KANSAS

WINTER ANNUAL GRASS WEEDS IN WINTER WHEAT

March 1995

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

OVERVIEW

This publication is the result of cooperation between Kansas Agricultural Statistics, Kansas State University Agricultural Research Station at Hays, and the Kansas State University Agronomy Department.

This initiative is designed to assess the winter annual grass weed problems (specifically cheatgrass, jointed goatgrass, and volunteer rye) in Kansas wheat. This publication will provide both farmers and researchers with the information necessary to plan more effective means of controlling winter annual grass weeds in wheat.

The information contained in this publication is the result of a sample survey conducted during the fall of 1994. A random sample of 3,900 farm operators who had reported having wheat acreage were selected from a list of known farm operators. The list was stratified by wheat acreage and region of the State to ensure adequate sample distribution geographically and by size of operation. A total of 3,074 usable reports were received.

HIGHLIGHTS

The cheatgrasses or winter annual bromes (cheat, Japanese brome, and downy brome) were more abundant and widespread in Kansas wheat fields than jointed goatgrass or volunteer rye. Cheatgrass was reported present on 13.2% of the Kansas wheat acreage, with the greatest concentration being in south central Kansas where 23.5% of the wheat acreage was infested. Over half of the respondents in north central, central, and south central Kansas reported having cheatgrass on some of their acreage. Jointed goatgrass was reported present on 2.3% and volunteer rye on 5.3% of the wheat acreage in the state. Jointed goatgrass was more common in western and central Kansas than in eastern Kansas, but infested acreage did not exceed 3.5% for any of the reporting districts. Volunteer rye was most common in north central, central, and south central Kansas, with more than 20% of respondents reporting some volunteer rye. Volunteer rye was reported present by 44% of respondents from south central Kansas, with 13.7% of wheat acreage being infested.

More respondents with cheatgrass felt the problem had increased rather than decreased over the past 5 years, except in northwest and west central Kansas. Cheatgrass populations probably have increased over the past couple of decades with the shift to less tillage and shorter wheats. Cheatgrass also fluctuates with environmental conditions, which seemed to favor cheatgrass in many areas of the state in 1993 and 1994. No trends were apparent regarding the change in jointed goatgrass problems in the past 5 years. Over 42% of respondents reporting the presence of jointed goatgrass indicated there was no change in the past 5 years. Nearly half of all respondents with volunteer rye felt it had increased in the past 5 years, particularly in the north central, central, south central, and southeast districts of the state.

The results of the herbicide usage portion of the survey may have been confounded by different interpretations of the survey questions by the respondents. The survey requested information on herbicide usage and effectiveness on fields infested with winter annual grasses, but did not specify for control of winter annual grasses. For example, 2,4-D was reported used on a small percentage of cheatgrass infested fields and rated excellent for weed control. 2,4-D is not labelled for control, nor is it effective for cheatgrass control, but generally does provide good control of many broadleaf weeds. Consequently, the results of the herbicide usage section are difficult to interpret.

Crop rotation was the most common and effective method of nonchemical control of winter annual grasses. Nearly three out of four respondents with winter annual grasses reported using crop rotation to manage winter annual grass weeds, with most of those reporting excellent to moderate effectiveness. Burning was reported by 32%, and plowing by 36% of respondents for winter annual grass control. Over half of the respondents who used burning or plowing indicated these practices were moderately effective for winter annual grass control. These practices generally provide fairly good control of winter annual grasses, but never are completely effective. Plowing and burning, sometimes in combination, have been used in the past for weed control, but are less common now because of soil erosion potential and incompatibility with conservation compliance provisions. Delayed seeding was used by about one fourth of the respondents for winter annual grass weed control with a majority reporting moderate effectiveness. Delayed seeding can greatly reduce winter annual grass populations, but generally is not effective and varies with precipitation patterns.

