deficiency payment is available only when the adjusted world price is below the loan rate.

**Payment Quantity**

The payment quantity of a contract commodity for each fiscal year equals 85 percent of the contract acreage multiplied by the farm program payment yield.

**Payment Yield**

The farm commodity yield of record (per acre), determined by a procedure outlined in the farm bill legislation. Payment yields can be based on a 4 year farm historic yield or a county average yield or a combination of both.

**Peas, Green**

Also called English Peas. Available January through June. Classifications are tall and dwarf, early and late, small pod and large pod, and smooth seeded and wrinkle seeded. All varieties are included in production estimates. No estimates of fresh market production are made.

## **Peppers, Bell**

Also known as sweet peppers. Bell peppers are a Nightshade vegetable. The fruit is mild or sweet fleshed and is dark green when immature. At maturity the color may be red, yellow, black or purple. Separate estimates of fresh market and processing are required but only the total is published. Greenhouse production, pimento, paprika, and chile type peppers are excluded. Varieties/Types: Most common variety is California Wonder. Others are Early Cal Wonder, Burlington, Yolo Wonder, Enterprise, Neopolitan, Chinese Giant, and Harris Early Giant. Available year round in large volume, but peaks May through August.

## **Peppers, Chile**

Include all peppers other than bell peppers. Also members of the capsicum family. Varieties/Types: Fresh Anaheim, Fresno Chili, Habanero, Habanero (Red Savina), Jalapeno Chili, Peperoni, Poblano Chili, Serrano Chili, Scotch Bonet, Yellow (Banana, Yellow Wax, Hungarian Wax). Dried Anaheim Red Chili, Ancho Chili, Chili De Arbola. Exclude ornamentals. Separate estimates are made for fresh market and processing. Data will be published at the "all" level.

## **Pfund Scale**

A scale expressed in millimeters used in the honey industry to describe the color of honey.

## **Pima Cotton/American Pima Cotton**

Grown in Southwest U.S. and Peru, this superior quality, long staple cotton is named for the Pima Indians who helped to raise it in Arizona test fields in the early 1900s. Its longer length makes Pima cotton softer, smoother, and stronger than other cotton fibers which become even more comfortable with age. Its fewer imperfections in the yarn, allow for creating finer finished lustrous garments and bedding.

## **Point of First Sale**

The point in the marketing channel where the firm selling the product gives up the ownership of the product.

## **Pooled Grain**

Grain in this category has usually been delivered to a cooperative. Farmers will receive partial payment at the time of delivery and final payment at some later date after the cooperative markets the grain.

## **Poult**

A young turkey before its sex can be determined. Sometimes applied to the young of other fowl.

## **Poultry**

Any or all domesticated fowls raised primarily for their meat, eggs, or feathers, such as chickens, turkeys, ducks, and geese.

**Premiums**

Premiums are often paid for #1 (classing standard) grain or those with specified milling qualities or protein content. A premium is an additional payment based on the high quality of the grain or the producer providing an additional service such as delivering the grain to a location more convenient for the buyer. Some ethanol plants pay farmers an annual “premium” for their delivered corn. Do not include “premium” payments which are a shareholder’s dividend based on the ethanol plant’s profits.

**Price, Mill**

The price of a commodity delivered to a buyer at the mill. These prices, including landing and brokerage costs, are quoted for commodities at given grades and commodity descriptions.

**Price Received by Farmers**

The price farmers receive for commodities they sell in their local market or at the point where they deliver their product. The farmer delivers the product to market, so transportation discounts should not be subtracted from the price received.

**Prices Received Index**

An index to measure changes in average prices received by producers for agricultural commodities they sell, relative to a base period.

**Price Relative**

A price relative is the ratio of the price of a specific commodity, such as Corn, in one period to the price of the same commodity in some other period. The prices NASS uses to compute price relatives are the commodity average prices at US level. The base period is 1990-1992.

**Price, Spot**

A spot or cash market price is the price a commodity of various qualities was sold in different areas. These exchanges provide a means of establishing premiums and discounts to producers and for settling futures contracts.

**Probability Sample**

A method of sampling that utilizes some form of random selection. A random selection method uses a process that assures that the members in the population have a probability of being chosen.

**Processed Vegetable**

A vegetable is considered processed if it is sold to the consumer after it has been altered by heat, pressure, or freezing temperatures.

**Processing Plant**

Business and corresponding buildings designed to carry out the operations, such as pasteurizing milk, curing meats, canning and preserving fruits, etc., required to prepare agricultural products for sale and consumption.

**Processor**

One who processes or prepares agricultural products by cooking, curing, etc.

**Program Crop (FSA)**

A crop that FSA is allowed to distribute program payments.

**Pumpkins**

Small 'mini' pumpkins, gourds, and other pumpkins (such as Jack O'Lanterns) normally used for decoration should be considered for ornamental use and not included in the estimate. The pumpkin estimate will be primarily processing and should include pumpkins intended to be sold to processors. Varieties/Types: Fresh Market/Pie Jack o' lantern Spirit (AAS), Cinderella Bush, Jack O'Lantern, Jackpot, Howden, Connecticut Field. Small Pie, Small Sugar, New England Pie, Spookie. Other pie Mammoth. Processing: These varieties are widely used for commercially canned pumpkin, and have tan skin color Buckskin(hybrid), Chelsey(hybrid), Dickinson Field, Kentucky Field.

**Questionnaire**

A form used to ask specific questions and to record the responses given to the survey questions by selected sample units. The questionnaire may be on paper or on a computer screen using Computer Assisted Telephone Interview (CATI) or Computer Assisted Personal Interview (CAPI).

**Rancher**

Ranch operator.

**Ratio to Base**

A ratio estimator whose divisor or "base" is known in advance and is part of the sampling frame.

**Referendum**

The referral of a question to voters to be resolved by balloting; for example, marketing quotas, acreage reduction, or marketing agreements.

**Refusal**

A person representing a sample unit who will not cooperate in the survey and who refuses to provide sufficient information to satisfactorily complete the questionnaire, or who will not give an enumerator permission to complete the field counts or measurements.

**Relative Importance**

The relative importance (relative weight) of an item represents its basic value weight, including any imputations, multiplied by the relative price change from the weight date to the date of the relative importance calculation, expressed as a percentage of the total value weight for all commodity categories. When the total value is fixed, the relative importance remains constant. However, NASS uses a five-year moving average method to compute the weights for price indexes. Thus, the relative importance changes each year. The relative importance of Feed, for example, changes from 11.4 for 2009 to 11.9 for 2010.



**Release Date**

The date the survey results are published and released.

**Respondent**

The person who provides the information necessary to complete a survey interview.

**Revisions**

A change made by the Agricultural Statistics Board to an earlier published USDA estimate. Revisions are made as a result of more current information or additional information learned about the commodity since the original estimate was published.

**Rice, Long Grain**

The predominant rice type grown in the United States. The length of the grain is about four to five times the width of the grain. Long grain is dominant in the 5 State Delta region.

**Rice, Medium Grain**

Medium grain rice is shorter and thicker than long grain rice. California produces the majority of the medium grain rice in the United States

**Rice, Short Grain**

This type is sometimes referred to as round rice. Almost all short rice production in the United States is in California.

**Rough Rice**

Rice as it comes from the field before milling. Also, known as paddy rice.

**Sample**

Sampling units selected from a sampling frame.

**Sampling Unit**

An identifiable unit of a sampling frame that may be selected when drawing a sample.

**Shade Tobacco**

See "Cigar Wrapper."

**Shrink**

An industry term used to denote the loss in grain weight when grain is dried to a standard moisture or grain loss when it is moved or handled by a facility.

**Small Grain**

Any of the cereal crops, such as wheat, oats, barley, rye, and rice.

## **Small Grain Hay**

Includes small grains such as wheat, oats, and rye harvested as hay instead of grain. Small grains harvested for hay are a source of feed for a feedlot. Sometimes a small grain is intended to be harvested for grain, but if grain quality and quantity has poor potential, grain prices are low, or a second crop will need to be planted before the grain is ripe, then harvesting for hay is an alternative.

## **Sow**

Female pig that has farrowed at least once.

## **Speculation**

Trading in futures contracts in which traders take the risk of price change, hoping for a financial gain.

## **Speculative Commodities**

Commodities designated by USDA regulations because they are traded on organized commodity exchanges. Forecasts and estimates for these commodities are prepared under special precautions.

## **Speculator**

People who underwrite the risk for the hedging process. Speculators usually have no commodity to deliver or do not intend to take delivery on any contracts. They will try to offset their market position before the contract is due.

## **Spinach**

A green leafy annual of the goosefoot family. Spinach is a quick maturing cool season crop. Varieties are classified according to leaf type which also helps identify usage. The savoy (crimped leaf) type is generally used for fresh market. The flat or smooth leaf types are generally canning types. New Zealand spinach is not a true spinach and is not included in estimates. Separate estimates are made for fresh market and processing.

## **Squash**

Member of the cucumber family and is generally divided into 2 classes. 1) Summer squash with soft skins are eaten at immature stages; 2) winter squash are more suitable for winter storage because of their hard shells.

**Types/varieties:** Soft shelled summer zucchini, cizelle, choyote, scallopini, yellow crookneck, yellow straightneck, cucuzza, sunburst, marrow, patty pan (all available late spring, peak late spring and early summer). Hard mature winter, small white, green and gold table queen (acorn), carnival, turban, delicata (sweet potato), butternut, sweet dumpling, kabocha, golden nugget, butternut (Aug Mar, peak Oct Dec; some are available year round). Hard shelled mature winter, large spaghetti, orange marrow, hubbard, banana, Australian blue, sweet meet, Mediterranean, calabaza (Aug Mar, peak Oct Dec; some are available year round).

## Standard weight/moisture

The 'dry' standard measure of grain quantity comes from two factors by which grain volume is determined. One is moisture content (% water of total weight) and the other is weight per volume. The following are guidelines and may vary by individual firm.

<b>CROP</b>	<b>Standard MOISTURE%</b>	<b>Weight POUNDS</b>	<b>UNIT</b>
Corn	15.5	56	bushel
Barley	14.5	48	bushel
Flaxseed	8.0	56	bushel
Oats	14.0	32	bushel
Sorghum	14.0	100	cwt
Soybeans	14.0	60	bushel
Sunflowers	8.0	100	cwt
Wheat	13.5	60	bushel

## State Field Office

Coordinate all the field activities for the National Agricultural Statistics Service (NASS). NASS maintains a network of 46 State field offices, serving all 50 States and Puerto Rico through cooperative agreements with State departments of agriculture and universities.

## Statistically Defensible Survey

A survey whose procedures and specifications can with stand court challenge or other investigation. The survey should have an adequate sample size, randomly selected respondents, carefully worded questions, professional interviewing, reasonable editing, correct summarization, and appropriate publication.

## Statistics

Totals, averages, percentages, and other numbers computed from population or sample data.

## Statistics Canada

Statistics Canada (French: *Statistique Canada*) is the Canadian Federal government agency commissioned with producing statistics. Its headquarters is in Ottawa.

## Steer

Castrated male cattle.

**Stock Sheep**

Sheep in the breeding flock, including ewes and rams used for breeding, wethers one year old and older, ewe lambs and ram lambs.

**Strata or Stratification**

The classification of sampling units in a population into homogeneous groups. An area frame is stratified based on land use, such as intensity of cropland, rangeland, wasteland, urban areas, etc. A list frame is stratified based on operation control data, such as number of livestock, grain storage capacity, cropland, and total acres operated.

**Strawberries**

A perennial member of the rose family that produces large red fruit. Most varieties produce seasonally or during a short period. However, everbearing varieties are included in total production. Strawberries reach peak supply May through July but are available year round. Supplies are at a low point November through January. About 70 varieties are produced in the United States, among the popular varieties are: Camarosa, Selva, Diamante, Sweet Charlie, and proprietary varieties.

**Survey**

The collection of data pertaining to specific sample units. A sample is selected and information collected from individual sampling units. Data reported by the selected sampling units, when summarized, provides an indication of what the total would be if all the sample units within the population of interest had reported.

**Survey Period**

The time period during which survey data collection can occur. Primarily determined by the survey's reference date and due date.

**Sweet Corn**

A variety of corn with kernels high in sugar that is eaten by humans as fresh or processed corn.

**Swine**

A hog or a pig.

**Target Price**

The 2002 Act establishes target prices for eligible commodities.

**Terminal Market**

A city or market into which large amounts of produce are brought for sale and distribution.

**Tobacco, Shade**

See Cigar Wrapper.

**Tomatoes**

Generally, different varieties and cultural practices have been developed for fresh market and processing. Fresh market includes, ripe, mature greens, and pinks sold for immediate consumption. Tomatoes grown organically and heirloom varieties (those varieties that are more than 50 years old) may be included. Tomatoes originally grown for fresh market may be processed, usually as whole peeled tomatoes. Plant breeding for more uniform ripening and size has developed a fruit grown for processing that can be mechanically harvested. These terminal growth type tomatoes are not normally used for fresh market production. Cherry tomatoes, grape tomatoes, tomatillos and greenhouse production are not included. Special processing varieties are specifically suited for mechanical harvesting. Fresh market tomatoes are hand-picked, with a field being picked about three times before harvest is complete.

**Truck Farm**

A farm producing one or several kinds of vegetables which are shipped to and sold at markets.

**Turkey Market Year**

The average price received by farmers from January through December of the current year.

**Turkey Prices**

Price reflects the mid month price for both preliminary and revised estimates. Price represents a liveweight or equivalent liveweight basis for all turkeys sold.

**Unexpanded Average**

Simple average of sample responses.

**United Egg Producers (UEP)**

A national egg producer organization.

**United States Department of Agriculture (USDA)**

A Department within the Federal government having a cabinet level Secretary reporting to the President. It functions to propose legislation and establish regulations in the best interest of agriculture.

**Upland Cotton**

The predominant type of cotton grown in the U.S. and most of the world. The fiber staple length ranges from 13/16 inch to 1.3 inches, averaging nearly 1 3/32 inches.

**Variety**

A group of related plants or animals that differ from similar groups by characteristics too trivial to be recognized as a species.

## **Value / Expenditure Weights**

Value weights are the measures of the relative importance of commodities in the price index. The weights reference period values of the various components covered by the price index. Being commensurate and additive across different commodities, value weights can be used at aggregation levels above the detailed commodity level. NASS uses farm expenditures and cash receipts to compute the value weights for price paid and price received indexes respectively.

## **Watermelons**

A member of the gourd family. The plant is a training annual with long running stems and branched tendrils. The fruit differ in size, shape, and color of rind and flesh. Most varieties have seed but some are seedless. the crop is entirely for fresh market. Varieties/Types: Picnic Jubilee, Crimson Sweet, Allsweet, Peacock/Klondike; Seedless Triplod Hybrid, Icebox. Watermelons are considered a dryland crop which can withstand dry soil conditions since the roots are able to grow down, up to 20 feet, to reach the water table underground.

## **Weights**

A set of numbers between zero and one that sum to unity are used when calculating price indexes. Value shares sum to unity by definition are used to weight price relatives, or elementary price indexes, to obtain higher-level index. Although quantities are frequently described as weights, they cannot serve as weights for the prices of different types of commodities whose quantity are not commensurate and use different units of quantity that are not additive. The term “quantity weights” generally is used loosely to refer to the quantities that make up the basket of goods and services covered by an index and included in the value weights.

## **White Corn**

A variety of corn with white kernels used for making white corn meal.

## **Wild Hay**

Hay made from native or wild, uncultivated grasses and plants. Prices included with “other hay”.

## Common Abbreviations

ACRE	Average Crop Revenue Election
AMS	Agricultural Marketing Service
ASB	Agricultural Statistics Board
Bbl	Barrels
Bu	Bushels
CAPI	Computer Assisted Personal Interviewing
CATI	Computer Assisted Telephone Interviewing
CBOT	Chicago Board of Trade
CCC	Commodity Credit Corporation
CCI	Cotton Council International
CFA	Catfish Farmers of America
CFTC	Commodity Futures Tradings Commission
CIF	Cost, Insurance, Freight
CV	Coefficient of Variation
DCC	Data Collection Centers
DCP	Direct and Counter cyclical Program
DHIA	Dairy Herd Improvement Association
EC	Estimation Centers
EDR	Electronic Data Reporting
ELS	Extra Long Staple cotton
ERS	Economic Research Service
FO	Field Office
FOB	Free On Board
FSA	Farm Service Agency
HQ	Headquarters
LDP	Loan Deficiency Payments
LSF	List Sampling Frame
MNS	Market News Service
MYA	Market Year Average
NASS	National Agricultural Statistics Service
NAWG	National Association of Wheat Growers
NCC	National Cotton Council for America
NWG	National Wool Growers
OMB	Office of Management and Budget
PHD	Packing house Door
POFS	Point of First Sale
NMPF	National Milk Producers Federation
NPPC	National Pork Producers Council
NTF	National Turkey Federation
UEP	United Egg Producers
USDA	United States Department of Agriculture

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## Chapter Three. Prices Paid Program

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This chapter presents program history, background information, and the current methodology used in NASS's Prices Paid program. Since the program's inception, many changes have been necessary to address the changing environment in agriculture. Since the USDA began collecting prices paid by producers' data, agriculture has undergone many dramatic changes. The need for timely and accurate farm input price data is more demanding than ever. Currently, NASS collects data for over 450 items from dealers and agribusinesses in 48 States. The prices paid surveys are conducted annually in March for agricultural chemicals, farm machinery, feed, fertilizers, fuel, and retail seed. The prices from these surveys are used to compute a March index published in April each year. A benchmark process revises the monthly indexes for the previous 11 months where administrative data were used.

The index series has maintained the 1910-1914 base period for parity price purposes as prescribed in permanent legislation. A more recent base reference period is provided and has undergone a number of updates through the years. The current program survey methodology includes universe development and maintenance; survey sample design and selection; survey instrument design; data collection means; use of administrative data; data review, analysis, and summarization; estimate construction; estimate revisions; and public availability of the farm input price estimates. To provide as much transparency in this document as possible, some discussion is repeated. This chapter also provides a presentation of data needs and uses for the data as well as limitations with the data series.

## History / Background

The U.S. Department of Agriculture (USDA) first surveyed merchants in 1911 to obtain information on prices paid by producers for family living and production. At that time, 86 commodities were included in the annual survey. By 1923, the survey was being conducted quarterly. The number of items surveyed continued to expand until, in 1927, 174 commodities were included. "To strengthen the commodity coverage in the Prices Paid Index, Bureau of Agricultural Engineering (BAE), beginning in 1935, expanded the collection of price series of commodities bought by farmers until, at the end of 1949, prices were collected for nearly 500 commodities..."(USDA, 1957). In addition, BAE expanded the historical data in 1936, particularly 1910-1914, by conducting a historical survey in 19 States and compiling price data from mail-order catalogs and other sources. Beginning in 1937, the surveys were semiannual, quarterly, or monthly, depending on the item (USDA, 1990). By 1962, the USDA's Statistical Reporting Service (SRS), NASS's prede-

cessor, collected more than 650 items of prices paid by producers (USDA, 1964).

In 1970, SRS surveyed independent stores in 49 States. Feed dealers and hatcheries were surveyed monthly, while food stores, clothing stores, household furnishings and appliance stores, hardware and farm supply stores, service stations and auto supply stores, building and fence dealers, fuel dealers, marketing container handlers, and farm implement and machinery dealers were surveyed quarterly. Fertilizer dealers and car and truck dealers were surveyed semiannually (USDA, 1990). These surveys covered about 450 items that were used in the compilation of the index.

Since prices paid items were first surveyed, data collection has undergone several time frame changes ranging from monthly, quarterly, semiannual, and yearly due to market basket changes and updates. The current program, last revised to survey annually in 1995, now collects data for over 450 items from dealers and agribusinesses in 48 States. Although the number of items remains basically the same as in the 70's, the mix has changed due to purchasing pattern changes and items becoming obsolete. The prices paid surveys are conducted annually in March for farm machinery, feed, fertilizers, agricultural chemicals, fuel, and retail seed. The prices from these surveys are used to compute a March index. A benchmark process revises the monthly indexes for the previous 11 months where administrative data were used.

## Survey Methodology

### List Sampling Frame Development

The objective for the frame is to be representative of retail establishments where producers purchase products and services for production operations. Agribusinesses are geographically distributed such that all areas of the State are represented. The focus is on businesses that have sales of inputs to agricultural producers. Retail outlets and establishments that sell agricultural products are not part of the regular NASS list frame building process. In 2010, a screener operation survey was conducted to enhance the frame for agribusinesses selling farm input commodities. All operations that were on the list were contacted to determine items of interest being sold. Table 3.1 shows the total screener target sample count. Those operations currently sampled for the prices paid surveys also completed the screening form. Tables 3.2a - 3.2e show, broken down by survey, the number of retail establishments contacted and added to the list frame from the screener.

The farm machinery, feed, fertilizer, agricultural chemical, fuel, and retail seed prices paid survey categories each follow the same frame development and updating process. For each category a separate survey is conducted in March. Agricultural chemical and fertilizer price data are collected from the same survey. Seed surveys for cotton, peanuts, potatoes, rice, and sunflowers are conducted in major commodity states. The number of contacts varies in these states. In some cases, a State may collect and provide data to other states for use in setting state estimates.

**Target Population and Frame Development.** The target population for the each survey group includes all retail outlets or establishments where producers  
USDA, National Agricultural Statistics Service

purchase input items, for their operations. A retail outlet or establishment can be identified for selling items across any of the five survey categories. So, it is possible for a retail outlet or establishment to be identified in all five target populations.

If a business operates at multiple locations, or if it is part of a franchise (chain), each individual location is treated as a separate operation eligible for sampling. The list sampling frame (LSF) operations have procedures for handling agribusinesses with multiple locations. The list of agribusinesses is comprised of current establishments used by producers to purchase the targeted survey items.

The LSF is reviewed annually in advance to ensure that the list of businesses targeted for the prices paid surveys is complete, accurate, and up-to-date. Table 3.1 shows the target sample for each survey group. The State field offices maintain each universe to cover the minimum number of operations required to meet the target sample. Samples are refreshed by 20 percent each year, meaning 20 percent of the sample is replaced. This reduces respondent burden while maintaining sufficient overlap.

Listings of these operations to build and maintain the list frame are obtained from telephone directories and business directories, on regulatory lists, and through industry wholesalers and trade associations. The National Association of State Departments of Agriculture (NASDA) enumerators, county extension personnel, and other individuals associated with the farming industry also provide sources of information about retailers and other agribusinesses.

**Frame Maintenance.** Each year for a targeted survey category, Headquarters staff provides transac-

tion reports of out-of-business operations, name and address changes, and business type changes to each State field office. The transaction reports are generated from data collection. Operations are screened thoroughly for other agricultural activities before dropping or coding as inactive. If the operation is also associated with an active farm and only the agribusiness is out of operation, list frame control data for the appropriate prices paid survey samples are removed, with the record left active. See Table 3.3 for a list of frame status codes.

### Sample Design and Selection

Samples are drawn for the five prices paid surveys. The sample design for the Prices Paid program follows a quota sampling scheme. A quota sample is used because NASS does not maintain populations of agribusinesses that sell these commodities. There is an effort to target samples at the state level for each survey group. The sample becomes a non-probability stratified sample with the strata defined as States within a survey group.

Each State field office is given a sample size requirement for each of the five surveys. Historically, there has been 100 percent overlap from year-to-year for establishments that are still in business and responding. Out of business operations and nonrespondents are removed from the sample. State field offices add retail outlets or establishments to replace the dropped sample units based on the case disposition codes. If the target sample size is greater than the carryover from the previous year, the State field offices search for other establishments to replace the sample units removed from sample. Table 3.4 lists the case disposition codes.

Since retail outlets and establishments that sell agricultural products are not part of the NASS list frame building process for producers, a complete

list of the agribusinesses population is unknown. There are no target coefficients of variation or CVs for the sample process. In addition, sample weights are not generated from the sampling process. The state level estimates from the prices paid surveys are averages of the data reported from usable reports.

### Questionnaire and Data Collection

Each year the data collection timeframe is a three-week period around March 15<sup>th</sup> for the five prices paid commodity groups. Data may be collected by mail, phone, field enumeration, or via electronic data reporting. The reference date for each survey is March 15<sup>th</sup>. Other seeds data are also collected in March while poultry prices paid data are collected monthly and in December. Target response rate is 80 percent for the prices paid surveys. Agribusinesses are requested to report the prices for the item most commonly sold that meets the general specification on the questionnaire. Quantity sold data are not collected for any commodity except for poultry.

**Farm Machinery.** NASS asks questions for 86 types of farm machinery implements on the “Prices Paid for New Tractors and Farm Machinery” questionnaire. The standard classification for farm machinery included in the survey is as defined by the Association of Equipment Manufacturers. Table 3.5 shows the specific types of farm machinery. NASS collects the average price for the most commonly sold farm machinery items which are not specific to manufacturer or make but do meet item specifications. Price data are collected to the nearest dollar. The following pricing factors are applied when collecting the price of the farm machinery:

- An average price, not a range of prices, is collected for farm machinery by different manufacturers.

- The reported price is the purchaser's net price paid after receiving any discount or rebate with no trade-in. Cash discounts and rebates offered by the dealer or manufacturer are reflected in the reported price.
- The reported price is not adjusted for the value of any trade-in.
- Prices are for new farm machinery.
- Prices are for "the most commonly sold."
- Accessories usually purchased with the farm machinery are included.
- Sales tax is excluded.

The NASDA enumerators and State field office staff verify the make and model of the farm machinery, like tractors and combines, with the dealer or manufacturer to ensure that prices are reported in the proper category.

**Feed.** Data for 35 feed items are collected on the "Prices Paid for Feed" questionnaire. Table 3.6 lists the specific feeds. NASS collects the price for each feed to the nearest cent. Pricing factors applied when collecting feed prices are to exclude sales tax; to include discounts for quantity purchases, cash payments, and delivery arrangements; and to report items "most commonly sold." The dealer reports a price for bagged, bulk, or both types sold. The units of measure for reporting includes ounces, pounds, 50 pound block, 50 pound bag, 100 pound bag, hundredweight, or ton. The most common units for reporting feed item prices are bags (100 pounds) and tons (2000 pounds). These prices are combined using relative weights proportionate to each unit's contribution to historic total quantities sold. The bag and bulk weights are applied at the state level. The NASDA enumerators and State field office staff use data from feed manufacturers and marketing firms to validate reported data.

**Poultry Feeds.** The four poultry feeds surveyed are chick starter, broiler grower, turkey feed, and laying feed (commonly referred to as laying mash). Prices

for poultry feeds are for a complete ration feed which will usually contain antibiotics. The NASDA enumerators and State field office staff review extremely high or low prices since some respondents may report a price for a different item or reporting unit. Prices are reported in tons or bags of 50 or 100 pounds.

**Dairy Feeds.** Four complete feeds and one concentrate are collected for dairy feeds. Complete feed data is captured for 14, 16, 18, and 20 percent protein. The concentrate is 32-38 percent protein. The NASDA enumerators and State field office staff review prices for outlier reports. Additionally, the NASDA interviewers review the price relationships for the units of measure and for consistency.

**Hog, Beef Cattle Feeds, and Concentrates.** Data for hog complete feed 14-18 percent protein and hog 38-42 percent protein concentrate are collected. Beef cattle concentrate is reported for 32-36 percent protein only. Higher protein feeds are not necessarily higher in price since urea can be used as a protein source in cattle feed. Concentrate prices are collected for 100 pound bags. The NASDA enumerators verify the protein percentage and correct if erroneously reported. Follow up contacts are made to verify high or low reported prices.

**Supplements.** Salt is commonly sold in blocks or bags, and is often purchased by the ton. Price data is collected for bags or blocks (50 pounds). Trace mineral is sold in blocks of either 40 or 50 pounds. The weight of the block depends on the composition of the filler used by the manufacturer. The mineral content remains the same at 94.5 percent to 97.5 percent regardless of the block weight. The weight of the block is important for salt and trace minerals in converting to a common price per ton. Reported price data are converted to a ton price to establish a common consistent publication unit.

The questionnaire collects the weight for liquid molasses by the hundredweight. Dry molasses price data are not collected. NASDA enumerators verify prices for liquid molasses from the respondents when reported data seems questionable.

Corn meal does not include prices for distiller's grade cornmeal. NASDA enumerators and State field office staff verify prices which vary considerably from the state average price.

**Fertilizers and Agricultural Chemicals.** The questionnaire for "Prices Paid for Fertilizers and Agricultural Chemicals" collects data for fertilizers, fungicides, herbicides, and other chemicals. Table 3.7 shows the specific types of fertilizers and agricultural chemicals. Prices collected for each type are to the nearest cent. The questionnaires are specific for each State.

Fertilizer and agricultural chemical prices reflect the cost at the farm gate. In other words, the prices include the delivery costs. Fertilizer and agricultural chemical prices exclude the cost of application. Lime, however, includes the cost of application as lime is priced on an applied basis.

The NASDA enumerators verify inconsistent and extreme prices. Prices reported by the same respondent should show a relationship of higher prices for higher concentrations. Price variation may occur for the following reasons:

- Volume discounts
- Fees for transportation or custom blending
- Point of transaction - Whether prices are dealer FOB (Free on Board) or delivery on the farm. FOB dealer indicates the responsibility/ownership of goods transfers from the

wholesaler to the dealer. Delivery on the farm indicates the responsibility/ownership of goods transfers from the dealer to the producer.

There has been a shift towards custom blending of fertilizer as producers are tailoring fertilizer purchases to meet specific nutrient requirements based on soil analysis. Consequently, some items on the fertilizer questionnaire may no longer be sold by the respondent. However, it is important that the formulation indicated on the questionnaire match the prices of "write-in" mixtures. A "write-in" mixture is a blend being sold which is not listed on the survey instrument. These mixtures while not included in the current survey can be evaluated for inclusion in future surveys. The dealer reports either bagged or bulk prices. Table 3.8 shows the units of measure. Selected fertilizer items are used in the computation of the prices paid index.

**Fuel.** Price data for four fuel items are collected on the "Prices Paid for Fuels" questionnaire. Table 3.9 shows the fuel categories. The price collected for each type of fuel is to the nearest tenth of a cent.

Businesses that sell gasoline, diesel, or L.P. gas may not know specifically if their customers are producers. Even if it is unknown whether producers purchase fuel at a particular location or not, the enumerators collect the price data, as the price quoted is considered the price that a producer would pay for fuel purchased from the business. The data collected are for the most commonly used service of pumped gasoline. The four types of service include card lock, key lock, self service, and full service.

If the operation sells ethanol as well as unleaded gasoline, the price of the most commonly

sold fuel is obtained for unleaded gasoline. If the most commonly sold fuel is ethanol, it is noted on the questionnaire. The NASDA enumerators also verify the following:

- Unleaded gasoline may be priced at the service station pump and/or as bulk delivery.
- Diesel fuel and L.P. gas are priced at bulk delivery.
- The price includes all taxes for gasoline.
- The price excludes all taxes for diesel fuel and L.P. gas.
- The reference date for the retail price is March 15.
- Prices are to three decimal places. For example
 
$$\begin{aligned} \$2.499/\text{gallon} &= 2.\underline{499} \\ \$2.50/\text{gallon} &= 2.\underline{500} \end{aligned}$$
- Prices exclude any discounts.

**Retail Seed.** Seventy-two questions for various seeds are collected with the “Prices Paid for Retail Seed” Questionnaire. Table 3.10 shows the specific seeds included in the survey. The price for each type of seed is to the nearest cent.

Manufacturers are producing specialized seed for some agricultural crops, including biotech varieties and proprietary (patented) varieties. Prices for biotech and proprietary varieties are generally higher. The term biotech refers to genetically modified seed varieties that have been developed to possess particular traits that are resistant to insects, chemicals, and fungicides.

The NASDA enumerators verify the following for seed prices:

- Prices exclude sales tax.
- Prices exclude any discounts.

- Prices include technology fees.
- Prices include cost of seed treatment.
- Prices are to nearest cent.
- The reference date is March 15 for all commodities except for fall wheat, which is from the fall of the previous year.

The dealer reports seed prices in any of the following units of measure:

- Gram
- Dry ounce
- Pound
- 50 lb bag
- 100 lb bag
- Hundredweight
- Bushel
- 80,000 kernels
- 140,000 seeds
- Ton

**Other Seeds.** Other seed data get collected by contacting dealers in the universe and other knowledgeable industry contacts. The specific types of other seeds include cotton, potato, rice, peanut, and sunflower.

