

KANSAS AGRICULTURAL CHEMICAL USAGE

1995 WHEAT PESTICIDE SUMMARY

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Cooperative Extension Service O Kansas State University O Manhattan

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OVERVIEW

The data presented in this publication were funded through the Cooperative Extension Service, Kansas State University, and USDA's National Pesticide Impact Assessment Program.

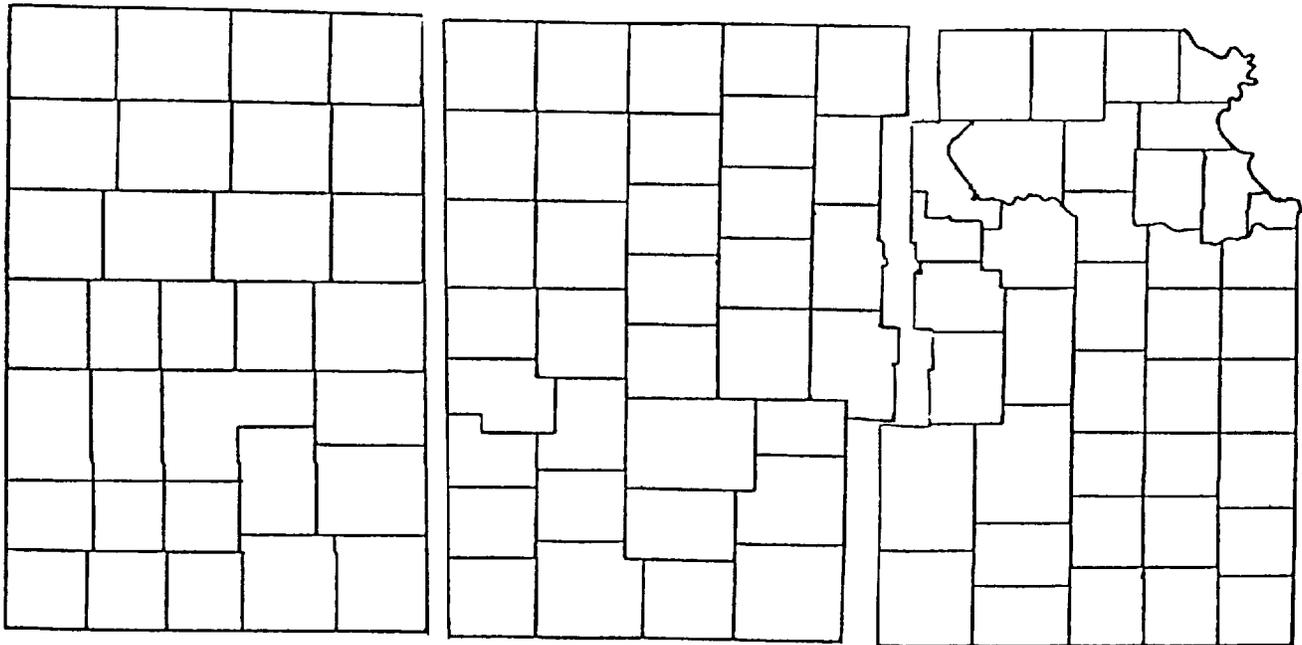
This initiative is designed to provide farmers and ranchers the knowledge and technical means to respond independently and voluntarily to on- and off-farm environmental concerns. In the past, farm level data have been inadequate to determine the magnitude of water quality problems or the benefits and costs of alternative solutions for the farmer and other affected parties. These data will help fill some of the data needs that analysts require to find solutions to the complex environmental issues of the 1990's.

On-farm fertilizer and chemical use data for 1995 Kansas wheat are included in this publication. For purposes of this survey, the State of Kansas was divided into three regions which can be described as Western, Central, and Eastern Kansas. The map below outlines the boundaries that were used.

REGION 1

REGION 2

REGION 3



The information presented in this publication is a result of sample surveys conducted during the 1995 crop year. Chemical use data were collected for wheat in May, June, and July. A total of 450 sample fields were selected for the 1995 wheat survey with 382 useable reports. No data are published in this report unless at least 10 reports were received for that particular fertilizer or pesticide application.

HIGHLIGHTS

In 1995, nitrogen fertilizer was applied to **90** percent of the wheat acres in Kansas, with an average of **1.55** applications per field. This compares to 1991 when **89** percent of the wheat acres received nitrogen with an average of **1.5** applications. **Seventy** percent of the wheat acres received nitrogen in the fall before seeding, **24** percent at seeding, and **37** percent after seeding. The most common methods of application were injecting into the soil or broadcasting. On the acres fertilized with nitrogen, the average amount applied per acre for the season was **56** pounds, a decline of **2** pounds/acre from 1991.

