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Agricultural Chemical Usage 2007 Restricted Use Summary

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Overview

As determined by the U.S. Environmental Protection Agency (EPA), a restricted use pesticide is a pesticide which is available for purchase and use only by certified pesticide applicators or persons under their direct supervision, and only for the uses covered by the applicator's certification. This group of pesticides is not available for use by the general public because of the very high toxicities or due to the environmental hazards associated with the materials.

The agricultural chemical usage data in this report were derived from pesticide products reported in the Agricultural Chemical Usage 2007 Field Crops Summary published in May 2008. This report contains statistics for on-farm use of agricultural chemicals listed by active ingredient.

The agricultural chemical usage data in this year's Restricted Use Summary are summarized by product. Only application data for active ingredients which were part of a restricted use pesticide are included. The Agricultural Chemical Applications tables displayed in this publication show all active ingredients reported at the Program State level. In order to publish data for an active ingredient, there must be a minimum of 5 reports for the specific active ingredient at the summary level (by crop at the Program State level).

Highlights

Cotton: The data were compiled from the Agricultural Resources Management Survey (ARMS). Data collection occurred primarily during the months of September to December of 2007. The Program States included Alabama, Arkansas, California, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, and Texas. These Program States accounted for 95 percent of the U.S. cotton planted acreage. The data on restricted use applications cover the period immediately following harvest of the 2006 crop through harvest of the 2007 crop.

Dicrotophos was the most commonly used restricted use insecticide, applied to 21 percent of the cotton acreage; closely followed by **Aldicarb** covering 18 percent of the acreage. **Cyfluthrin** and **Cypermethrin** were applied to 8 and 7 percent of the acreage, respectively. With the exception of **Lambda-cyhalothrin**, which was used to treat 5 percent of the cotton acreage, all other insecticide active ingredients were used to treat 3 percent or less of the cotton acreage.

Paraquat, used mostly as a defoliant but also used as a herbicide, was applied to 19 percent of the cotton acres. For tabulation purposes, all **Paraquat** applications were included in the “other chemicals” category.

Apples: Growers in 7 Program States were surveyed to obtain restricted chemical use data on the apple bearing acreage in 2007. The Program States were California, Michigan, New York, North Carolina, Oregon, Pennsylvania, and Washington. The data on restricted use applications cover the period immediately following harvest of the 2006 crop through harvest of the 2007 crop.

Only one restricted use herbicide was applied to the apple crop in 2007. **Paraquat** was used on 12 percent of the apple acreage. **Zinc phosphide** applied to 2 percent of the apple crop, was the only restricted use pesticide used as an “other chemical”.

Azinphos-methyl was the most widely used restricted use insecticide covering 62 percent of the reported crop, followed by **Chlorpyrifos**, which was used on 53 percent of the apple acreage. **Emamectin benzoate** was applied to 16 percent of the apple acres. The next most utilized restricted use insecticides were **Esfenvalerate** and **Lambda-cyhalothrin**, both applied to 10 percent of the apple acres. **Diazinon** at 8 percent, **Gamma-cyhalothrin** at 5 percent, and **Methomyl** at 4 percent were the other commonly used restricted use insecticides. All other active ingredients were applied to 2 percent or less of the 2007 apple crop.

**All Cotton: Agricultural Chemical Applications,
Restricted Use Pesticides,
Program States, 2007¹**

Restricted Use Pesticide	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs.</i>
Insecticides					
Abamectin	3	1.1	0.007	0.007	2
Aldicarb	18	1.0	0.666	0.678	1,241
Bifenthrin	3	1.6	0.070	0.111	36
Chlorpyrifos	*	1.2	0.593	0.741	18
Cyfluthrin	8	1.3	0.034	0.044	36
Cypermethrin	7	1.3	0.058	0.073	52
Dicrotophos	21	1.7	0.325	0.565	1,242
Esfenvalerate	2	1.2	0.039	0.049	11
Imidacloprid	*	1.4	0.058	0.081	2
Lambda-cyhalothrin	5	1.5	0.026	0.039	21
Methamidophos	*	1.0	0.150	0.150	4
Methyl parathion	*	1.0	0.746	0.746	31
Oxamyl	3	1.4	0.328	0.456	134
Permethrin	*	1.0	0.040	0.040	1
Phorate	1	1.0	0.762	0.762	45
Zeta-cypermethrin	3	1.4	0.021	0.029	9
Fungicides					
Etridiazole	*	1.0	0.135	0.141	7
PCNB	*	1.0	0.538	0.562	28
Other Chemicals					
Paraquat	19	1.1	0.372	0.397	767

* Area applied is less than 0.5 percent.