Seed cotton data are collected on the “Prices Paid by Farmers for Seed Cotton” questionnaire. The questionnaire asks for quantity sold to producers and average price per hundredweight. NASS collects the price for each type of seed including biotech, non-biotech, and all seed cotton to the nearest cent. Genetically Modified Organism or GMO technology fees are included in the price while future rebates are excluded.

Potato seed data are collected with the Potato Prices questionnaire. NASS collects the average

price for potato seed to the nearest cent for all varieties of potatoes sold. The total quantity sold is also collected and reported to the nearest hundredweight. Potatoes data includes contract and open market sales.

Rice, peanut, and sunflower seeds are collected by the State field offices either through paper questionnaire or administrative data. The source and availability of price data varies by state and the number of suppliers is generally limited to a few establishments. It is, then, the discretion of each state how the data are collected. Guidance on standardization and estimation procedures is provided by Headquarters.

***Poultry.*** Price data for broiler and egg type chicks are included in the replacement livestock subcomponent index. Broiler type chick and egg type chick data are reported on the weekly as well as the monthly hatchery reports and on the December chicken questionnaire. Turkey poult prices are collected from hatchery production data sources on an annual basis. The estimation of poult price is similar to chick prices except the poult price is estimated on a per bird basis while chick prices are estimated per 100 chicks. The price data for each item is to the nearest cent.

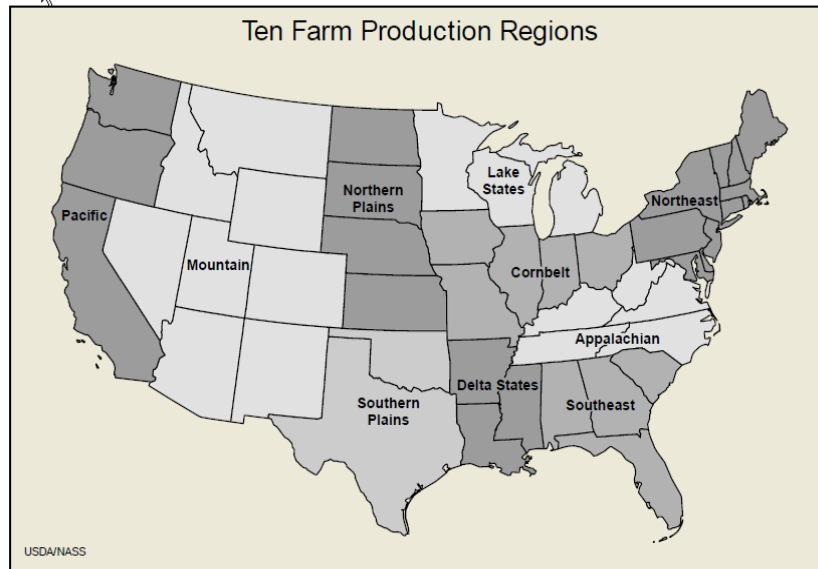
## **Edit / Analysis / Summary**

Prices are collected on an annual basis for the U.S. for the five prices paid commodity groups. Alaska and Hawaii are not included in the prices paid program. Price data for the five prices paid commodity groups surveyed are machine edited and analyzed and summarized using NASS developed tools.

The setting of official prices for items in each of the five prices paid commodity groups follows a similar process. After the State field offices complete the data collection process, headquarters (HQ) staff reviews each item for records with outliers to create a final dataset. If an outlier is found, HQ directs the State field offices to either provide details to validate the record or correct the data. HQ summarizes the finalized dataset at the geographic level specified for the commodity. The output is reviewed by subject matter experts for reasonableness and each State's data are compared to surrounding States' data. If the data are sound, the U.S. and regional-level estimates are prepared for publication. Regional level estimates are set for feed, fertilizer, and fuel. U.S. estimates are set for agricultural chemicals, farm machinery, and seed. No seasonal adjustments are made to the annual survey price data. The published annual prices for the prices paid commodities are weighted averages. All surveys and administrative data are edited, analyzed, and summarized using NASS developed tools.



**Figure 1: Ten Farm Production Regions**



The U.S. is divided into ten farm production regions with individual States grouped based on similar production practices and resource characteristics. The States are contiguous in each region. Figure 1 shows a map with the ten farm production regions in the U.S. Commodities summarized and estimated using the farm production regions include farm machinery, retail seeds, and fuel.

**Farm Machinery.** Summarization of farm machinery prices occurs at the State and farm production region levels for analytical purposes only, but is aggregated to the U.S. total for publication. For the estimation months other than March, data from the Bureau of Labor Statistics (BLS) are used for construction of the prices paid for farm machinery index. See Table 3.5 for the farm machinery items. See Table 3.14 for the BLS series in the index.

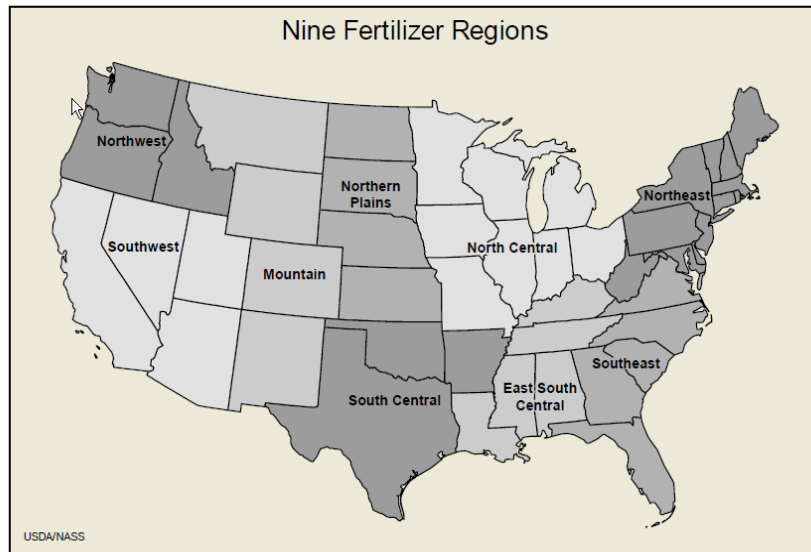
**Feed.** Feed price data are summarized at the State level for analysis purposes and published at the farm production region and the U.S. levels. Table 3.11 lists the States within each farm production region. For months other than March, data from the BLS data are used in the construction of the prices paid feed index. Prices increase for feeds as the percent protein increases. However, this may not hold true when the percent protein is close, as in 14 percent and 16 percent dairy feeds or seasonal animal nutrient requirements change. Prices can also vary as the result of shifts in demand. See Table 3.6 for the feed items. See Table 3.14 for the

BLS series in the index.

**Fertilizers and Agricultural Chemicals.** Fertilizers are summarized at the State level for analysis and published at the U.S. and fertilizer region level. There are nine fertilizer regions. Fertilizer regions include States grouped according to those with similar purchasing patterns of fertilizers and agricultural chemicals (USDA, 1970). The States are contiguous in each region. Figure 2 shows a map of the U.S. with the nine fertilizer regions. Table 3.12 shows the States within each fertilizer region. Data from the BLS are used to construct the fertilizer indexes in months other than March. See Table 3.7 for the fertilizer and agricultural chemical items. See Table 3.14 for the BLS series in the index.

Agricultural chemicals are summarized at the State level for analysis and published at the U.S. level. In months other than March, chemical data from the Bureau of Labor Statistics are used in the construction of the agricultural chemical index.

**Figure 2: Nine Fertilizer Regions**



**Fuel.** Fuel prices are summarized at the State level for analysis and published at the U.S. and farm production region level. For months other than March, data from the Energy Information Agency in the Department of Energy are used for construction of the fuel index. See Table 3.9 for the fuel items.

**Retail Seed.** Retail seed prices are summarized at the State and farm production region levels for analysis and published at the U.S. level. Seed price data is reviewed for outliers, reporting unit, and consistency. See Table 3.10 for the retail seed items.

**Other Seeds.** Other seed prices are published at the U.S. level. NASS does not publish any seed prices at a lower geographic level. For the estimation process, NASS does not supplement the other seed data with data from sources outside the USDA.

**Poultry.** Poultry prices paid are published at the U.S.

level. NASS does not publish the poultry prices paid at a lower geographic level. For the estimation process, NASS does not supplement the poultry prices paid data from sources outside the USDA.

### Weighting

There are no sample weights generated from the sampling process. So, there is no weighting process to adjust the sample to represent the population frame. Without sample weights, variance estimation cannot be performed.

Since there are no sample weights, regional and U.S. item prices are weighted using State level weights. State prices generally represent the simple average of reported prices for a particular item. The NASS developed tool for setting official estimates weights state simple average prices to a regional level item prices based on percentage weights from 1990-1992 farm expenditure data. State weights are aggregated to a regional level for weighting regional prices to the U.S. level. See Table 3.13 for the relative weights in the Prices Paid index.

The 1990-1992 farm expenditure data provided the subcomponent weights for the feed component of the production index. The item weights selected for constructing the feed index were derived from the most current available shipment data from the annual Survey of Manufacturers and the Census of Manufacturers.

*Livestock & Poultry.* Replacement livestock weights were derived from the 1990-1992 FCRS data for both the item and subcomponent levels. See Table 3.13 for the relative weights of livestock and poultry in the Prices Paid index.

*Farm Machinery.* Farm machinery subcomponent weights were derived from the 1990-1992 FCRS survey data. Item weights within the subcomponent were established from Census of Manufacturers data. See Table 3.13 for the relative weights of farm machinery in the Prices Paid index.

*Fertilizers.* Fertilizer subcomponent and item weights are based on the annual commercial fertilizer manufacturers' data. Currently, these data are published in collaboration by the Association of American Plant Food Control Officials (AAPFCO) and The Fertilizer Institute (TFI). See <http://www.aapfco.org/> and <http://www.tfi.org/> for information about these two organizations, respectively. As a single nutrient, phosphate fertilizer makes up only two percent of fertilizers consumed and soil conditioners comprise one percent. Phosphate fertilizer was combined with potassium fertilizer as a result. Soil conditioners are combined with the mixed fertilizer (N-P-K) group for weighting into the fertilizer index. See Table 3.13 for the relative weights of fertilizers in the Prices Paid index.

Commercial fertilizer data from AAPFCO and TFI are based on fertilizer consumption information submitted by state fertilizer control offices. The data includes total fertilizer sales or shipments for farm and non-farm use. Liming materials, peat, potting soils, soil amendments, soil additives, and soil conditioners are excluded. Materials used for the manufacture or blending of reported fertilizer grades or for use in other fertilizers are excluded to avoid duplicate reporting. Some states do not report final

sales; therefore, basic materials including both single-nutrient and multiple-nutrient are reported.

*Agricultural Chemicals.* Agricultural chemicals subcomponent weights were established using the Census of Manufacturers, Annual Survey of Manufacturers, Agricultural Census, Environmental Protection Agency (EPA) information on expenditures, and the FCRS survey data. Items weights for subcomponent herbicide and insecticide subcomponents use reports from Resources for the Future, "Herbicide Use in the United States" and "Insecticide Use in U.S. Crop Production". Item weights for fungicides and other agricultural chemicals subcomponents used Chemical Use Survey for Vegetables data. The agricultural chemicals selected to represent each subcomponent (herbicides, insecticides, and fungicides/other) account for 25-30 percent of all active ingredients used with each subcomponent. See Table 3.13 for the relative weights of agricultural chemicals in the Prices Paid index.

*Retail Seeds.* Retail seed subcomponents weights were established from the 1990-1992 FCRS data. Items selected for use in the construction of the seed index are derived annually using seeding rate, prices paid for seed, and acres planted parameters. See Table 3.13 for the relative weights of retail seeds in the Prices Paid index.

*Other Subcomponent Weights.* Weights for fuels, farm supplies & repairs, autos & trucks, building materials, farm services, rent, and taxes were established using FCRS survey data for 1990-1992. See Table 3.13 for the relative weights for the subcomponents in the Prices Paid index.

## Estimation

The prices paid program includes five commodity groups for which annual survey data provide indications for establishing official NASS estimates. Administrative sources provide data for the months following the annual March survey month. The five annual prices paid commodity groups surveyed are farm machinery, feed, fertilizers and agricultural chemicals, fuels, and retail seeds.

Estimation for the five surveyed commodity groups occurs in headquarters after the summary has been finalized. Price estimates at the State, regional, and U.S. level are finalized in headquarters by using NASS developed analysis and estimation tools. This provides a standard basis for establishing State, regional, and U.S. prices from year to year.

The six commodity areas using administrative data for monthly index construction are rent, custom rates, veterinary services, taxes, insurance, wage rates, real estate and non real estate interest, feeder cattle, and feeder pigs. No annual data are collected for these commodity areas. These commodity groups use the Agricultural Resource Management Survey and the June Agricultural Survey as indications for prices paid estimates.

***Agricultural Resource Management Survey (ARMS)***. ARMS is an annual survey of farm and ranch operators administered by NASS in cooperation with USDA Economic Research Service (ERS). The annual sample is over 35,000 agricultural producers. ERS uses the data to establish net farm income. NASS uses the data in establishing component level weights for the prices paid index. The ARMS data are weighted using survey strata sampling rates. Total yearly operation expenditure data

provides the control data for classifying and sample selection. The data are also used in the prices paid estimates program as indications for cash rent, share rent, veterinary services, taxes, insurance, and real estate and non real estate debt.. Survey data on field-level production practices, farm business accounts, and farm households are summarized, synthesized, and used in analyses by ERS in estimating net farm income. ARMS is a multiple-phase survey. In the fall, interviews of producers are conducted to collect information about production practices and land use for a selected field on their operation for major commodities, such as feed grains, food grains, and cotton. In the spring, producers that completed the fall survey are re-interviewed. Spring data collection focuses on the structural and economic characteristics of the farm business and farm operator households. This approach helps link commodity production activities and conservation practices with the farm business and operator household. Information about the ARMS program is at <http://www.ers.usda.gov/Briefing/ARMS/>.

***June Agricultural Survey***. Data collected from the June Agricultural survey and the ARMS survey are utilized in the prices paid program. The number of farm estimates and annual expenditure data are used to derive annual average expenditures per farm for veterinary services, taxes, and insurance. NASS estimates the number of farms from the June Agricultural Survey. A multiple sampling frame approach is used. An area sampling frame that divides all land into segments is built for every State. The list sampling frame is developed from other NASS surveys. The States check the overlap between the two frames and supplement the frame data for the June Agricultural survey with the non-overlap records. Sample segments are selected in each State for enumeration in early June. Sampling procedures to ensure every farm and ranch has a chance of being selected. The NASDA enumerators survey each sampled segment to identify every farm and ranch operating land in

the segment and the number of acres in each operation.

These data are used to compute summary indications of farm numbers and acres of land in farms. Additionally, all farms found in the segments are overlapped with the NASS list frame to determine if the farm is on the list. Operations found in the area frame sample that are not on the list provide a measure of incompleteness of the list. Area frame data for operations overlapping the list frame are not used in summary to avoid duplication. The summarized totals for these non-overlap (or not-on-list) operations are combined with summarized totals collected from a sample selected from the list to calculate additional indications of farms and land in farms. Information about land in farm can be found at [http://usda.mannlib.cornell.edu/usda/current/FarmLandIn/FarmLandIn-02-12-2010\\_new\\_format.pdf](http://usda.mannlib.cornell.edu/usda/current/FarmLandIn/FarmLandIn-02-12-2010_new_format.pdf).

**Cash Rent.** Two indications for the price per rented acre are created. One indication is from the ARMS survey and a second indication is produced from the cash rents survey along with the Census of Agriculture acreage. The indications, the expenditure per acre, are calculated by dividing the total cash rent expenditure by the number of rented acres. There is a comparison of the percentage of the year to year change in expenditures between the two indications. Subject matter experts then determine the most appropriate change between the two indications. The cash rent indication is approximately equal to the expenditure per acre, rounded to the nearest dollar.

The cash rents survey is conducted on an annual basis from March through the end of June. During June, NASS also collects basic cash rent data from producers from the June agriculture survey. States set cash rent estimates at a county level to aggregate to the official state level using the data

from the two sources. Information is at <http://usda.mannlib.cornell.edu/usda/current/AgriLandVa/AgriLandVa-08-04-2010.pdf> about the cash rents.

**Public and Private Rent.** Prices paid data for private grazing land rates are collected annually from the June Agricultural Survey. Under the Public Rangelands Improvement Act, prices paid data for public grazing land rates are also collected. The Bureau of Land Management (BLM) and the Forest Service publish the data annually in February and use the data to set their annual grazing land fee rates. Public grazing fees are managed by BLM and the Forest Service in the 16 contiguous Western States where there is domestic livestock grazing or where the Secretary of Interior determines the land may be suitable for domestic livestock grazing. The sixteen contiguous Western States include Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. The public and private grazing fee rents are established under the Public Rangeland Improvement Act. Information about the rangelands is at <http://www.fs.fed.us/rangelands/howeare/lawsregs.shtml>.

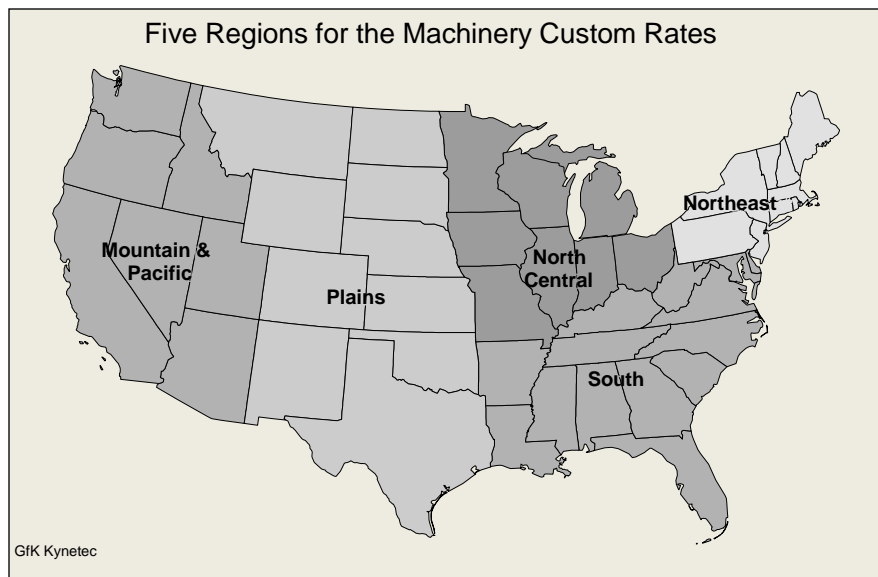
**Share Rent.** Share rent prices paid estimate is set using ARMS total expenditure data and rented acres as indications. Expenditures per acre are calculated by dividing the total share rent expenditures by the number of rented acres. The share rent estimate for prices paid is set equal to the expenditure per acre, rounded to the nearest dollar.

**Custom Rates.** The custom rates group covers the producer farm machinery rent costs for earth moving, plowing, cultivating, planting, drilling, chemical application, silage and hay mowing, hauling, and harvesting. The custom rates rental costs are aggre-

gated to the national level. Custom rates are not altered for the prices paid program.

GfK Kynetec is a provider of marketing research and consulting services within agricultural and animal health areas. Information about GfK Kynetec is at <http://www.gfk.com/gfk-kynetec/>.

**Figure 3: Five Regions for Machinery Custom Rates**



The custom rate data are collected annually. To collect the custom rates, the survey contacted over 12,000 producers. These producers represent five regions in the U.S., excluding Alaska and Hawaii. Figure 3 shows the map of the five regions.

Agricultural producers are contacted via e-mail prior to conducting the survey to provide advance notice of the upcoming survey. Producers complete the survey either electronically via the web or by returning a paper questionnaire by mail. Those without an e-mail address receive a notification letter at same time as the questionnaire. The majority of the completed surveys are paper questionnaires.

**Veterinary Services.** Veterinary services prices paid estimates are set using NASS official number of farms data and total veterinary services expenditure data from the ARMS survey. The expenditure per farm is calculated by dividing total veterinary services expenditure by the number of farms. The veterinary services are approximately equal to the expenditures per farm, rounded to the nearest dollar.

**Taxes.** Prices paid estimates for taxes are set using NASS official land in farms data and total taxes expenditure data from ARMS survey. The expenditure per acre for taxes is calculated by dividing the total taxes expenditure by the land in farms. The taxes estimate is set equal to the expenditure per acre rounded to the nearest dollar.

**Insurance.** Insurance prices paid estimates are set using NASS official land in farms data and total insurance expenditure data from ARMS. The expenditure per acre for insurance is calculated by dividing the total insurance expenditure by the land in farms. The insurance estimate is set equal to the expenditure per acre rounded to the nearest dollar.

**Wage Rates.** The estimates are from the NASS farm labor survey which is conducted quarterly. The farm labor surveys runs during the last two weeks of every quarter (January, April, July, October) using sampling procedures to ensure every employer of agricultural workers has a chance of being selected. The

reference period is the week including the 12th of the month for four survey months.

Two samples of farm operators are selected from a list of farms that hire farm workers. Farms on this list are classified by number of workers and type of farm. Those expected to employ large numbers of workers are selected with greater frequency than those hiring few or no workers. A second sample consists of segments of land scientifically selected from an area sampling frame. Each June, the NASDA enumerators survey each selected land segment to identify every farm operating land within the sample segment's boundaries. The names of farms found in these area segments are matched against the NASS farm labor list frame; those not found on the list are included in the farm labor survey sample to represent all farms. This methodology is known as multiple frame sampling. Additionally, NASS samples a list of agricultural service firms in California and Florida. Information about the farm wage rates is available at <http://usda.mannlib.cornell.edu/usda/current/FarmLabo/FarmLabo-11-18-2010.pdf>.

***Real Estate and Non Real Estate Debt and Interest.***

Legislation prescribes that interest data used to construct the parity index include that secured by real estate. Annually, NASS obtains secured real estate and non real estate (secured or non-secured) debt and interest data from the Economic Research Service (ERS). Estimate of interest paid by producers is weighted by real estate and non real estate debt.

*Real Estate and Non Real Estate Debt.* ERS collects the real estate and non real estate debt from five sources, Farm Credit System, Farm Service Agency, commercial banks, insurance companies, and from the ARMS survey. ARMS survey data are the source for taxes and the amount of debt owed for operator

dwellings owned by farm businesses for the prices paid program.

The Farm Credit System provides quarterly information about the farm credit system. The quarterly statement provides important information in the debt securities jointly issued by the five Farm Credit System Banks: AgFirst Farm Credit Bank; Agri-Bank, FCB; CoBank, ACB; Farm Credit Bank of Texas; and U.S. AgBank, FCB. These debt securities, include

- Federal Farm Credit Banks Consolidated Systemwide Bonds,
- Federal Farm Credit Banks Consolidated Systemwide Discount Notes,
- Federal Farm Credit Banks Consolidated Systemwide Master Notes,
- Federal Farm Credit Banks Consolidated Systemwide Medium-Term Notes, and
- Any other debt securities that the Farm Credit System Banks may jointly issue.

Farm Credit System quarterly information statements relating to financial results or other developments issued by the Federal Farm Credit Banks Funding Corporation for the current fiscal year and the two preceding fiscal years are available on the Funding Corporation's website located at [www.farmcredit-ffcb.com](http://www.farmcredit-ffcb.com).

The Farm Service Agency (FSA) provides ERS a report of debt information in the FSA 616 report. The FSA 616 report is an internal FSA report containing debt information for producers.

The debt information from the commercial banks is collected through the Federal Reserve from the Agricultural Financial Databook. The Board of Governors surveys a sample of commercial banks about amounts and purpose of farm loans. The loans

are primarily for feeder livestock, other livestock, operating expenses, farm machinery and equipment. These are non-real-estate farm loans of \$1,000 or more. They are derived from quarterly sample surveys conducted by the Federal Reserve System during the first full week of the second month of each quarter. Data obtained from the sample are expanded into national estimates for all commercial banks. The report is at <http://www.federalreserve.gov/releases/e15/>. The Agricultural Financial Databook is at <http://www.kansascityfed.org/research/indicatorsdata/agfinance/index.cfm>.

The debt information from the insurance companies is collected from the American Council of Life Insurers (ACLI). The ACLI collects data annually from insurance companies to create the life insurers fact book. The fact book provides statistics and information on trends in the life insurance industry. Specific topics covered include assets, liabilities, income, expenditures, reinsurance, life insurance, and annuities. Go to <http://www.acli.com/ACLI/Tools/Industry+Facts/Life+Insurers+Fact+Book/> for information about the life insurers fact book.

*Interest.* ERS collects interest rate data from the Federal Reserve Bank of Chicago. The Federal Reserve Bank of Chicago provides the interest rates on a quarterly basis for operating loans, feeder cattle loans, and farm real estate loans. The series are at the following location: [http://www.chicagofed.org/digital\\_assets/publications/agletter/credit\\_conditions\\_7th\\_district.xls](http://www.chicagofed.org/digital_assets/publications/agletter/credit_conditions_7th_district.xls).

The Federal Reserve Bank represents the seventh district. The States in the seventh district are Iowa, Illinois, Indiana, Wisconsin, and Michigan. The Federal Reserve Bank of Chicago collects data about farmland values and credit conditions from the agricultural banks in the seventh district on a quarterly basis. Information about the Federal Reserve

Bank of Chicago can be found at <http://www.chicagofed.org/webpages/index.cfm>.

*Feeder Cattle.* Livestock reporters are responsible for compiling a comprehensive record covering all facets of the feeder cattle trade, including direct trading, livestock auctions, video and internet auctions, and board sales. It is at the discretion of the reporter whether to include data that do not accurately reflect actual market conditions. Premium animals are always included, but sick, dwarf, or crippled cattle are not included. As the reporter collects the price data, they are placed in categories based on class. These class level data are then passed on to NASS via a secure FTP connection on a monthly basis.

NASS converts the daily weighted average price into a monthly weighted average price per 100 pounds, using “Head Count” as the weight to produce the feeder cattle estimates. The preliminary, mid-month price for the current month follows the same calculation method as the previous full month price. The calculations exclude feeder cattle weighing 900 pounds or over.

*Feeder Pigs.* NASS uses data collected by the Agricultural Marketing Service (AMS). AMS collects the feeder pig data in a similar manner as the feeder cattle data. Feeder pigs 10 pounds or less are excluded. There are five weight categories for feeder pigs. See Figure four for the weight categories as well as other information provided by AMS regarding feeder pig prices.

After the middle of each month, NASS retrieves feeder pig data from AMS Market News through the AMS web site, <http://marketnews.usda.gov/portal/lg>.



**Figure 4: Input Information to Produce Feeder Pig Report**

Type of Information	Input Information
Report Type	Weighted Average (National Report)
Publication	Weekly
Location	Des Moines, IA
Quality/Grade	U.S. 1 2
Weight	40-, 45-, 50-, 55-, 60-.
Dates	Previous Month to Current Week (typically the week before the last week of the month)

NASS converts the weekly weighted average prices into a monthly weighted average price per 100 pound, using the head count as the weight to produce the feeder pig prices paid estimates. The preliminary mid-month price for the current month follows the same calculation method as the previous full month price. The calculations exclude ten pound pigs.

### Agricultural Statistics Board Review

A Board review is held a day before the *Agricultural Prices* report is issued. The board members include the Agricultural Statistics Board Chairperson; Statistics Division Director; Crops Branch Chief; Livestock Branch Chief; Environmental, Economics, and Demographics Branch Chief; and the Economics Section Head.

## Prices Paid Index

The Prices Paid Index is a monthly series that measures the change of average prices in commodities purchased by producers for agricultural production and family living. "It measures changes in price only. The index does not measure changes in production expenses or living expenditure, which are a product of prices and quantities consumed." (USDA, 1990) The primary purpose of the prices paid index is to meet the need for a better measure of price changes in items purchased by producers for use in agricultural production and family living. With passage of the Agricultural Adjustment Act of 1933, the index acquired legal status. That act required that the prices paid index be used for the computation of parity prices.

The prices paid index contains the following indexes

- Prices paid by producers for commodities and services, interest, taxes, and wages (PPITW);
- Prices paid by producers for production, interest, taxes, and wage rates (PITW);
- Component indexes: Production, Interest, Texas, Wage Rates, Family Living (CPI);
- Subcomponent indexes include Feed, Live-stock & Poultry, Seeds, Fertilizer, Chemicals, Fuels, Supplies & Repairs, Autos & Trucks, Farm Machinery, Building Materials, Services, and Rents.

The prices paid indexes include approximately 132 items which producers purchase for production. Thirty-one subcomponent indexes are constructed from the item price relatives which are directly related to production. Twelve component indexes are then calculated from the subcomponent indexes. These twelve component indexes are ag-

gregated together into one measure, referred to as the Prices Paid production index.

The top level index, prices paid index for commodities, services, interest, taxes, and wage rates (PPITW) is constructed from the component indexes of Production, Interests, Taxes, Wage rates and Family living. This index is parity index. Another top index, prices paid index for commodities, services, interests, taxes, and wage rates (PITW) is calculated by aggregating Production, Interests, Taxes, and Wage rates indexes. The family living (CPI) component is not included in this top-level index.

## History / Background

The Bureau of Agricultural Economics in 1928 first published an index of prices paid by farmers. It had constructed this index to meet the need of a better measure of price changes in commodities bought by farmers for use in the family living and for production. The weights used for the index had been determined largely from data collected by USDA and the Bureau of Census reports. The weights were based mainly on the available data for the period 1920-1925. The several subgroups of this index were combined into major groups representing prices paid for family living goods and prices paid for production goods. The aggregative method (price time quantity weight = item extension) was used in the construction of the subgroup indexes, but the subgroup indexes are combined, using percentage weights.

The 1933 revision revised the initial prices paid index, at which time budget weights were shifted to average for the period 1924-1929. Interest and tax components were added to the index in August

1935 in response to an amendment to the Agricultural Act of 1933. The 1950 index revision further expanded the commodity coverage (USDA, 1990).

A 1959 index revision retained the same major and minor commodity groups and subgroup indexes as included for the 1950 revision. A farm expenditure survey was conducted in 1956 jointly by the Agricultural Marketing Service and Bureau of Census. Data from this survey were combined with those from the survey of Food Consumption made in 1955 by the Agricultural Research Service and the Agricultural Marketing Service. This provided the most comprehensive set of basic source data available for developing index group and commodity item weights (USDA, 1990).

Commodity content of the index groups was reviewed and, where appropriate, revised in line with currently available price series and expenditure patterns. The revision added another link to the index series. The 1950 revision used weights from 1925-1929 for computing indexes for 1910-1934, and weights representing the period 1937-41 were used from March 1935 forward. The weight period of 1955 was used for September 1952 through December 1964. The index series was linked again in January 1965 using 1971-1973 weights (USDA, 1990).

Several changes have been made to the index construction with the most recent occurring in 1995. The latest index revisions included (1) The five-year moving average weights being substituted for the fixed base-year weights to reflect the change of farmer's purchasing pattern; (2) The new reference and base price period is 1990-1992 which coincides with the price received index and maintains comparability for purpose of computing parity prices; and (3) Prices paid sector indexes for Crop and

Livestock farms were established separately for the first time.

### **Reference period selection**

In developing the indexes, a crucial choice was the initial base period. The period desired was one in which prices were stable and the general economy was healthy. Because prices were unstable following World War I, USDA undertook an extensive analysis of the dispersion of wholesale prices from 1891 through 1926. The period 1905-1915 exhibited relative stability. Because it was the most stable period, 1910-1914 was selected as the base period for the index. The Agricultural Adjustment Act of 1938 adopted the 1910-1914 period as the basic reference period for agricultural indexes used for Government farm programs (USDA, 1990).

The period 1990-1992 as a new reference date was selected for the same reasoning. The current reference and base price period is 1990-1992 which coincides with the prices received indexes and maintains comparability for purpose of computing parity prices. Overall prices paid by producers for commodities and services, interest, taxes and wage rates (PPITW) for the 1990-1992 period were close to being on the trend of the last fifteen years, a period of relatively stable inflation following a period of high inflation (Milton, 1995).

### **Commodity Selection**

The prices paid index includes 132 items that cover areas such as feed, livestock and poultry, seed, fertilizer, chemicals, fuels, farm machinery, building materials, rent, interest and taxes (see Ta-

bles 3.13-3.16). The coverage of the prices paid index has no major change since 1970s.

Prior to 1977, NASS conducted prices paid surveys for food, clothing, and household items to measure the changes in prices producers paid for family living expenditures. Based on the similarities in prices paid and comparable spending patterns between producers and urban consumers, NASS replaced the family living index with the Consumer Price Index for all Urban Consumers (CPI-U) starting in January 1977.