Phosphate and potash were applied to **61** and **7** percent of the wheat acres, respectively, in 1995. Comparatively, in 1991, phosphate was applied to **58** percent of the acres and **10** percent of the acres were treated with potash. Applications were generally before or at seeding by either broadcasting or by banding into the furrow. On the acres fertilized with phosphate and potash in 1995, the average amounts applied per acre for the season were **32** pounds for phosphate and **34** pounds for potash. During 1991, the average amounts applied were **33** and **34** pounds per acre, respectively.

In 1995, producers soil-tested **27** percent of the State's wheat acres before applying nitrogen. This compares to **18** percent of the acres soil tested in 1991. **Fifteen** percent of the acres were treated with nitrogen after a soil test that included testing the nitrogen content. Phosphate was applied to **11** percent of the 1995 wheat acres after having a soil test that included a nitrogen test. This is unchanged from 1991. Too few producers reported having a soil test done before applying potash to publish the data.

Twenty-two percent of the wheat producers in Kansas in 1995 reported using some kind of seed treatment, compared to **31** percent in 1991. The most common seed treatment used was Vitavax 200.

The extremely wet spring of 1995 caused many wheat producers to have problems controlling weeds in their fields. **Sixty-one** percent of the State's wheat acres received at least one treatment of a herbicide. The most common method of application was broadcasting with ground equipment after seeding and by custom applicators. The most commonly used herbicide was Chlorsulfuron, which was applied to **32** percent of the acres. The average application rate used for Chlorsulfuron was **.010** pound per acre. 2,4-D and Metsulfuron were both applied to **22** percent of the wheat acres. Most of the acres that were sprayed with a herbicide were sprayed to control tansy mustard. In 1991, only **20** percent of the wheat acres were treated with a herbicide. Chlorsulfuron again was the herbicide of choice to control weeds. The average application rate is unchanged, at **.010** pounds/acre.

The wet weather that made the weeds such a problem in wheat helped the producer control insect pests in 1995. Insecticide use during 1995 was not reported enough to publish any data. In 1991, **9** percent of the wheat acres received insecticide treatments, primarily in response to an army cutworm outbreak.

FERTILIZER USAGE BY TYPE OF FERTILIZER

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
TYPE OF FERTILIZER	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
NITROGEN		76	1.23	42	52	165,298
PHOSPHATE		40	1.00	24	24	40,558
POTASH		<u>3/</u>				
REGION 2	5,555.0					
NITROGEN		99	1.68	34	58	319,150
PHOSPHATE		71	1.01	31	31	120,925
POTASH		<u>3/</u>				
REGION 3	1,215.0					
NITROGEN		100	1.79	35	62	76,203
PHOSPHATE		94	1.00	48	48	54,282
POTASH		34	1.00	41	41	16,949
STATE	11,000.0					
NITROGEN		90	1.55	36	56	560,650
PHOSPHATE		61	1.00	32	32	215,765
POTASH		7	1.00	34	34	25,027

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
APPLICATION METHOD	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATE D <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
BROADCAST GROUND		32	1.13	36	40	54,884
INJECTED/KNIFED		41	1.00	49	49	84,873
IN FURROW		14	1.06	36	39	22,217
BROADCAST AIR		<u>3/</u>				
REGION 2	5,555.0					
BROADCAST GROUND		69	1.24	29	36	139,689
INJECTED/KNIFED		52	1.04	54	56	160,643
IN FURROW		26	1.04	12	13	18,820
BROADCAST AIR		<u>3/</u>				
REGION 3	1,215.0					
BROADCAST GROUND		90	1.50	35	52	57,105
INJECTED/KNIFED		23	1.00	58	58	16,304
IN FURROW		26	1.00	14	14	4,307
STATE	11,000.0					
BROADCAST GROUND		57	1.26	32	40	251,678
INJECTED/KNIFED		44	1.02	53	54	261,820
IN FURROW		21	1.04	19	19	45,344
BROADCAST AIR		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
TIMING OF APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
BEFORE SEEDING, FALL		68	1.06	47	50	142,066
AT SEEDING		<u>3/</u>				
AFTER SEEDING		15	1.00	32	32	19,690
REGION 2	5,555.0					
BEFORE SEEDING, FALL		71	1.20	43	52	205,470
AT SEEDING		35	1.03	13	13	25,467
AFTER SEEDING		46	1.01	34	35	88,446
REGION 3	1,215.0					
BEFORE SEEDING, FALL		71	1.11	35	38	32,846
AT SEEDING		34	1.00	17	17	7,032
AFTER SEEDING		72	1.00	44	44	38,377
STATE	11,000.0					
BEFORE SEEDING, FALL		70	1.14	44	50	380,383
AT SEEDING		24	1.02	13	13	34,006
AFTER SEEDING		37	1.01	36	36	146,514