¹ Planted acreage in 2007 for the 11 Program States was 10.2 million acres.

States included are AL, AR, CA, GA, LA, MS, MO, NC, SC, TN, and TX.

**Apples: Agricultural Chemical Applications,
Restricted Use Pesticides,
Program States, 2007¹**

Restricted Use Pesticide	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1,000 lbs.</i>
Herbicides					
Paraquat	12	1.2	1.194	1.440	49.7
Insecticides					
Abamectin	2	1.2	0.010	0.012	0.1
Azinphos-methyl	62	2.5	0.832	2.045	363.3
Beta-cyfluthrin	*	1.3	0.018	0.023	(²)
Chlorpyrifos	53	1.1	1.574	1.671	254.1
Cyfluthrin	1	1.1	0.032	0.034	0.1
Diazinon	8	1.4	1.504	2.078	50.1
Emamectin benzoate	16	1.2	0.013	0.016	0.7
Esfenvalerate	10	1.5	0.044	0.064	1.9
Gamma-cyhalothrin	5	2.0	0.015	0.030	0.4
Lambda-cyhalothrin	10	1.5	0.031	0.048	1.4
Methomyl	4	1.8	0.526	0.943	9.5
Oxamyl	*	1.3	0.211	0.269	0.2
Permethrin	1	1.4	0.170	0.242	1.0
Other Chemicals					
Zinc phosphide	2	1.4	0.117	0.159	1.0

* Area applied is less than 0.5 percent.

¹ Bearing acreage in 2007 for the 7 Program States was 288,000 acres.

States included are CA, MI, NY, NC, OR, PA, and WA.

² Total applied is less than 50 lbs.

² Total applied is less than 50 lbs.

Estimation Procedures

The chemical application data, reported by product name or trade name, are reviewed within each State and across States for reasonableness and consistency. This review compares reported data with manufacturer's recommendations and with data from other farm operators using the same product. Following this review, product information are converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

For this publication, detailed data within a table may not multiply across or add down due to independent rounding of the published values. Only active ingredients in restricted use products that met NASS publication standards in the "**Agricultural Chemical Usage - 2007 Field Crops Summary**" publications are included in this report.

Cotton Chemical Usage: Estimates of the total amount of active ingredient applied to cotton are based on the acreage estimates published in the annual NASS report "**Crop Production - 2007 Summary**" [Cr Pr 2-1(08)] released January 12, 2008. Please note that the estimates for total amounts of an active ingredient will not be revised even if there are subsequent revisions to acreage of the cotton crop.

Apple Chemical Usage: Estimates of the total amount of active ingredient applied to apples are based on the acreage estimates published in the annual NASS report "**Noncitrus Fruit and Nuts – 2007 Preliminary Summary**" [Fr Nt 1-3(08)] released on January 23, 2008. Please note that the estimates for total amounts will not be revised even if there are subsequent revisions to acreage of the apple crop.

Terms and Definitions

Active ingredient: The specific chemical which kills or controls the target pest(s). Usage data are reported by pesticide product and are converted to an amount of active ingredient based on the EPA label.

Application rates: Refer to the average number of pounds of pesticide active ingredient applied to an acre of land. Rate per application is the average number of pounds applied per acre in one application. Rate per crop year is the average number of pounds applied per acre counting multiple applications. Number of applications is the average number of times a treated acre received a specific active ingredient.

Area applied: Represents the percentage of crop acres receiving one or more applications of a specific active ingredient.

Common name: An officially recognized name for an active ingredient. This report shows active ingredients by common name.

Crop year: The period immediately following harvest of the previous crop through harvest of the current crop.

Pesticides: As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. The four classes of pesticides presented in this report and the pests targeted are: herbicides - weeds, insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals.

Restricted Use Pesticide: A restricted use pesticide is a pesticide which is available for purchase and use only by certified pesticide applicators or persons under their direct supervision, and only for the uses covered by the applicator's certification.

Trade name: A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents.

Pesticide class, Common name, and Trade name

The following is a list of pesticide class, common name, and trade name of active ingredients in this publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not cataloged. The list is not complete for all pesticides used on cotton and apple crops and NASS does not mean to promote use of any specific trade name.