Some respondents reported diverting wheat acreage infested with winter annual grass weeds to hay or uses other than grain as a way to manage infested fields. Diversion of infested acreage to other uses was most common with volunteer rye, followed by cheatgrass and jointed goatgrass.

About one fourth of the respondents with cheatgrass or volunteer rye infestations reported dockage due to seed contamination. Only 12% of those with jointed goatgrass infestations reported dockage due to contamination of harvested grain.

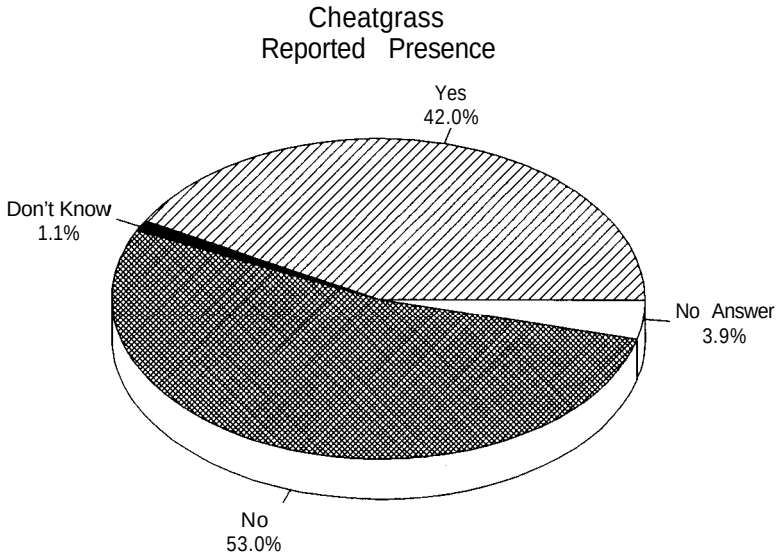
Only 21% of the seed planted to produce the 1994 wheat crop was purchased from a commercial seed dealer. The remainder of seed was either saved back from the previous crop or acquired from neighboring farmers. Uncertified or uncleaned seed could be a major source of winter annual grass weed infestations. However, it was inconclusive from the survey whether seed source could be correlated to the occurrence of winter annual grass weed infestation.

Presence of Winter Annual Grass Weeds

Cheatgrass

Statewide, 42.0 percent of the respondents reported cheatgrass present on their operation. Over half reported that they don't have cheatgrass. For those that have cheatgrass, 24.4 percent of their wheat acres are infested and 13.3 percent of their cropland is infested. Overall, 13.2 percent of the wheat acres harvested in Kansas in 1994 were infested with cheatgrass.

District	% of Total Reports				% of Acres Infested on Operations Reporting Presence		% of Acres Infested in the State	
	Yes	No	Don't Know	No Answer	Wheat	Cropland	Wheat	Cropland
Northwest	29.8	66.5	0.3	3.4	25.4	12.0	7.7	3.6
West Central	34.1	61.9	1.8	2.2	14.6	8.5	5.5	3.1
Southwest	39.1	54.0	2.0	4.9	21.2	9.3	8.3	3.8
North Central	53.2	44.0	-	2.8	19.5	10.0	12.6	6.3
Central	53.4	44.0	0.5	2.1	21.3	13.7	12.0	7.6
South Central	67.4	27.7	-	4.9	30.5	19.8	23.5	15.0
Northeast	21.5	72.1	3.6	2.8	15.3	7.3	4.2	1.7
East Central	18.8	69.7	2.6	8.9	25.3	7.3	6.6	1.2
Southeast	35.2	62.0	0.2	2.6	30.5	16.1	18.8	7.7
STATE	42.0	53.0	1.1	3.9	24.4	13.3	13.2	6.4