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
SOIL TEST	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
NO SOIL TEST		60	1.18	41	49	123,144
SOIL TEST						
WITH NITROGEN TEST		15	1.43	45	65	26,644
REGION 2	5,555.0					
NO SOIL TEST		78	1.68	34	58	252,126
SOIL TEST						
WITH NITROGEN TEST		17	1.69	34	58	70,166
WITHOUT NITROGEN TEST		<u>3/</u>				
REGION 3	1,215.0					
NO SOIL TEST		95	1.78	35	63	72,709
SOIL TEST						
WITH NITROGEN TEST		<u>3/</u>				
STATE	11,000.0					
NO SOIL TEST		73	1.54	36	56	447,978
SOIL TEST						
WITH NITROGEN TEST		15	1.61	38	60	99,886
WITHOUT NITROGEN TEST		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
MANURE APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		75	1.23	42	52	163,329
REGION 2	5,555.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		98	1.68	34	58	314,799
REGION 3	1,215.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		96	1.81	35	63	73,036
STATE	11,000.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		89	1.55	36	56	551,164

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

NITROGEN USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
IRRIGATED		11	1.32	65	85	40,077
NON-IRRIGATED		63	1.21	37	45	119,932
REGION 2	5,555.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		98	1.68	34	58	315,456
REGION 3	1,215.0					
NON-IRRIGATED		100	1.79	35	64	77,309
STATE	11,000.0					
IRRIGATED		5	1.35	62	83	46,669
NON-IRRIGATED		85	1.56	35	55	512,698

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY APPLICATION METHOD

**WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES,
BY REGION AND STATE, 1995**

APPLICATION METHOD	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
BROADCAST GROUND		21	1.00	28	28	25,461
BROADCAST AIR		<u>3/</u>				
INJECTED/KNIFED		4	1.00	16	16	2,728
IN FURROW		<u>3/</u>				
REGION 2	5,555.0					
BROADCAST GROUND		35	1.01	32	32	63,803
BROADCAST AIR		<u>3/</u>				
INJECTED/KNIFED		5	1.00	26	26	7,268
IN FURROW		30	1.00	30	30	49,737
REGION 3	1,215.0					
BROADCAST GROUND		70	1.00	50	50	42,833
IN FURROW		24	1.00	40	40	11,402
STATE	11,000.0					
BROADCAST GROUND		34	1.01	35	35	132,097
BROADCAST AIR		<u>3/</u>				
INJECTED/KNIFED		4	1.00	22	22	9,995
IN FURROW		23	1.00	29	29	72,715

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
TIMING OF APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
BEFORE SEEDING		25	1.00	26	26	27,507
AT SEEDING		14	1.00	19	19	11,157
AFTER SEEDING		<u>3/</u>				
REGION 2	5,555.0					
BEFORE SEEDING		30	1.02	32	33	54,309
AT SEEDING		37	1.00	30	30	61,820
AFTER SEEDING		<u>3/</u>				
REGION 3	1,215.0					
BEFORE SEEDING		55	1.00	55	55	36,941
AT SEEDING		29	1.00	40	40	14,010
AFTER SEEDING		<u>3/</u>				
STATE	11,000.0					
BEFORE SEEDING		31	1.01	35	35	118,757
AT SEEDING		27	1.00	29	29	86,987
AFTER SEEDING		3	1.00	28	28	10,020

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
SOIL TEST	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
NO SOIL TEST		28	1.00	20	20	24,299
SOIL TEST						
WITH NITROGEN TEST		12	1.00	32	33	15,978
REGION 2	5,555.0					
NO SOIL TEST		57	1.00	30	30	94,856
SOIL TEST						
WITH NITROGEN TEST		11	1.04	35	36	22,739
WITHOUT NITROGEN TEST		<u>3/</u>				
REGION 3	1,215.0					
NO SOIL TEST		89	1.00	48	48	52,394
SOIL TEST						
WITH NITROGEN TEST		<u>3/</u>				
STATE	11,000.0					
NO SOIL TEST		50	1.00	31	31	171,548
SOIL TEST						
WITH NITROGEN TEST		11	1.02	34	35	40,992
WITHOUT NITROGEN TEST		<u>3/</u>				

