



# Corn Objective Yield Survey Data, 1992-2006

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## Corn Objective Yield Survey Data, 1992-2006

The U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) conducts a monthly Corn Objective Yield Survey from August through November to forecast end-of-season yields for the ten major corn producing States (Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin). Missouri and South Dakota were added to the objective yield program in 2004, after being discontinued in 1996, while Kansas was added to the program for the first time in 2004. The focus of this report is limited to the seven major corn producing States (Illinois, Indiana, Iowa, Minnesota, Nebraska, Ohio, and Wisconsin), since a continuous data series exists for these States for the 15-year reference period. These seven States accounted for 75 percent of all corn for grain production in 2006.

An objective yield sample consists of two plots, each containing two parallel 15-foot sections of row, independently located within randomly selected corn for grain fields. Counts, measurements, and observations of plant characteristics are made within these plots during the monthly survey periods. Just before farmer harvest, both plots are hand harvested by the enumerator and weighed. A sample of ears is sent to a NASS laboratory where the shelling fraction and moisture content are measured. A final gross yield is computed from the number of ears, average grain weight per ear, and row space width. The yield is measured as bushels of corn per acre at 15.5 percent moisture. Harvest loss is measured in separate plots located near the monthly yield plots. State level indications are produced from the objective yield data. Regional level indications are derived by weighting the State data by harvested acres.

This report examines the changes in the number of plants per acre, ears per acre, and average row width indicated by the objective yield survey over the last 15 years. The report also looks at the changes in the derived weight per ear, which is calculated by dividing the final Agricultural Statistics Board (ASB) yield by the objective yield survey indicated number of ears per acre. The State level objective yield data in this report are published annually in the November *Crop Production* report.

## Agricultural Statistics Board Final Estimates - 7 Major States Combined

Corn for grain production in the seven major corn objective yield States in 2006 was 12 percent higher than 1992. Much of this increase has come through higher yields. The average corn yield in the seven major States climbed 13 percent between 1992 and 2006 (Chart 1). The 15-year yield trend, based on the final Agricultural Statistics Board yields over the last 15 years, rose from 122 bushels per acre in 1992 to 161 bushels per acre in 2006. This represents an increase of 32 percent, or an average increase of 2.60 bushels per year between 1992 and 2006.

Harvested acres for the seven States totaled 49.2 million acres in 2006, down 3 percent from 1992, while the 15-year trend line shows an increase of 2 percent between 1992 and 2006 (Chart 2).

Chart 1

### Corn for Grain Yield (ASB) 7 Major States Combined

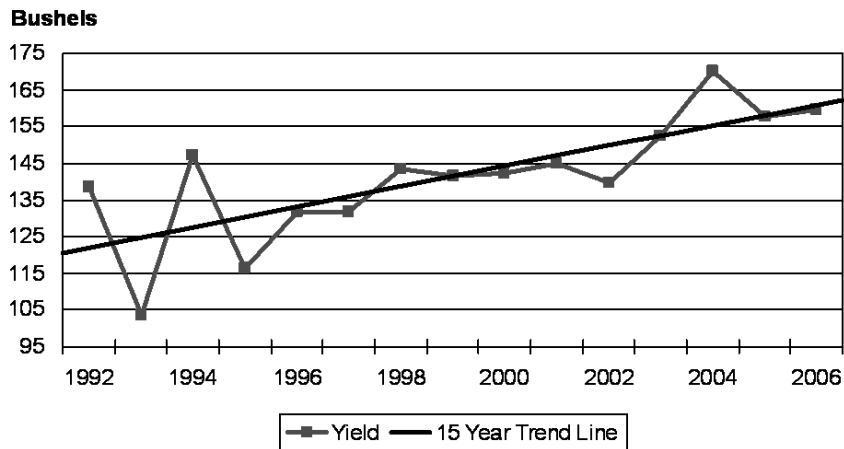
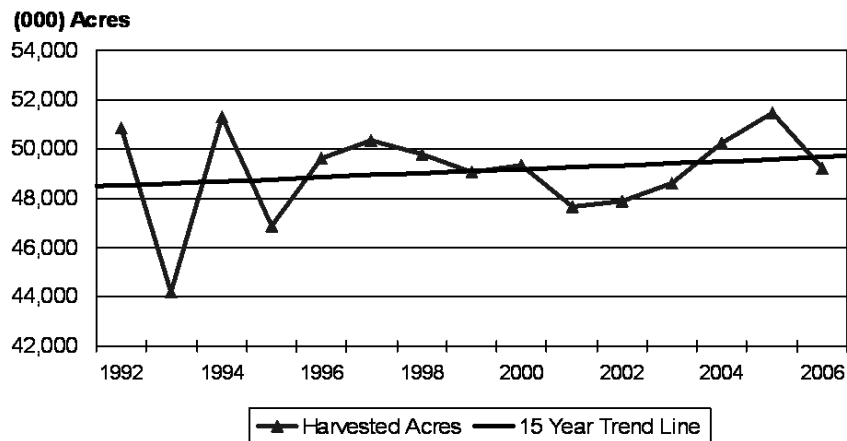