The overall weight for the family living component of the prices paid index is derived from household expenditures from the ARMS survey, similar to other expenditure groups. In fact, the relative weight of the family living component in the index has declined from 30.4 percent for the 1971-1973 period to the current value of 17 percent. The decline is a result of the total number of farm households declining and the proportion of production expenditures per farm increasing.

NASS selected Producer Price Index (PPI) data from Bureau of Labor Statistics (BLS) to substitute for quarterly prices paid survey data in the construction of the 1990-1992 = 100 based indexes. Items less than 0.01 percent of total farm expenditures are excluded from the current index. Generally, the PPI index data such as for hand tools, power tools, and construction materials, etc., have been selected that represent groups of these items. The PPI data, therefore, represents a broader coverage of the expenses for relatively small production input items. The twelve production component indexes plus the Family Living, Interest, Taxes, and Wage rates component indexes represent over 90 percent of producers' total expenditures (See Table 3.14).

In using the BLS indexes, several factors were evaluated. First, BLS data lags a month behind NASS's price report. Even with the one month lag, analysis produced significantly similar data trends for major farm input components. For example, in January, the index uses the December BLS indexes to measure price change. Second, the BLS price data based on a different mix and weighting of indexes items still were consistent to NASS data covering similar items. Third, the impact of BLS wholesale versus retail, urban versus rural, and adjustment for quality on price change still produced highly correlated results with NASS data (Milton, 1995). Below are the results from the analysis. The periods of comparison vary due to data availability.

Component	Period	Corr.
Agricultural chemicals	1985 – 1993	0.83
Autos & trucks	1975 – 1993	0.97
Building materials	1975 – 1993	0.95
Farm supplies & repair	1985 – 1993	0.87
Feed	1980 – 1993	0.80
Fuels	1975 – 1993	0.74
Other machinery (mach.)	1975 – 1993	0.98
Tractors & self propelled mach.	1984 – 1993	0.96

In addition to the 12 production component indexes, 31 separate subcomponent production indexes were created (see Table 3.16). These subcomponent indexes were published beginning January 1994 for the 1990-1992=100 base period. The subcomponent indexes are not constructed on a 1910-1914=100 base period as a result of the unavailability of representative data prior to 1990-1992 and resource constraints (Milton, 1995).

### Basis of Weights

The prices paid index weights are derived based on expenditure data from the annual Farm Costs and Returns Survey (FCRS), which was replaced by Agricultural Resource Management Study (ARMS) in 1996. One of primary uses of farm pro-

duction expenditure data is for weighting in the construction of prices paid indexes. To facilitate 1995 price index revision, changes in component items were made. Oils and lubricants were moved from fuels to farm supplies and repairs; repairs and maintenance expenditures were moved from other farm machinery to farm supplies and repairs; and the category building and fencing was combined with farm and land improvements to make the building materials category. Estimates for these levels were revised back to 1975 at the U.S. level to provide a more useful series for prices paid index construction and other data users.

Production and consumption habits change over time with respect to commodities included in the prices paid index. For example, since the period 1970-1973, the relative weight of the family living component has declined over 13 percent while weights increased for the overall production component 12 percent, and wage rate 2.3 percent. The organizations of agricultural operation also change as markets shift or expand, such as, the dramatic increase in contractual sales, vertical integration, and pervasive effect of technology and intellectual property on the concentration of input industries. On the whole such changes come rather gradually except for current fluctuations arising from changes in supply, buying power, technology innovation, etc. The five-year moving average weights as implemented in the 1995 revision to somewhat represent these market pattern shifts. The farm expenditure weights used for computing prices paid index are similar to the method used in the price received index. It is updated every year. It also has the two-year lag because of data availability. Therefore, the data used are from the most recent five years available. The five-year moving average weights are also decomposed into crop and livestock sector weights for calculating PPITW index for crop and livestock sector farms.

While the weights of component are updated annually from the ARMS data, the weights of sub-component and items remained at base year values (1990-1992) because of reduced funding, respondent burden, and resource concerns. Though the relative weights (relative importance) of subcomponent items are published every year with new values. It should be not confused that the values of relative weights are calculated based on the five-year moving weight of component items multiplied by the fixed weights of subcomponent items which were derived at the base year (1990-1992) ARMS data. Thus the actual weights of subcomponent items used to compile component indexes are the fixed base weights. The following example provides an illustration.

	<u>Base Weight</u>	<u>Relative Weights</u>	
		<u>2009</u>	<u>2010</u>
Seeds		3.84	3.92
Field Crop	0.906	3.48	3.55
Grass/Legumes	0.094	0.36	0.37

A subcomponent item, field crop seeds has a relative weight of 3.48 for year 2009 and 3.55 for 2010. However, the base weight 0.906 remains the same and is used to compile the component index seeds. The same follows for grass/legumes seeds.

All subcomponent items and commodities are not fixed at the base weights. A few of them, like diesels, gasoline, LP gas, real estate interest and non-real estate interest, etc. are updated periodically when data is available. These weights are calculated based on the most current available year's ARMS data instead of five-year average. Table 3.17 shows relative weights of the component indexes for Prices Paid for selected years.

## Component & Sub-component indexes

The indexes of prices paid by producers contain individual component indexes and high level indexes such as Prices Paid by Producers for Commodities, Services, Interest, Taxes, and Wage Rates ("PPITW"); and an index of Production, Interest, Taxes and Wage Rates ("PITW"). The PPITW index consists of a production group and a non-production group of component indexes. The production group includes feed, livestock and poultry, seeds, fertilizer, agricultural chemicals, fuels, supplies & repairs, autos & trucks, farm machinery, building materials, services, and rent indexes. This group is also used for constructing the production index. The non-production group contains interest, taxes, wage rates, and family living (CPI) component indexes. The PITW index is the PPITW index reweighted excluding the family living index. The other high level indexes include the crop sector (PPITW), livestock sector (PPITW), farm sector (Production) and non-farm sector (Production). These indexes and component indexes are published monthly. See Table 3.15 for the relative weights of the component indexes.

The component indexes are broken-down further to sub-component indexes and items. The prices paid indexes contain 31 sub-components, such as complete feeds, feed grains, hay/forages, concentrates, and supplements for the feed component index. The field crops and grasses/legumes subcomponent indexes make up the seed component index. Table 3.13 provides a complete list of the relative weights of subcomponents as well as items for indexes of prices paid by producers. The monthly and annual average subcomponent indexes are published in the January *Agricultural Prices* release.

## Link Date Selection and Link Process

NASS has constructed the 1990-1992=100 prices paid indexes back to 1975 using the 5-year moving average weights established from the FCRS. Starting in 1990, the indexes reflect the new items and BLS data within the component indexes. For 1975 through 1990, the 1990-1992=100 indexes reflect changes in the revised 1910-1914=100 indexes and the weight change from fixed to moving average weights, but price movements are still measured by the items in the prior indexes. Price and weight data are not available for the new items to reconstruct the 1990-1992=100 indexes back to 1975. Price movements for items within major expense groups or component indexes tend to be similar so capturing the changes in weights among component indexes, or expenditure groups, is more important than changes in weights among items within a component index.

For example, if the price base reference is 1977 (1977 = 100), the Fertilizer average price index is 141 for 1990-1992. If the price base reference changes to 1990-1992 (1990-1992 = 100), then the Fertilizer price index for 1977 becomes 71. To convert the 1977 base index to 1990-1992, divide 100 by 141 to equal 71.

The 1910-1914=100 indexes required for parity purposes have been revised to reflect the changes in the newly constructed 1990-1992=100 indexes. The 1910-1914 indexes were linked forward starting in January 1975 based on changes in the 1990-1992 indexes. January 1975 was chosen as the link date since it corresponds to the prices received link date and the date where use of the prior 1971-1973 fixed weights was current (Milton, 1995).

## Index Computation & Benchmark Process

Indexes of prices paid by producers are five-year-moving-weight price indexes computed with a modified form of the Young formula. It is a modified form of the Young formula instead of the Laspeyres formula because the weights used in constructing price index are in between the base period, 1990-1992 = 100, and the current period. The modification permits the weights to take the form of the five-year average to reflect any shift in the producers' purchasing patterns among the component items.

Unlike the price received indexes no seasonal adjustment is made in construction of the prices paid indexes. Therefore, directly comparing the prices paid indexes among the different months within a year is appropriate because they are constructed with the same basket. Another difference between the prices received and prices paid indexes is that the prices paid index is benchmarked. Six components, agricultural chemicals, fertilizer, seeds, fuels, feeds and farm machinery, are benchmarked annually. The linked indexes from BLS and EIA for these components are used to compile the monthly prices paid indexes when survey data are not available. A survey for all items in these components is conducted in March. In April, the prices paid indexes for the months between last March and current March are adjusted based on survey prices to account for differences between the linked indexes and the indexes calculated with actual NASS survey data.

In consequence, three types of index or price relative for the prices paid indexes at the item level are specified. The first type is the estimation type which is based on survey data and prices produced in the NASS estimation process. The second type is a linked one in which price index calculations are linked to outside sources. The last type is the linked

and benchmarked type which means an item is linked to another indication mainly from BLS when survey data is not available. It then will be benchmarked when the survey data is available.

The formula for the first two types is essential the same, the price relative or index equals the current price or linked index divided by base price or linked index correspondingly. That is

$$P_c^j = \frac{p_c^j}{p_b^j} * 100$$

Where  $P_c^j$  is the index or price relative of  $j^{\text{th}}$  commodity for the current month,  $p_c^j$  is the item price or linked index of  $j^{\text{th}}$  commodity for the current month, and  $p_b^j$  represents the item price or linked index of  $j^{\text{th}}$  commodity for the base period.

The third type is complex. It is for the items in components of chemicals, fertilizers, fuels, and farm machinery. The form of formula is determined by the availability of survey data. When price data are available the formula is

$$P_c^j = \left( \frac{p_0^j}{p_b^j} * \frac{L_c^j}{L_0^j} \right) * \left\{ 1 + \left( \frac{T_c - T_0}{T_1 - T_0} \right) * \left( \frac{p_1^j}{p_0^j} * \frac{L_0^j}{L_1^j} - 1 \right) \right\}$$

When price data are not available the formula becomes

$$P_c^j = \left( \frac{p_0^j}{p_b^j} * \frac{L_c^j}{L_0^j} \right)$$

Where  $P_c^j$  is the index or price relative of  $j^{\text{th}}$  commodity for the current month,  $T_0$  indicates the previous date a price survey has conducted for  $j^{\text{th}}$  commodity,  $T_1$  represents the current date price (survey) data are available for  $j^{\text{th}}$  commodity,  $T_c$  is a date for the current reference period (month here) which is in reference date between  $T_0$  and  $T_1$ ,  $p_0^j$  and  $L_0^j$  repre-

sent the price and linked index of  $j^{\text{th}}$  commodity for period  $T_0$  respectively,  $p_1^j$  and  $L_1^j$  correspond to the price and linked index of  $j^{\text{th}}$  commodity for period  $T_1$  respectively,  $p_b^j$  stands for the item price of  $j^{\text{th}}$  commodity for the base period.

For example, a tractor with 2 wheel drive and 50-59 hours power (HP) base price is \$18,333, NASS survey prices are \$25,000 for March 2010 and \$25,700 for March 2011, BLS index are 121.7 for March 2010 and 122.8 for March 2011. Using the above equation, the price index of Tractor with 2 wheels and 50-59 HP becomes 136 for March 2010 and 137 for April 2010.

In the literature of index numbers, it is generally agreed that the price relatives should be “weighted” by “value,” since the importance of a price change in a given context is usually at least roughly proportional to the value of the commodity of the price change which is measured by the relative. The farm production expenditure is measured in terms of value which contains the quantity farmers purchased for their production and the price paid for the purchase. The prices paid indexes, subcomponent, component, and the up-level indexes, are all computed as weighted price relatives (at U.S. level). The formula then is defined as a modified Young index

$$I_c = \sum_j w_y^j p_c^j$$

Where  $I_c$  is an index of the current month;  $P_c^j$  is a price relative or an index of  $j^{\text{th}}$  commodity for the current month;  $w_y^j$  is a weight of  $j^{\text{th}}$  commodity for year  $y$ . However, the weights may be different when compiling sub-component level indexes. The weight is fixed at the base period when compiling a sub-component and a component index. The weight will be updated every year when constructing all up-level indexes.

The prices paid up-level indexes include the PPITW which is the all components index; PITW which consists of all components except Family Living; PPITW for the Crop and Livestock sectors which are indexes constructed using weights derived from Crop farm expenditures and Livestock farm expenditures respectively; Production index which excludes the component of Interest, Taxes, Wage Rates and Family Living; Production index which is also decomposed into farm and non-farm production index accordingly, the former consists of Feed, Livestock & Poultry and Seeds components, the latter constructed by the rest of components (see Table 3.15).

## Uses and Limitations

NASS uses the prices paid index (PPITW) to compute Parity Prices under the Agricultural Adjustment Act of 1938 as amended, Title III, Subtitle A, Section 301a. Agricultural Marketing Service uses state milk marketing orders, prices paid indexes, and import prices to determine support prices.

Price indexes are widely used but are often misunderstood. To use indexes effectively, the analyst should know the components of the index and the items priced. A price index measures the change in prices from some reference point (base period) to another point in time. Items in the index are weighted by their importance. The current base price period is 1990-1992. The base price is derived for each item's average price for the period 1990-1992. The quantity weights of items and subcomponents are based on farm production expenditures for period 1990-1992 except for a few exemptions such as diesel, gasoline, LP gas, real estate interest, non-real estate interest, etc. which are updated periodically. The base prices and majority of the item weights and subcomponents remain fixed from month to month and from year to year. However, quantity weights of

components are based on five-year moving average of ARMS data with a two year lag and are updated every year by adding a most recent year and removing the earliest year (USDA, 1990).

Index users should be aware of the items being priced for computation of an index. Producers use thousands of items and services in agricultural production and it is not feasible to price every item. For complex price indexes, expenditures are grouped into major index components, such as feed, fertilizer, agricultural chemicals, farm machinery, fuels, and farm supplies. Within each of the component indexes, items must be selected for pricing. Because it is not feasible to price all items, selected individual items must represent groups of expenditures. The production component of the Prices Paid Index consists of fewer than 140 items. Questions considered in selecting items for the index and price series include:

- Is the item specification well defined?
- Is the volume of sales adequate to obtain reliable prices?
- Does the item have widespread or limited geographic use?
- Is the item subject to rapid changes in design or function, and if so, how does this affect price?
- Are reported prices based on transactions or list prices? What adjustments are made for discounts, rebates, credit, delivery, sale tax, and other conditions of sale?
- Are reported prices based on transactions or list prices?
- How reliable are the available data? How large is the sample, and what is the magnitude of sampling and non-sampling errors?
- How frequently are prices surveyed, how volatile are the prices?



Users of the prices paid indexes may wish to check the items used to compute the index for adequate coverage and to determine whether the combination of items may have some type of bias.

Numerous uses are made of the prices published for individual items. The actual price level is secondary to measuring price changes. A biased price level can provide good measures of price change for index use. To have all prices at the proper level would require large increases in sample sizes. The data collection costs would far exceed currently available resources. The Prices Paid Index is designed to measure price changes for production and family living expenditures from a base period. Not all expenditures, however, are represented because of the cost of data collection. Sometimes purchases are infrequent or the item is custom designed for each application, as is often true for farm buildings. A large number of items can make up a small percentage of the index, and a few priced items must represent many functionally different items such as farm supplies. Sometimes proxy items can be substituted. In other cases, these purchases are represented by one of the component indexes or the overall index. Indexes are computed for individual component indexes of the prices paid index, using an aggregative approach (Laspeyres formula). Component indexes are weighted by percentage weights based on expenditure categories for the base-weight period. For the current prices paid index, the items priced represent 80 to 90 percent of total U.S. expenditures for that item.

The Prices Paid indexes does not adjusted for changes in quality or other enhancements of items purchased, especially when the item priced have changed significantly over time. With farm machinery, for example, the basic functions have not changed, but current models are much different from those 30 or 40 years ago.

## Publication and Dissemination

Prices paid item prices are published in the April *Agricultural Prices* report. NASS publishes prices paid estimates at the U.S. level for all commodities in the five survey groups. Also, regional prices are available for fuels, fertilizers, and feed. No state level data are published. Price revisions for these five survey groups do not occur as no new or additional price data are available to support revising the already published data.

## Publication Process

NASS developed software to structure the prices paid estimates in tabular format. A composed draft copy of the April *Agricultural Prices* report is generated for review for format changes by early April. Final estimates are again reviewed in the published formatted tables prior to release.

A file to populate the NASS QuickStats database is created at the time of final composition of the published report. A final review of QuickStats occurs prior to release. Go to [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp) for the Quick Stats database.

**Publication Constraints.** NASS strives to establish and publish prices paid estimates on all data series. There are situations, however, that require an aggregation of the estimates. Also, estimates may not be published if disclosure of an individual operation is possible. Reported data are protected by Title 7 of the U.S. Code. Title 7 can be found at <http://www.law.cornell.edu/uscode/7/>.

In the event of a publication constraint, footnotes are used to inform the reader of the reason. The two most common reasons for not publishing data are:

- (D) Withheld to avoid disclosing data for individual operations.
- (S) Insufficient number of reports to establish an estimate.

**Revisions.** Prices paid estimates for annual surveyed items are not revised in subsequent years as no new information is available to support a revision.

The monthly items are subject to revision the following month. Monthly items are limited to feeder cattle and feeder hogs. Revisions are supported for these items as additional transactions are available. In order to publish *Agricultural Prices*, only data for the first half of the month is processed.

## Dissemination

*Agricultural Prices* estimates are disseminated to the public through monthly reports at the end of each month. The April *Agricultural Prices* report with the prices paid estimates is released on the last business day of April. The monthly report is issued at 3:00 p.m. Eastern time. The 3:00 p.m. embargo and simultaneous access applies to all forms of dissemination. Electronic data and hard copy publications are made available simultaneously. Prior disclosure of data is unlawful, with penalties of fine and imprisonment. The April report can be found at the following website <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1002> by clicking on the appropriate year and month.

The main method of dissemination for reports is from the USDA-NASS website. The reports are available at [www.nass.usda.gov](http://www.nass.usda.gov). The reports and data are in the following formats:

- in a text format,
- in a pdf format,
- in a downloadable format for spreadsheets or databases via a comma separated value (csv) format, and
- QuickStats searchable database.

QuickStats is an on-line searchable database. Customers can obtain the specific data items of interest. These data items of interest are also available historically and can be downloaded. Feed price ratios are populated into the QuickStats database monthly. The QuickStats database can be found at the bottom of <http://www.nass.usda.gov/> or at [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp)

**Historic Data.** The last five years of prices paid indexes are published quarterly (January, April, July, and October) in *Agricultural Prices*. However, revised indexes are calculated monthly and posted to the Quick Stats database. These monthly revisions are meant to improve the timeliness of the data series. These revised estimates are official NASS estimates. Electronic versions (pdf files) are also available for *Agricultural Prices* reports dating back to 1964. These files contained “scanned” copies of the original hard copy reports.

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## Appendix of Tables

**Table 3.1. Target Sample by State for Prices Paid Survey Groups**

State	Machinery	Feed	Chemicals	Fuels	Seed	Screener
United States...	1,700	2,100	2,440	2,150	1,600	19,431
Alabama.....	55	75	50	55	30	489
Arizona .....	0	50	30	0	10	13
Arkansas .....	50	75	50	55	30	337
California .....	60	75	125	70	25	830
Colorado .....	55	65	60	65	25	50
Connecticut.....	0	10	0	15	5	33
Delaware.....	0	15	0	0	5	1
Florida .....	0	70	90	55	10	186
Georgia .....	50	75	90	55	15	635
Idaho.....	55	75	50	65	30	153
Illinois.....	65	80	115	65	115	823
Indiana .....	65	75	55	65	60	367
Iowa .....	55	80	65	65	55	2,019
Kansas .....	55	75	50	65	45	500
Kentucky.....	50	65	45	65	20	297
Louisiana .....	45	0	45	55	20	49
Maine.....	0	15	0	25	5	75
Maryland.....	0	50	0	0	20	31
Massachusetts .	0	10	0	20	5	39
Michigan.....	55	65	100	55	20	481
Minnesota .....	60	65	100	65	45	962
Mississippi.....	0	75	45	55	30	443
Missouri.....	60	80	65	65	140	1,123
Montana.....	50	0	45	65	20	26
Nebraska.....	60	75	55	65	110	886
Nevada.....	0	0	0	0	10	1
New Hampshire	0	15	0	15	5	42
New Jersey.....	0	0	40	0	5	42
New Mexico ...	0	0	0	0	5	1
New York .....	55	75	95	70	20	283
North Carolina	55	75	100	65	75	1,184
North Dakota ..	50	0	45	50	40	435
Ohio .....	60	80	55	65	65	264
Oklahoma .....	50	80	50	65	70	238
Oregon .....	55	70	90	70	25	222
Pennsylvania...	55	75	100	70	35	668
Rhode Island...	0	0	0	0	5	12
South Carolina	45	0	90	55	15	208
South Dakota ..	55	0	45	50	35	382
Tennessee .....	55	0	45	65	35	227
Texas .....	65	80	100	65	55	762
Utah .....	0	0	0	0	10	1
Vermont.....	0	15	0	25	40	53
Virginia.....	50	0	50	65	10	228
Washington.....	55	75	90	70	45	3,038
West Virginia..	0	0	0	0	25	1
Wisconsin .....	50	65	115	55	55	290
Wyoming .....	0	0	0	0	20	1

**Table 3.2a. Sample and Screening Counts for Farm Machinery**

State	Sample		Screening Operation	
	Target	Actual	Pre	Post
United States ...	1,700	2,040	3,588	3,825
Alabama .....	55	66	56	123
Arizona .....	0	0	1	1
Arkansas .....	50	60	76	112
California .....	60	72	139	141
Colorado .....	55	66	53	62
Connecticut .....	0	0	1	2
Delaware .....	0	0	1	0
Florida.....	0	0	1	16
Georgia .....	50	60	111	92
Idaho .....	55	66	70	87
Illinois .....	65	78	78	174
Indiana .....	65	78	88	78
Iowa .....	55	66	322	259
Kansas.....	55	66	119	124
Kentucky.....	50	60	122	153
Louisiana.....	45	54	48	55
Maine .....	0	0	1	18
Maryland.....	0	0	6	9
Massachusetts .	0	0	1	4
Michigan .....	55	66	75	99
Minnesota .....	60	72	89	93
Mississippi .....	0	0	49	74
Missouri .....	60	72	101	132
Montana .....	50	60	55	59
Nebraska .....	60	72	223	177
Nevada .....	0	0	1	2
New Hampshire	0	0	1	3
New Jersey.....	0	0	1	6
New Mexico....	0	0	1	1
New York.....	55	66	109	81
North Carolina	55	66	290	193
North Dakota...	50	60	104	121
Ohio .....	60	72	96	101
Oklahoma.....	50	60	102	105
Oregon .....	55	66	52	67
Pennsylvania ...	55	66	200	180
Rhode Island ...	0	0	1	1
South Carolina	45	54	76	88
South Dakota...	55	66	113	106
Tennessee.....	55	66	85	131
Texas.....	65	78	166	151
Utah.....	0	0	1	1
Vermont .....	0	0	1	2
Virginia .....	50	60	88	73
Washington .....	55	66	68	91
West Virginia..	0	0	1	3
Wisconsin .....	50	60	144	173
Wyoming .....	0	0	1	1

**Table 3.2b. Sample and Screening Counts for Feed**

State	Sample		Screening Operation	
	Target	Actual	Pre	Post
United States...	2.100	2.520	6.263	6.855
Alabama.....	75	90	341	256
Arizona .....	50	60	59	37
Arkansas .....	75	90	131	144
California.....	75	90	156	115
Colorado .....	65	78	73	75
Connecticut.....	10	12	32	34
Delaware.....	15	18	1	37
Florida .....	70	84	111	103
Georgia .....	75	90	219	207
Idaho .....	75	90	87	90
Illinois.....	80	96	407	390
Indiana .....	75	90	158	154
Iowa .....	80	96	563	484
Kansas .....	75	90	196	252
Kentucky.....	65	78	180	206
Louisiana .....	0	0	1	49
Maine.....	15	18	69	85
Maryland.....	50	60	73	45
Massachusetts .	10	12	48	44
Michigan.....	65	78	150	192
Minnesota .....	65	78	378	327
Mississippi.....	75	90	193	145
Missouri.....	80	96	474	428
Montana.....	0	0	1	66
Nebraska.....	75	90	309	325
Nevada.....	0	0	1	3
New Hampshire	15	18	44	38
New Jersey.....	0	0	1	12
New Mexico ...	0	0	1	0
New York .....	75	90	135	125
North Carolina	75	90	163	184
North Dakota ..	0	0	1	143
Ohio .....	80	96	133	221
Oklahoma .....	80	96	167	186
Oregon .....	70	84	210	151
Pennsylvania...	75	90	318	302
Rhode Island...	0	0	5	6
South Carolina	0	0	1	49
South Dakota ..	0	0	11	175
Tennessee .....	0	0	1	120
Texas .....	80	96	255	275
Utah .....	0	0	1	4
Vermont.....	15	18	50	44
Virginia.....	0	0	61	114
Washington.....	75	90	175	170
West Virginia..	0	0	1	20
Wisconsin .....	65	78	117	214
Wyoming .....	0	0	1	9

**Table 3.2c. Sample and Screening Counts for Fertilizer & Agricultural Chemicals**

State	Sample		Screening Operation	
	Target	Actual	Pre	Post
United States ..	2,440	2,928	8,462	8,027
Alabama .....	50	60	281	219
Arizona.....	30	36	30	36
Arkansas.....	50	60	156	190
California .....	125	150	296	212
Colorado.....	60	72	57	65
Connecticut ....	0	0	1	23
Delaware .....	0	0	1	9
Florida.....	90	108	101	131
Georgia.....	90	108	347	268
Idaho .....	50	60	136	127
Illinois .....	115	138	431	537
Indiana .....	55	66	247	208
Iowa .....	65	78	1290	633
Kansas.....	50	60	213	248
Kentucky .....	45	54	183	221
Louisiana.....	45	54	73	74
Maine .....	0	0	1	48
Maryland.....	0	0	1	28
Massachusetts	0	0	1	25
Michigan .....	100	120	199	250
Minnesota.....	100	120	456	352
Mississippi .....	45	54	202	183
Missouri .....	65	78	332	387
Montana .....	45	54	53	83
Nebraska .....	55	66	449	351
Nevada .....	0	0	1	2
New Hampshire	0	0	1	27
New Jersey .....	40	48	71	49
New Mexico...	0	0	1	0
New York.....	95	114	193	121
North Carolina	100	120	260	243
North Dakota..	45	54	216	241
Ohio .....	55	66	160	245
Oklahoma.....	50	60	166	178
Oregon .....	90	108	88	122
Pennsylvania ..	100	120	294	282
Rhode Island ..	0	0	1	1
South Carolina	90	108	140	104
South Dakota..	45	54	244	205
Tennessee.....	45	54	183	148
Texas.....	100	120	403	322
Utah.....	0	0	1	4
Vermont .....	0	0	1	28
Virginia .....	50	60	161	118
Washington ....	90	108	169	177
West Virginia..	0	0	1	18
Wisconsin.....	115	138	169	480
Wyoming.....	0	0	1	4

**Table 3.2d. Sample and Screening Counts for Fuel**

State	Sample		Screening Operation	
	Target	Actual	Pre	Post
United States.....	2150	2580	12243	6809
Alabama.....	55	66	243	149
Arizona .....	0	0	1	0
Arkansas .....	55	66	235	182
California.....	70	84	587	230
Colorado .....	65	78	103	81
Connecticut.....	15	18	26	15
Delaware.....	0	0	1	2
Florida .....	55	66	197	92
Georgia .....	55	66	291	147
Idaho .....	65	78	116	99
Illinois.....	65	78	333	326
Indiana .....	65	78	236	154
Iowa .....	65	78	589	406
Kansas .....	65	78	349	241
Kentucky.....	65	78	177	132
Louisiana .....	55	66	73	55
Maine.....	25	30	43	31
Maryland.....	0	0	1	6
Massachusetts .....	20	24	22	29
Michigan.....	55	66	360	204
Minnesota .....	65	78	608	363
Mississippi.....	55	66	250	77
Missouri.....	65	78	668	256
Montana.....	65	78	78	93
Nebraska .....	65	78	344	294
Nevada.....	0	0	1	0
New Hampshire ..	15	18	28	19
New Jersey.....	0	0	1	7
New Mexico .....	0	0	1	0
New York.....	70	84	174	83
North Carolina .....	65	78	824	295
North Dakota .....	50	60	320	217
Ohio .....	65	78	185	154
Oklahoma .....	65	78	61	106
Oregon.....	70	84	170	106
Pennsylvania.....	70	84	273	160
Rhode Island.....	0	0	6	6
South Carolina .....	55	66	193	95
South Dakota .....	50	60	231	174
Tennessee .....	65	78	158	122
Texas .....	65	78	355	178
Utah .....	0	0	1	1
Vermont.....	25	30	44	27
Virginia.....	65	78	114	74
Washington.....	70	84	2963	1047
West Virginia.....	0	0	1	8
Wisconsin .....	55	66	207	265
Wyoming .....	0	0	1	1



**Table 3.2e. Sample and Screening Counts for Retail Seed**

State	Sample		Screening Operation	
	Target	Actual	Pre	Post
United States ..	1,600	1,920	1,488	7,254
Alabama .....	30	36	54	169
Arizona.....	10	12	9	35
Arkansas.....	30	36	69	188
California .....	25	30	21	134
Colorado.....	25	30	18	68
Connecticut ....	5	6	5	29
Delaware .....	5	6	1	11
Florida .....	10	12	8	96
Georgia.....	15	18	12	222
Idaho .....	30	36	25	107
Illinois .....	115	138	81	571
Indiana .....	60	72	57	213
Iowa .....	55	66	62	536
Kansas .....	45	54	39	232
Kentucky .....	20	24	24	218
Louisiana.....	20	24	13	59
Maine .....	5	6	9	57
Maryland.....	20	24	22	34
Massachusetts	5	6	3	23
Michigan .....	20	24	77	282
Minnesota.....	45	54	40	351
Mississippi .....	30	36	24	148
Missouri .....	140	168	114	429
Montana .....	20	24	17	66
Nebraska .....	110	132	112	326
Nevada .....	10	12	6	5
New Hampshire	5	6	3	30
New Jersey .....	5	6	24	22
New Mexico...	5	6	3	3
New York.....	20	24	14	110
North Carolina	75	90	42	215
North Dakota..	40	48	35	227
Ohio .....	65	78	52	252
Oklahoma .....	70	84	50	179
Oregon .....	25	30	22	118
Pennsylvania ..	35	42	41	223
Rhode Island ..	5	6	1	2
South Carolina	15	18	13	76
South Dakota..	35	42	35	193
Tennessee.....	35	42	25	140
Texas .....	55	66	38	293
Utah.....	10	12	9	8
Vermont .....	40	48	6	37
Virginia .....	10	12	34	110
Washington ....	45	54	36	158
West Virginia .	25	30	20	18
Wisconsin.....	55	66	50	220
Wyoming.....	20	24	13	11

**Table 3.3. List of Business Status Codes for Prices Paid**

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Business Status Code
Active
Another Name Associated with Operation
Census Split
Duplicate
Farm Management Service
Idle Agribusiness Facility
Idle Land
Major Name Change
Native American Operator
Non-Agriculture Never Farmed
Non-Farm Equine Only
Non-Respondent
Out-of-Business
Potential Farm
Potential Future Sales
Previously Inactive
Refusal

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**Table 3.4. Case Disposition Codes For Data Collection Activities**