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
MANURE APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRES			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
WITHOUT MANURE		40	1.00	24	24	40,617
REGION 2	5,555.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		70	1.01	31	31	119,132
REGION 3	1,215.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		91	1.00	48	48	53,026
STATE	11,000.0					
WITH MANURE		<u>3/</u>				
WITHOUT MANURE		61	1.00	32	32	212,775

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

PHOSPHATE USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	HARV ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		34	1.00	21	21	29,529
REGION 2	5,555.0					
IRRIGATED		<u>3/</u>				
NON-IRRIGATED		70	1.01	31	31	118,380
REGION 3	1,215.0					
NON-IRRIGATED		92	1.00	48	48	53,457
STATE	11,000.0					
IRRIGATED		3	1.00	45	46	12,679
NON-IRRIGATED		58	1.00	31	31	201,367

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ May not add due to rounding.

3/ Insufficient data to publish.

POTASH USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995 <u>1/</u>						
APPLICATION METHOD	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>3/</u>
	HARV ACRES (000)	PCT TREATED <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATIO N	RATE PER CROP YEAR	
REGION 3	1,215.0					
BROADCAST GROUND		32	1.00	43	43	16,650
IN FURROW		<u>4/</u>				
STATE	11,000.0					
BROADCAST		6	1.00	34	34	22,896
IN FURROW		<u>4/</u>				

1/ Regions not listed had too few reports to publish. Data included in State total.

2/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

3/ May not add due to rounding.

4/ Insufficient data to publish.

POTASH USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995 <u>1/</u>						
TIMING OF APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>3/</u>
	HARV ACRES (000)	PCT TREATED <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 3	1,215.0					
BEFORE SEEDING		23	1.00	55	55	15,060
AT SEEDING		<u>4/</u>				
AFTER SEEDING		<u>4/</u>				
STATE	11,000.0					
BEFORE SEEDING		4	1.00	41	41	19,607
AT SEEDING		<u>4/</u>				
AFTER SEEDING		<u>4/</u>				

1/ Regions not listed had too few reports to publish. Data included in State total.

2/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

3/ May not add due to rounding.

4/ Insufficient data to publish.

POTASH USAGE BY SOIL TEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995 <u>1/</u>						
SOIL TEST	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>3/</u>
	HARV ACRES (000)	PCT TREATED <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 3	1,215.0					
NO SOIL TEST		34	1.00	41	41	16,930
STATE	11,000.0					
NO SOIL TEST		5	1.00	34	34	19,066
SOIL TEST						
WITH NITROGEN TEST		<u>4/</u>				
WITHOUT NITROGEN TEST		<u>4/</u>				

1/ Regions not listed had too few reports to publish. Data included in State total.

2/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

3/ May not add due to rounding.

4/ Insufficient data to publish.

POTASH USAGE BY MANURE APPLICATION

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995 <u>1/</u>						
MANURE APPLICATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>3/</u>
	HARV ACRES (000)	PCT TREATED <u>2/</u>	MEAN NUMBER APPLI-CATIONS	RATE PER APPLI-CATION	RATE PER CROP YEAR	
REGION 3	1,215.0					
WITHOUT MANURE		34	1.00	41	41	16,949
STATE	11,000.0					
WITHOUT MANURE		7	1.00	34	34	25,027

1/ Regions not listed had too few reports to publish. Data included in State total.

2/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

3/ May not add due to rounding.

POTASH USAGE BY IRRIGATION METHOD

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995 <u>1/</u>						
METHOD OF IRRIGATION	ACRES		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>3/</u>
	HARV ACRES (000)	PCT TREATED <u>2/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 3	1,215.0					
NON-IRRIGATED		35	1.00	41	41	17,384
STATE	11,000.0					
IRRIGATED		<u>4/</u>				
NON-IRRIGATED		6	1.00	36	36	21,949

1/ Regions not listed had too few reports to publish. Data included in State total.

2/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

3/ May not add due to rounding.

4/ Insufficient data to publish.