Chart 2

### Corn for Grain Harvested Acres (ASB) 7 Major States Combined



## Plants and Ears Per Acre - 7 Major States Combined

The objective yield indicated number of plants and ears per acre have shown increases similar to yield over the last 15 years. The seven objective yield States averaged a record high 27,421 plants per acre in 2006, up 18 percent from the 23,143 plants per acre in 1992. During this same time, the number of ears per acre increased 13 percent, from 23,622 ears per acre in 1992 to 26,591 ears per acre in 2006 (Chart 3). The record high number of ears per acre, of 26,884, occurred in 2004. The 15-year trend line shows the ears per acre increased 17 percent, from 22,734 ears per acre in 1992 to 26,534 ears per acre in 2006 (Chart 4).

Chart 3

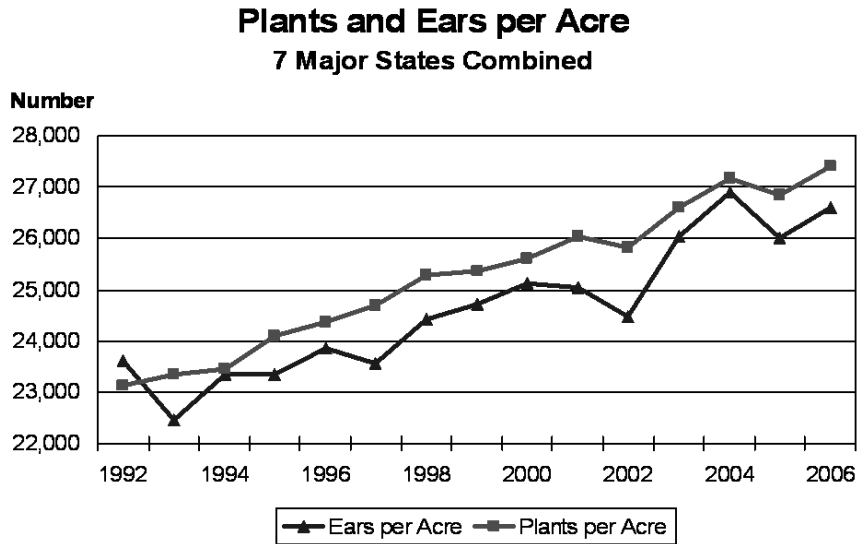
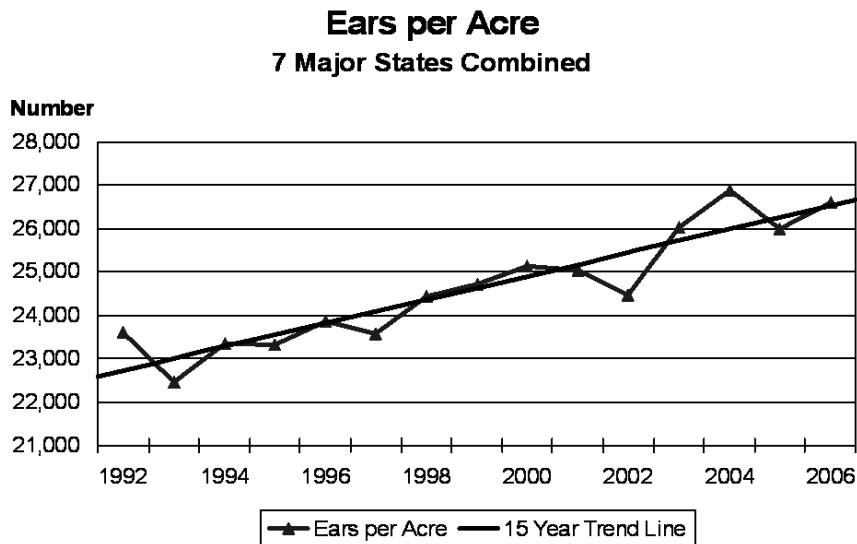