Data Collection Activity	Disposition Code	Description
Mode	Mail Telephone Face-to-Face CATI Web E-mail FAX CAPI Other	Self-administered survey submitted via mail Telephone interview for follow-up and when requested by operator Field interview as needed or requested by operator Interview mode used by state offices when requested Self-administered survey submitted via Internet Self-administered survey submitted via e-mail Self-administered survey submitted via FAX As of 2010, interview mode is being tested Another mode of data collection
Type of Respondent	Operator / Manager Spouse Accountant / Bookkeeper Partner Other	The operator or manager of the operation The spouse of the operator or manager of the operation The accountant or bookkeeper of the operation The partner of the operation Other person of the operation
Type of Response	Complete Interview Refusal Inaccessible Office Hold Known Zero	Operations that purchase one or more items of interest and provide complete data for all items purchased Operations who refuse to participate and do not provide and data Operations that are inaccessible during the time of the survey and cannot provide any data An operation is still in business, but due to arrangements made with the operator cannot report at time of the survey. For example, an operation reported that they can only report quarterly due to their record keeping system. An operation is still in business, but for a particular month reports no purchases of any commodities of interest. An operation has gone out of business or the operation no longer buys any commodities of interest
Enumerator Evaluation	Not Accepted Minimal Accepted Average Very Good Excellent	Enumerator's survey work not accepted by NASS staff Enumerator's survey work is minimally accepted Enumerator's survey work is average Enumerator's survey work is very good Enumerator's survey work is excellent

**Table 3.5. Types of Farm Machinery**

Type	Sub-Category	Index Item
Baler	Pick-up, auto tie, power take-off (PTO) 200 lb bale	No
	Round, 1200-1500 lb bale	Yes
	Round, 1900 - 2200 lb bale	No
Combine	Self-propelled with grain head, large	Yes
	Self-propelled with grain head, extra large	No
Cotton Picker	Self-propelled, 6 row	Yes
Chisel Plow Down to 1 ft	16-20 ft	Yes
	21-25 ft	No
	26-40 ft	No
	41-60 ft	No
Corn Head for Combine	6 row	Yes
	8 row	No
	12 row	No
Cultivator	Row Crop, flexible 12 row	No
	Row Crop, mounted, 8 row	No
Disk Harrow Tan- dem	Drawn, 15-17 ft	No
	Drawn, 18-20 ft	Yes
	Drawn, 21-25 ft	No
	Drawn, 26-30 ft	No
	Drawn, 31-35 ft	No
Farm Elevator	Port, auger, 8 in diameter, 60 ft	No
Farm Wagon	Box and gear gravity unload, 200-400 bushel capacity	Yes
	Box and gear gravity unload, 450-650 bushel capacity	No
Farm Wagon Running Gear	8-10 ton	Yes
	12-15 ton	No
Feed Grinder	Feed grinder-mixer, trailer, PTO	Yes
Field Cultivator	17-19 ft	No
	Flexible 20-25 ft	Yes
	Flexible 26-30 ft	No
Forage Harvester	Self-propelled, shear bar, 4 to 6 row	No
	Shear bar, with pick-up attachment	Yes
	Shear bar, with row crop unit, 2 row	No
Front-End Loader	1800-2500 lb. capacity	Yes
Grain Drill	Plain, 15-17 openers	No
	Press, 23-25 openers	No
	With fertilizers 20-24 openers	Yes
	With fertilizers 25-29 openers	No

**Table 3.5. Types of Farm Machinery**

Type	Sub-Category	Index Item
Grain Drill (cont.)	With fertilizers 30-35 openers	No
	Minimum / no till, With fertilizers, 15 ft	No
	Minimum / no till, With fertilizers, 20 ft	No
Hay rake	Side delivery or wheel, 13-23 ft working width (WW)	No
	Side delivery or wheel, 24-35 ft WW	No
	Side delivery or wheel, 8-12 ft WW	No
Hay tedder	15-18 ft WW	No
Mower-Conditioner	PTO, 14-16 ft sickle	No
	PTO, 8-10 ft sickle	No
Mower Mounted or Drawn	13-14 ft sickle	No
	7-8 ft sickle	No
Manure Spreader 2 Wheel	PTO, 141-190 bushel capacity	Yes
	PTO 225-310 bushel capacity	No
	PTO 370-430 bushel capacity	No
	PTO 560-660 bushel capacity	No
Planter	Conservation/no till, With fertilizers 12 row	Yes
	With fertilizers, 4 row	No
	With fertilizers, 8 row	No
	With fertilizers, 12 row	No
	With fertilizers, 24 row	No
Rotary Cutter	7-8 ft	Yes
	10-14 ft	No
	15-20 ft	No
Rotary Hoe	20-30 ft width	No
Sprayer, Field Crop	Mounted, boom type	No
	Trailer type, including 1000-1600 spray tank	No
	Trailer, boom type	No
Tractor	2 wheel, 30-39 PTO Horsepower (HP)	No
	2 wheel, 50-59 PTO HP	Yes
	2 wheel, 70-89 PTO HP	No
	2 wheel, 110-129 PTO HP	Yes
	2 wheel, 140-159 PTO HP	Yes
	2 wheel, 190-220 PTO HP	No
	4 wheel, 200-280 PTO HP	Yes
	4 wheel, 281-350 Engine HP	No
4 wheel, 351-500 Engine HP	No	
Windrower	Self propelled, 14-16 ft cut	Yes

**Table 3.6. Types of Feed**

Type	Sub-Category	Published Unit	Index Item
Alfalfa	Meal	Cwt	No
	Pellets	Cwt	No
Beef Cattle Concentrate	32-36% Bagged	Ton	No
	32-36% Bulk	Ton	No
	32-36% Protein Total	Ton	Yes
Corn Meal		Cwt	Yes
Cottonseed Meal	41%	Cwt	Yes
Dairy Feed	14% Protein Bagged	Ton	No
	14% Protein Bulk	Ton	No
	14% Protein Total	Ton	No
	16% Protein Bagged	Ton	No
	16% Protein Bulk	Ton	No
	16% Protein Total	Ton	Yes
	18% Protein Bagged	Ton	No
	18% Protein Bulk	Ton	No
	18% Protein Total	Ton	No
	20% Protein Bagged	Ton	No
	20% Protein Bulk	Ton	No
	20% Protein Total	Ton	No
	32-38% Protein Bagged Concentrate	Ton	No
	32-38% Protein Bulk Concentrate	Ton	No
32-38% Protein Concentrate Total	Ton	Yes	
Hog Feed	14-18% Protein Bagged	Ton	No
	14-18% Protein Bulk	Ton	No
	14-18% Protein Total	Ton	Yes
	38-42% Protein Bagged Concentrate	Ton	No
	38-42% Protein Bulk Concentrate	Ton	No
	38-42% Protein Concentrate Total	Ton	Yes
Molasses	Liquid	Cwt	Yes
Poultry Feed	Chick Starter Bagged	Ton	No
	Chick Starter Bulk	Ton	No
	Chick Starter Total	Ton	Yes
	Broiler Grower Bagged	Ton	No
	Broiler Grower Bulk	Ton	No
	Broiler Grower Total	Ton	Yes
	Turkey Grower Bagged	Ton	No
	Turkey Grower Bulk	Ton	No
	Turkey Grower Total	Ton	Yes

**Table 3.6. Types of Feed**

Type	Sub-Category	Published Unit	Index Item
Poultry Feed (cont.)	Laying Feed Bagged	Ton	No
	Laying Feed Bulk	Ton	No
	Laying Feed Total	Ton	Yes
Stock Salt	Plain or Iodized, Bagged	50 Lb	No
	Plain or Iodized, Block	50 Lb	No
	Plain or Iodized Total	50 Lb	Yes
Soybean Meal	44%	Cwt	Yes
	Over 44%	Cwt	No
Trace Mineral Blocks	94.5-97.5% Salt	50 Lb	No
Wheat Bran		Cwt	Yes

**Table 3.7. Fertilizers, Fungicides, Herbicides, and Other Chemicals**

Type	Sub-Category	Published Unit	Index Item
Fertilizers			
	0-18-36	Ton	No
	0-26-26	Ton	No
	3-10-30	Ton	No
	4-0-8	Ton	No
	5-10-30	Ton	No
	5-20-20	Ton	No
	6-6-18	Ton	No
	6-15-40	Ton	No
	6-24-24	Ton	No
	7-1-1	Ton	No
	9-23-30	Ton	Yes
	10-10-10	Ton	Yes
	10-20-20	Ton	Yes
	10-34-0	Ton	Yes
	11-37-0	Ton	No
	11-52-0	Ton	Yes
	11-55-0	Ton	No
	13-13-13	Ton	Yes
	14-0-44	Ton	No
	14-7-14	Ton	No
	15-60-0	Ton	No
	16-4-8	Ton	No
	16-6-12	Ton	No
	16-20-0	Ton	Yes
	17-17-17	Ton	Yes
	18-9-9	Ton	No
	18-15-22	Ton	No
	18-46-0 (Diammonium Phosphate)	Ton	Yes
	19-19-19	Ton	Yes
	20-5-10	Ton	No
	20-10-0	Ton	No
	20-10-10	Ton	No
	21-7-14	Ton	No
	21-8-17	Ton	No
	24-8-0	Ton	No
	25-5-0	Ton	No
	25-5-10	Ton	No
	28-0-5	Ton	No
	28-3-3	Ton	No



**Table 3.7. Fertilizers, Fungicides, Herbicides, and Other Chemicals**

Type	Sub-Category	Published Unit	Index Item
Fertilizers (cont.)	Ammonium Nitrate (Approximately 33.5% N)	Ton	No
	Anhydrous Ammonia	Ton	Yes
	Aqua Ammonia 22-25% N	Ton	No
	Limestone, Spread	Ton	No
	Muriate of Potash 60-62% K2O	Ton	Yes
	Nitrogen Solution, 28% N	Ton	No
	Nitrogen Solution, 30%	Ton	No
	Nitrogen Solution, 32% N	Ton	Yes
	Sulphate of Ammonia 20.5-21.0% N	Ton	No
	Triple Superphosphate- 44-46% P <sub>2</sub> O <sub>5</sub>	Ton	Yes
	Urea - 44-46% N Package Size	Ton	Yes
	Fungicides	Captan 50% WP	Pound
Captan 80% WP		Pound	No
Chlorothalonil 6 lbs / gallon		Gal	Yes
Copper Hydroxide 54%		Pound	No
Copper Hydroxide 77%		Pound	Yes
Fenarimol 1 lb / gallon		Gal	No
Ferbam 76%		Pound	No
Fosethyl-Al 80%		Pound	Yes
Iprodione 4 lbs / gallon		Gal	No
Mancozeb 75%		Pound	No
Maneb 4 lbs / gallon		Gal	No
Maneb 80%		Pound	Yes
Myclobutanil 40%		Pound	No
Oxytetracycline 17%		Pound	No
Sulfur 80%		Pound	No
Triadimefon 50%		Pound	No
Ziram 76%		Pound	No
Herbicides		2, 4-D 3.8 lbs / gallon	Gallon
	Acetochlor 6.4 lbs / gallon	Gallon	No
	Acetochlor 7 lbs / gallon	Gallon	No
	Alachlor 4 lbs / gallon	Gallon	No
	Atrazine 4 lbs / gallon	Gallon	Yes
	Butylate 6.7 lbs / gallon	Gallon	Yes
	Chlorimuron Ethyl 25%	Oz	No

**Table 3.7. Fertilizers, Fungicides, Herbicides, and Other Chemicals**

Type	Sub-Category	Published Unit	Index Item
Herbicides (cont.)	Chlorsulfuron 75%	Oz	No
	DCPA 75%	Pound	No
	Dicamba 4 lbs / gallon	Gallon	No
	Diuron 80%	Pound	No
	EPTC 6.7 lbs / gallon	Gallon	No
	EPTC 7 lbs / gallon	Gallon	No
	Glyphosate 4 lbs / gallon Salt Equivalent	Gallon	Yes
	Glyphosate 4.5 lbs / gallon Salt Equivalent	Gallon	No
	Linuron 50%	Pound	No
	MCPA 3.7 to 4.0 lbs / gallon	Gallon	No
	Metribuzin 75%	Pound	No
	Napropamide 50%	Pound	No
	Paraquat 3 lbs / gallon	Gallon	No
	Pendimethalin 3.3 to 3.8 lbs / gallon	Gallon	Yes
	Simazine 4 lbs / gallon	Gallon	No
	Sodium Bentazon 4 lbs / gallon	Gallon	No
	Sethoxydim 1.5 lbs / gallon	Gallon	No
	Terbacil 80%	Pound	No
	Trifluralin 4 lbs / gallon	Gallon	Yes
Insecticide	Acephate 75%	Pound	No
	Acephate 90%	Pound	No
	Aldicarb 15%	Pound	No
	Azinphos-Methyl 50%	Pound	No
	BT	Pound	No
	Carbaryl 4 lbs / gallon	Gallon	No
	Carbaryl 80%	Pound	Yes
	Carbofuran 4 lbs / gallon	Gallon	No
	Chlorpyrifos 4 lbs / gallon	Gallon	No
	Cyfluthrin 2 lbs / gallon	Gallon	No
	Cypermethrin, 2.5 lbs / gallon	Gallon	No
	Diazinon 50%	Gallon	No
	Dicofol 4 lbs / gallon	Gallon	Yes
	Dicrotophos 8 lbs / gallon	Gallon	No
	Dimethoate 2.67 lbs / gallon	Gallon	No
	Disulfoton 8 lbs / gallon	Gallon	No
	Endosulfon 3 lbs / gallon	Gallon	No
	Esfenvalerate 0.66 lbs / gallon	Gallon	No

**Table 3.7. Fertilizers, Fungicides, Herbicides, and Other Chemicals**

Type	Sub-Category	Published Unit	Index Item
Insecticides (cont.)	Imidacloprid, 1.6 lbs / gallon	Gallon	No
	Malathion 5 lbs / gallon	Gallon	No
	Malathion 9.9 lbs / gallon	Gallon	No
	Methidathion 25%	Pound	No
	Methomyl 2.4 lbs / gallon	Gallon	No
	Methyl Parathion 2 lbs / gallon	Gallon	Yes
	MSMA, 6 lbs / gallon - MSMA 6 Plus, MSMA Plus H.C.	Gallon	No
	Oil 7 lbs / gallon	Gallon	No
	Oxamyl 2 lbs / gallon	Gallon	No
	Oxydemeton-Methyl 2 lbs / gallon	Gallon	No
	Permethrin 2.0 lbs / gallon	Gallon	No
	Permethrin 3.2 lbs / gallon	Gallon	No
	Phorate 20%	Pound	Yes
	Phosmet 50%	Pound	No
	Phosmet 70%	Pound	No
	Propargite 32%	Pound	No
	S-Metolachlor, 7.62 or 7.64 lbs / gallon	Gallon	No
	Synthetic Pyrethroids (Ambush & Pounce)	Gallon	Yes
	Terbufos 15%	Pound	Yes
	Zeta- Cypermethrin 1.5 lbs / gallon	Gallon	No
	Zeta-Cypermethrin 0.8 lbs / gallon	Gallon	No
Other Chemicals	Gibberellic Acid 4% L	Gallon	Yes
	Methyl Bromide, 67%	Pound	No
	NAD (Naphthaleneacetamide) 8.4WP	Pound	Yes

**Table 3.8. Units of Measure for Fertilizers and Agriculture Chemicals**

Liquid	Dry
Liquid Ounce	Gram
Pint	Dry Ounce
Liter	Pound
Quart	50 lb bag
Gallon	100 lb bag
	Hundredweight
	Ton

**Table 3.9. Fuels**

Type	Sub-Category	Published Unit	Index Item
Diesel	Bulk Delivery	Gallon	Yes
Gasoline, Unleaded	Bulk Delivery	Gallon	No
	Service Station	Gallon	Yes
LP Gasoline	Bulk Delivery	Gallon	Yes

**Table 3.10. Retail Seed**

Type	Sub-Category	Published Unit	Index Item
Alfalfa	Alfalfa Certified Seed	Cwt	Yes
	Alfalfa Uncertified Seed	Cwt	No
Barley	Barley Spring Seed	Bushel	No
Bluegrass	Bluegrass Seed Kentucky Proprietary	Pound	Yes
	Bluegrass Seed Kentucky Public	Pound	No
Clover	Clover Seed Red Seed	Cwt	No
	Clover Ladino Seed	Pound	No
Corn Hybrid	Corn Hybrid (BIO) Seed	80,000 Kernels	No
	Corn Hybrid (NBT) Seed	80,000 Kernels	No
	Corn Hybrid All Seed	80,000 Kernels	Yes
Fescue	Fescue Seed Tall Seed	Cwt	Yes
Flax	Flax Seed	Bushel	No
Grain	Grain Sorghum Hybrid Seed	Cwt	No
Lespedeza	Lespedeza Seed Korean	Cwt	No
	Lespedeza Seed Kobe	Cwt	No
Oats Spring	Oats Spring Seed	Bushel	No
Orchard grass	Orchard Grass Seed	Cwt	No
Rye grass	Rye Grass Seed Annual	Cwt	Yes
Soybeans	Soybeans Biotech Seed	Bushel	No
	Soybeans Non-Biotech Seed	Bushel	No
	Soybeans All Seed	Bushel	Yes
Sudan grass	Sudan Grass Seed	Cwt	No
Timothy grass	Timothy Grass Seed	Cwt	No
Wheat	Wheat Winter Seed	Bushel	No
	Wheat Spring Seed	Bushel	Yes

**Table 3.11. States Within Farm Production Regions**

Region	Number of States Per Region	Farm Production Region
1 .....	5	KY, NC, TN, VA, WV
2 .....	5	IL, IN, IA, MO, OH
3 .....	3	AR, LA, MS
4 .....	3	MI, MN, WI
5 .....	8	AZ, CO, ID, MT, NV, NM, UT, WY
6 .....	11	CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT
7 .....	4	KS, NE, ND, SD
8 .....	3	CA, OR, WA
9 .....	4	AL, FL, GA, SC
10 .....	2	OK, TX

**Table 3.12. States Within Fertilizer Regions**

Region	Number of States Per Region	Fertilizer Region
1.....	5	AL, KY, LA, MS, TN
2.....	4	CO, MT, NM, WY
3.....	8	IL, IN, IA, MI, MN, MO, OH, WI
4.....	12	CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, WV
5.....	4	KS, NE, ND, SD
6.....	3	ID, OR, WA
7.....	3	AR, OK, TX
8.....	5	FL, GA, NC, SC, VA
9.....	4	AZ, CA, NV, UT

**Table 3.13. Relative Weights of Items for Indexes of Prices Paid by Farmers Including Interest, Taxes, and Wage Rates (Base Price Period 1990-92)**

COMPONENT / SUBCOMPONENT	RELATIVE WEIGHT	COMPONENT / SUBCOMPONENT	RELATIVE WEIGHT
	Percent		Percent
CONSUMER PRICE INDEX (C.P.I.)	19.0	FERTILIZER	4.7
PRODUCTION	65.6	Mixed Fertilizer	2.0
FEED	11.1	09-23-30	0.05
Complete Feeds	4.9	10-10-10	0.08
Beef Cattle Feed, 32-36%	0.44	10-20-20	0.04
Dairy Feed, 16%	0.83	10-34-00	0.31
Dairy Feed, 32-38%	0.34	11-52-00	0.28
Hog Feed, 38-42%	0.24	13-13-13	0.06
Hog Feed, 14-18%	0.24	16-20-00	0.06
Broiler Grower	1.42	17-17-17	0.04
Chick Starter	0.34	18-46-00 (DAP)	1.05
Laying Feed	0.68	19-19-19	0.07
Turkey Grower	0.34	Nitrogen	2.0
Feed Grains	2.0	Nitrogen Solution, 32%	0.77
Barley	0.06	Urea, 45%	0.51
Corn, Shelled	1.64	Anhydrous Ammonia, 81-82%	0.70
Sorghum, Grain	0.26	Potash and Potassium	0.7
Oats	0.04	Superphosphate, 44-46% P205	0.26
Hay/Forages	1.2	Muriate of Potash, 60% K20	0.40
Hay Baled, Alfalfa	0.76	AGRICULTURAL CHEMICALS	3.4
Hay Baled, Other	0.46	Herbicides	2.1
Concentrates	1.8	2,4-D	0.56
Cottonseed Meal, 41%	0.16	Butylate (SUTAN)	0.32
Soybean Meal, 44%	1.62	Cyanazine (BLADEX)	0.39
Supplements	1.2	Trifluralin (TRELAN)	0.47
Bran	0.53	Pendimethalin (PROWL)	0.21
Corn Meal	0.29	Glyphosate (ROUNDUP)	0.20
Molasses, Liquid	0.29	Insecticides	0.8
Stock Salt, Plain or Iodized	0.11	Carbaryl (SEVEN)	0.15
LIVESTOCK AND POULTRY	8.2	Phorate (THIMET)	0.10
Feeder Cattle	6.39	Terbufos (COUNTER)	0.15
Feeder Pigs	0.66	Synthetic Pyrethroid	0.15
Milk Cow Replacements	0.66	Methyl Parathion	0.16
Poultry	0.54	Fonofos (DYFONATE)	0.09
Broiler-Type Chicks	0.35	Fungicides / Other	0.3
Egg-Type Chicks	0.19	Captan	0.09
SEED	2.7	Maneb	0.04
Field Crops	2.5	Fosethyl-AL (ALIETTE)	0.01
Seed Corn, Hybrid	1.10	Copper Hydroxide	0.06
Rice	0.04	Chlorothalonil (BRAVO)	0.09
Wheat	0.41	Gibberellic Acid	0.09
Cottonseed	0.13	Naphthalene Acetamide	0.09
Peanuts	0.10	FUELS	3.0
Soybeans	0.49	Diesel Fuel, Bulk Delivery	1.60
Potatoes	0.17	LP Gas, Bulk Delivery	0.35
Grasses and Legumes	0.3	Gasoline, Unleaded, Service Station	1.05
Ryegrass, Annual	0.10	Tall Fescue	0.06
Bluegrass, Kentucky	0.02		
Alfalfa, Certified	0.07		

**Table 3.13. Relative Weights of Items for Indexes of Prices Paid by Farmers Including Interest, Taxes, and Wage Rates (Base Price Period 1990-92 (Cont.))**

COMPONENT / SUB-COMPONENT	RELATIVE WEIGHT	COMPONENT / SUB-COMPONENT	RELATIVE WEIGHT
	Percent		Percent
FARM SUPPLIES AND REPAIRS	5.4	BUILDING MATERIALS	2.4
Supplies	1.8		
Hand Tools	1.11	FARM SERVICES	10.9
Power Hand Tools	0.13	Custom Rates	1.2
Lubricants	0.21	Harvesting	1.0
Fruit and Vegetable Containers	0.36	Corn	0.17
Repairs	3.6	Hay	0.45
Farm Machinery Parts	1.80	Small Grains	0.20
Labor Repair Costs	1.80	Soybeans	0.14
		Planting	0.1
AUTOS AND TRUCKS	1.3	Corn	0.02
Autos	0.2	Small Grains	0.02
Autos, New	0.10	Soybeans	0.02
Autos, Used	0.07	Legumes and Grasses	0.02
Trucks	1.1		
Trucks, New	0.64	Tillage	0.1
Trucks, Used	0.49	Chisel Plow	0.02
		Tandem Disking	0.02
FARM MACHINERY	4.6	Field Cultivation	0.02
Self-propelled	1.8	Row Cultivation	0.02
Combine, w/ Grain Head, Large	1.51		
Cotton Picker, Spindle, 4 Row	0.31	Other Services	9.7
Windrower, 14-16 Foot	0.03	Insurance	2.43
Tractors	1.0	Contract Labor	1.18
2 Wheel, 50-59 HP	0.08	Electricity	2.25
2 Wheel, 110-129 HP	0.18	Veterinary Services	1.37
2 Wheel, 140-159 HP	0.62	Office Supplies	1.55
4 Wheel, 200-280 HP	0.14	Business Computers	0.07
Other Machinery	1.8	Transportation	0.88
Forage Harvester, PTO,			
Shear Bar, w/Pickup	0.06	RENT	8.0
Rotary Cutter, 7-8 Foot	0.05	Cash	3.6
Corn Head for Combine, 6-Row	0.14	Cash	3.43
Baler, Rnd, Man., 1200-1500 lbs.	0.19	Private Per Head	0.12
Feed Grinder-Mixer, Trailer, PTO	0.06	Public AUM	0.05
Front-End Loader, 1800-2500 lbs.	0.09	Share	4.4
Manure Spreader, 2 Wheel, PTO,		INTEREST	5.7
141-190 Bushel	0.12	Farm Real Estate (per acre)	3.08
Wagon Running Gear, 8-10 Tons	0.12	Farm Non-Real Estate	2.62
Wagon, Gravity, 200-400 Bushels	0.05	TAXES	3.0
Corn Planter, Conservation, 12-Row	0.29	WAGE RATES	6.7
Grain Drill, w/Fert. Atch. 20-24 Tube	0.15		
Disk Harrow, Tandem, Drawn		TOTAL	100.0
15-17 Foot	0.12		
18-20 Foot	0.16		
Field Cultivator, Flexible 20-25 Foot	0.15		

**Table 3.14. Bureau of Labor Statistics Component Indexes Utilized in NASS Index Construction**

Group	NASS Description	BLS Description	BLS Series ID
Feed	Supplements	Wheat mill products, corn mill products, and other grain mill products except flour	wpu02140908
	Concentrates	Soybean cake, meal, and other byproducts	wpu0292
	Complete Feeds	Formula Feeds	wpu0293
Fertilizer	Mixed Fertilizers	Mixed Fertilizers	wpu0651
	Nitrogen	Nitrogenates	wpu065201
	Potash and Phosphate	Phosphates	wpu065202
Agricultural Chemicals (Non-Household)	Chemicals	Agricultural and commercial pesticides and chemicals	wpu06530106
Farm Supplies and Repairs	Hand Tools	Hand and Edge Tools	wpu1042
	Power Equipment	Power-driven Hand Tools	wpu1132
	Oils/Greases	Finished Lubricants	wpu0576
	Fruit and Vegetable Containers	Wood container and pallet manufacturing	pcu32192-32192-
	Repairs/Parts	Parts for farm machinery, for sale separately	wpu111409
	Labor/Service	Installation, maintenance, and repair	ciu2010000430000i
Autos and Trucks	Trucks	New trucks	cuur0000ss45021
	Autos	New cars	cuur0000ss45011
Farm Machinery	Other Machinery	All other farm machinery and equipment, excluding parts, including attachments	wpu111408
	Tractors	Farm-type (power take-off hp) wheel tractors (2/4 wheel drive)(with or without attachments)	wpu111403
	Self-propelled Machinery	Harvesting machinery (except hay and straw) and attachments	wpu111406
Building Materials	Building Materials	Material and components for construction	wpusop2200
Farm Services	Other Services – Computers	Electronic computers	wpu1151
	Other Services – Office Supplies	Office supplies and accessories	wpu091506
	Electricity	Electricity per KWH	apu000072610
	Transportation	General freight trucking, long-distance	pcu48412-48412-
Family Living	Family Living	Consumer Price Index - All Urban Consumers	cuur0000sa0



**Table 3.15. Relative Weights of Component Prices Paid Indexes Comparison by Type of Farm**

Index	1990-92 Relative Weights (Percent) <sup>1/</sup>		
	All Farms	Crop Farms	Livestock Farms
Production	65.6	62.4	68.6
Feed	11.1	1.5	20.1
Livestock & Poultry	8.2	1.6	14.3
Seed	2.7	4.3	1.2
Fertilizer	4.7	6.8	2.7
Agricultural Chemicals	3.4	5.6	1.3
Fuels	3.0	3.6	2.4
Farm Supplies & Repairs	5.4	6.4	4.5
Autos & Trucks	1.3	1.3	1.4
Farm Machinery	4.6	5.0	4.1
Building Materials	2.4	2.0	2.8
Farm Services	10.9	12.3	9.7
Rent	8.0	12.0	4.3
Interest	5.7	6.0	5.4
Taxes	3.0	3.4	2.6
Wage Rates	6.7	9.2	4.4
Family Living	19.0	19.0	19.0

<sup>1/</sup> Simple averages of 1990-92 base price period for comparison purposes.

**Table 3.16. Prices Paid Component and Subcomponent Production Indexes (1990-92=100) <sup>1/</sup>**

Production Index/Subcomponent	1990-92=100 Relative Weight Percent
Feed	11.1
Complete Feeds	4.9
Feed Grains	2.0
Hay/Forages	1.2
Concentrates	1.8
Supplements/Other	1.2
Livestock and Poultry	8.2
Feeder Cattle	6.39
Feeder Pigs	.66
Milk Cow Replacements	.66
Poultry	.54
Seed	2.7
Field Crops	2.5
Grasses & Legumes	.3
Fertilizer	4.7
Mixed Fertilizers	2.0
Nitrogen	2.0
Potash and Potassium	.7
Agricultural Chemical	3.4
Herbicides	2.1
Insecticides	.8
Fungicides/Other	.3
Fuels	3.0
Diesel	1.60
Gasoline	1.05
LP Gas	.35
Farm Supplies & Repairs	5.4
Supplies	1.8
Repairs	3.6
Autos & Trucks	1.3
Autos	.2
Trucks	1.1
Farm Machinery	4.6
Self-Propelled	1.8
Tractors	1.0
Other Machinery	1.8
Building Materials	2.4
Farm Services	10.9
Custom Rates	1.2
Other Services	9.7
Rent	8.0
Cash	3.6
Share	4.4

<sup>1/</sup> Simple average of 1990-92 for comparison purposes.

**Table 3.17. Revised and Prior Prices Paid Indexes  
Relative Weights of Component Indexes**

Commodity Groups	Prior Base	Revised Base	5-Year Moving Average Weights: <u>2/</u>				
	Period (1971-73)	Period <u>1/</u> (1990-92)	1990	1995	2000	2005	2010
	(%)	(%)	(%)				
Production	57.6	65.6	65.0	66.3	67.3	66.4	70.2
Feed	11.8	11.1	11.9	11.5	11.7	10.7	11.9
Livestock & Poultry	11.7	8.2	8.0	8.4	6.8	7.7	8.6
Seed	1.8	2.7	2.6	2.7	2.9	3.5	3.9
Fertilizer	4.2	4.7	5.3	4.7	4.9	4.3	5.2
Agricultural Chemicals	1.7	3.4	2.7	3.4	3.9	3.6	3.2
Fuels	3.5	3.0	4.0	2.9	2.6	2.7	3.9
Farm Supplies & Repairs	2.2	5.4	4.8	5.4	5.6	5.2	4.6
Autos & Trucks	2.5	1.3	1.3	1.4	1.6	1.8	1.5
Farm Machinery	7.2	4.6	3.9	4.5	4.0	4.0	4.5
Building Materials	3.6	2.4	2.4	2.4	2.8	3.6	4.5
Farm Services	7.4	10.9	13.9	11.1	12.4	12.4	12.1
Rent	0	8.0	4.2	7.8	8.1	6.9	6.3
Interest	4.0	5.7	7.3	5.5	4.9	4.5	3.6
Taxes	2.8	3.0	2.0	3.0	3.1	2.9	3.0
Wage Rates	5.2	6.7	6.7	6.8	7.0	7.6	7.5
Family Living	30.4	19.0	18.9	18.4	17.7	18.6	15.7
Total Inputs	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Weights represent simple 3-year averages for 1990-92 base price period for comparison purposes with 1971-73, prior base price and weight period.

2/ Examples of 5-year moving weights for constructing 1990-92=100 index numbers. Weights used for 2010 based upon 2004-2008 production expenditures, weights for 2005 based upon 1999-03 production expenditures.

## Glossary of Selected Terms

### **2, 4-D** (3.8 pounds/gallon)

For postemergence use on grasses, wheat, barley, oats, sorghum, corn, sugarcane and non-crop areas for control of weeds such as Canada thistle, dandelion, annual mustards, ragweed, and lambsquarters. Many broadleaf crops are extremely sensitive, such as cotton and grape vines. Leaves no residue carryover to the next year. Absorbed through leaves.

### **AAtrex**

See Atrazine.

### **Acephate** (Orthene)

A contact and systemic insecticide effective against alfalfa looper, aphids, armyworms, bagworms, bean leafbeetle, bean leafroller, blackgrass bugs, bollworm, budworm, cabbage looper, cankerworms, corn earworms, cranberry blossom worm, cutworms, diamond back moth, European corn borer, fireworms, fleahoppers, grasshoppers, green cloverworm, gypsy moth, hornworm, imported cabbage worm, imported fire ants, lace bugs, leafminers, leafhoppers, leafrollers, lygus, Mexican bean beetle, Mormon crickets, oak moth, saltmarsh caterpillars, soybean loopers, spanworms, sparganthis, stinkbugs, tent caterpillars, threecornered alfalfa hopper, thrips, tobacco hornworm, velvetbean caterpillar, webworms, and whiteflies. For use in bell and non-bell peppers, brussel sprouts, cauliflower, celery, cotton, cranberries, dry beans, head lettuce, mint, peanuts, soybeans, and succulent beans. This chemical also used for spot treatment control of cockroaches and for insect control in forests, tobacco, and on ornamentals.