PESTICIDE USAGE BY TYPE OF PESTICIDE

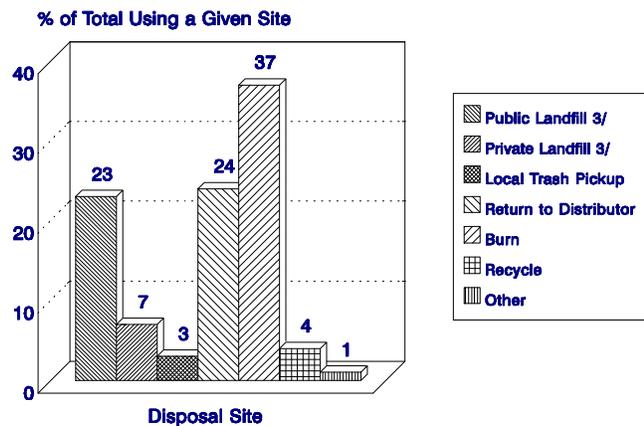
WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED, BY REGION AND STATE, 1995		
TYPE OF PESTICIDE	ACRES	
	HARV ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1	4,230.0	
HERBICIDES		48
INSECTICIDES		<u>2/</u>
REGION 2	5,555.0	
HERBICIDES		74
FUNGICIDE		<u>2/</u>
REGION 3	1,215.0	
HERBICIDES		47
STATE	11,000.0	
HERBICIDES		61
INSECTICIDES		<u>2/</u>
FUNGICIDE		<u>2/</u>

1/ Refers to acres receiving one or more applications of a specific pesticide.

2/ Insufficient data to publish.

3/ Direct deliver to landfill.

Disposal of Empty Pesticide Containers



PESTICIDE USAGE BY ACTIVE INGREDIENT

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995						
ACTIVE INGREDIENT	HARV		APPLICATION RATES LBS ACTIVE INGREDIENT/ACRE			TOTAL APPLIED CROP YEAR (000 LBS) <u>2/</u>
	ASB ACRES (000)	PCT TREATED <u>1/</u>	MEAN NUMBER APPLI- CATIONS	RATE PER APPLI- CATION	RATE PER CROP YEAR	
REGION 1	4,230.0					
2,4-D		33	1.04	.33	.34	467
Dicamba		11	1.07	.11	.12	53
Metsulfuron-Methyl		18	1.00	.003	.003	3
Triasulfuron		12	1.00	.010	.01	7
Chlorsulfuron		<u>3/</u>				
MCPA		<u>3/</u>				
REGION 2	5,555.0					
2,4-D		17	1.00	.32	.32	289
Chlorsulfuron		53	1.00	.010	.010	35
Dicamba		9	1.00	.10	.10	48
Metsulfuron-Methyl		32	1.00	.003	.003	5
Triasulfuron		9	1.10	.010	.011	7
MCPA		<u>3/</u>				
REGION 3	1,215.0					
Chlorsulfuron		27	1.00	.010	.010	4
2,4-D		<u>3/</u>				
Dicamba		<u>3/</u>				
MCPA		<u>3/</u>				
Metsulfuron-Methyl		<u>3/</u>				
Triasulfuron		<u>3/</u>				
STATE	11,000.0					
2,4-D		22	1.02	.32	.33	786
Chlorsulfuron		32	1.00	.010	.010	41
Dicamba		9	1.03	.10	.11	104
MCPA		3	1.00	.34	.34	96
Metsulfuron-Methyl		22	1.00	.003	.003	7
Triasulfuron		10	1.05	.011	.013	16

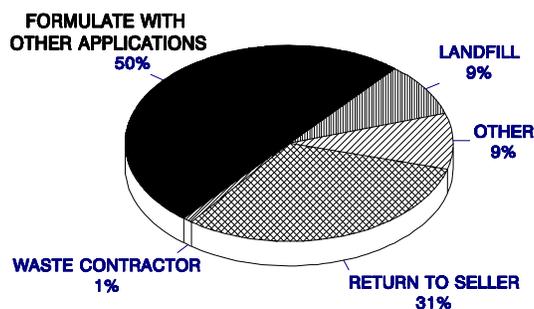
1/ Refers to acres receiving one or more applications of a specific pesticide. 2/ May not add due to rounding. 3/ Active Ingredients reported but in amounts insufficient to publish were: Carbofuran; Chlorpyrifos; Difenzoquat; Disulfoton; Ethyl Parathion; Glyphosate; Metribuzin; Picloram; Propiconazole; Thifensulfuron-Methyl; Tribenuron-Methyl.

HERBICIDE USAGE BY APPLICATION METHOD

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED, BY REGION AND STATE, 1995		
APPLICATION METHOD	ACRES	
	HARV ACRES (000)	PCT ACRES TREATED <u>1/</u>
REGION 1	4,230.0	
BROADCAST GROUND		34
BROADCAST AIR		12
REGION 2	5,555.0	
BROADCAST GROUND		67
BROADCAST AIR		4
REGION 3	1,215.0	
BROADCAST GROUND		47
STATE	11,000.0	
BROADCAST GROUND		52
BROADCAST AIR		7

1/ Refers to acres receiving one or more applications of a specific herbicide.

