Oats
Chemical Usage
2005

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Agricultural Chemical Usage 2005

The agricultural chemical use estimates in this report refer to on-farm use of commercial fertilizers and pesticides on targeted field crops for the 2005 crop year. Field crops include corn, upland cotton, oats, fall potatoes, and soybeans. Farm and ranch operators were enumerated late in the growing season after the farm operator had indicated that planned applications were completed. The chemical use data were not summarized for geographical areas other than by those States published in this report.

Oats: Fertilizer Use by State, Percent of Acres Treated, and Total Applied, 2005

State	Planted Acreage	Percent of Acres Treated and Total Applied							
		Nitrogen		Phosphate		Potash		Sulphur	
	1,000 Acres	Percent	Mil. Lbs	Percent	Mil. Lbs	Percent	Mil. Lbs	Percent	Mil. Lbs
CA 1/	270	26	4.4						
ID	90	42	1.6	22	1.4	5	0.1	12	0.2
IL 1/	60	15	0.4	12	0.4	26	1.7		
IA 1/	210	31	1.8	30	2.5	40	6.9		
KS 1/	100	84	4.4	39	1.4	17	0.8		
MI 1/	90	82	2.6	72	2.8	77	3.4		
MN	310	28	4.2	22	2.4	28	5.9	5	0.2
MT	**90**	**53**	**2.0**	**35**	**1.0**	**14**	**0.4**	**9**	**0.1**
NE	150	68	4.5	24	1.3	7	0.1	5	0.0
NY 1/	95	75	1.9	72	2.7	72	2.8		
ND	490	71	15.8	49	5.7	9	0.7	5	0.1
PA	140	90	4.5	81	4.9	82	5.1	2	0.1
SD 1/	380	64	11.8	46	5.6	17	1.7		
TX	690	79	45.4	56	12.7	39	4.9	25	1.7
WI	400	23	2.1	24	3.9	35	15.1	8	0.4
Total	3,565	56	107.4	40	48.8	28	49.7	9	3.2

1/ Insufficient reports to publish data for one or more of the fertilizer primary nutrients.

Oats: Planted Acreage, Pesticide, Percent of Acres Treated, and Total Applied, Program States and Total, 2005

State	Planted Acreage	Percent of Acres Treated and Total Applied							
		Herbicide		Insecticide		Fungicide		Other	
	1,000 Acres	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs	Percent	1,000 Lbs
CA	270	36	59						
ID 1/	90	26	17						
IL 1/	60	7	1						
IA 1/	210	3	2						
KS	100	27	13						
MI	90	61	26						
MN	310	21	26						
MT	**90**	**34**	**18**						
NE	150	7	4						
NY 1/	95	51	23						
ND 1/	490	54	167						
PA 1/	140	58	46						
SD	380	37	52						
TX 1/	690	26	80	18	35				
WI 1/	400	18	25						
Total 1/	3,565	31	559	4	35				

1/ Insufficient reports to publish data for one or more pesticide classes.

Survey and Estimation Procedures

Survey Procedures: Data for corn, upland cotton, oats, fall potatoes, and soybeans were collected on two 2005 surveys, the Agricultural Resource Management Survey (ARMS), which collected 6,034 usable records, and the Conservation Effects Assessment Project (CEAP), which collected 2,705 usable records with commodities matching the ARMS.

Data collecting for the ARMS and CEAP survey occurred during the months of September through December 2005 and only those CEAP samples that matched the ARMS crops and states were included. Data collection and sampling procedures were similar for both the ARMS and CEAP surveys. Although CEAP was a nationwide, area-based sample survey based on National Resources Inventory (NRI) points, only a subset of CEAP data was used in this publication. As for ARMS, screening samples were drawn from the NASS List Sampling Frame. This extensive sampling frame covers all types of farms and accounts for approximately 90 percent of all land in farms in the United States. All farms on the list had a possibility of being selected for the screening sample. Farms thought to have the crops of interest were more likely to be in the screening sample. Sampled farms were screened to determine if they grew the target crops in 2005. From this subpopulation of operations identified as producing a crop of interest, a subsample of farms was selected in such a way as to insure that each identified producer had an opportunity to be selected. In general, larger farms were more likely to be selected than smaller farms. Once a farm producing corn, fall potatoes, oats, or upland cotton was selected, one field was randomly selected from all the fields on the farm. The operator of the sampled field was personally interviewed to obtain information on chemical applications made to the selected field.

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 manufacturers' recommendations and with data from other farm operators using the same product. Following this review, product information is 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.

Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report "Crop Production - 2005 Summary" [Cr Pr 2-1 (06)] for corn, upland cotton, oats, fall potatoes, and soybeans. Please note that the estimates for total amount of an active ingredient applied will not be revised even if there are subsequent revisions to acreage for a given crop.

The surveys were designed so that the estimates are statistically representative of chemical use on the targeted crops in the surveyed States. The reliability of these survey results is affected by sampling variability and non-sampling errors.

Since all operations producing the crops of interest are not included in the sample, survey estimates are subject to sampling variability. The sampling variability expressed as a percent of the estimate is called the coefficient of variation (cv). Sampling variability of the estimates differed considerably by chemical and crop. Variability for estimates of percent of acres treated will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses, which are recommended by the manufacturer of the product, and are generally followed. In general, the more often the chemical was applied, the smaller the sampling variability. For example, estimates of a commonly used active ingredient such as Glyphosate isopropylamine salt, will exhibit less variability than a rarely used chemical. A commonly used active ingredient is defined as an active ingredient used on at least 40 percent of the acres planted for a crop at the program state level. For these active ingredients, cv's range from 1 percent to 10 percent at the program state level and 1 percent to 52 percent at the individual state level. Active ingredients that are less frequently used have cv's that range from 2 percent to 70 percent.