### **Acetochlor** (7 lbs/gallon)

Herbicide used as a pre-emergence application or pre-planting application with soil incorporation to control annual grasses and certain broadleaf weeds. Acetochlor is used on a wide variety of crops including cotton, corn, peanuts, soybeans, sugarcane, vineyards, orchard crops and some vegetables.

### **Active Ingredients**

The ingredients in fertilizer or a pesticide which will chemically react with the soil, plant, animal, or pest give the desired effect.

### **Actual Nutrients**

As related to fertilizer, primary plant nutrients expressed in terms of active ingredients or units of nitrogen, phosphorus, potassium, and sulfur applied. A unit equals one pound.

**Additive, Feed**

Items added to a diet or ration mixture to increase efficiency or to give it more desirable characteristics.

**Aerial Fertilization**

The broadcast distribution of fertilizers on the soil surface from aircraft.

**Aerial Seeding**

Broadcast seeding from aircraft, especially used in wet areas, such as rice fields, and for some small grain crops on upland fields when heavy rain prevents the use of conventional seeding methods.

**Adjuvant**

Chemical added to a pesticide to increase its effectiveness or safety.

**Aflatoxin**

A toxic chemical produced by a soil-borne mold that affects seeds, such as corn and peanuts, when certain climatic conditions occur. Aflatoxin is sometimes found in moldy corn.

**Aggregative index method**

The method in which the sum of prices of all items in the current period multiplied by their quantity in the base period is divided by the sum of all item total values (prices multiplied by quantity) in the base period.

**Aggregator**

An individual or firm who purchases a commodity from a producer and combines the commodity with other similar purchases in order to make a bulk sale.

**Agitation**

The process of stirring or mixing in a sprayer.

**Agribusiness**

Producers and sellers of agricultural food, fiber, and services. Agribusinesses include manufacturers, processors, wholesalers, dealers, transporters, marketers, and retail outlets.

## **Agricultural Marketing Service (AMS)**

A USDA agency that sets standards for grades of cotton, tobacco, meat, dairy products, eggs, fruits, and vegetables; operates grading services; and administers Federal marketing orders.

## **Agricultural Policy**

A broad term used to encompass those government programs most directly affecting the prices and incomes received by producers.

## **Agricultural Statistics Board (ASB)**

A selected panel from the National Agricultural Statistics Service (NASS) staff dedicated to providing effective and efficient review of statistics covering all aspects of U.S. agriculture. The ASB acts on behalf of the Secretary of Agriculture.

## **Alachlor** (4 pounds/gallon)

Used as a preemergence or early postemergence for controlling annual grasses and certain broad-leaf seeds in soybeans, corn, peanuts, dry beans, sunflowers, milo and potatoes. Leaves no residue carryover to the next year. Can be broadcast or banded.

## **Aldicarb** (Temik 15%)

A systemic insecticide, acaricide, and nematicide for use only as soil application to control certain insects, mites, and nematodes on citrus (grapefruit, lemon, lime, oranges only), cotton, dry beans, ornamentals, peanuts, sorghum, soybeans, sugar beets, sweet potatoes, pecans (Southeast only), sugarcane (Louisiana only), and tobacco (North Carolina and Virginia only).

## **Aliette**

See Fosetyl-AL.

## **ALS Herbicides**

Herbicides that bind to the acetolactate synthase (ALS) enzyme in the plant.

## **ALS Resistance**

Resistance is caused by a modified ALS enzyme that no longer allows herbicide binding at the site of action. When a modified ALS enzyme has been identified, the enzyme is likely to be resistant to other ALS inhibitor herbicides as well.

### **Alternate Middle Row Spraying**

A variable spraying pattern that alternates the middle row to be sprayed. This procedure reduces the amount of pesticides used per application by one half.

### **Ambush**

See Permethrin.

### **Amino Acids**

The biochemicals that serve as the building blocks of proteins; 20 different naturally occurring amino acids are present in plants and animals. Essential amino acids are those which animals cannot produce and must rely upon their feed supply to provide.

### **Ammonium Nitrate**

Common chemical fertilizer having the analysis of 33-0-0.

### **Ammonium Phosphate**

Common chemical fertilizer having the analysis of 16-27-0.

### **Ammonium Sulfate**

Common chemical fertilizer having the analysis of 20-0-0.

### **Anhydrous Ammonia**

Common chemical fertilizer having the analysis of 82-0-0. It occurs in the form of a compressed gas. Special storage, handling, and application equipment is required.

### **Antibiotic**

A chemical compound generally produced by molds that has the ability to inhibit growth of certain bacteria.

### **Application Rate**

The amount of pesticide applied to a site, usually expressed as a liquid or dry measure per unit area.

**Aqua Ammonia**

Common chemical fertilizer having the analysis of 20-0-0.

**Area Sample**

A sample of segments selected from an area sampling frame. The area sampling frame is representative of the state's geography and land uses.

**Area Sampling Frame**

All land area in the State divided into sampling units called segments.

**Asana XL**

See Esfenvalerate.

**Atrazine (4 pounds/gallon Liquid)**

Used for season-long postemergent weed control in corn, sorghum and pasture. At highest rates it is used for non-selective weed control in non-cropped areas. Residual weed control; absorbed through leaves and roots; tank mixes with grass herbicides; no residue carryover to the next year.

**The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)**

ABARES is a research bureau within the Department of Agriculture, Fisheries and Forestry that provide research and analysis about Australia's primary industries.

**Available**

A form of a nutrient which is capable of being used by the growing plant.

**Axial Flow Combine**

A combine using a rotating mechanism inside a stationary threshing cage to thresh the grain. The increased threshing area compared to a conventional combine results in faster and cleaner harvesting.

**Azinphos-methyl (Guthion 50%)**

Registered to control many insect pests on a wide variety of fruit, vegetable, nut, melon, and field crops as well as ornamentals, forest and shade trees.



**Bagged**

Refers to how feed is packaged, in a bag (paper, burlap, or cloth). Bag sizes are usually 25, 50, 80, and 100 pounds (cwt).

**Bale Accumulator**

A trailing attachment for conventional hay balers that collects and automatically unloads about 8-12 bales.

**Bale Chopper**

A tractor-powered implement that chops up bales of hay for use as a feed or as bedding for livestock.

**Bale Ejector**

An attachment for conventional hay balers that throws bales into a trailing wagon to eliminate hand loading.

**Bale Mover**

A device for mechanically moving large bales of hay; attaches to a tractor 3-point hitch or front-end loader, mounted in a truck bed, or trailed behind a tractor or truck.

**Baler**

See Hay Baler.

**Band Application**

An application of herbicide or fertilizer made in a narrow band near plant rows, rather than to the entire soil surface.

**Banvel**

See Dicamba.

**Basagran**

See Sodium Bentazon.

## **Base period**

The base period generally is understood to be the period with which other periods are compared and whose value provide the weights for a price index. However, the concept of the “base period” is not a precise one and may be used to mean the different things. Three types of base periods may be distinguished:

- The *price reference period*, that is, the period whose prices appear in the denominators of the price relatives used to calculate the index, or
- The *weight reference period*, that is, the period, usually a year, but a month for price received index, whose values serve as weights for the index. However, when a hybrid expenditure weights are used in which the quantities of one period are valued at the prices of some other period, there is no unique weight reference period, or
- The *index reference period*, that is, the period for which the index is set equal to 100.

## **Base Unit**

The standard manufactured item specified. Excludes product upgrades or optional items that are installed by the factory or dealer.

## **Bayleton**

See Triadimafon.

## **Baythroid**

See Cyfluthrin.

## **Beneficial Insects**

Insects collected and introduced into locations because of their value in biologic control as prey on harmful insects and parasites.

## **Bidrin**

See Dicrotophos.

## **Biodegradable**

A substance that decomposes by microorganisms usually present in the soil.

**Biological Control**

Control of pests using natural means, e.g. control of aphids by ladybird beetles (ladybugs). The alternative would be application of an agricultural chemical (insecticide).

**Biological Pesticide**

A naturally occurring substance that controls pests.

**Biotechnology**

Development of products by a biological process involving the transfer of genes which produce desirable traits. Biotechnology may use microorganisms such as yeasts or bacteria or natural substances such as enzymes to complete the gene transfer process.

**Biotechnology Seed Varieties**

Genetically modified seed varieties that have been developed to possess particular “input” or “output” traits.

**Block Salt**

A cube of about 10 inches of compressed salt used for consumption by livestock.

**Board Estimate**

The official measure of the actual quantity or value of an item as derived from sample data or administrative data and approved by the Agricultural Statistics Board.

**Bran**

The outer layers of a grain removed in milling. Bran can be used for livestock feed as well as human consumption.

**Bravo**

See Chlorothalonil.

**Broadcast**

To sow seeds or fertilizer in all directions by scattering.

**Broadcast Application**

The uniform application of a pesticide or fertilizer to the entire field or area.

**Broad-Spectrum Pesticide**

A pesticide that is effective against a wide range of pest species.

**Broiler**

A young domestic breed chicken grown for meat purposes only.

**Broiler Grower**

A type of poultry feed which is fed to chickens that are being raised for meat.

**Broiler Feed Ratio**

Number of pounds of broiler ration equal in value to one pound of live broiler; that is, the price received by producers for one pound of broiler divided by the price of a pound of broiler feed.

**Bt**

Active ingredient is *Bacillus thuringiensis*, a bacterium which acts as a biological insecticide for most caterpillar larvae, including armyworms, cabbage loopers, imported cabbageworm, gypsy moth, and spruce budworm. For use on alfalfa, cotton, forested areas, fruit trees, ornamentals, shade trees, soybeans, tobacco, and vegetables. Applied pre- or post-harvest and to growing crops.

**Bulk**

Refers to feed sold in a loose form – not divided into packages or containers. Feed is often sold in bulk quantities of a ton.

**Bulk Fertilizer**

Commercial fertilizer delivered to the purchaser in a non-packaged form to which a label cannot be attached.

## **Bureau of Labor Statistics (BLS)**

The principal fact-finding agency for the Federal Government in the broad field of labor, economics, and statistics. The BLS is an independent national statistical agency that collects, processes, analyzes, and disseminates essential statistical data to the American public, the U.S. Congress, other Federal agencies, State and local governments, business, and labor. The BLS also serves as a statistical resource to the Department of Labor. The data produced includes the Consumer Price Index (CPI), the unemployment rate, and the Producer Price Index (PPI).

## **Bushel (Bu.)**

A volume unit of measure, often used as a standard for selling and trading crop commodities. In practice, commodities are traded on a weight basis whereby, a USDA standard weight and moisture content representing a bushel has been established for each commodity.

## **Butylate (Sutan 6.7 pounds/gallon)**

Incorporated as preplant to control most grassy weeds, including nutgrass, in corn; breaks down in soil relatively soon to be harmless to crops following corn. Should not be applied on milo or sorghum.

## **CAPI**

Computer Assisted Personal Interviewing is when an interviewer records the answers from a respondent using a computer during a personal visit.

## **Captan (50% and 80% wettable powder)**

For control of scab, black rot, botrytis, sooty blotch, fly speck and summer rots on apples; brown rot and leaf spots on store fruits and almonds; dead arm, down mildew and black rot on grapes. Also for control of a wide variety of fungal diseases on small fruits, berries, vegetables, and ornamental crops. It is also used as a seed treatment. NASS collects prices for two different formulations of this product.

## **Carbamate**

See Ferbam.

## **Carbaryl (Sevin 80%)**

For the control of insect pests on more than 100 different crops including citrus, fruit, forage crops, corn, forests, soybeans, peanuts, tobacco, cotton, rice, peanuts, sorghum, rangeland, other small grains, lawns, nuts, ornamentals, shade trees, poultry, and pets.

### **Carbofuran (Furadan 4 lbs/gallon)**

For use on field corn to control corn rootworm and most soil and foliar pests; alfalfa for alfalfa weevil, aphids and lygus bugs; tobacco for nematodes and soil and foliage feeding insects; peanuts for nematodes and thrips; rice for rice water weevil; on sugarcane for nematodes, wireworms and sugarcane borer; sorghum for greenbug; potatoes for Colorado potato beetle, leafhoppers and flea beetles. Also soybeans, sweet corn, cotton, grapes, small grains, sorghum, and a variety of other crops. In-furrow or banded application.

### **Carryover - [Pesticides]**

Carryover is chemical pesticide residuals remaining in the soil a year or more after being applied. Residual levels are influenced by chemical type, amount of rainfall, and soil type. The carryover from some chemicals may affect the growth of certain crops planted in later years.

### **Cash Price**

The price paid for the item of interest less any discounts, rebates, and sales tax. If a trade-in was involved in the sale, add the value of trade-in to the reported discount price.

### **CATI**

Computer Assisted Telephone Interviewing is when an interviewer records the answers from a respondent over the telephone using a computer.

### **Certified Applicator**

A person certified to use or direct the use of restricted use pesticides.

### **Certified Seed**

Seed that meets rigid standards of purity and germination, which is designated by an authorized agency (for example, State Department of Agriculture).

### **Chain Index**

An index number derived by relating the value at any given period to the value in the previous period rather than to a fixed base.

## **Chain Weighted Index**

The chain weighted CPI incorporates changes in both the quantities and prices of products. For example, let's examine clothing purchases between two years. Last year you bought a sweater for \$40 and two t-shirts at \$35 each. This year, two sweaters were purchased at \$35 each and one t-shirt for \$45.

Standard CPI calculations would produce an inflation level of 13.64%  
 $((1 \times 35 + 2 \times 45) / (1 \times 40 + 2 \times 35)) = 1.1364$ .

The chain weighted approach estimates inflation to be 4.55%  
 $((2 \times 35 + 1 \times 45) / (1 \times 40 + 2 \times 35)) = 1.0455$ .

Using the chain weighted approach reveals the impact of a customer purchasing more sweaters than t-shirts. The chain weighted CPI incorporates the average changes in the quantity of goods purchased, along with standard pricing effects. This allows the chain weighted CPI to reflect the expenditures change of customers shifting the weight of their purchases from one area of spending to another.

## **Check Data**

Information derived from inspections, marketings, acreages contracted or certified, assessments, ginnings, and other sources that have some direct relation to a commodity and can be used, with varying degrees of confidence, to supplement survey data in the preparation or revision of estimates.

## **Chemical Fallow**

The application of herbicides to keep cultivated land free of vegetative growth by destroying weeds or to conserve moisture for the next crop.

## **Chemigation**

The application of an agricultural chemical by injecting it into irrigation water.

## **Chick Starter**

A balanced feed for the quick growth of baby chicks, consisting of ground grains, leaf meal, soy-bean meal, dried milk, limestone, iodized salt, vitamins, antibiotics, and other items.

## **Chisel Plow**

A primary tillage machine, either integral or trailing, that consists of three or more ranks or bars upon which either rigid or spring trip standards are attached. The shanks are usually spaced 12 inches apart overall. A variety of ground engaging tools may be used, from narrow points or shovels to 18 inch wide sweeps. Chisel plows may be used to a maximum depth of 18 inches.

**Chlorimuron-Ethyl (Classic 25%)**

Formulation to be mixed with water and sprayed for selective postemergence weed control in soybeans. Will control many broadleaf weeds and yellow nutsedge.

**Chlorothalonil (6 pounds/gallon)**

A broad spectrum fungicide. Registered for use on stone fruits, soybeans, dry edible beans, snap beans, cole crops, carrot, celery, sweet corn, cucumber, onion, cantaloupe, muskmelon, honeydew, watermelon, squash, pumpkin, peanut, potato, tomato, passion fruit, papaya, conifers, and ornamentals; grass grown for seed; also used in paints and as a wood preservative.

**Chlorpyrifos (4 pounds/gallon)**

Used as a soil insecticide for control of corn rootworms and cutworms, as a dormant application for control of peach tree borer, and as a seed treatment for control of seed corn maggot. Also used on cotton, peanuts, alfalfa, soybeans and sorghum. In-furrow or banded application.

**Chlorsulfuron (Glean 75%)**

Intended for use on land having a soil pH of 7.5 or lower and dedicated primarily to the production of wheat and barley. Controls most broadleaf and some grass weeds at 1/6 and 1/2 ounce product/acre.

**Classic**

See Chlorimuron.

**Combine**

Self-propelled or PTO implement for harvesting standing crops or to gather crops from windrows or swaths. Combines separate the crop from the straw, stalks, cobs and husks, cleans and elevates it into a holding tank for immediate or eventual delivery into a truck, wagon or grain cart. Self-propelled units may have 2 wheels, 4 wheels or track drives and can be set up for rice, barley, peanuts, beans, small grains, and soybeans. They may have rigid or flexible cutter bars, bat or pick-up reels or windrow pickups, and may be fitted as hillside, sidehill or level land machines. Special barley and other row crop heads are available.

**Commercial Applicator**

A person who uses or directs the use of any pesticide, either directly or through an employee, for any purpose or on any property, other than as a private applicator. The term does not apply to a person who applies a pesticide, other than a restricted use pesticide, solely for household purposes in and around the person's residence.



**Commodity**

An agricultural or agricultural by-product available for sale.

**Complete Feed**

A feed ration which usually contains additives and is nutritionally balanced for a particular type of livestock.

**Concentrate**

A highly digestible feed component that is high in energy or protein and low in fiber content. Concentrate can be fed straight or mixed with grain. This term is often used interchangeably with supplement.

**Concentration**

The amount of active ingredient in a given volume or weight.

**Conditioners**

Inert anti-caking materials such as peanut hull meal, rice hull meal, vermiculite, and other organic waste materials used as separating agents in fertilizers to keep the particles from clumping together.

**Confidentiality**

The assurance from NASS to survey respondents, backed by federal law, that individual information collected on authorized USDA surveys will not be released to any person, organization or institution, including court subpoenas. See the "NASDA Employee Handbook" for regulations.

**Consumer Price Index**

An index to measure the average change in prices over time for a fixed set of goods and services. Starting in 1998, prices are collected in 87 primary sampling units.

**Contact Herbicide**

See "Herbicide, Contact."

**Control Data**

Information on file about individual farm or ranch operations which defines the type and size of the operation, i.e. acres of cropland, grain storage capacity, livestock numbers by species, etc.

### **Conventional Moldboard**

A plow equipped with a moldboard which receives the furrow slice and turns it partially or completely over.

### **Conventional Sprinkler**

A less efficient sprinkler irrigation system such as hand move, permanent or high pressure center pivot sprinkler systems.

### **Conventional Tillage**

A tillage system where the entire surface layer of the soil is mixed or inverted by plowing, tillage, or discing.

### **Copper Hydroxide 77% and 54%**

A fungicide for alfalfa, almonds, apricots, avocados, bananas, beans, blackberries, broccoli, celery, cacao, brussel sprouts, cabbage and cauliflower, cantaloupes, honeydews, muskmelons, carrots, cherry, citrus, coffee, cranberry, cucumbers, currants, gooseberry, grapes, filberts, peaches, nectarines, peanuts, pears, peas, peppers, philodendron, potatoes, pumpkin, squash, strawberries, apples, eggplant, hops, sycamore, lettuce, onion, sugar beets, tomatoes, walnut, watermelon, wheat, and barley. NASS collect prices for two different formulations of this product.

### **Corn-Hog Ratio**

Number of bushels of corn equal in value to 100 pounds of live hogs; the price per hundredweight received by producers for hogs divided by the bushel price of corn.

### **Corn Planter**

Any of several different mechanical devices used to plant corn, which differ according to the manner in which the corn seed is dropped.

### **Cotton Picker**

A machine used for mechanically harvesting cotton, which removes only the mature seed cotton. The basic principle on which it operates is a revolving spindle which penetrates the cotton plant, winds the seed cotton from the open boll, and carries it to a dropping zone in the machine. The cotton crop can be picked more than once using this technique.

**Cottonseed**

Seed of cotton with the lint removed. Cottonseed oil is extracted from the seed by a crushing process. The residue (cottonseed cake or meal) is used as livestock feed.

**Cottonseed Cake**

The solid residue left after the extraction of oil from cotton seeds. It should contain more than 36% protein and is sold according to its protein content.

**Cottonseed Hulls**

The outer covering of the cottonseed. It is residue after the extraction of the oil and used extensively as a livestock feed.

**Cottonseed Meal**

The residue of cottonseed kernels from which oil has been pressed. It is used as livestock feed or fertilizer.

**Cotton Stripper**

The leaves of the plant are removed with a chemical spray about two weeks before picking. Strippers work faster than pickers and strip the plant of all its growth in a single operation, including not only the open bolls but also the closed bolls and the needless foliage and stem.

**Counter**

See Terbufos.

**Crawler**

A self-propelled power unit used in agriculture and construction which has steel or rubber tracks for traction, instead of 2 or 4-wheel drive with tires. Levers are generally used for steering control instead of a steering wheel. Advantages are zero slippage in traction, minimum soil compaction, low center of gravity and cost differential of tracks vs. tires. Disadvantage is lack of maneuverability and speed.

**Crop Dusting**

Spreading insecticides, fungicides, herbicides in the form of powder or spray from an airplane or helicopter.

## **Crumbles**

Pelleted feed that has been broken into smaller granular pieces.

## **Cultivators**

### **Field**

An implement similar to the chisel plow except of lighter construction and with shanks or s-tines closer together (about 6 inches overall). The shanks are usually of a coil spring, and s-tines are designed to vibrate. Both are designed to break up the soil without getting caught by obstructions. The ground contact tool may be points, shovels or sweeps. Size may range up as high as 70-80 feet in width. Used primarily as a secondary tillage machine.

### **Row**

An implement with shanks arranged in such a manner that rows of the crop can pass through without damage while weeds are removed. The shanks or standards may be fitted with shovels, disks or spider-wheels set at an angle to the direction of travel. Size can vary from 1-24 rows. Most are mounted on tractor either front or rear tool-bar.

## **CWT (Hundredweight)**

A marketing term referring to 100 pounds of a commodity.

## **Cyfluthrin (Baythroid 2 pounds/gallon)**

Foliar insecticide for control of chewing insects on a variety of crops such as corn, cotton, deciduous fruit, peanuts, potatoes, vegetables, and others.

## **Dacthal**

See DCPA.

## **Data Collection**

The process of completing interviews or field counts, or otherwise accounting for (refusal, inaccessible, out-of-business) all selected sample units in a survey.

## **Date, Due - [Enumerators]**

The date assigned materials must be received in the State office.

**Date, Reference**

The date used as a reference point for asking respondents survey questions. The reference date for the Prices Paid Surveys is March 15.

**Date, Release**

The date survey results are published and released. See the NASS Webpage for a calendar of report release dates.

**DCPA (Dacthal 75%)**

A selective herbicide for preemergence application and control of smooth/hairy crabgrass, fall panicum, witchgrass, green/yellow foxtails, other annual grasses. Broadleaf weeds also controlled are carpetweed, dodder, pursland, nodding spurge, prostrate spurge, spotted spurge, and chickweed. It is tolerated by many crop plants. For turf, ornamentals, brassica (cole) crops, collards, cotton, cucumbers, eggplant, field beans, garlic, horseradish, kale, mustard greens, onions, peppers, potatoes, radish, seeded melons, strawberries, squash, sweet potatoes, tomatoes, and turnips. Postemergence application for *Veronica filiformis*.

**Dealer**

A person or firm buying commodities for speculative purposes. The commodities are for immediate resale and usually held for only a short time. Dealer takes title to the commodity.

**Defoliant**

A chemical agent that causes leaves to drop from a plant. Defoliants are often used with some crops to facilitate harvest.

**Degradable**

A substance that will gradually break down in the environment.

**Desiccant**

A preparation intended for artificially speeding the drying (loss of moisture) of crop plant parts such as cotton leaves and potato vines.

**Devrinol**

See Napropamide.

**Diammonium Phosphate**

Common chemical fertilizer having the analysis of 18-46-0.

**Diazinon 50%**

An insecticide and nematicide for soil insects and pests of fruits, vegetables, tobacco, forage, field crops, pasture, grasslands, and ornamentals. Also for control of cockroaches and other household insects, nematodes in turf, and seed treatment and fly control.

**Dicamba (Banvel 4 pounds/gallon)**

For control of both annual and perennial broadleaf weeds in field and silage corn, grain sorghum, small grains (not underseeded to legumes), sugarcane, asparagus, grass seed crops, turf, pasture, rangeland and noncropland areas such as fence rows, roadways and wasteland. For control of brush and vines in noncropland, pasture, and rangeland areas. Also registered for spot treatment of perennial broadleaf weeds in cropland to be rotated to wheat. For control of annual and perennial broadleaf weeds after harvest of one crop but before planting the next crop (between cropping application).

**Dicofol (4lbs/gallon)**

An acaricide for use on many fruit, vegetable, ornamental, and field crops to control various mite species.

**Dicrotophos (Bidrin 8 pounds/gallon)**

Used to control certain pests of cotton and coffee borer control. Available for control of elm bark beetles (tree injection system). Enters plant tissue rapidly, thus enabling many beneficial insects to survive.

**Dilute**

To make less concentrated by adding another liquid or solid.

**Dimethoate (2.67 lbs/gallon)**

A systemic insecticide-acaricide for a wide range of insects. It is used to control aphids, planthoppers, thrips, white flies, mites on ornamentals plants, alfalfa, apples, corn cotton, grapefruit, grapes, lemons, melons, oranges, pears, pecans, safflower, sorghum, soybeans, tangerines, tobacco, tomatoes, wheat, watermelons, and other vegetables. Residual wall spray in farm buildings for houseflies.

**Discount**

[Buyer] A deduction from an original price or debt, allowed for paying promptly or in cash.

[Seller] A deduction from the market price for poor quality or less than market standard commodities.

**Disk**

A farm implement composed of circular plates arranged at an angle with the soil used to prepare soil for seeding.

**Disk Harrow**

Also known as Tandem-Disk. Two gangs of disc blades are hitched in tandem; the front set throws the soil outward, and the rear set throws it inward. Width of cut may vary from 5-35 feet or more. Blade diameter size may vary from 16-26 inches with different spacing between blades (7, 9, 11 inches most common).

**Dispersing Agent**

An additive that reduces the chemical attraction between particles to prevent materials from clumping.

**Disulfoton (Di-syston) 8 pounds/gallon**

A systemic insecticide for side dressing, broadcast, in the seed furrow or foliar spray to control many insects and mite species. Seed treatment to control sucking insects.

**Di-Syston**

See Disulfoton.

**Dithane**

See Mancozeb.

**Diurex**

See Diuron.

**Diuron (80%)**

Effective against emerging broadleaf and grass weeds as well as mosses, suitable for both selective and total weed control. For use on alfalfa, asparagus, cotton, citrus, fruit orchards, sugarcane, wheat, and vineyards.

**Dolomitic Lime**

See "Lime, Dolomitic."

**Drench**

[Crops] Saturating the soil with a pesticide.

[Fruit] Application of a chemical by wetting the fruit usually before entering the packinghouse; usually applied with a coarse spray of water with or without an added chemical.

[Livestock] Oral administration of a pesticide to an animal.

**Drift**

Pesticides which have been carried by the wind from the intended area when spraying.

**Drilled**

Seeds which have been planted below the soil surface in rows by means of a drill or seeder.

**Drill, Grain**

Equipment used for seeding with or without fertilizer attachment. Has a seed box which meters seed through tubes to single or double disk openers. There are generally three types of grain drills: plain, press, and no-till.

**Drill, No-till, Minimum-till**

An implement with a disk to cut through the untilled soil and create a seed trench. The seed is placed in the furrow and covered by a harrow or closing wheel.

**Drill, Plain**

Seeder with seed box, metered seed fed through tubes to single or double disc openers; spaced at 7, 9, 10 inch widths; without fertilizer attachment.



**Drill, Press**

A drill with either discs or lister bottoms plus press wheels to firm soil around seed.

**Dry Distillers Grain**

A by-product of processing bio-fuels from grain. It may be sold for a variety of purposes, often as fodder for livestock.

**Dry Flowable (Dry Concentrate)**

A dry, relatively free-flowing powder containing the maximum possible amount of active ingredient. A wetting agent may be included so that the mixture is ready to be dispersed in water for spray application, in which case it is termed a dry wettable. Without a wetting agent, but suitable for further dilution to form a dust, it is called a dust base.

**Due Date**

[Enumerators] The date assigned materials must be received in the State office.

[State office] The date assigned materials must be received in Headquarters.

**Economic Research Service (ERS)**

A USDA agency that is an important user of NASS data. ERS studies various topics related to agriculture and issues research publications and commodity outlook and situation reports.

**Editing**

Reviewing completed questionnaires for reasonableness and validity. Responses which appear unusual or unreasonable should be verified with the respondent and updated if incorrectly reported. Unusual but correct responses should be flagged and explained with notes indicating they were verified.

**Egg-Feed Ratio**

Number of pounds of poultry ration equal in value to one dozen eggs; that is, the price of one dozen eggs divided by the price of a pound of poultry feed.

**EIA**

See "U.S. Energy Information Administration (EIA)".

**Elevator**

A device to move grain, hay bales, feed or other commodities by belt, chain, bucket, or auger in a vertical or horizontal direction or other variation.

**Emulsifiable Concentrate**

Liquid formulation produced by dissolving the toxicant and an emulsifying agent in an organic solvent. Strength usually stated in pounds of toxicant per gallon of concentrate.

**Endosulfan (Thiodan 3 pounds/gallon)**

An insecticide and acaricide to control aphids, thrips, foliar feeding larvae, tarsonemid mites, cutworms, borers, cutworms, bugs, whiteflies, and leafhoppers on citrus, deciduous, small fruits, forage crops, forest, coffee, tea, fiber crops, grains (cereals and rice), nuts, oil crops, ornamentals, tobacco, and vegetables. Also controls tsetse fly.

**Enhanced Seed**

Term for seed products that have been improved by traditional breeding or genetic engineering to improve yields, resist pests and diseases, or tolerate herbicides.

**Enumerator**

A person trained to conduct interviews or make field counts and record the information gathered in the interviews or counts.

**Eptam**

See EPTC.

**EPTC (Eptam/Eradicane 7.0 pounds/gallon)**

Particularly effective for control of annual grassy weeds and nutgrass and perennial weeds such as johnsongrass seedlings and quackgrass. Effective on a number of broadleaf weed species. For use in potatoes, beans, forage, legumes, and in some areas sweet potatoes and corn.

**Eradicane**

See EPTC.

**Esfenvalerate (Asana XL .0.66 pounds/gallon)**

A broad spectrum insecticide for almond, apple, artichoke, bean (dry and snap), broccoli, cabbage, carrot, cauliflower, collard, corn (field, sweet, seed, and popcorn), cotton, cucumber, dry pea, eggplant, filbert, green pea, lentil, melon, peanut, pear, pecan, pepper, potato, pumpkin, radish, soybean, squash (summer and winter), sugarcane, sunflower, stone fruit, tomato and walnut crops.

**Estimate**

An approximate measure of the value of an item, usually derived from sample data or administrative data.

**Ethanol**

The alcohol product of grain fermentation used in alcoholic beverages and for industrial purposes, including gasoline.

**Eurostat**

Eurostat is the statistical office of the European Union situated in Luxembourg. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.

**Family Living Index**

An index to measure price changes for food, clothing, health and medical care, entertainment, and household furnishings, relative to a base period.

**Farm Wagon**

A four-wheel, tractor-drawn vehicle used to transport produce, fertilizer, seeds, hay, and other materials.

**Farmer**

See "Operator."

**Feed**

The diet provided to livestock or poultry.

**Feed Additive**

See "Additive, Feed."

**Feed Concentrate**

See “Concentrate”.

**Feed Grain**

Any of several grains most commonly used for livestock or poultry feed, such as corn, sorghum, oats and barley.

**Feed Grinder/ Hammer Mill**

A feed grinding device or mill in which hammer-like projections are mounted on the surface of a cylinder which revolves at a high speed within a heavy perforated metal enclosure and shatters the grain material by beating it to pieces. When the grain pieces become small enough from the hammering action to pass through a perforated screen, they are used as feed. The fineness of the feed is controlled by the size of the perforations in the screen.

**Feed Mixer**

A device for mixing various feeds consisting of an inverted cone of sheet metal within which are paddles or augers.

**Feed Supplement**

See “Supplement”.

**Feeder Cattle**

Young livestock on grass and/or a warm-up or maintenance ration until being put on feed for slaughter market or being selected as replacement stock.

**Feeder Pig**

A young pig, usually recently weaned and at least 8 weeks old or 40-100 pounds, to be fed for slaughter.