DISPOSAL OF UNUSED SPRAY MIX



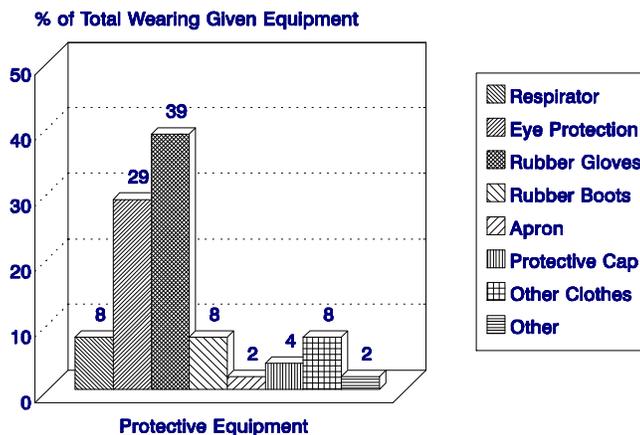
HERBICIDE USAGE BY TIMING OF APPLICATION

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED, BY REGION AND STATE, 1995		
TIMING OF APPLICATION	ACRES	
	HARV ACRES (000)	PCT ACRES TREATED 1/
REGION 1	4,230.0	
BEFORE PLANTING		2/
AT PLANTING		2/
AFTER PLANTING		41
REGION 2	5,555.0	
BEFORE PLANTING		5
AT PLANTING		2/
AFTER PLANTING		69
REGION 3	1,215.0	
AFTER PLANTING		47
STATE	11,000.0	
BEFORE PLANTING		4
AT PLANTING		2/
AFTER PLANTING		56

1/ Refers to acres receiving one or more applications of a specific herbicide.

2/ Insufficient data to publish.

Protective Equipment Worn By Chemical Applicators



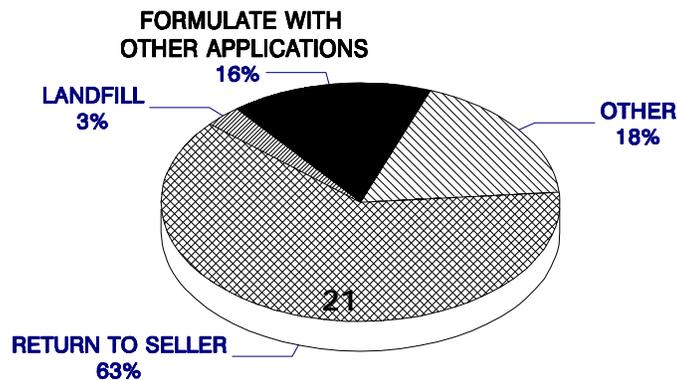
HERBICIDE USAGE BY APPLICATOR

WHEAT: TOTAL ACREAGE AND PERCENT OF ACRES TREATED, BY REGION AND STATE, 1995		
METHOD OF APPLICATION	ACRES	
	HARV ACRES (000)	PCT ACRES TREATED 1/
REGION 1	4,230.0	
FARMER, CERTIFIED		15
FARMER, NON-CERTIFIED		<u>2/</u>
CUSTOM APPLICATION		32
REGION 2	5,555.0	
FARMER, CERTIFIED		15
FARMER, NON-CERTIFIED		<u>2/</u>
CUSTOM APPLICATION		56
REGION 3	1,215.0	
FARMER, CERTIFIED		<u>2/</u>
CUSTOM APPLICATION		36
STATE	11,000.0	
FARMER, CERTIFIED		15
FARMER, NON-CERTIFIED		<u>2/</u>
CUSTOM APPLICATION		44

1/ Refers to acres receiving one or more applications of a specific herbicide.

2/ Insufficient data to publish.

DISPOSAL OF FULL OR PARTIALLY FULL CONTAINERS OF CONCENTRATED CHEMICALS



HERBICIDE USAGE BY TARGET PEST

WHEAT: TOTAL ACREAGE, PERCENT OF ACRES TREATED, AND APPLICATION RATES, BY REGION AND STATE, 1995		
HERBICIDE	ACRES	
	HARV ACRES (000)	PCT ACRES TREATED 1/
TANSY MUSTARD		
REGION 1	4,230.0	
2,4-D		27
Dicamba		10
Metsulfuron-Methyl		16
Triasulfuron		1
Chlorsulfuron		<u>2/</u>
REGION 2	5,555.0	
2,4-D		12
Chlorsulfuron		49
Dicamba		7
Metsulfuron-Methyl		24
Triasulfuron		8
REGION 3	1,215.0	
2,4-D		<u>2/</u>
Chlorsulfuron		<u>2/</u>
Dicamba		<u>2/</u>
Triasulfuron		<u>2/</u>
STATE	11,000.0	
2,4-D		17
Chlorsulfuron		27
Dicamba		7
Metsulfuron-Methyl		18
Triasulfuron		9

1/ Refers to acres receiving one or more applications of a specific herbicide. 2/ Active ingredients reported by in amounts insufficient to publish were: Difenzoquat, Glyphosate, MCPA, Thifensulfuron-Methyl, and Tribenuron-Methyl.