Terms and Definitions

Active ingredient: Refers to the mechanism of action in pesticides which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

Allelopathic: The release of chemical compounds from a plant that will inhibit the growth of another plant, such as weeds.

Application Rates: Refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient is 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 primary nutrient or active ingredient.

Area applied: Represents the percentage of crop acres receiving one or more applications of a specific primary nutrient or active ingredient. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

Avoidance: May be practiced when pest populations exist in a field or site but the impact of the pest on the crop can be avoided through some cultural practice. Examples of avoidance tactics include crop rotation such that the crop of choice is not a host for the pest, choosing cultivars with genetic resistance to pests, using trap crops, choosing cultivars with maturity dates that may allow harvest before pest populations develop, fertilization programs to promote rapid crop development, and simply not planting certain areas of fields where pest populations are likely to cause crop failure. Some tactics for prevention and avoidance strategies may overlap.

Oats: Agricultural Chemical Applications, Montana, 2005 1/

Active Ingredients	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	1,000 lbs.
Herbicides:					
2,4-D, 2-EHE	10	1.0	0.381	0.381	3
2,4-D, dimeth. salt	11	1.0	0.466	0.466	5
Glyphosate iso. salt	12	1.1	0.505	0.560	6
1/ Planted acreage in 2005 for Montana was 90,000 acres.					

Oats: Fertilizer Primary Nutrient Applications, Montana, 2005 1/

Primary Nutrient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	Mil. Lbs.
Nitrogen	53	1.1	39	43	2.0
Phosphate	35	1.0	30	32	1.0
Potash	14	1.1	25	28	0.4
Sulfur	9	1.2	10	12	0.1
1/ Planted acreage in 2005 for Montana was 90,000 acres.					

Pesticide Class, Common Name, and Trade Name

The following is a list of common names, associated classes and trade names of active ingredients in this publication. The class is herbicides (H). 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 field crops and NASS does not mean to promote use of any specific trade name.

Class	Common Name	Trade Name
H	2,4-D, 2-EHE	2,4-D LV4, 2,4-D LV6, Agsco 400, Barrage, Double Up B+D, LV 400 2,4-D Weed Killer, Low Vol 4 Ester Weed Killer, Nufarm Esteron 99, Outlaw, Salvan, Salvo, Turret, WECO MAX, Weed Killer 4D, Weedone 650, Weedone LV4 Solventless
H	2,4-D, dimeth. salt	2,4-D Amine, 2,4-D Amine 4, 2,4-D Amine 6, Banvel + 2,4-D, Brash, Formula 40, Hi-Dep, Range Star, Savage, Weedar 64, Weedmaster
H	Glyphosate iso. salt	Accord, Buccaneer Herbicide, ClearOut 41 Plus, Cornerstone, Credit, Credit Duo Extra, Durango, Fallow Master, Fallow Star, Field Master, Gly Star Original, Gly Star Plus, Gly-4 Plus, Glyfos X-TRA, Glyphomax, Glyphosate 4, Glyphosate Original, Helosate Plus, Hi-Yield Killzall, Honcho, Landmaster BW, Mad Dog Glyphosate, Mirage, Protocol, RT Master, Ranger, Roundup Custom, Roundup D-Pak, Roundup Original, Roundup Original II, Roundup Original Max, Roundup Pro, Roundup Super Concentrate, Roundup Ultra, Roundup Ultra Dry, Roundup Ultra Max, Roundup Weather Max

Pest Management Practices, Percent of Farms and Acres Receiving Practice, Oats, 2005

Practice	Farms	Acres
	Percent	
Prevention Practices:		
No-till or minimum till used to manage pests	42	45
Plow down crop residue	58	48
Remove crop residue	27	36
Clean implements after fieldwork	45	41
Field edges, etc. chopped, mowed, etc	26	33
Water management practices	4	4
Avoidance Practices:		
Adjust planting/harvesting dates	17	22
Rotate crops to control pests	68	64
Crop variety choosen for pest resistance	10	10
Planting locations planned to avoid pests	16	15
Monitoring Practices:		
Scouting by general observation	48	45
Deliberate scouting activities	24	25
Field was not scouted	28	31
Scouted for pests	6	3
Scouting due to pest advisory warning	1	1
Scouting due to pest development model	1	1
Scouted for weeds	72	69
Scouting for weeds was done by:		
Operator, partner, or family member	99	99
An Employee	1	1
Farm supply or chemical dealer		
Indep. crop consultant or comm. scout		
Scouted for insects or mites	43	41
Scouting for insects or mites was done by:		
Operator, partner, or family member	99	99
An Employee	1	1
Farm supply or chemical dealer		
Indep. crop consultant or comm. scout		
Scouted for diseases	38	31
Scouting for diseases was done by:		
Operator, partner, or family member	99	98
An Employee	1	2
Farm supply or chemical dealer		
Indep. crop consultant or comm. scout		
Field mapping of weed problems	22	21
Soil/plant tissue analysis to detect pests		
Records kept to track pests	6	9
Weather monitoring	67	73
Suppression Practices:		
Biological pesticides		
Scouting used to make decisions	7	4
Maintain ground cover or physical barriers	43	48
Adjust planting methods	14	16
Alternate pesticides with different MOA	24	25

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