Chart 4



## Plants and Ears Per Acre - 7 Major States

Minnesota led all States in plant population and ear counts over the last 15 years, averaging 27,140 plants per acre and 27,017 ears per acre between 1992 and 2006. Iowa was the second leading State, averaging 25,903 plants and 25,217 ears per acre over the same time period. Nebraska recorded the lowest number of plants and ears per acre since 1992, averaging 23,040 and 22,317, respectively (Charts 5 & 6).

Chart 5

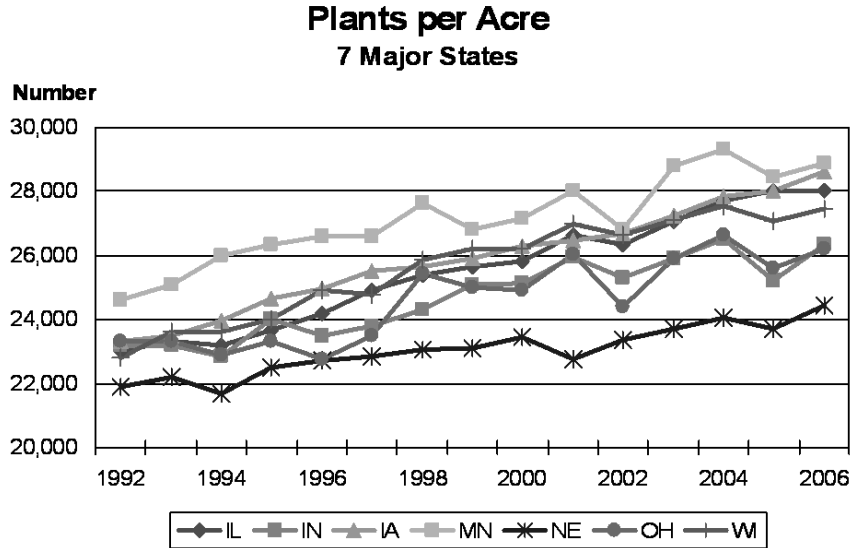
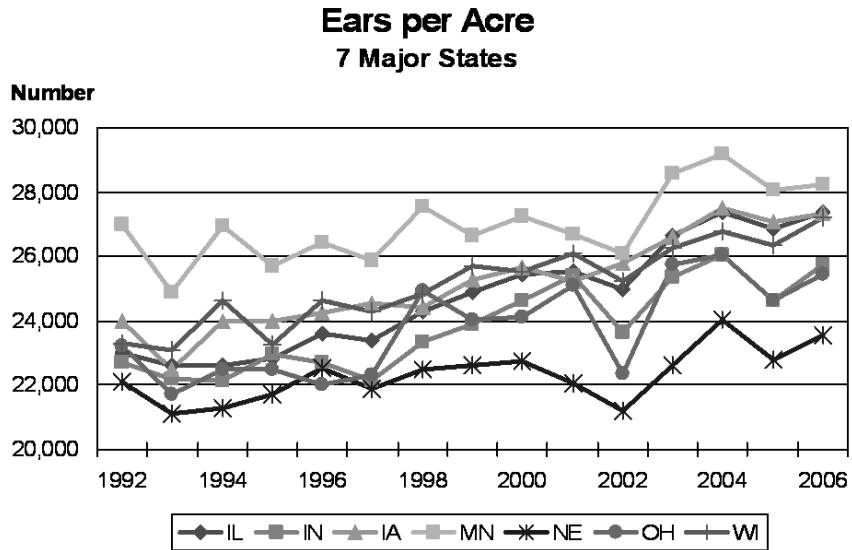