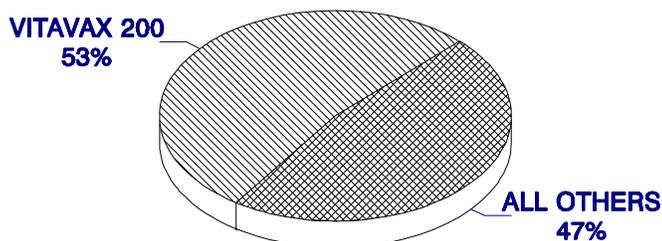
SEED TREATMENT BY IRRIGATION METHOD AND SEED SOURCE

WHEAT: PERCENT USING, BY REGION AND STATE, 1995 ^{1/}				
	REGION 1	REGION 2	REGION 3	STATE
WITH SEED TREATMENT	10	23	46	22
IRRIGATED	<u>2/</u>	--	--	<u>2/</u>
NON-IRRIGATED	8	23	46	21
HOMEGROWN	<u>2/</u>	18	27	15
PURCHASED	<u>2/</u>	5	<u>2/</u>	6
WITHOUT TREATMENT	90	77	54	79
IRRIGATED	15	<u>2/</u>	--	6
NON-IRRIGATED	76	75	54	73
HOMEGROWN	69	60	37	60
PURCHASED	19	16	<u>2/</u>	16
BOTH	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>

^{1/} May not add to 100 due to rounding.

^{2/} Insufficient data to report.

TYPES OF SEED TREATMENTS PRODUCT USED



DATA RELIABILITY

The probability nature of the survey allows expansion of data so that the estimates are statistically representative of chemical use on the targeted crops. However, a complete census may have yielded different results. The reliability of these survey results are affected by sampling variability and non-sampling errors.

The variability due to sampling was computed for all the chemical and acreage variables in the survey, and is expressed as a percentage. To interpret its meaning, imagine that the survey is repeated many times using the same sample size. For every two out of three times the survey is repeated, the results would not differ from those published here by more than the stated sampling variability.

Sampling variability of the estimates differed considerably by chemical. In general, the more often the chemical was applied, the smaller the sampling variability. The State level estimates were less variable than those for the three regions in Kansas. The following tables show the range of sampling variability for percent of acres treated and for application rate, at both the regional and State levels.

The variability ranges in the tables can be used to calculate approximate confidence bands for figures in the data tables of the report. For example, if an item in the report has 30 percent of acres treated and the average sampling variability is 15%, then the confidence band would be $30 - .15 \times 30$ to $30 + .15 \times 30$ or 25.5 to 34.5 percent.

PERCENT ACRES TREATED	SAMPLING VARIABILITY							
	% ACRES TREATED				APPLICATION RATE			
	REGION		STATE		REGION		STATE	
	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.	RANGE	AVG.
SAMPLING VARIABILITY FOR FERTILIZER USAGE								
LESS THAN 10 ..	23-30	27	17-31	24	11-18	15	8-31	19
10-25	12-28	19	9-15	11	6-34	13	4-11	7
25-50	8-22	14	5-9	7	4-30	10	3-7	5
50-75	4-14	8	3-5	4	3-15	7	3-6	4
75 OR MORE ...	1-6	3	2-3	2	3-12	6	2-3	3
SAMPLING VARIABILITY FOR PESTICIDE USAGE								
LESS THAN 10 ..			19-26	23			12-39	25
10-25			12-12	12			14-14	14
25-50	9-17	13	6-6	6	10-36	23	10-10	10
50-75	4-4	4	5-5	5	13-13	13	9-10	9
75 OR MORE ...								
SAMPLING VARIABILITY FOR PESTICIDE INGREDIENT								
LESS THAN 10 ..	21-21	21	21-21	21	7-8	8	7-8	8
10-25	15-26	22	15-26	22	4-14	8	4-14	8
25-50	11-12	11	11-12	11	4-8	6	4-8	6
50-75	7-7	7	7-7	7	3-3	3	3-3	3
75 OR MORE ...								