**Feedlot**

The confined area where animals are fed.

**Fenarimol (1 pound/gallon)**

A foliar fungicide for use on turfgrasses, ornamentals, and various tree crops. This product is used to control scab, powdery mildew, and rusts of apple; scab, powdery mildew of pecan; powdery mildew of grapes, roses, ornamentals.

**Ferbam (76%)**

A fungicide for control of apple scab, cedar apple rust, peachleaf curl, tobacco blue mold, and cranberry diseases. A protective fungicide to other crops.

**Fertigation**

Application of fertilizer to a crop through irrigation.

**Fertilization**

As used in this chapter, the practice of adding nutrients to soil or plants for use by plants.

**Fertilizer**

Any material put on or in the soil or on plant leaves to improve the quality or quantity of plant growth. See “Nitrogen,” “Phosphate,” “Potash,” and “Sulfur.”

**Fertilizer Analysis**

The percentage of nitrogen, phosphate, potash, and sulfur (N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O,S), specified in that order, contained in a blend of fertilizer. Fertilizer may be blended with various micronutrients or trace elements.

**Finish**

In reference to livestock, fatness in animals; highly finished means very fat. This term is also used to describe the feeding of stock in preparation for market. For example, stock may be “finished” by feeding them a diet based on grain, or may be “finished” based on a pasture-based system.

**Flowable**

A liquid formulation of a pesticide consisting of a finely ground active ingredient suspended in a liquid. Mixed with water for application.

**FOB (Free on Board)**

A transportation term that indicates that the price for goods includes delivery at the seller's expense to a specified point (and no further). The FOB term is used with an identified physical location to determine payment of freight charges and the point at which title for the shipment passes from seller to buyer.

**FOB Destination**

A business agreement where the seller retains title of the goods until they are delivered. The seller selects the carrier and is responsible for the risk of transportation.

**FOB Origin**

A business agreement where the seller is responsible for assembling and loading the purchased goods for transport on a carrier of the buyer's choice. The buyer takes title to the goods when they are loaded for transport and pays for shipment.

**Foliar Application**

Application of a material to the aerial portions of either a crop or weed.

**Forage Harvester (Field Forage Harvester, Field Chopper, Field Ensilage Harvester)**

A harvesting machine, tractor drawn or self-propelled, which is used for field chopping of corn, legumes, and grasses into suitable lengths for either silo or mow storage. Forage Harvesters can have either a pick-up or row-crop head.

**Fosetyl-AL (80%)**

A systemic fungicide used to prevent and cure activity against many Oomycetes on avocado, cacao, hops, citrus, ornamentals, pineapple, rubber, strawberries, fruit crops, tobacco, vegetable crops, and vines.

**Foundation Seed**

Seed stock handled to maintain specific genetic identity and purity as closely as possible under supervised or approved methods of production.

**Front-End Loader**

A mechanical implement mounted on a tractor for front-end operation to load manure, hay, or other loose type materials. It has three basic parts a) the loader bucket, with flat bottom and vertical sides or fork with 7-12 tines; b) the support structure (framework) for mounting and maneuvering; and c) hydraulic fluid cylinders, valves, and hoses.

**Fumigant**

A substance or mixture of substances which produce gas, vapor, fume or smoke intended to destroy insects, bacteria or rodents.

**Fumigation**

The use of poisonous gases for destruction of pests, mainly rodents and insects. Fumigation can destroy microorganisms, but may be less effective since not all gases which kill animals, such as rats, are toxic to bacteria or other microorganisms.

**Fungi**

A form of plant life which may be parasitic on crops and other plants, resulting in reduced production and quality of the crop.

**Fungicide**

A chemical used to kill fungi. The fungi are parasitic to the host plant and cause an economic loss (reduced production and/or lower quality).

**Furadan**

See Carbofuran.

**Furrow Application**

Placement of a material in a narrow line in the soil directly over the seed at planting time.

**Gene stacking**

Combining multiple desirable traits such as resistance to herbicides, diseases, insects, etc. into a single hybrid variety.

## **Genetic Engineering**

A biotechnology method which uses enzymes to move DNA from one organism to another, bypassing the sexual reproduction process. The organisms may or may not be related to each other.

## **Genetically Modified Organism (GMO)**

An organism whose genetic material has been altered using genetic engineering techniques. These techniques use DNA molecules from different sources, which are combined into one molecule to create a new set of genes. This DNA is then transferred into an organism, giving it modified genes.

## **Germination**

The sequence of events occurring in a viable seed, starting with the absorption of water, that leads to the growth and development of a young plant.

## **Gibberellic Acid (Pro-Gibb 1.8-2.0% )**

A hormone found in plants which is available commercially to apply to crops to act as a plant growth regulator. For example, gibberellic acid may be applied to grapes to elongate cluster, increase berry size, and reduce bunch rot. It may be applied to lemons to maintain green color, delay yellowing, and reduce the percentage of small tree-ripe fruit. It reduces rind staining, water spot and tacky rind in Navel oranges. This chemical can help produce taller, thicker stalks of celery harvested in cool seasons; prevent head formation, induce production of seed stalk in lettuce; increase fruit set; accelerate maturity of artichokes to shift harvest to an earlier date; stimulate uniform sprouting of seed potatoes that do not have a full rest period; delay harvesting, produce a brighter colored, firmer fruit, and to increase size of sweet cherries; reduce internal browning and watery pits of the Italian prune and increase yields; increase yield of marketable forced rhubarb; and to break dormancy on plants receiving insufficient chilling.

## **Gilt**

Female pig that has never farrowed.

## **Glyphosate (4 - 5.5 lbs/gallon)**

Controls many annual and perennial grasses and broadleaf weeds plus many tree and woody brush species in cropland and noncrop sites. A foliar-applied, translocated herbicide, it may be applied in spring, summer, or fall to undesirable vegetation by boom equipment, hand-held and high volume equipment and selective equipment throughout the U.S. and, in some states, by aerial application equipment. May be tank mixed with Lasso, Atrazine, and Princep for use in minimum tillage systems for corn. In combination with Lasso, Lorox, Lezone, and Sencor for use in minimum tillage systems for soybeans. NASS collects prices for two different formulations of this product.



## **GR**

Corn hybrids that are resistant to glufosinate-ammonium (Liberty).

### **Grain Storage Capacity**

Storage capacity of all structures normally used (bins, cribs, sheds, etc.) to store whole grains or oilseeds usually reported in bushels. Excluded are ground storage and structures not normally used to store whole grains or oilseeds.

### **Granular**

A dry formulation of pesticide which is mixed with or coated onto an inert carrier material and other components in small particles. The carrier materials may be clays, sand, carbon, or ground corn cobs.

### **Grazing Fee**

The charge on an AUM, cow-calf, or fee per head basis, levied on a farmer or rancher to graze livestock on land in accordance with the terms of a grazing allotment or association.

### **Grazing Period**

A specified time when a farmer or rancher may graze on specific grazing land.

### **Grazing Permit**

A document authorizing the use of public or other lands for grazing purposes under specified conditions which is issued to the livestock operator.

### **Grazing Land, Public or Industrial**

Lands administered through permits or licenses allowing one or more ranchers to graze a specified number of animal units in a specified area during a certain period of time, from seasonal to year-round. Payment for use of this land is on an AUM or fee per head basis. Land may be controlled by Federal, State, or local agencies or owned by corporations, such as paper mills, railroads, or energy companies.

### **Grazing Land Association, Public or Industrial (PIGA)**

Associations established to administer and enforce the rules and regulations for a specific area of Public or Industrial Grazing Land.

## **Green Chop**

Forage that is chopped in the field while succulent and green and fed directly to livestock. If allowed to ferment, it will turn to silage.

## **Guthion**

See Azinphons-Methyl

## **Gypsum**

Calcium sulfate often applied to the soil surface to supply calcium and to correct the alkaline content of soils.

## **Harmonized index of consumer prices**

The harmonized index of consumer prices (HICP) is an economic indicator constructed to measure the changes over time in the prices of consumer goods and services acquired by households. The HICP gives comparable measures of inflation in the euro-zone, the EU, the European Economic Area and for other countries including accession and candidate countries. The HICP is calculated according to a harmonized approach and a single set of definitions. The HICP provides the official measure of consumer price inflation in the euro-zone for the purposes of monetary policy in the euro area and assessing inflation convergence as required under the euro convergence criteria (also known as Maastricht criteria).

## **Hammer Mill**

See Feed Grinder.

## **Hay**

A crop which has been cut and cured by drying for storage; principally legumes, grasses, or grain crops.

## **Hay Baler**

A machine used for compressing loose grass into compact bales. The pick-up baler picks up grass from a windrow and the bale is made while the machine is in motion. Three principle bales are formed square bales up to 200 pounds each, square bales up to 2 tons each, and round bales averaging 1400 pounds each.

### **Hay Conditioner (Hay Crusher)**

A mechanical device consisting of two closely spaced, parallel, smooth surface rollers which crush the fresh cut stems of hay to facilitate drying and curing. Or a mechanical device consisting of two closely spaced, parallel rollers with corrugations resembling gear teeth paralleling the axle that kinks the stems of hay to break them open. Both methods result in a more even and rapid drying of the hay and less loss than conventional swath curing methods.

### **Hay Mower-and-Conditioner (Hay-Mower-and-Crusher)**

A power drawn machine, combining the cutting mechanism of the mowing machine with a set of rollers which crimp or crush stems and heavy parts of the hay as it is cut, which facilitates drying and curing and reduces the loss of valuable leaves.

### **Hay Rake (Wheel Rake, Side Delivery Rake, Hay Rake, Cylinder Side Delivery Rake)**

A farm implement that rakes hay into loose, continuous windrows for convenience in bunching or gathering by hay balers.

### **Hay Tedder**

A device consisting of a wheel-mounted frame which has a series of small forks attached to a crankshaft. It is used to stir and loosen hay in the swath for more even and quicker drying.

### **Headquarters (HQ)**

The National Agricultural Statistics Service (NASS) HQ is located in Washington D.C. NASS HQ coordinates the operations for collecting data and publishing estimates for agriculture.

### **Herbicide**

Any chemical used to control, suppress, or kill plants, or to severely interrupt their normal growth processes. Some herbicides kill a broad range of plants while other herbicides are selective.

### **Herbicide, ALS**

Herbicide that binds to the acetolactate synthase (ALS) enzyme in the plant.

### **Herbicide, Contact**

A herbicide that kills a plant by simply coming in contact with the plants' leaves.

**Herbicide, Selective**

A herbicide which kills only certain groups of plants, e.g., 2,4-D kills broadleaf plants but not grasses.

**Hundredweight (CWT)**

A marketing term referring to 100 pounds of a commodity. Abbreviated "cwt."

**Herbicide Resistant (HR)**

A plant variety that is resistant to the effects of a particular herbicide.

**Hog-Corn Ratio**

See "Corn-Hog Ratio."

**Hybrid**

A plant resulting from a cross between parent plants that are not genetically identical.

**Hydraulic**

A system where fluids, usually oil, under pressure are used as a mechanism to transfer power.

**IMI Corn**

Corn hybrids that are tolerant or resistant to imidazolinone herbicides.

**Implement**

Any farm machine used to perform operations when raising crops or livestock.

**Inaccessible**

A sample unit which cannot be contacted, interviewed, etc. during the survey period.

## Index Formulas

### Elementary price index Formula

Specially, an elementary price index is a price index for an elementary aggregate. As such, it is calculated from individual price observations and usually without using weights. Three examples of elementary index number formulas are the Carli, the Dutot, and the Jevons.

Carli (1804) suggested price index as an arithmetic mean of the price relative

$$P_{CA}(p_0, p_t) = \frac{1}{n} \sum_i^n \frac{p_{i,t}}{p_{i,0}}$$

Dutot (1738) suggested price index as a ratio of average prices

$$P_{DU}(p_0, p_t) = \frac{\sum_i p_{i,t} / n}{\sum_i p_{i,0} / n}$$

Jevons (1865) proposed a simple geometric mean index

$$P_{JE}(p_0, p_t) = \prod_i^n \left( \frac{p_{i,t}}{p_{i,0}} \right)^{1/n}$$

### Laspeyres price index

A price index defined as a fixed-weight, or fixed-basket, index that uses a basket of goods and services for the base period. The base period serves as both the weight reference period and the price reference period. It is identical with a weighted arithmetic average of the current to base period price relatives using the value shares of the base period as weights, also called a “base-weighted index.” It is defined as

$$P_L(p_t, p_0) = \frac{\sum_i p_t^i q_0^i}{\sum_i p_0^i q_0^i} = \sum_i \left( \frac{p_t^i}{p_0^i} \right) w_0^i, \text{ where } w_0^i = \frac{p_0^i q_0^i}{\sum_i p_0^i q_0^i}$$

### Low price index

A basket-type family of price indices that compares the prices of period  $t$  with those an earlier period 0, using a certain specified quantity basket  $q_n$ , where  $q_n$  is between period  $t$  and period 0.

$$P_{LO} = \frac{\sum p^t q_n}{\sum p^0 q_n}$$

The family of Lowe indices includes, for example, the Laspeyres index ( $q_n = q^0$ ) and Paasche index ( $q_n = q^t$ ).

### Paasche price index

A price index defined as a fixed-weight, or fixed-basket, index that uses a basket of goods and services for the current period. The current period serves as the weight reference period and the base period as the price reference period. It is identical with a weighted harmonic average of the current to base period price relatives using the value shares of the current period as weights, also called a “current weighted index.” It is defined as

$$P_p(p_t, p_0) = \frac{\sum_i p_t^i q_t^i}{\sum_i p_0^i q_t^i} = \left[ \sum_i \left( \frac{p_t^i}{p_0^i} \right)^{-1} w_t^i \right]^{-1}, \text{ where } w_t^i = \frac{p_t^i q_t^i}{\sum_i p_t^i q_t^i}.$$

### Young price index

A weighted average of price index ratio between the current year  $t$  and the price reference year  $0$  where the weights are value shares  $s_n$  that sum to 1. The Young price index thus is defined as

$$P_{YO} = \sum s_n \left( \frac{p^t}{p^0} \right), \text{ where } s_n = \frac{p^b q^b}{\sum p^b q^b}.$$

If  $b = 0$ , Young price index becomes Laspeyres index. If  $p^b = p^0$  and  $q^b = q^t$  Young index equals to Paasche index.

### Index Numbers

A computed number measuring the relative change in the price of items included in the specific index from a base period. A price index for feed items of 250 (based on 1967=100) implies the current aggregated price for the items included in this feed index cost 2.5 times as much than comparable items in 1967.

### Inert Material

Inactive filler material used in fertilizers and chemicals as a carrier for the desired active materials to facilitate preparation, shipment, storage, or use.

### Input

Items such as seed, fertilizer, chemicals, feed, farm machinery, fuel, labor, and land used in the production of an agricultural product.

**Input Provider**

The company or individual that sells or contributes products used in the production of agricultural commodities.

**Insecticide**

A chemical killer of insect pests.

**Insecticide, Systemic**

A substance which, when absorbed by plants, renders them toxic to insects feeding on them.

**Integrated Pest Management**

The control of one or more pests by a broad spectrum of techniques ranging from biological means to pesticides. The goal is to keep damage below economic levels without eliminating the pest completely (production gains justify the additional cost for control).

**Irrigation**

Artificial watering of land by surface flooding, sprinkling, or subirrigation methods to stimulate plant production in place of, or in addition to, natural precipitation.

**Karmex**

See Diuron.

**Kernel**

The whole grain of corn, wheat, etc.

**Kilogram**

A measure of weight equal to 1,000 grams or about 2.2 pounds.

**Kocide 101**

See Copper Hydroxide.

**Lannate**

See Methomyl.

**Lasso**

See Alachlor.

**Laying Feed.**

A type of poultry feed that is fed to hens or pullets producing eggs.

**Lexone**

See Metribuzin.

**Lime**

Ground limestone, calcium carbonate, added to the soil to help correct an acidic soil condition, to raise the pH Level.

**Lime, Burned**

Also known as “Quicklime”. Liming compound formed when limestone is heated to drive off carbon dioxide, leaving the oxide form.

**Lime, Dolomitic**

Calcium carbonate lime which also contains levels of natural magnesium.

**Linuron (Lorox) 50%**

A selective weed control chemical in field corn, sweet corn, grain sorghum, soybeans, asparagus, carrots, celery (post transplant), parsnips, potatoes, cotton, and wheat (Pacific Northwest). It is used for short-term control of annual weeds in noncrop areas such as roadsides and fence rows.

**List Sample**

A sample of potential farm operators or agribusinesses selected from a LSF.

**List Sampling Frame (LSF)**

A list of agricultural operators in a State. Each classified operation name becomes a sampling unit. The name may be an individual, manager, farm or ranch, corporation, institution, etc.

**Live Weight**

The gross weight of a live animal as compared to the slaughtered dressed weight.



**Livestock**

Any domestic animal produced or kept primarily for farm, ranch, or market purposes, including beef and dairy cattle, hogs, sheep, goats, and horses.

**Lorox**

See Linuron.

**LP Gas**

Liquefied petroleum gas such as butane, propane, or any mixture of the two, which is kept under pressure in a metal container. Farm use is mainly for pumping engines and farm tractors.

**Malathion** 5 pounds/gallon and 9.9 pounds/gallon

Controls a wide variety of insects including aphid, spider mites, scale insects, house fly, mosquitoes and a large number of sucking and chewing insects attacking fruits, vegetables, ornamentals and stored products; sorghum, rice, barley, corn, cotton, oats, hay and wheat. NASS collects prices for two different formulations of this product.

**Mancozeb** 75% DF or 80% WP

Protects many fruit, vegetable, nut, and field crops against a wide spectrum of plant diseases. It is cleared for use as a seed treatment for cotton, potatoes, corn, safflower, sorghum, peanuts, tomatoes, flax and cereal grains.

**Maneb** 75% DF, 80% WP and 4 lbs/gal

NASS collects prices for different formulations of this product. Used for the control of early and late blights on potatoes and tomatoes and many other diseases of fruits, vegetables and field crops (tobacco, wheat), also as a turf fungicide.

**Manure Spreader**

A 2-wheel or 4-wheel implement designed for hauling and scattering manure in a broken-to-pulverized form with a high degree of uniformity of spread at the destination point. The manure is conveyed to a point where it is passed through higher speed shredders before it is pitched by blades mounted on a rapidly rotating horizontal bar or cylinder.

**Market News Service (MNS)**

A branch of Agricultural Marketing Service. Its function is to provide market reports depicting current conditions on supply, demand, prices, trends, movement, and other pertinent information affecting the trade in livestock, meat, and wool.

**Mash**

A complete poultry ration composed of ground grains and soybean meal scraps, dried skimmed milk, alfalfa meal, salt, limestone, and fish oil, vitamins or other fortifying materials.

**MCPA (4 pounds/gallon)**

For postemergent control of many annual and perennial broadleaf weeds. For use on small grains, rice, peas, grassland and turf. Application rate 0.5 -1.0 pint per acre.

**Metasystox-R**

See Oxydemeton-methyl.

**Methidathion (Supracide 25%)**

An insecticide and acaricide to control alfalfa weevils and certain other insects in alfalfa, scales in citrus, spider mites, bollworm, budworm, lygus bug, pink bollworm, and whitefly in cotton. For use in apples, sunflower, artichokes, almonds, cherries, apricots, pears, nectarines, plums, prunes, walnuts, peaches, and pecans.

**Methomyl (Lannate 2.4 pounds/gallon)**

An insecticide with broad spectrum control of insects in vegetables, soybeans, cotton, other field crops, certain fruit crops, and ornamentals (commercial plantings).

**Methyl Parathion (2 pounds/gallon)**

Used for control of boll weevil in cotton; sorghum; corn; soybeans; rice; wheat and other small grains.

**Metribuzin (Sencor) 75%**

Effective for control of a large number of grass and broadleaf weeds. For use on soybeans, wheat, barley, peas, lentils, potatoes, sugarcane, alfalfa, other hay, asparagus, tomatoes and fallow land.

**Micronutrient**

A mineral required in a relatively small amount for plant growth. Micronutrients required for plant growth are Boron, Chloride, Copper, Iron, Manganese, Molybdenum, and Zinc.

**Middlings**

A by-product of flour milling, from whole grains, comprising several grades of granular particles. Used as animal feed.

**Milk-Feed Ratio**

Number of pounds of dairy concentrate ration that are equal in value to one pound of milk; that is, the price received by producers for one pound of milk divided by the price of a pound of dairy concentrate feed.

**Minerals**

See "Trace Mineral".

**Minimum Tillage**

An energy-saving and erosion-control soil management system where cropland preparation methods involve no plowing and limited cultivation.

**Molasses**

Thick syrup obtainable as sugar cane, beet, citrus, or wood molasses. All are low in protein but high in carbohydrates, vitamins, and minerals, such as calcium, magnesium, potassium, and iron. The lowest grade, called blackstrap, is mainly used as a feed supplement.

**Moldboard Plow**

A primary tillage machine with 1-18 curved metal plates (bottom or moldboards) that engage the soil to a depth up to 12 inches. The curvature of the moldboard causes the soil or furrow slice to be completely inverted. This action pulverizes the soil and buries almost all of the crop residue or stubble.

**Most Commonly Sold**

Most commonly sold is the determining factor for pricing a specific item. This refers to the item purchased most frequently or generally bought by producers. Pricing on the basis of the most commonly sold items within defined commodity limits will accurately reflect the changes in price levels paid by the farmer. Defined commodity limits may include brand, make, model, a specific size, etc.

**Mower (Sickle Bar Mower)**

A machine with a mowing sickle cutting bar which is designed to cut forage for hay, weed, etc.

**Mower - Conditioner**

See Hay Mower-Conditioner.

**MSMA 8 pounds/gallon**

Postemergent applications for johnsongrass, other grassy weeds and cocklebur in noncropland. Preplant applications in cotton, bearing citrus (except Florida), non-bearing orchards. This chemical is also used to control crabgrass, broadleaf weeds in turf and as a tree killer.

**Mulch-Till**

A conservation tillage system in which the soil surface is worked with tillage tools such as a chisel, disk, or field cultivator prior to planting. Mulch-till incorporates part of the crop residue into the top few inches of the soil, helping increase roughness and moisture retention where it is needed.

**Multi-Frame Sample**

Involves using an area and list frame together. An area sample measures list incompleteness. Each area tract operator is matched against the list of agricultural operators on the list frame to determine if it is overlap or nonoverlap.

**Mycoshield**

See Oxytetracycline.

**Myclobutanil 40%**

Fungicide used to control anthracnose, scab, powdery mildew, rhizoctonia, rust, septoria, and other similar diseases on a variety of fruit crops, berries, cucurbits, hops, tomatoes, beans, asparagus, and pine and poplar trees.

**N-P-K and S**

Chemical symbols for nitrogen, phosphorus, potassium, and sulfur.

**NAD (Naphthaleneacetamide) (Amid-Thin W 8.4% wettable powder)**

A plant growth regulator used to thin apple and pear blossoms. It is used to prevent premature fruit fall in apples and cherries. This product stimulates root formation in cuttings and transplants.

**Napropamide (Devrinol) 50%**

A selective herbicide to control several grass and broadleaf weeds in orchards, vineyard, direct-seeded tomatoes, strawberries, tobacco, peppers, ornamentals, and other crops.

**Nematocide**

Any substance used to kill parasitic nematodes.

**Nematode**

Microscopic, worm-shaped parasitic animals. Nematode damage can be severe in some crops.

**Nitrogen (N)**

A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein feeds, plants get it from soil, and some bacteria get it directly from air. Nitrogen is one of the three primary ingredients in complete fertilizers. Nitrogen content is the XX in a fertilizer's analysis of XX-0-0.

**Non-Probability Sample**

Does not meet the criteria of a randomized sample where every unit in the sampling frame has a chance of being included in the sample. Members of the sampling frame are chosen based on the appropriateness for the study since there are a limited number of them with the characteristic in the area being studied.

**Non-response**

Failure of a respondent to reply to a survey questionnaire; may be item nonresponse (refuse to answer one or more questions), survey non-response (refuse to answer any or most of the questions), or inability of enumerator to locate respondent during the survey period (inaccessible).

**No-Till**

Method of planting crops that involves no seedbed preparation other than opening small slits in the soil so that seed can be placed at the intended depth. There is generally no cultivation during crop production, but chemicals are often used for weed control.

**Off Feed**

Refers to an animal that has stopped eating or eats very little (usually the result of having eaten too highly concentrated feed or too great a quantity). Most often occurs with fattening animals.

**Oil, 7 pounds/gallon (Oil, Super oil, Supreme)**

Used as dormant sprays to control scale insects, aphid eggs, spider mite eggs, summer oils against aphids, mites, and scale crawlers, parasiticides for application to livestock, carriers for other pesticides, herbicides by themselves, and adjuvants to increase efficiency of fungicides.

**Oilseed Meal**

The product obtained by grinding the cakes, chips, or flakes that remain after most of the oil is removed from oilseeds. Oilseed meals are mainly used as a feedstuff for livestock or poultry. They are also used as a raw material in processing edible vegetable-protein products.

**Omite**

See Propargite.

**Operator**

The person responsible for all or most of the day-to-day decisions for the retail operation. The operator could be the owner, hired manager, or a partner.

**Organic**

A production system that is managed in accordance with regulations governing organics to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Note that no genetically modified seed or synthetic pesticides can be used in an organic production system.

**Other Hay**

The Other Hay category should only be used if the harvested hay does not fit the other categories like alfalfa and alfalfa mixtures, wild hay, or small grain hay) that may be identified on a questionnaire. Examples of Other Hay crops include bluegrass, timothy, fescue, bermuda, and sudan grasses and clover (if it is not part of an alfalfa mixture).

**Outlier**

A very unusual survey value when compared with most other responses to same question.

**Out-of-business**

A retail operation that is no longer in business.

**Oxamyl (Vydate)** 2 pounds/gallon

An insecticide, nematicide, and acaricide to control certain insects, mites, and/or nematodes on many field crops, vegetables, fruits, and ornamentals.

**Oxydemeton-Methyl (Metasystox-R)** 2 pounds/gallon

A systemic insecticide and acaricide with contact and systemic action on many destructive pests that attack certain vegetable, fruit, and field crops. Primary use is to control aphids, mites, thrips, leafhoppers, and other sucking pests.

**Oxytetracycline** 17%

An antibacterial and antibiotic chemical used to control bacterial spot on peaches, fire blight on pears, and bacterial wilt of bentgrass.

**Palatability**

The appeal and acceptability of feedstuffs, including the taste, odor, texture and temperature of the feed.

**Paraquat (Parazon)** 3 pounds/gallon

For desiccation of seed crops; for noncrop and industrial weed control in bearing and non-bearing fruit orchards, shade trees and ornamentals; for defoliation and desiccation of cotton; for harvest aid in guar, soybeans, sugarcane, and sunflowers; for pasture renovation; for use in “No-Till” or before planting or crop emergence, dormant alfalfa and clover, directed spray and for killing potato vines.

**Parity**

A relationship which defines a level of purchasing power for producers equal to an earlier base period.

**Parity Index**

See Prices Paid Index.

**Parity Price**

The price giving a unit of a farm commodity the same purchasing power or exchange value in terms of goods and services as farm commodities had in the base period 1910-14.

**Parity Ratio**

The ratio of the prices received index over the prices paid index, using 1910-14 as the base period. It measures the relative purchasing power of products sold by producers.

**Partner**

An individual within a partnership.

**Pendimethalin (Prowl 3.3 pounds/gallon)**

For preemergence or postemergence use in field corn; preemergence or preemergence incorporated use in potatoes; early postemergence use in rice; postemergence incorporated use in sorghum; and preplant incorporated use in cotton, soybeans, tobacco, peanuts, and sunflowers. Controls most annual grasses and certain broadleaf weeds.

**Permethrin (Synthetic Pyrethroids 2-3.2 pounds/gallon)**

For use on cotton, soybeans, vegetables and fruit. Used to control beet army worm, bollworm, cabbage looper, cotton fleahopper, cotton leafperforator, lygus bugs, pink bollworm, tarnished plant bug, and tobacco budworm. Effective broad spectrum insecticide.

**Pesticide**

A substance or mixture of substances to control insects, rodents, fungi, weeds, and other forms of animal or plant life considered as pests. Pesticides include insecticides, fungicides, herbicides, and nematocides.

**Pesticide Product Formulation**

The concentration of a pesticide and other ingredients that make up the product.

**pH Number**

Number that indicates acidity or alkalinity of a solution. Number seven indicates a neutral solution; numbers above seven indicate an alkaline solution; and numbers below seven indicate an acidic solution.

**Phorate (Thimet) 20%**

A soil and systemic insecticide used to control a wide range of insects on a variety of crops such as alfalfa, barley, beans, corn, cotton, peanuts, potatoes, sorghum, sugar beets, soybeans, sugarcane, and wheat.



**Phosmet 50%**

An insecticide used in a wide variety of crops including alfalfa, almonds, apples, apricots, cherries (tart), citrus, corn, cotton, cranberries, pecans, blueberries, grapes, nectarines, peaches, pears, peas, potatoes, plums/prunes. This chemical controls alfalfa weevil, boll weevil, codding moth, leafrollers, oriental fruit moth, plum curculio, grape berry moth, and many others.

**Phosphate (P2O5)**

A term indicating a fertilizer which supplies phosphorus, one of the three primary ingredients in a complete fertilizer. The phosphate content in a fertilizer's analysis is indicated as the XX's in 0-XX-0.

**Photodegradation**

A process of breaking down a substance through reaction to light.

**Phytotoxic**

Injurious or lethal to plants.

**Planter**

An implement that uses seed plate metering devices (mechanical or air activated) to drop seed through a boot or shank into a seed bed opened by a shoe or disc.

**Plow**

Any of various implements designed to perform primary deep tillage operations on the soil, usually in preparation for planting.

**Plow Down**

To bury material lying on the surface of a field, such as fertilizer or a cover-crop (green manure), by plowing.

**Poast**

See Sethoxydim.

**Point of First Sale**

The point in the marketing channel where the firm selling the product gives up ownership of the product.

**Potash (K<sub>2</sub>O)**

A term used to indicate fertilizers which supply high levels of potassium. The potash content in a fertilizer's analysis is indicated as the XX's in 0-0-XX.

**Potassium (K)**

A major element required by plants and animals. Potassium content (XX) in a fertilizer analysis is indicated as 0-0-XX.

**Potassium Chloride**

Common chemical fertilizer having the analysis of 0-0-60.

**Potassium Nitrate**

Common chemical fertilizer having the analysis of 13-0-44.

**Potassium Sodium Nitrate**

Common chemical fertilizer having the analysis of 15-0-14.

**Potassium Sulfate**

Common chemical fertilizer having the analysis of 0-0-49.

**Power-Take-Off (PTO)**

System of shafts used to transmit power from a tractor's engine to an attached implement. Standard PTO speeds are 540 rpm and 1000 rpm.

**Preemergence**

Before the emergence of a specified weed or crop.

**Premix**

A mixture of one or more microingredients and a carrier (to facilitate uniform dispersion of micronutrients into a larger mixture). A mineral premix contains more trace minerals and vitamins than a mineral supplement.

## **Price Relative**

A price relative is the ratio of the price of a specific commodity, such as Corn, in one period to the price of the same commodity in some other period. The prices NASS uses to compute price relatives are the commodity average prices at US level. The base period is 1990-1992.

## **Prices Paid**

The price producers pay for goods and services necessary for them to produce and market commodities.

## **Prices Paid Index (Parity Index)**

The Index of Prices Paid is a measure of the change in average prices paid for goods and services used in family living, production, interest, taxes, and farm wage rates relative to a base period. The index of prices paid is called the parity index when using the base period 1910-1914=100.

## **Primary Nutrients**

The three major plant nutrients which are nitrogen (N), phosphorus (P), and potassium (K). Phosphorus may also be referred to as phosphate and potassium may be referred to as potash.

## **Probability Sample**

A method of sampling that utilizes some form of random selection. A random selection method uses a process that assures that the members in the population have a probability of being chosen.

## **Production Index**

An index of 12 subgroup indices to measure changes from a base period in prices paid for most of the items farmers buy in producing their crops and livestock.