**Pesticide Class, Common Names, and Trade Names
Restricted Use Pesticides, 2007**

Class	Common Names	Trade Names
I	Abamectin	Abba, Agri-Mek 0.15EC, Epi-mek 0.15 EC, Paraspray 8-E, Zephyr 0.15 EC
H	Acetochlor	Degree
H	Alachlor	Bronco (4EC), Intro (4E)
I	Aldicarb	Temik 15G, Temik TSX
H	Atrazine	Atrazine 4L, Extrazine II 4L
I	Azinphos-methyl	Azinphos-M 2 EC, Azinphos-M 50 WP, Azinphosmethyl 50W, Guthion 2L, Guthion 35% WP, Guthion Solupak 50%
I	Beta-cyfluthrin	Baythroid XL
I	Bifenthrin	Bifenture EC, Brigade 2EC, Brigade WSB 10WP, Capture 2EC, Discipline 2EC, Fanfare 2EC, Sniper, Tundra EC
I	Carbofuran	Furadan 4F
I	Chlorpyrifos	Chlorpyrifos 4E AG, Govern 4E, Lock-On, Lorsban 4E, Nufos 4E, Pilot 4E-SG, Warhawk, Whirlwind, Yuma 4E
H	Cyanazine	Bladex 90DF, Cy-Pro 4L, Extrazine II 4L
I	Cyfluthrin	Baythroid 2 (EC), Leverage 2.7, Tombstone
I	Cypermethrin	Ammo 2.5 EC, Battery 2.5 EC, Cyper AG, Holster, Tenkoz Cypermethrin, Up-Cyde 2.5 EC
I	Deltamethrin	Battalion 0.2EC, Decis 1.5EC
I	Diazinon	D-z-n Diazinon 50W, Diazinon 4E, Diazinon 50W, KnoxOut NL
O	Dichloropropene	Telone II
I	Dicrotophos	Bidrin 8
I	Diiflubenzuron	Dimilin 2F
I	Emamectin benzoate	Denim, Proclaim
I	Esfenvalerate	Asana, Asana XL
I	Ethion	Ethion 8 EC
I	Ethyl parathion	Parathion 4L
F	Etridiazole	Temik TSX, Terraclor Super X 18.8G
I	Fenbutatin-oxide	Vendex 50WP
H	Fenoxaprop-p-ethyl	Silverado
I	Flucythrinate	AAStar
I	Gamma-cyhalothrin	Proaxis
H	Glyphosate iso. salt	Bronco (4EC)
I	Imidacloprid	Leverage 2.7
I	Lambda-cyhalothrin	Karate (1EC), Karate Z, Silencer, Taiga Z, Warrior
I	Lindane	Lindane 20%EC
I	Methamidophos	Monitor 4 Spray (For Cotton & Potatoes)
I	Methidathion	Supracide 2E
I	Methomyl	Lannate L (1.8 lbs.), Lannate LV (2.4 lbs.), Lannate SP
I	Methyl parathion	Methyl Parathion 4EC, Methyl Parathion 6EC
I	Oxamyl	Vydate C-LV, Vydate L
F	PCNB	Temik TSX, Terraclor Super X 18.8G
H	Paraquat	Cyclone, Firestorm, Gramoxone Extra, Gramoxone Inteon, Gramoxone Max, Gramoxone Super, Ortho Paraquat CL, Parazone 3SL, Starfire (1.5L)
I	Permethrin	Ambush, Ambush 25W, Perm-UP 3.2 EC, Permethrin 3.2 AG, Pounce 25WP, Pounce 3.2EC
I	Phorate	AAStar, Thimet 15-G, Thimet 20-G
H	Picloram, K salt	Tordon 22K (2EC)

--continued

**Pesticide Class, Common Names, and Trade Names
Restricted Use Pesticides, 2007 - continued**

Class	Common Names	Trade Names
I	Profenofos	Curacron 6E, Curacron 8E
H	Pronamide	Kerb 50WP Specicalty (Turf & Ornamental)
O	Strychnine	Gopher Getter AG Bait
I	Zeta-cypermethrin	Fury 1.5 EC, Mustang, Mustang Max
O	Zinc phosphide	ZP Rodent Bait AG, Zinc Phosphide Oat Bait

Report Features

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