Non-sampling errors are errors that occur during a survey process, and unlike sampling variability, are difficult to measure. They may be caused by interviewers failing to follow instructions, poorly worded questions, non-response, problematic survey procedures, or data handling between the collection and publication. In these surveys, all survey procedures and analysis were carried out in a consistent and orderly manner to minimize the occurrence of these type of errors.

PESTICIDES: COMMON NAMES OF ACTIVE INGREDIENTS AND TRADE NAMES

The following is a list of common names of active ingredients with the associated trade names. The list is provided as an aid in reviewing pesticide data. Pre-mixes are not listed. The list is not complete and NASS does not mean to imply use of any specific trade name.

HERBICIDES:		INSECTICIDES	
<u>Common Name</u>	<u>Trade Name</u>	<u>Common Name</u>	<u>Trade Name</u>
2,4-D	several	acephate	Orthene
2,4-DB	Butoxone, Butyrac	aldicarb	Temik
acifluorfen	Blazer, Tackle	azinphos-methyl	Guthion
alachlor	Lasso	bifenthrin	Capture
ametryn	Evik	Bt(Bacillus thur)	Dipel, Trident, M-One
atrazine	AAtrex	carbaryl	Sevin, Savit
barban	Carbyne	carbofuran	Furadan
bensulfuron-methyl	Londax	chlorpyrifos	Lorsban
bentazon	Basagran	cryolite	Kryocide
bromoxynil	Brominal, Buctril	diazinon	several
butylate	Genate Plus, Sutan	dichloropropene	Telone
chloramben	Amiben	diflubenzuron	Dimilin
chlorimuron-ethyl	Classic	dimethoate	several
chlorpropham	Furloe	disulfoton	Di-Syston
chlorsulfuron	Glean	endosulfan	Thiodan
clomazone	Command	esfenvalerate	Pydrin, Asana
clopyralid	Curtail	ethoprop	Mocap
cyanazine	Bladex	ethyl parathion	Several
dalapon	Dalapon, Dowpon	fensulfothion	Dasanit
DCPA	Dacthal	flucythrinate	AAStar
diallate	Avadex	fonofos	Dyfonate
dicamba	Banvel	malathion	several
diclofop-methyl	Hoelon	metam-sodium	Vapam
difenzoquat	Avenge	methamidophos	Monitor
diuron	Direx, Karmex	methomyl	Lannate, Nudrin
DSMA	several	methoxychlor	several
EPTC	Eptam, Eradicane, Genep	methyl parathion	several
ethalfluralin	Sonalan	mevinphos	Phosdrin
fenoxaprop-ethyl	Option, Whip	oxamyl	Vydate
fluzifop-P-butyl	Fusilade	oxydemeton-methyl	Metasystox-R
fluometuron	Cotoran, Meturon	permethrin	Ambush, Pounce
fomesafen	Reflex	phorate	Thimet
glyphosate	Honcho, Ranger, Roundup	phosmet	Imidan
imazamethabenz	Assert	phosphamidon	Phosphamidon
imazaquin	Scepter, Tri-Scept	propargite	Omite, Comite
imazethapyr	Pursuit	rotenone	Rotenone
lactofen	Cobra	tefluthrin	Force
linuron	Linex, Lorox	terbufos	Counter
MCPA	several	thiodicarb	Larvin
methazole	Probe	tralomethrin	Scout
metolachlor	Dual	trimethacarb	Broot
metribuzin	Lexone, Sencor		
metsulfuron-methyl	Ally		
molinate	Ordran		
MSMA	several		
naptalam	Alanap		
norflurazon	Zorial		
oryzalin	Surflan		
oxyfluorfen	Goal		
paraquat	Gramoxone		
pendimethalin	Prowl		
picloram	Tordon		
primisulfuron	Beacon		
prometryn	Caparol, Cotton-Pro		
propachlor	Ramrod		
propanil	Prop-Job, Stam M		
propiconazole	several		
quizalofop-ethyl	Assure		
sethoxydim	Poast		
simazine	Princep		
terbutryn	Igran		
thifensulfuron-methyl	Harmony, Pinnacle		
thiobencarb	Bolero		
triallate	Far-Go		
triasulfuron	Amber		
tribenuron-methyl	Express		
triclopyr	Rely		
tridiphane	Tandem		
trifluralin	Treflan, Trilin, TRI-4		
vernolate	Reward, Surpass, Vernam		

DESICANTS & GROWTH		REGULATORS	
<u>Common Name</u>		<u>Trade Name</u>	
ametryn		Evik	
diquat		Diquat	
endothall		Des-i-cate	
maleic hydrazide		Royal MH-30, Super	
		Sprout Stop	
paraquat		Gramoxone	
sodium chlorate		several	
sulfuric acid		several	