Chart 6



## Derived Ear Weight - 7 Major States Combined

The derived grain weight per ear, which is calculated by dividing the combined seven State average Agricultural Statistics Board yield by the average number of ears per acre for this region, has not shown the same dramatic increase as the plant population and ears per acre over the past 15 years. The derived ear weight for the seven major States was 0.336 pounds per ear in 2006, up 2 percent from 1992 (Chart 7).

The 15-year trend line, based on derived ear weights between 1992 and 2006, indicates a 13 percent increase, from 0.301 pounds per ear in 1992 to 0.340 pounds per ear in 2006 (Chart 8). However, the trend equation for the last ten years shows an 8 percent increase, from 0.315 pounds per ear in 1997 to 0.341 pounds per ear in 2006.

Chart 7

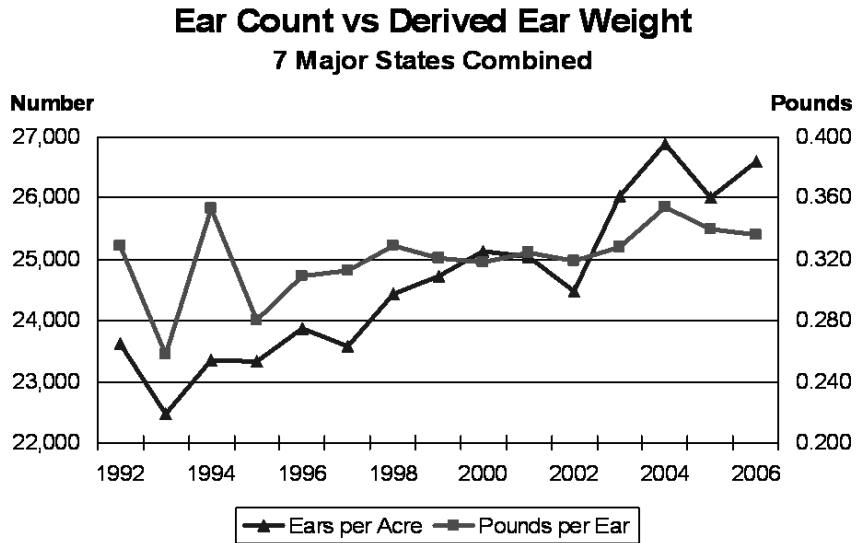
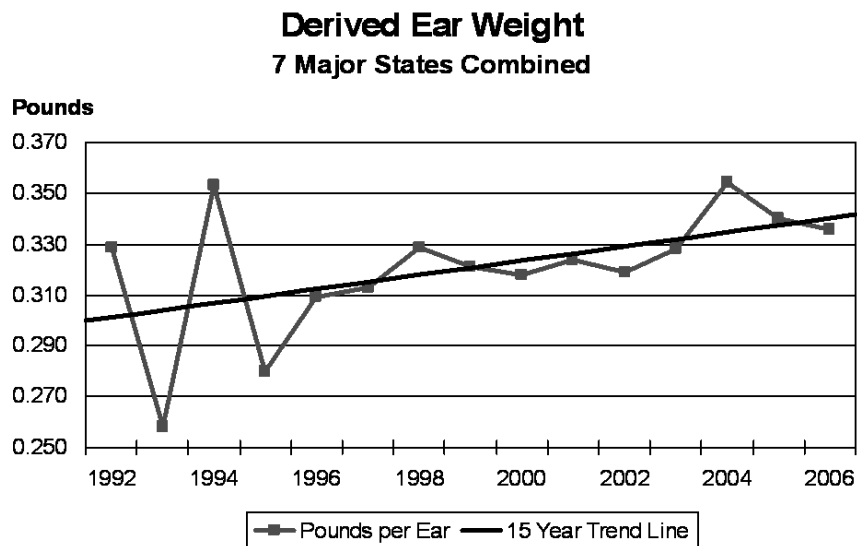