## **Propargite (Omite) 32%**

A miticide with residual killing action, used to control many mites, including brown almond, citrus red, citrus rust, clover European red, McDaniel, Pacific spider, peach silver, strawberry spider, two-spotted spider, Willamette mite, Banks, grass mite, Texas citrus mite, and six-spotted mite. For use on almonds, apples, apricots, beans, carnations, chrysanthemums, cranberries, corn (field), cotton, figs, grapefruit, grapes, hops, lemons, mint, nectarines, ornamentals, oranges, peaches, peanuts, pears, plums, potatoes, prunes, roses, sorghum (grain), strawberries, and walnuts. Postharvest and nonbearing use on apricots, sweet cherries, and citrus.

**Protein supplement**

A feed or mixture of feeds containing 20% or more protein or protein equivalent (e.g., soybean meal, canola meal).

**Prowl**

See Pendimethalin.

**Public or Industrial Grazing Land**

See "Grazing Land, Public or Industrial."

**Public or Industrial Grazing Land Association (PIGA)**

See "Grazing Land Association, Public or Industrial."

**Public Variety**

A variety developed by a public university, public research lab or with public funds making the seed stock available to anyone.

**Questionnaire**

A form used to ask specific questions and to record the responses given to the survey questions by selected sample units. The questionnaire may be on paper or on a computer screen using Computer Assisted Telephone Interview (CATI) or Computer Assisted Personal Interview (CAPI).

**Quota Sampling Scheme**

The selection of sample units from an incomplete frame that meets predetermined target sample sizes. Quota sampling is used when it is difficult or too costly to create a complete listing of the population from which to sample. Instead target sample sizes are defined for subgroups (regions or states) of the population and sample units are identified in the population until those targets, or quotas, are met. The resulting sample is non-probability based and no attempt is made to estimate sampling weights or like-wise variances or reliability statistics.

**Ration**

The amount of feed an animal receives in a 24 hour period.

**Ration, Balanced**

A daily allowance of livestock or poultry feed; mixed to contain suitable proportions of nutrients required to promote normal development.

**Reference Date**

The date used as a reference point for asking respondents survey questions. The reference date for the Prices Paid Surveys is March 15.

**Relative Importance**

The relative importance (relative weight) of an item represents its basic value weight, including any imputations, multiplied by the relative price change from the weight date to the date of the relative importance calculation, expressed as a percentage of the total value weight for all commodity categories. When the total value is fixed, the relative importance remains constant. However, NASS uses a five-year moving average method to compute the weights for price indexes. Thus, the relative importance changes each year. The relative importance of Feed, for example, changes from 11.4 for 2009 to 11.9 for 2010.

**Release Date**

The date the survey results are published and released.

**Refusal**

A person representing a sample unit who will not cooperate in the survey and who refuses to provide sufficient information to satisfactorily complete the questionnaire.

**Residue**

The quantity of pesticide remaining on or in the soil, plant parts, or animal tissue.

**Respondent**

The person who provides the information necessary to complete a survey interview.

**Restricted Use Chemical**

A pesticide which is felt to cause unreasonable adverse effects on the environment. A restricted use pesticide may be used only by a certified applicator on designated crops and under specified conditions.

**Ridge-Till**

Method of planting crops that leaves the soil undisturbed from harvest to planting. Ridges formed while cultivating serve as the next year's seedbed. Herbicides and cultivation control weeds. Ridge-till is good for poorly drained areas.

**Rotary Cutter (Rotary Weed Cutter)**

A large, power-driven blade rotating in a horizontal plane mounted on a tractor, used for cutting various types of vegetation.

**Rotary Hoe**

A series of curved spider wheels attached either to a solid shaft or in segments of two to four wheels for flexibility. Usually used to kill small weeds in summer fallow or row crops and sometimes as a wind erosion stop-gap.

**Rotary Mower**

A machine that uses a rotary cutting mechanism for mowing forage, grain, weeds, lawns, and other vegetation. Two common types are (a) the rotary knife blade which rotates rapidly in a horizontal plane having a vertical shaft; (b) the cylinder type, in which knives attached to a horizontal shaft cut off the vegetation when passing over a horizontal shear plate.

**Roughage**

Course livestock feed such as hay and silage, high in fiber and low in total digestible nutrients.

**Roundup**

See Glyphosate.

**Row Space**

For crops planted in rows, the distance from the center of one row to the center of the next row.

**Rubigan**

See Fenarimol.

**Sample**

A group of farm operators or agribusinesses selected from a sampling frame to participate in a survey at a particular time. See "Area Sample"; "List Sample"; and "Multi-Frame Sample."

**Sampling Unit**

An identifiable unit (for example, a name, farm, or business) of a sampling frame that may be selected when drawing a sample. For an area frame sample it may be a segment, tract or field and for a list frame sample it is a name.

## **Secondary Nutrients**

Essential plant nutrients needed in less quantity than primary nutrients. These nutrients are Calcium (Ca), Magnesium (Mg), and Sulfur (S).

## **Seed**

An embryonic plant with sufficient nutrients required during germination and early growth until the plant is able to produce its own food.

## **Seedbed**

The upper portion of the soil prepared to receive seed and promote germination and growth.

## **Seed, Biotechnology (Biotech) Varieties**

The term biotechnology refers to genetically modified seed varieties that have been developed to possess particular traits. Examples include Round-Up Ready soybeans, which provide the soybean resistance to the effects of Round-Up (which would otherwise kill it), and YieldGard corn, which contains an insecticidal protein which kills caterpillar larvae, including the corn borer.

## **Seed Corn**

Corn raised to produce seed stock. It may involve complicated pollination programs designed to retain desirable hereditary traits.

## **Seed Cotton**

The raw product which has been harvested but not ginned, containing the lint, seed, and foreign matter.

## **Seed Potatoes**

Pieces of potato planted to produce a crop.

## **Seed, Proprietary Varieties**

Seeds developed by commercial plant breeders which are protected by patent. By law, proprietary seed must be purchased from seed vendors each year – that is, seed cannot be collected from the current year's harvest and planted for the next crop season. Proprietary varieties include all biotech varieties and some non-biotech varieties.

### **Seed, Public or Common Varieties**

Seed which is not protected by patent and which may be collected and saved from one year's harvest and used to produce a crop the next year. Common varieties may be used repeatedly by a single individual and may also be shared between growers. Public varieties are most often developed by universities, public research labs, or non-profits.

### **Seed Treatment**

Is an application of a pesticide or having the seed subjected to a process designed to reduce, control, or repel disease organisms, insects, or other pests that attack seed or seedlings.

### **Selective Herbicide**

A herbicide which kills only certain groups of plants, e.g., 2,4-D kills broadleaf plants but not grasses.

### **Selective Pesticide**

A chemical that is more toxic to some species than others.

### **Sencor**

See Metribuzin.

### **Sethoxydim (Poast 1.5 pounds/gallon)**

A systemic postemergence herbicide for selective controls of annual and perennial grasses in sugar beets, soybeans, cotton, peanuts, flax, rapeseed, alfalfa, tomatoes, phaseolus beans, broadleaved ornamentals, dry peas, onions, nonbearing fruit, and many other dicotyledoneous crops.

### **Sevin**

See Carbaryl.

### **Side Dress**

To apply at the side or a row of plants.

### **Silage**

Feed for livestock, kept juicy and succulent by fermenting chopped green corn, legumes or grasses. The chief crops stored this way are corn, sorghum, and various legumes and grasses. The main use of silage is for cattle feed.



**Simazine (Princep)** 4 pounds/gallon

A selective herbicide which controls most annual grasses and broadleaf weeds in corn, established alfalfa, established bermudagrass, cherries, peaches, citrus, caneberries, cranberries, grapes, apples, pears, certain nut, asparagus, certain ornamental and tree nursery stock, in turf grass sod production and lawns. At higher rates, it is used for non-selective weed control in industrial areas, lawns, and similar areas.

**Sinbar**

See Terbacil.

**Sodium Bentazon (Basagran)** 4 pounds/gallon

For selective postemergence control of many troublesome broadleaf weeds in soybeans, rice, corn, peanuts, dry beans, dry peas, snap beans for seed, green (succulent) lima beans, and mint.

**Sodium Nitrate**

Common chemical fertilizer having the analysis of 16-0-0.

**Soil Application**

Application of a pesticide to the soil rather than to a growing crop or weed.

**Soil Compaction**

A constricting condition in any soil which causes impervious layers to form which limit plant root development and water penetration. Some soil types and lack of organic material will increase rate of compaction.

**Soil Fertility**

Conditions in the soil which are favorable for sustaining plant growth.

**Soil Tilth**

The overall physical condition of the soil, frequently regarding its suitability as a seedbed.

**Soluble Powder**

A finely ground dry powder formulation which will dissolve in water or other liquid.

## **Soybean Meal**

The material left after the extraction of oil from dried soybeans. The extract is “toasted” and ground.

## **Spot Treatment**

Application of a pesticide to a small, discrete area.

## **Sprayer, Power Hydraulic**

There are two types (1) A sprayer with hydraulic pump (piston, gear, roller, etc.) driven by gasoline engine, electric motor, PTO. Comprises a tank or other container for spray material. (2) A power-driven pump which draws spray material into the discharge system. Tank capacity ranges from 25-1600 gallons. Sprayer types can be mounted, skid, trailer, or self-propelled and are either boom, boomless or gun.

## **Stacked Gene Variety**

Genetically modified seed variety that includes both insect resistance and herbicide resistance.

## **State Field Office**

Coordinate all the field activities for the National Agricultural Statistics Service (NASS). NASS maintains a network of 46 State field offices, serving all 50 States and Puerto Rico through cooperative agreements with State departments of agriculture and universities.

## **Statistically Defensible Survey**

A survey whose procedures and specifications can with stand court challenge or other investigation. The survey should have an adequate sample size, randomly selected respondents, carefully worded questions, professional interviewing, reasonable editing, correct summarization, and appropriate publication.

## **Statistics**

Totals, averages, percentages, and other numbers computed from population or sample data.

## **Statistics Canada**

Statistics Canada (French: *Statistique Canada*) is the Canadian Federal government agency commissioned with producing statistics. Its headquarters is in Ottawa.

## **Strata or Stratification**

The classification of sampling units in a population into homogeneous groups. An area frame is stratified based on land use, such as intensity of cropland, rangeland, wasteland, urban areas, etc. A list frame is stratified based on operation control data, such as number of livestock, grain storage capacity, cropland, and total acres operated.

## **Strip-Till**

A conservation tillage method where the soil is left undisturbed prior to planting. Tillage in the row is done at planting using tools such as a rototiller. Weeds are controlled with herbicides and cultivation.

## **STS Soybeans**

Soybeans that are resistant to Synchrony STS herbicide.

## **Subsampling**

A general term for selecting a sample from a sample.

## **Sulfur (S)**

Sulfur is a macronutrient which can be found in commercially produced fertilizers.

## **Sulfur 80%**

Effective for control of a variety of plant diseases – brown rot of peaches, apple scab, peanut leaf-spot, mildew on roses, powdery mildew on ornamentals, grapes, peaches, and other crops; rusts; fleahoppers, and mites on tomatoes, carrots, alfalfa, melons, and beans.

## **Super Oil**

See Oil.

## **Supplement**

Feed or feed mixtures used to improve the nutritional value of basal feeds. A supplement is rich in protein, energy, vitamins, minerals and/or antibiotics, and is combined with other feeds to produce a more complete feed.

## **Supracide**

See Methidathion.

**Supreme**

See Oil.

**Surfactant**

A chemical added to a pesticide which improves the emulsifying, dispersing, spreading, and/or wetting properties of the pesticide.

**Survey**

The collection of data from specific sample units. Data reported by the selected sampling units, when summarized, provides an indication of what the total would be if all the sample units within the population of interest had reported.

**Survey Period**

The time period during which survey data collection can occur. Primarily determined by the survey's reference date and due date. See "Date, Reference."

**Tank Mix**

Any pesticide spray which is prepared immediately before use by mixing the chemical powder(s) and the water in the spray tank and emulsifying by agitation and pumping.

**Technology fees**

Fixed sum charges by an institution for their technology or agricultural service, primarily associated with seeds.

**Temik**

See Aldicarb.

**Terbacil (Sinbar) 80%**

Controls many annual and some perennial weeds in such crops as sugarcane, alfalfa, apples, peaches, blueberries, strawberries, citrus, pecans, and mint.

**Terbufos (Counter) 15%**

Control of corn rootworm and other soil insects infesting field corn. Control of sugar beet maggots on sugar beets; greenbug on grain sorghum.

**Thimet**

See Phorate.

**Thiodan**

See Endosulfan.

**Tillage**

The practice of working the soil to bring about more favorable conditions for seed germination, root growth, and weed control to improve plant growth.

**Tolerance**

The amount of pesticide residue that is permitted to federal regulation to remain on or in a crop.

**Tolerance, zero**

No amount of the pesticide chemical may remain on the raw agricultural commodity when it is offered for shipment.

**Top-Dress**

To apply fertilizer or manure on top of the ground without working it into the soil.

**Topsoil**

The naturally forming upper layer of soil, normally rich in organic matter.

**Toxicity**

The capacity of a substance to produce illness or adverse effect. The measure of damage resulting from exposure to a substance.

**Trace Element**

A chemical substance which is essential in very small amounts by both plants and animals.

**Trace minerals**

Dietary supplement provided to livestock which contains nutrients needed in small amounts (such as manganese (Mn), copper (Cu), zinc (Zn), selenium (Se), iron (Fe), cobalt (Co), iodine (I) and fluorine (F)). Trace mineral is sold in blocks of either 40 or 50 pounds. The weight of the block depends on the type and amount of filler, but the mineral content is the same (94.5% – 97.5%).

**Tractor**

A self propelled vehicle with 2 or 4-wheel drive or traction driven using treads, with a gasoline or diesel engine used to supply power to other machines in one or more of 3 ways; pulling at the drawbar or hitch point; rotary power from the power-take-off (PTO); hydraulic fluid power.

**Transgenic plant**

A plant whose genetic composition has been altered to include selected genes from other plants or species, using methods other than those used in traditional plant breeding.

**Treflan**

See Trifluralin.

**Triadimefon 50%**

A systematic fungicide to control powdery mildew on cereals, deciduous fruit, grapes, and vegetables. It is also used to treat rust diseases of cereals, coffee, seed grasses, pine and diseases on sugarcane, pineapple, turf, and ornamentals.

**Trifluralin (Treflan) 4 pounds/gallon**

Pre-emergent herbicide that is incorporated into the soil to provide control of broadleaf weeds and annual grasses. This herbicide controls susceptible weeds by killing seedlings as they germinate; however, it does not control established weeds. For use in many crops including cotton, peanuts, sugar beets, grain crops, forage (alfalfa, kale, and rape), most vegetables, horticultural crops (woody nursery stock and many perennials), vineyards, fruit and nut trees, and cottonwood trees grown for pulp.

**Turkey-Feed Ratio**

Number of pounds of turkey ration equal in value to one pound of live turkey; or, the price per pound farmers receive for turkey divided by the price per pound of feed.

**Turkey grower**

Specialized type of feed fed to turkeys that are being raised for meat.

## **United States Department of Agriculture (USDA)**

A Department within the Federal government having a cabinet level Secretary reporting to the President. It functions to propose legislation and establish regulations in the best interest of agriculture.

## **Unleaded Gasoline**

Unleaded gasoline is usually sold as a blend of gasoline and ethanol, most commonly composed of 90 percent gasoline and 10 percent ethanol by volume.

## **Urea**

A non-protein, organic compound of nitrogen made synthetically by a combination of ammonia and carbon dioxide and used in fertilizers and as a livestock feed supplement.

## **U.S. Energy Information Administration (EIA)**

The statistical and analytical agency within the U.S. Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. EIA is the Nation's premier source of energy information and, by law, its data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government.

## **Value / Expenditure Weights**

Value weights are the measures of the relative importance of commodities in the price index. The weights reference period values of the various components covered by the price index. Being commensurate and additive across different commodities, value weights can be used at aggregation levels above the detailed commodity level. NASS uses farm expenditures and cash receipts to compute the value weights for prices paid and prices received indexes respectively.

## **Vapor Drift**

The movement of vapors created when applying pesticides from the area of application to adjacent areas.

## **Vitamin**

An organic substance which performs specific and necessary functions for normal growth and maintenance and is required in relatively small concentrations by livestock.

**Weed**

Any plant growing where it is not wanted.

**Weed, Noxious**

Any harmful or destructive weed. Usually, they are perennials and especially difficult to eradicate. They spread by their roots (rhizomes) and/or runners (stolons) or pieces of the plant, may have a hard seed coat (20-40 years germination), may be poisonous to livestock or parasitic to plants. Each State specifies which weeds are noxious and mandates control requirements. Canada thistle, Russian thistle, field bindweed, chickpea, Johnson grass and morning glory are some weeds recognized as noxious.

**Weights**

A set of numbers between zero and one that sum to unity are used when calculating price indexes. Value shares sum to unity by definition are used to weight price relatives, or elementary price indexes, to obtain higher-level index. Although quantities are frequently described as weights, they cannot serve as weights for the prices of different types of commodities whose quantity are not commensurate and use different units of quantity that are not additive. The term “quantity weights” generally is used loosely to refer to the quantities that make up the basket of goods and services covered by an index and included in the value weights.

**Wetable Powder**

A powder which mixes with water to form a suspension but does not dissolve; continuous agitation is required to maintain suspension.

**Wholesale**

The selling or buying of goods or commodities in large quantities, usually at a lower price per item.

**Windrow**

The gathering of grains or forage in a row to facilitate mechanical harvesting.

**Windrower**

A mechanical device used for taking the cut hay or grain from the swath and turning it into a windrow ready for further handling with the hay loader, field chopper, hay baler, or combine.



**Zero Tolerance**

No amount of pesticide may remain on or in the raw commodity when it is offered for sale.

**Zeta-Cypermethrin** 0.8 – 1.5 pounds/gallon

NASS collects prices for two different formulations of this product. Pyrethroid insecticide used to control various caterpillar pests, weevils, leafhoppers, aphids, and other insects on a variety of vegetable, fruit and forage crops, corn, wheat, cotton, oilseeds, rice, sugarcane, and tree nuts.

**Ziram** 76%

A fungicide used extensively on almond and peaches to control shot hole, brown rot, and peachleaf curl. It is also used to treat vegetable diseases. The most stable of the metallic dithiocarbamates, nonphytotoxic except for zinc-sensitive plants. This product does not build up in the soil and is rapidly decomposed by weathering. Sometimes used on pecans, apples, and pears to control scab and bull's-eye rot.

## Common Abbreviations

AF	Aqueous flowable
AG	Agricultural formulation
AMS	Agricultural Marketing Service
ARMS	Agricultural Resource Management Survey
AS	Aqueous suspension
ASB	Agricultural Statistics Board
BAE	Bureau of Agricultural Engineering
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
CAPI	Computer Assisted Personal Interviewing
CATI	Computer Assisted Telephone Interviewing
CPI	Consumer Price Index
CV	Coefficient of Variation
CWT	Hundredweight
D	Dust
DF	Dry flowable
E	Emulsifiable concentrate
EC	Emulsifiable concentrate
EDR	Electronic Data Reporting
EIA	Energy Information Administration
EPA	Environmental Protection Agency
ERS	Economic Research Service
ES	Emulsifiable solution
F	Flowable
FCRS	Farm Costs and Returns Survey
FL	Flowable
FC	Fertilizer compatible
FO	Field Office
FOB	Free On Board
FSA	Farm Service Agency
G	Granular
GMO	Genetically Modified Organism
HT	Herbicide tolerant
HQ	Headquarters
IR	Insect resistant
L	Liquid
LO	Low odor
LMPR	Livestock Mandatory Price Reporting
LSF	List Sampling Frame
LV	Low volatility
MF	Modified formulation

## Common Abbreviations (continued)

MNS	Market News Service
NASDA	National Association of State Departments of Agriculture
NASS	National Agricultural Statistics Service
OL	Oil soluble liquid
OMB	Office of Management and Budget
P	Pelleted
PITW	Prices paid by producers for production, interest, taxes, and wage rates
PPITW	Prices paid by producers for commodities and services, interest, taxes, and wages
RTU	Ready to use
S	Solution
SL	Slurry
SP	Soluble Powder
ULV	Ultra-low volume concentrate
USDA	United States Department of Agriculture
VR	Virus Resistant
W	Wettable powder
WDG	Water dispersible granule
WP	Wettable powder
WSB	Water soluble bag
WSP	Water soluble packet

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## Chapter Four. Parity Prices, Parity Ratio, and Feed Price Ratios

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Parity Prices published by NASS are computed under the provisions of Title III, Subtitle A, Section 301(a) of the Agricultural Adjustment Act of 1938 as amended by the Agricultural Acts of 1948, 1949, 1954, and 1956.

Three major provisions of the amended Act relating to the calculation of parity prices are:

- (1) The 'parity price' for any agricultural commodity, as of any date, is determined by multiplying the adjusted base price of such commodity by the parity index.
- (2) The 'adjusted base price' of any agricultural commodity, as of any date, is
  - (i) the average of the prices received by farmers for such commodity, at such time as the Secretary may select during each year of the ten-year period ending on the 31st of December last before such date, or during each marketing season beginning in such period if the Secretary determines use of a calendar year basis to be impracticable, divided by
  - (ii) the ratio of the general level of prices received by farmers for agricultural commodities during the period January 1910 to December 1914, inclusive.
- (3) The 'parity index' or Prices Paid Index, as of any date, shall be the ratio of
  - (i) the general level of prices for articles and services that farmers buy, wages paid hired farm labor, interest on farm indebtedness secured by farm real estate, and taxes on farm real estate, for the calendar month ending last before such date to
  - (ii) the general level of such prices, wages, rates, and taxes during the period January 1910 to December 1914, inclusive.

The prices and indexes published by NASS and the data used in computing them, is determined by the Secretary, whose determination is final. Section 301(a) (1) (F) outlines authority for the Secretary of Agriculture to make special adjustments in the method of computing parity

prices for particular commodities if the method outlined in the Act results in parity prices seriously out of line with those of other commodities.

The Code of Federal Regulations, Title 7, Volume 1, Part 1-26 mandates the publication of the price indexes and the data used in computing them be published in the monthly *Agricultural Prices* report. Also published in the monthly report is the parity ratio. The parity ratio is a percentage relationship between the Index of Prices Received and the Index of Prices Paid.

## History / Background

The idea of parity stemmed from a continuous search for a concrete measure of economic justice for the farmer. Fluctuating conditions in the economic life of farms and of the nation have steadily modified the concept of parity. Parity did not develop as the practical application of an economic theory, but as a result to assist the agricultural community in the early 1900s. The economic justification in its present form is from rationalization. Parity is a practical economic and political expedient, not a theory. (Grove, 1943)

The acute economic emergency was in part the consequence of a severe and increasing disparity between the prices of agricultural and other commodities. This disparity largely destroyed the purchasing power of farmers for industrial products, broke down the orderly exchange of commodities, and seriously impaired the agricultural assets supporting the national credit structure. The Agricultural Adjustment Act of 1933 declared that these conditions in the basic industry of agriculture had affected transactions in agricultural commodities with a national public interest, had

burdened and obstructed the normal currents of commerce in such commodities, and rendered imperative the immediate enactment of title I of this Act.

The enactment of the Agricultural Adjustment Act of 1933 initiated the computation of parity prices by the USDA's statistical agency. The statistical agency has gone through a number of name changes throughout history. Today, the agency is the National Agricultural Statistics Service (NASS).

The idea that came to be called parity developed in the early 1920s to describe the agricultural depression that followed World War I (Black, 1942). The U.S. farm sector grew when the frontier was settled in the early years of the 20<sup>th</sup> century and high farm prices during World War I encouraged even more production. The end of the war coincided with the onset of mechanization which slowed the growth of demand. Overproduction created low prices which resulted in low per capita income of farmers.

The idea of parity had both statistical and political origins (Black, 1942). If there had never been any statisticians collecting data on prices of farm and other commodities, "farm parity" would never have come about. The parity movement was merely the outward expression of the maladjusted relationship between agriculture and the rest of society that developed at the end of World War I.

The parity concept was introduced at a conference on agricultural policy called by Secretary of Agriculture Henry C. Wallace in 1922. George N. Peek named it "fair exchange value" at the conference (Fite, 1954). Legislatively, the con-

cept emerged in the first McNary-Haugen (tariff) bill. The bill outlined a method for measuring the inequality of purchasing power of farm products and the means to dispel the inequality. In the pamphlet "Equality for Agriculture" which Peek privately printed in 1922, "a fair exchange value for any crop" was defined as "one which bears the same ratio to the current general price index as a ten-year pre-war, average crop price bore to the average price index, for the same period." (Peek, 1922).

Peek got the statistical framework for his idea from the USDA bulletin, "Prices of Farm Products in the United States" authored by George F. Warren (Warren, 1921). Warren, a Cornell University professor, had toured the country interpreting the price movements of 20 farm products and changes in the "all commodities" index of the Bureau of Labor Statistics (BLS). Warren explained that the "all commodities" price movements resulted from monetary factors and the individual commodity price changes were due to supply and demand conditions for that product.

The USDA invited Professor Warren to Washington, DC, to author a bulletin based on his research. That publication, issued in 1921, designated the ratio of prices received by farmers to the all commodities wholesale price index as the "purchasing power of farm products." The farm price series was a weighted average, weights being the relative production of different crops and livestock products as reported in the 1910 Census of Agriculture.

In 1922 the USDA began publishing a purchasing power index series on a regular basis in "Weather, Crops, and Markets" (NASS). Prices in 1913 were called the base, or 100. By 1921 the

index value was 61, compared with a value of 111 in 1918. After several revisions of the weights in both the "all commodities" and the "prices received" indexes, the parity ratio appeared at or above 100 for the entire period 1924-1929. The farm products whose prices had risen most also increased most in output, notably dairy products and tobacco. This revision was not released until September 1934.

Parity prices for farm products were first defined by the Agricultural Adjustment Act of 1933. Agricultural leaders recognized that high or low prices for farm products are not in themselves of primary significance. Of far greater importance is what farm products will buy in terms of food, clothing, feed, machinery, fertilizer, and other items farmers need for living and for production.

The Agricultural Adjustment Act of 1933 made it the policy of Congress to reestablish prices to farmers at a level that would give agricultural commodities a purchasing power, with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in the base period. Parity prices have come to be a widely used parity standard. They are the prices that give a unit of a farm commodity the same purchasing power or exchange value, in terms of goods and services bought by farmers, as a unit of the same commodity had in the 1910-1914 base period.

The 1910-1914 period was chosen as the base because it was considered a relatively normal period when price relationships were generally stable across all sectors of agriculture and non-farm industries. In 1933 the Secretary of Agriculture's economic advisers said the 1910-1914 base period was selected because (a) it "represented a

period of considerable agricultural and industrial stability... with equilibrium between the purchasing power of city and country," (b) it was free from, major economic and political disturbances, and (c) prices of most major products sold were considered to be in fair relationship to prices paid by farmers. They stated further that the act "bases the parity prices upon the most recent period when economic conditions, as a whole, were in a state of dynamic equilibrium."

The index base period for comparison specified by law is the period from 1910 through 1914. As a result, the commodity parity price comparisons do not take into account the many technological developments that have affected efficiency and input utilization for production of crops and livestock.

Parity prices are computed in terms of prices received by farmers. Prices received generally relate to the average of all classes and grades of a given commodity sold by farmers. The same is true of parity prices. Parity is a national concept, and parity prices are not computed by State, commodity grades, or for specific markets. In connection with some programs, however, differentials are determined for grade, location, or season. Differentials may be applied to the national average parity price to determine the parity equivalent for a specific grade or location. Parity prices are not adjusted for seasonal variation.

Two principal refinements in the legislative definition of parity since 1933 are:

- (1) To include in the Index of Prices Paid by Farmers, which is used in computing parity prices, interest on mortgage debt secured by farm real estate, taxes on farm real estate, and wages paid to hired farm labor.
- (2) To compute adjusted base period prices for individual agricultural commodities, using price relationships for the most recent 10-year period. The 1910-1914 base period, however, remains the reference point for expressing parity prices for farm products.

## Legislation

The Agricultural Adjustment Act of 1933 contained the first definition of parity. The act stated that it was the policy of Congress to...

...reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of commodities in the base period. The base period in the case of agricultural commodities except tobacco shall be the prewar period, August 1909 to July 1914. In the case of tobacco, the base period shall be the post-war period, August 1919 to July 1929.

...approach such equality of purchasing power by gradual correction of the present inequalities therein at as rapid a rate as is deemed feasible in view of the current consumptive demand in domestic and foreign markets.



Several amendments to this first definition stipulated an alternative base period for the purposes of marketing agreements or marketing orders where determining the purchasing power of a commodity would be difficult. The alternative base period was used in cases where a commodity's purchasing power could not be satisfactorily determined from USDA's available statistics. The base period...

...for purposes of such marketing agreement or order, shall be the postwar period, August 1919 to July 1929, or all that portion thereof for which the Secretary finds and proclaims that the purchasing power of such commodity can be satisfactorily determined from the available statistics of the Department of Agriculture.

Provision was also made for calculating parity prices:

... give to the commodity a purchasing power with respect to the articles that farmers buy equivalent to the purchasing power of such a commodity in the base period; and, in the case of all commodities for which the base period is the period August 1909 to July 1914, which will also reflect current interest payments per acre on farm indebtedness secured by real estate, tax payments per acre on farm real estate, and freight rates, as contrasted with such interest payments, tax payments, and freight rates during the base period.

During 1910-1914, the "golden age of agriculture" on which parity is based, the farm sector was viewed receiving a "fair share" of the economy's income and growth. That purchasing power is measured by the "parity index" which is a com-

posite of prices paid by farmers (1910-1914 base period) for commodities, services, interest, taxes, and wage rates. Items used in farm production and items used for family living are included in both commodities and services. The farm production items in the prices paid index include inputs such as feed, seed, fertilizer, and feeder livestock that are used only by specialized enterprises and inputs such as fuel, motor vehicles, machinery, and agricultural chemicals that are commonly used on all types of farms. The family living items in the prices paid index have been represented by the consumer price index (CPI-U) since 1978. Family living items include household goods, apparel, utilities, and medical care. By pricing items where farmers buy and sell them rather than at central markets, USDA removed an explicit index of freight rates from the parity index to prevent double counting.

In response to economists' widespread criticisms of the parity price concept and to the political climate of postwar America, Congress changed the legal definitions of the parity index, parity prices, and parity income during the enactment of the Agricultural Adjustment Act of 1948. Those definitions remain in force today.

Under the 1948 law, the "parity index" is the ratio of:

- (i) The general level of prices for articles and services that farmers buy, wages paid hired labor, interest on farm indebtedness secured by farm real estate, and taxes on farm real estate, for the calendar month ending last before such date to
- (ii) the general level of such prices, wages, rates, and taxes during the period January 1910 to December 1914, inclusive.

The 1948 act changed the base price concept from average 1910-1914 prices for individual commodities to “adjusted base prices” which are the most recent 10-year average prices received for the commodity deflated by the corresponding 10-year average of the index of prices received for all commodities. The 1948 law defined the “new” parity prices as the product of the adjusted base period prices and the parity index. The act also provided for a “transitional” parity price to smooth adjustment from the old to the new definition. The change had the effect of retaining the purchasing power parity of all agricultural products at the 1910-1914 levels, but allowed relative parity of individual commodities to be based on recent performance and to fluctuate in response to changing market conditions.

The adjusted base period (1910-1914) price for each commodity is derived from the average price received in the 10 most recent complete calendar years and the corresponding 120-month average of the index of prices received by farmers (1910-1914 base). An allowance is made for unredeemed loans and other supplemental payments farmers receive for commodities grown under price support programs. The adjusted base price, multiplied by the parity index, gives the parity price for the specific commodity. This process permits parity prices to be calculated for commodities like soybeans, which were not widely grown in 1910-1914. The moving average underlying this changing base period price effectively raises the parity price for commodities whose recent price performance is stronger than the aggregate and lowers the parity price for commodities with weaker than average prices.

The first statutory definition of “parity” as it relates to income rather than purchasing power

appeared in the Soil Conservation and Domestic Allotment Act of 1936, which declared that the purpose of the act was the ...

... reestablishment, at as rapid a rate as the Secretary of Agriculture determines to be practicable and in the public interest, of the ratio between the purchasing power of the net income per person on farms and that of the income per person not on farms that prevailed during the 5-year period August 1909 - July 1914, inclusive, as determined from statistics available in the Department of Agriculture, and the maintenance of such ratio.

The 1936 definition was revised in the Agricultural Adjustment Act of 1938, which provided that...

...“parity”, as applied to income, shall be that per capita net income of individuals on farms for (SIC) farming operations that bears to the per capita net income of individuals not on farms, the same relation as prevailed during the period from August 1909 to July 1914.