Chart 8



## Row Width - 7 Major States Combined

The objective yield data indicate row space measurements have decreased significantly over the last 15 years. This decrease in row width has contributed to the increase in plant population and ears per acre. The average row space measurement of all samples in the seven States in 2006 was 30.5 inches, 6 percent lower than the 32.6 inches in 1992. During this same time, plant population increased 18 percent (Chart 9). This decrease in row spacing is also evident in the objective yield row space distribution data which show that 76 percent of the samples had a row width of 30.5 inches or less in 2006 compared with only 49 percent in 1992 (Chart 10).

Chart 9

### Average Row Width vs Plants Per Acre 7 Major States Combined

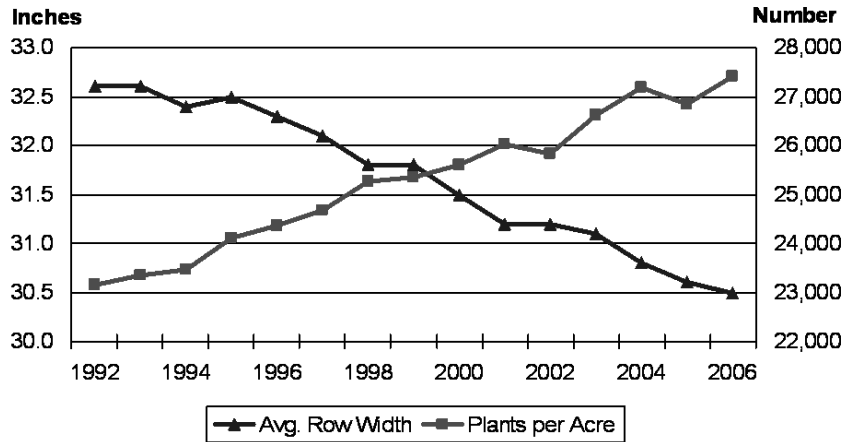
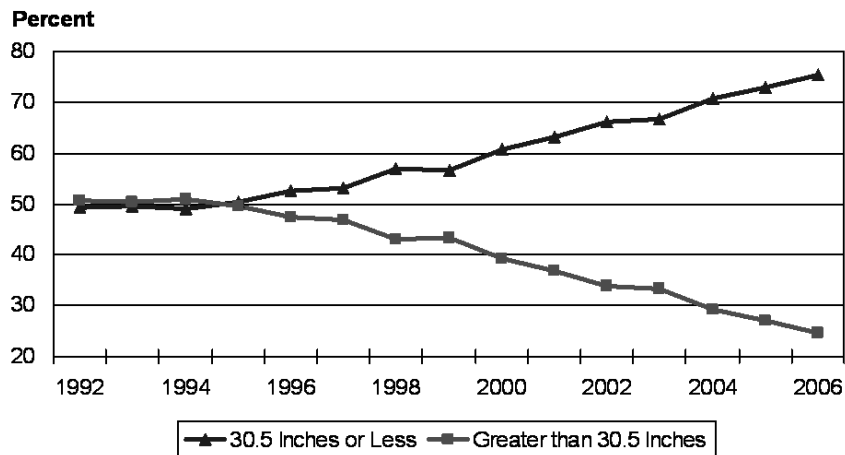


Chart 10

### Percent Distribution by Row Width 7 Major States Combined



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