Both definitions relate to income ratios that existed in the same time span as the base period established for determining parity prices (1910-1914). Income parity under the 1936 definition was realized in every year between 1941 and 1956, and, under the 1938 definition, was realized each year between 1942 and 1955 with 98 percent of parity achieved in 1941 and 1956. The absolute levels of farm and nonfarm incomes per capita are regularly published in the Income and Balance Sheet Statistics from USDA.

The Agricultural Act of 1948 redefined parity income, effective January 1, 1950, in the following way...

...“Parity”, as applied to income, shall be that gross income from agriculture which will provide the farm operator and his family with a standard of living equivalent to those afforded persons dependent upon other gainful occupation. “Parity”, as applied to income from any agricultural commodity for any year, shall be that gross income for such year as the average gross income from such commodity for the preceding 10 calendar years bears to the average gross income from agriculture for such 10 calendar years.

The 1948 act thus ushered in the standard of living concept of income parity, a subtle improvement over a money-income concept. A person’s living standard depends on the goods, services, and intangibles consumed (including environment, health, safety, aesthetics, and lifestyle) rather than on income gained from work. To the extent that monetary values can be attached to a standard of living, they derive from the expenditure on items of consumption rather than from occupational income. However, differing preferences among farm and nonfarm people for identical items of consumption and differing availabilities of unpriced consumption distort the estimate away from the true standard of living. Hathaway estimated in 1963 that the welfare levels and labor returns of farm families would be comparable to nonfarm families if the money income of farm families equaled about 86 percent of nonfarm family income (Hathaway, 1963).

USDA research on the comparability of farm and nonfarm income revealed key information on the farm sector’s structure. Part of that research was Grove’s study of the per capita income by economic class of farm. Based on the value of 1949 sales reported to the Census of Agriculture, Grove found that farms with sales greater than \$25,000 generated per capita income 2.4 times the per capita income of the nonfarm population, and farms with sales between \$10,000 and \$25,000 generated 1.1 times the per capita income of the nonfarm population. However, when the incomes of the smaller farms (less than \$10,000 in sales) were taken into account, the per capita income of all persons living on farms averaged about half that of the nonfarm population. The result clearly showed the relationship between farm size and income, and the fallacy inherent in comparisons based on the average of a heterogeneous farm population.

The definition of parity was most recently reviewed in 1988 by a committee established by the Secretary of Agriculture. The committee evaluated changing the 10-year average prices and prices received indexes to a 15-year average used in calculating adjusted base prices. No change, however, was implemented to the current 10-year averages as little, if any, change would occur to current parity price levels.

The determination of parity prices is defined in the Code of Federal Regulations, Title 7, Volume 1, Agriculture Sections 5.1 to 5.6. This regulation was last revised January 1, 2010. Appendix A contains a summary of major legislation and farm bill programs. See table 4.1 for parity ratios and adjusted parity ratios.

## Parity Prices

The parity price of a particular commodity is the price giving a unit of the commodity a comparable purchasing power to that in the base period. The comparison is made relative to a base period when prices for both paid and received provide an economic balance. By statute, the base period is 1910-1914.

The concept for parity prices then is essentially a comparison of the prices received for commodities with the prices paid for production and living expenses. Parity, at first glance, seemed to provide a way of gauging agriculture's economic condition particularly in relation to the urban sector which provides many of the goods and services producers purchase. Its use as a barometer of the agricultural sector is well sanctioned by tradition. As prices fall below the parity level, concern invariably rises among producers and their representatives.

The parity price formula does not measure cost of production, standard of living, or income parity. It is not a comprehensive measure of the economic well-being of farmers. It is based on price relationships, which are only one component of the cost of production.

Parity prices are generally national average prices. Prices represent all grades and qualities of the same commodity as sold by farmers in local markets at all locations in the United States. Parity prices do not represent a price for a specific grade of the commodity at a specific location.

Separate parity prices are calculated for fresh market and processing fruit and vegetables. For some fruits such as apricots, peaches, and pears there are three utilizations, fresh market, dried, and other processing. These utilization groups are considered separate commodities and parity prices computed for each.

## Parity Price Calculations

The calculation of parity prices is a two step process, calculation of commodity adjusted base prices and the multiplication of the adjusted base price and the parity index (Prices Paid Index). The formula for calculating the adjusted base prices is:

$$ABP_c = \frac{\bar{P}_{10}}{\bar{I}_{10} * \left[ 1 + \frac{\overline{GP}_{10}}{\overline{CR}_{10}} \right] / 100}$$

where,  $ABP_c$  is commodity Adjusted Base Price,  $\bar{P}_{10}$  is ten year average commodity price,  $\bar{I}_{10}$  is ten year average Prices Received Index.  $\overline{GP}_{10}$  is Government payments, and  $\overline{CR}_{10}$  is total farm cash receipts.

The commodity parity price is derived by multiplying the commodity Adjusted Base Price by the Parity Index and dividing by 100.

$$Parity Price = [ABP_c * PI] / 100,$$

where  $ABP_c$  is the commodity Adjusted Base Price and PI is the Parity Index.

The descriptive steps to calculate parity prices are:

- (1) The average of prices received by farmers for individual commodities for the 10 preceding years is calculated (for 2011, the period was 2001-2010). An allowance for unredeemed loans and for other supplemental payments resulting from price support operations is included for those commodities where applicable.
- (2) This 10-year average price is divided by the average of the Index of Prices Received by Farmers for the same 10 preceding calendar years, adjusted to include an allowance for direct government payments under farm price-support operations. This computation derives the adjusted base price for individual commodities.
- (3) Parity prices are computed by multiplying the adjusted base prices by the current Parity Index (1910-1914 = 100) and dividing by 100.

An example of the computation of the parity price based on data for January 2011 follows.

- The 120 month, January 2001-December 2010, average of prices received by farmers for corn adjusted for supplemental price support program payments was \$3.16 per bushel.
- The 120-month average of the Index of Prices Received by Farmers, adjusted to include an allowance for commodity-related Government payments, was 824 (1910-1914 = 100).
- The index percentage of 824 is divided by 100 to obtain a ratio of 8.24.
- Dividing \$3.16 by 8.24 gives \$0.384 per bushel, the adjusted base price.

- The adjusted base price (\$0.384) multiplied by the parity index (2574 percent) and divided by 100, the January 2011 Parity Index results in a parity price for corn of \$9.88 per bushel. See the January Agricultural Prices for further discussion about parity prices and parity index.

#### Adjusted Base Price Calculation

$$\frac{3.16}{771 * 1 + \frac{16435.43}{240628.2}} / 100 = \frac{3.16}{771 * 1.0687 / 100} = 0.384$$

#### Parity Price Calculation

$$[0.384 * 2574] / 100 = 9.88$$

### Uses of Parity Prices

Parity prices had a major role in the Government price-support program from the 1930s into the 1970s. In the 1980s, use of parity prices in support programs diminished greatly. The Food Security Act of 1985 does not mention parity. When the act expires, however, the permanent legislation would revert to the use of parity prices for agricultural programs unless new legislation is enacted. Existing legislation mandates the calculation and publication of commodity parity prices.

Parity prices are required for administering marketing orders under the authority of the Agricultural Marketing Agreement Act of 1937. Currently, USDA's Agricultural Marketing Service administers 10 marketing orders for milk. The 1996 Farm Act required consolidation of the Federal milk marketing orders into 10-14 regional orders, down from 33. Currently, there are 23 specific fruit, vegetable, and nut commodities covered by five regional market order offices. Under present legislation, parity prices with appropriate ad-

justments may be used for the purpose of the Agricultural Marketing Agreement Act of 1937. Parity has an integral role in putting into action orders and in determining when market orders are in effect, suspended, or terminated.

Other acts currently requiring use of parity prices are:

- (1) The Food and Agricultural Act of 1977. It establishes loan levels at 90 percent of parity for certain agricultural commodities when commercial export sales are suspended because of short-supply determinations.
- (2) The Agriculture and Food Act of 1981. It sets price support at 100 percent of parity when national security or foreign policy interests mandate an agricultural export embargo.

Existing legislation mandates continued calculation and publication of parity prices, uses them to set price supports for selected commodities, employs them to administer agricultural marketing orders, and relies on them in a number of special circumstances.

### **Limitations of Parity**

There is widespread agreement among agricultural economists and others that parity prices do not provide a good basis for agricultural price and income controls. Parity prices freeze price relationships among agricultural products and other products in a pattern that, in most cases, is out of date with current agricultural production practices. The inaccuracy of parity price as a measure of net farm income results from the variability of net farm income with changing commodity prices and quantities produced.

Parity prices and the parity index indicate price relationships. They do not indicate farmer well-being, net income, or production costs. They merely show how current prices relate to those in 1910-1914. They are reference prices which contain built in biases ensuring that parity prices increase more rapidly than farm commodity prices. Thus, parity prices are not useful for judging whether current market prices may be deviating from underlying trends simply because of weather or short run demand aberrations. Parity prices also do not make appropriate reference points for administering programs.

The parity formula disregards changes in the farm sector since the base period. Farms are larger and more productive than during the base period. Farm productivity has increased more rapidly than nonfarm productivity for as long as a USDA multifactor productivity index has been reported. (Tiegen, 1987, June)

The interest component of the parity formula is too broadly defined. A bias results from calculating the interest component of the parity index as payments per acre of farm real estate. That is, the index reflects both price and quantity dimensions. (Tiegen, 1987, September) While the index increases when interest rates increase, it also increases when other factors change. Other factors affecting the index change are the amount of land being mortgaged, the amount of the down payment of the mortgage, and the value of the land being mortgaged. (Tiegen, 1987, June) This is a weakness to the prices paid concept which is a building block to the parity index.

Index differences in the adjusted base price definition move parity prices away from market prices. The adjusted base price is the ratio

of the current parity index to the 10-year average of the prices received index including adjustments for government program payments received. The parity index responds to different factors than does the index of prices received causing the two to change at different rates and to seek different levels. (Tiegen, 1987, June)

The resurgence of farm prices during World War II brought about price controls for farm products and other commodities. Parity prices were used as a ceiling to administer the price control program. Toward the end of the war, farmers would have received parity incomes or more, even without parity prices. The Steagall Amendment of 1941 set price support at 90 percent of parity for all commodities whose production was expanded by the war effort. As World War II was drawing to a close, intellectuals began to discuss the structure of society and American social policy in peacetime. In 1945 the American Farm Economics Association (AFEA) sponsored an essay contest on farm price policy. The winning essays were published in the November 1945 issue of the *Journal of Farm Economics*. There was virtually unanimous agreement among winning analysts that price parity hinders the functioning of a proper pricing system. (AFEA and Johnson, 1945)

The following views were presented from the winning essays:

- Price relationships of 1910-1914 grossly distort the current pattern of consumer choices.
- Cost relationships among commodities and regions in that time differ greatly from current relationships, freezing resources into an out-of-order design.

- Government actions to realize parity goals have insulated agriculture from the socially beneficial effects of a sensitive pricing system.
- Necessary shifts of population out of agriculture are prevented.
- Raising prices above free-market levels cannot raise inadequate farm incomes of noncommercial farmers.
- Parity fails to reflect the prevailing grade, geographic area, and seasonal price differentials.
- Parity would price products out of foreign and domestic markets resulting in either surpluses or production and marketing quotas.

The AFEA impaneled a committee on parity concepts. The committee set forth a slightly different set of weaknesses and limitations to the parity formula (AFEA and Wright, 1946):

- By adopting a historical base period, the parity formula freezes a functional and otherwise self-adjusting price mechanism.
- In allocating productive resources and people, the only alternative to relative prices is the direct order of the government.
- The parity formula ignores the progress made in farm technology which has reduced the costs of producing some crops more than others.

- The formula makes no allowance for the improvement in quality of goods and services bought by farmers.
- The high support prices based on parity gave the farmer incentive to produce on fewer acres as much as resourcefulness would allow.
- The parity formula has subsidized excess production simply to fill public storage facilities.
- Manufacturers of substitutes will be greatly encouraged by the fixed price of farm crops like cotton.
- Fixed parity prices do similar harm in the foreign market by pricing American exports out of the range of importing countries.
- Devising separate parity indexes for individual commodities.
- Adjusting the prices to reflect gains in production efficiencies.
- Reflecting the costs of price stabilization programs in the parity prices.
- Shifting to a parity income formula, based on either historical income ratios or on direct farm/nonfarm comparisons.

The report's only specific recommendation was to continue using a 10-year average as the base period for parity prices.

For as long as there have been parity prices, criticisms and proposed improvements have been made. Since the parity price formula was last changed in 1956, many of the proposed changes to the formula from the 1957 report to Congress are still valid today.

Since 1957 two technical aspects of the concepts underlying the parity price definition have been recommended that would keep parity prices more responsive to current market prices. The first refinement would change the definitions of the adjusted base period price by deflating the moving average of the commodity prices by the index of prices paid by farmers, rather than the prices received index. Under this definition, the parity price would be consistent with a long run average, adjusted for current input costs. The second refinement would change the interest and tax components of the parity index to reflect price changes alone, rather than the expenditures they now reflect. If the tax component cannot be expanded to cover all taxes paid by farmers, then

Congress responded to these analyses and criticisms and the political climate of the time by changing the legal definitions of parity price and parity income in the Agricultural Adjustment Act of 1948. The law provided for "transitional" parity prices in order to smooth the changeover from the old definition to the new definition during the 1950 to 1956 time period.

The 1957 report, as required by section 602 of the Agricultural Act of 1956, *Possible Methods of Improving the Parity Formula*, addressed the question of what kind of formula might be most useful and proposed a number of changes to parity prices. The report discussed in depth five changes in parity price formulas to address shortcomings of the current formula:

- Moving to different base periods.



dropping taxes as a component should be considered.

## Parity Ratio

The parity ratio (the index of Prices Received by Farmers for the products they sell divided by the Parity Index (1910-1914=100) provides an indication of the per unit purchasing power of farm commodities generally in terms of the goods and services currently bought by producers, in relation to purchasing power of farm products in the 1910-1914 base period. A parity ratio less than 100 indicates that the average per unit purchasing power of all farm products is lower than during the 1910-1914 base period.

The parity ratio is a measure of price relationships and not a measure of farm income, producers' total purchasing power, or producers' welfare. The latter depends on a number of factors other than price relationships. Production efficiency and technology, quantities of farm products sold, and supplementary income, including that from off-farm jobs and federal programs, must be utilized to measure a producer's well-being.

## Interpretations and Uses

The Index of Prices Received by Farmers is a measure of the changes in average prices that farmers receive for agricultural commodities. The Parity Index (Indexes of Prices Paid by Farmers for Commodities and Services, including interest, taxes, and farm wage rates) is a measure of changes in prices paid by farmers for goods and services used in family living and in production, together

with interest, taxes, and farm wage rates. The parity ratio consists of the relationship between these two indexes expressed as a percentage.

The parity ratio measures the purchasing power of products sold by farmers in terms of things they buy, compared with their purchasing power in the base period, 1910-1914. As of any given date, the parity ratio is computed by dividing the Index of Prices Received by Farmers by the Parity Index and converting the ratio to a percentage. If the result is above 100 percent (i.e., if the Prices Received Index is higher than the Parity Index), products sold by farmers have a greater per unit purchasing power than in 1910-1914. In contrast, when the ratio is below 100 percent, the average per unit purchasing power of commodities sold by farmers is less than in the base period. Parity ratios from 1959 to 2010 are shown in table 4.1 in the Appendix.

Income from sales of farm commodities in many cases is supplemented by Government payments under farm support programs. To recognize income supplements provided by Government farm programs, an adjusted parity ratio is calculated incorporating direct Government payments. The method of computation which was published in the January 1964 issue of *Agricultural Prices* is outlined below:

- (1) From annual data on receipts by farmers from marketings and Government payments, the ratio of Government payments to receipts from marketings is computed.
- (2) The Index of Prices Received by Farmers is then multiplied by a factor that is 1.000 plus the above ratio. Thus, for 1989, the ratio of payments to receipts from marketings was 0.067 (6.7 percent). For each month in 1989, the Index of Prices Received by Farmers was

multiplied by 1.067, and the resulting product divided by the Parity Index to give the adjusted parity ratio.

## Adjusted Parity Ratio

The importance of nonprice income supplements provided to farmers by the Government makes it essential to provide a parity ratio that reflects these supplemental funds to farmers. The method of computing adjusted parity ratios is as follows:

- 1) Compute the ratio of Government payments to annual cash receipts from marketings producers receive.

Factor for adjusting the ratio of prices received to prices paid indexes for January 2010 is 1.04.

Parity Ratio Adjustment Factor =  $GP / CR + 1$ ,

where GP is the Government Payments and CR is total farm cash receipts.

Government Payments and total Cash Receipts for 2010 are \$12,176,400,000 and \$312,300,000,000, respectively.

$$12,176,400,000 / 312,300,000,000 + 1 \approx 1.04$$

- 2) The Index of Prices Received by Farmers for any month in the year is multiplied by the parity ratio adjustment factor to account for Government Payments received by producers. The ratio of the adjusted Prices Received Index and the parity index multiplied by 100 gives the adjusted parity ratio. For January 2010,

Adjusted Parity Ratio (PR)

$[[\text{Jan. 2010 Prices Rec'd} * \text{PR Adj. Fac.}] / \text{Parity Index}] * 100$

January 2010 Adjusted Parity Ratio

$$(886 * 1.04) / 2407 = 921 / 2407 = .382 * 100 = 38$$

No data on cash receipts from marketings or Government payment data are available in January of the current year. In order to provide a preliminary estimate of the adjusted parity ratio, an estimate of the ratio of Government payments to annual receipts from marketings is needed. The USDA's Economic Research Service (ERS), at the beginning of each year, estimates what the ratio of Government payments to receipts from marketings is expected to be for the year. This estimate is used to compute the preliminary adjusted parity ratio published each month in *Agricultural Prices*. Each year in January, adjusted parity ratios are revised based on actual data to compute the ratio of Government payments to annual receipts of marketings.

## Limitations

The parity ratio is a measure of price relationships and not a measure of farm income, farmers' total purchasing power, or farmers' welfare. The latter depends upon a number of factors other than price relationships, such as changes in production efficiency and technology, quantities of farm products sold, and supplementary income, including that from off-farm jobs and federal programs. See Table 4.1 in the Appendix for adjusted parity ratios.

The limitations for parity prices apply to parity ratios. Descriptions of production efficiencies and technologies, quantities of farm products sold, and supplementary income weaknesses can be found in the parity prices limitations section.

## Feed Price Ratios

Feed price ratios indicate whether price relationships between feed and livestock are becoming more or less favorable. The ratio is the amount of feed equal in value to the farm price of a unit of livestock commodity.

The largest component in the cost of producing livestock and livestock products is feed. Feed price ratios, then, provide a measure of the general profitability of production. The NASS published feed price ratios provide a general level of industry profitability for all U.S. producers of milk, eggs, broilers, turkeys, hogs, and fed cattle.

The individual ratio is an indication of how many units of a feed purchased are equal in value to one unit of product sold, based on US average prices received for specified date. Feed price ratios, when charted over time, present a picture of the changing overall general condition (weakening/strengthening) for the industry represented. The higher the ratio the more favorable is the profitability in the industry.

### Background

The feed ratios for milk, eggs, broilers, and turkeys were first released in 1960. The hog ratio followed in 1961 and the steer-heifer ratio in 1969. The feed units and prices used for each of the commodity ratios are shown in Table 4.2.

Modifications in the calculation of feed price ratios for broiler-feed, egg-feed, milk-feed,

and turkey-feed resulted from prices paid program changes initiated in January 1995. Prices paid estimates for feed items were reduced from a quarterly survey to an annual April survey. In February 1995, the methodology for calculating the four feed price ratios (milk, eggs, broilers, and turkeys) was modified. The feed ratios formula changed from using the quarterly complete feed costs to a modeled ration methodology based on a mix of ingredients common to dairy and poultry production as provided by universities specializing with animal nutrition programs. The new methodology utilizes major raw feed component prices from NASS agricultural commodity prices reports that are published monthly. The major feed components of corn and soybeans account for 83 and 91 percent of the total ingredients in the rations. The contribution for feed additives and antibiotics are held constant.

Historical data for the new methodology carried back to 1985 were published in the February 1995 *Agricultural Prices Report*. Feed price ratio data are also available from the NASS searchable data base called Quick Stats. The Quick Stats database can be found at the bottom of <http://www.nass.usda.gov/>.

### Feed Price Ratio Calculations

The following are the formulas used to calculate the six feed price ratios.

#### Hog-Corn Ratio

The hog-corn ratio measures the bushels of corn equal in value to one hundred pounds of hogs, liveweight.

$$\text{Hog - Corn Ratio} = \frac{\text{all hogsprice per cwt}}{\text{corn price per bushel}}$$

### Steer and Heifer-Corn Ratio

The steer and heifer-corn ratio measures the bushels of corn equal in value to one hundred pounds of sheers and heifers, liveweight.

Steer and Heifer –Corn Ratio =

$$\frac{\text{steers and heifer price per cwt}}{\text{corn price per bushel}}$$

### Broiler-Feed Ratio

Broiler grower feed price is based on the composite price of 58-percent corn and 42-percent soybeans, U.S. average prices per bushel, where one bushel of corn equals 56 pounds and one bushel of soybeans equals 60 pounds. The broiler-feed ratio measures the pounds of broiler grower feed equal in value to one pound of broilers, liveweight.

$$\text{Broiler - Feed Ratio} = \frac{\text{live broiler price}}{\text{broiler grower feed price}}$$

Derived Broiler Grower Feed Price

Dollars per pound of broiler feed =

$$\left(0.58 * \frac{\text{Corn Price}}{56}\right) + \left(0.42 * \frac{\text{Soybean Price}}{60}\right)$$

### Egg-Feed Ratio

The egg-feed ratio measures the pounds of laying feed equal in value to one dozen market eggs.

$$\text{Egg - feed Ratio} = \frac{\text{market egg price}}{\text{laying feed price}}$$

Derived Laying Feed Price

Laying feed price is based on the composite price of 75-percent corn and 25-percent soybeans, U.S. average prices per bushel, where one bushel of corn equals 56 pounds and one bushel of soybeans equals 60 pounds.

Dollars per pound of laying feed =

$$\left(0.75 * \frac{\text{Corn Price}}{56}\right) + \left(0.25 * \frac{\text{Soybean Price}}{60}\right)$$

### Turkey-Feed Ratio

Turkey grower feed is based on the composite U.S. average prices of 51-percent corn, 28-percent soybeans, and 21-percent all wheat, where one bushel of corn equals 56 pounds, one bushel of soybeans equals 60 pounds, and bushel of all wheat equals 60 pounds. The turkey-feed ratio measures the pounds of turkey grower feed equal in value to one pound of turkey, liveweight.

$$\text{Turkey - Feed Ratio} = \frac{\text{Turkey Price}}{\text{Turkey Grower Feed Price}}$$

Derived Turkey Grower Feed Price

Dollars per pound of turkey grower feed =

$$\left(0.51 * \frac{\text{Corn Price}}{56}\right) + \left(0.28 * \frac{\text{Soybean Price}}{60}\right) + \left(0.21 * \frac{\text{All Wheat Price}}{60}\right)$$

### Milk-Feed Ratio

The 16 percent dairy feed is based on the composite U.S. average prices of 51-percent corn, 8-percent soybeans, and 41-percent alfalfa hay, where one bushel of corn equals 56 pounds, one bushel of soybeans equals 60 pounds, and one ton of alfalfa equals 2,000 pounds. The milk-feed ratio measures pounds of 16% dairy feed equal in value to one pound of all milk.

$$\text{Milk - Feed Ratio} = \frac{\text{All Milk Price}}{16\% \text{ Dairy Feed Price}}$$

Derived 16 percent Dairy Feed Price

Dollars per pound of 16% dairy feed =

$$\left(0.51 * \frac{\text{Corn Price}}{56}\right) + \left(0.08 * \frac{\text{Soybean Price}}{60}\right) + \left(0.41 * \frac{\text{Alfalfa Price}}{2000}\right)$$

### Limitations of Feed Price Ratios

The feed price ratios published by NASS represent a general ratio of how many units of feed can be purchased with the sale of one unit of the commodity. The ratios, then, can provide some indication of profitability margins for the industry in general. These ratios are not intended to provide a level of profitability for an individual producer as prices and other production inputs vary by geographic regions.

Many factors affect the level where profitability occurs for an individual producer. Feed ingredient costs, feed conversion efficiencies, animal genetic characteristics and breeding, etc. are factors affecting the break-even level of the feed price ratio and individual producer profitability margin.

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## **Appendix A: Summary of Major Agricultural Legislation and Farm Bill Programs, 1933-2008<sup>1</sup>**

### **Agricultural Adjustment Act of 1933**

- the first major price support and acreage reduction program
- set parity as the goal for farm prices
- acreage reduction achieved through voluntary agreements with producers
- markets regulated through voluntary agreements with processors and others
- processing taxes used to offset cost of program

### **Agricultural Adjustment Act Amendments of 1935**

- gave President authority to impose import quotas when imports interfered with agricultural adjustment programs
- designated 30 percent of customs receipts to promote agricultural exports and domestic consumption and help finance adjustment programs

### **Soil Conservation and Domestic Allotment Act of 1936**

- payments to farmers authorized to encourage conservation
- set parity as the goal for farm income

### **Agricultural Adjustment Act of 1938**

- reenacted a modified Soil Conservation and Domestic Allotment Act
- provided for acreage allotments, payment limits, protection for tenants
- first comprehensive price support legislation with nonrecourse loans
- marketing quotas established for several crops

### **Steagall Amendment of 1941**

- required support of many non-basic commodities at 85 percent of parity or higher
- soon amended to require 90 percent of parity and extended for 2 years after war

### **Agricultural Act of 1948**

- shifted price supports from fixed to flexible, a move postponed several years
- modernized parity formula

### **Agricultural Act of 1949**

- became part of fundamental legislation along with 1938 Act; last major act without an expiration date
- superseded 1948 Act, postponing flexible price supports
- cushioned impact of new parity formula

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<sup>1</sup> USDA. Economic Research Service. (1984)



**Agricultural Act of 1954**

- established flexible price supports beginning 1955
- authorized a CCC reserve for foreign and domestic relief

**Agricultural Trade Development and Assistance Act of 1954 (P.L. 480)**

- became the basic act for selling and bartering surplus commodities overseas and for overseas relief

**Agricultural Act of 1956**

- began Soil Bank program for long- and short-term removal of land from production

**Emergency Feed Grain Program of 1961**

- launched a voluntary acreage reduction program with PIK provisions

**Food and Agriculture Act of 1962**

- continued feed grain acreage reduction program
- provided two-tiered feed grain supports with price support payments in addition to nonrecourse loans
- proposed a mandatory wheat program, voted down by referendum

**Agricultural Act of 1964**

- established a wheat certificate program
- began a cotton PIK program

**Food and Agriculture Act of 1965**

- first in a series of comprehensive, multi-year farm laws; lasted 5 years
- extended voluntary acreage controls to wheat and cotton
- wheat certificate program from 1964 extended

**Agricultural Act of 1970**

- provided a more flexible approach to supply control through set asides
- limit of government payments to \$55,000 per crop

**Agriculture and Consumer Protection Act of 1973**

- target prices and deficiency payments replaced price support payments
- payment limit lowered to \$20,000
- emphasized expanded production to meet world demand

**Food and Agriculture Act of 1977**

- raised price and income supports
- continued flexible production controls and target prices
- established farmer-owned reserve for grains
- set up new two-tiered peanut program

### **Agriculture and Food Act of 1981**

- contained a number of cost-cutting measures
- set specific target prices for 4-year length of bill
- rice allotments and marketing quotas eliminated
- dairy supports lowered

### **Omnibus Budget Reconciliation Act of 1982**

- froze dairy price supports

### **No Net Cost Tobacco Program Act of 1982**

- established producer-supported fund to repay Government for program costs
- required disposal of some nonfarm allotment holdings

### **Payment-in-Kind (PIK) Program of 1983**

- provided voluntary, massive acreage reduction by adding payments in kind to regular acreage reduction payments for grain, upland cotton, and rice; instituted by executive action

### **Dairy and Tobacco Adjustment Act of 1983**

- froze tobacco price supports
- launched a voluntary dairy diversion program

### **Agricultural Programs Adjustment Act of 1984**

- froze target price increases provided in 1981 Act
- paid diversions authorized for feed grains, upland cotton, and rice
- wheat PIK program provided for 1984

### **Food Security Act of 1985**

- introduced marketing loan provisions to commodity loan programs to reduce forfeitures
- continued the reduction in milk price supports
- mandated a milk production termination program
- maintained normal marketing relationships between wool and mohair
- maintained approximately same percentage of parity for mohair as for wool
- authorized optional support programs including marketing loans, loan deficiency payments, target option program, and inventory reduction payments

### **Food, Agriculture, Conservation, and Trade Act of 1990**

- provided producers greater planting flexibility
- based payments on historical production rather than current output

### **The Federal Agricultural Improvement and Reform Act of 1996 (Freedom to Farm Act)**

- replaced price support and supply control program of direct payments base on historical production
- revised and simplified direct payment programs for crops
- eliminated milk supports through direct government purchases
- authorized 7-year production flexibility contract payments
- authority for honey program eliminated

**The Farm Security and Rural Investment Act of 2002**

- introduced counter-cyclical payments program triggered when current prices fall below target level and paid on historical production
- income support wheat, feed grains, upland cotton, rice, oilseeds provided through direct payments, counter-cyclical payments, and marketing loans
- support for peanuts changed from price support program with market quotas to program with market loans, counter-cyclical payments, direct payments, and a quota buy out
- sugar program to operate as a “no net cost” program
- new dairy income support program introduced

**Food, Conservation, and Energy Act of 2008**

- enacted an option revenue-based counter-cyclical program, Acreage Crop Revenue Election (ACRE) program
- counter-cyclical payments available for dry peas, lentils, small chickpeas, and large chickpeas
- base acreage adjustments for eligible pulse crops, eligible other oilseed acreage
- base acres of rice on farm apportioned using 4-year average percentages of acreage planted
- reduced payment acres for direct and ACRE payments to 83.3 percent
- prohibits direct payments, counter-cyclical payments and ACRE if sum of base acres is 10 acres or less unless farm is owned by socially disadvantaged or limited-resource producer

## Appendix of Tables

**Table 4.1. Parity Ratio and Adjusted Parity Ratio by Year**

Year	Parity Ratio %	Adjusted Parity Ratio %	Year	Parity Ratio %	Adjusted Parity Ratio %
1959 .....	81	82	1985.....	52	55
1960 .....	80	82	1986.....	51	56
1961 .....	79	83	1987.....	51	58
1962 .....	80	83	1988.....	54	60
1963 .....	78	81	1989.....	55	59
1964 .....	76	80	1990.....	50	53
1965 .....	76	81	1991.....	47	50
1966 .....	79	85	1992.....	47	49
1967 .....	73	79	1993.....	47	50
1968 .....	73	79	1994.....	45	47
1969 .....	73	79	1995.....	44	46
1970 .....	72	77	1996.....	47	48
1971 .....	70	75	1997.....	43	45
1972 .....	74	79	1998.....	42	45
1973 .....	91	94	1999.....		
1974 .....	86	87	2000.....	39	43
1975 .....	76	76	2001.....	40	44
1976 .....	71	72	2002.....	38	40
1977 .....	66	68	2003.....	40	43
1978 .....	70	72	2004.....	42	44
1979 .....	71	72	2005.....	38	42
1980 .....	65	65	2006.....	37	39
1981 .....	60	62	2007.....	40	42
1982 .....	55	57	2008.....	39	40
1983 .....	56	57	2009.....	35	36
1984 .....	58	59	2010.....	38	39

Computed using indexes on the 1910-14 = 100 base period. The parity ratios are also available for each year 1910-1958

**Table 4.2. Equivalent feed and price components, feed price ratios**

Feed Price Ratio	Type and Unit of Feed	Type and Unit of Livestock Priced
Milk feed.....	16 percent dairy feed, pound	Farm price, one pound of whole milk
Egg feed .....	Laying feed, pound	Farm price, one dozen eggs
Broiler feed .....	Broiler grower feed, pound	Farm value, one pound of live broiler
Turkey feed .....	Turkey feed, pound	Farm value, one pound of live turkey
Hog corn .....	Corn, bushel	Farm price, 100 pounds of live hogs
Steer-heifer corn.....	Corn, bushel	Farm price, 100 pounds of live fed cattle