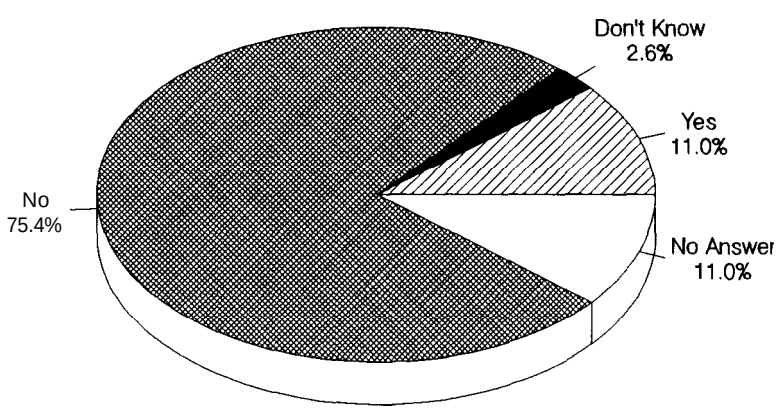
Presence of Winter Annual Grass Weeds

Jointed Goatgrass

Statewide, 11.0 percent of the respondents reported jointed goatgrass present on their operation. About 75 percent reported that they don't have jointed goatgrass. For those that have jointed goatgrass, 12.4 percent of their wheat acres are infested and 7.4 percent of their cropland is infested. Overall, 2.3 percent of the wheat acres harvested in Kansas in 1994 were infested with jointed goatgrass.

	% of Total Reports				% of Acres Infested on Operations Reporting Presence		% of Acres Infested in the State	
District	Yes	No	Don't Know	No Answer	Wheat	Cropland	Wheat	Cropland
Northwest	14.7	79.6	0.7	5.0	13.7	8.2	3.4	1.9
West Central	16.1	77.1	1.3	5.5	9.8	4.9	1.8	0.9
Southwest	21.9	70.1	2.2	5.8	13.4	8.8	3.1	1.9
North Central	9.7	79.6	0.6	10.1	10.0	5.2	1.3	0.6
Central	16.3	69.3	2.5	11.9	14.0	6.7	2.6	1.4
South Central	14.5	64.8	2.3	18.4	11.1	8.1	2.5	1.6
Northeast	5.1	86.0	2.8	6.1	10.0	3.1	0.5	0.2
East Central	0.7	80.4	6.5	12.4	13.5	4.1	0.6	0.1
Southeast	3.1	79.4	3.3	14.2	31.8	16.3	1.7	0.6
STATE	11.0	75.4	2.6	11.0	12.4	7.4	2.3	1.2

Jointed Goatgrass
Reported Presence

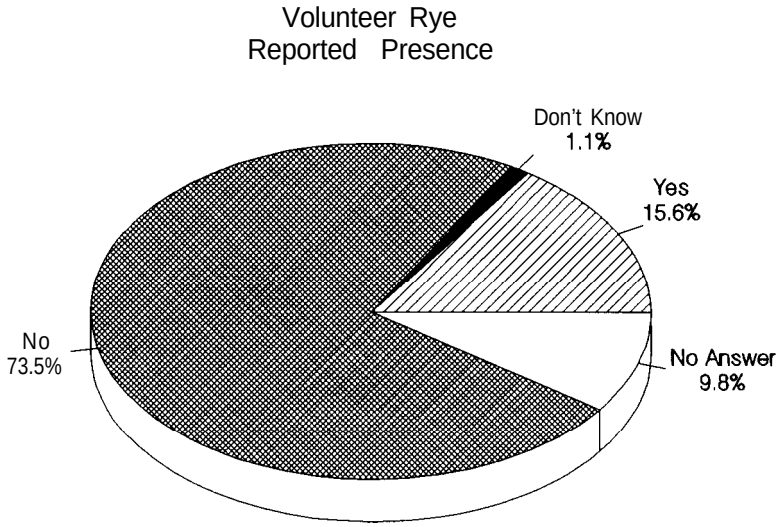


Presence of Winter Annual Grass Weeds

Volunteer Rye

Statewide, 15.6 percent of the respondents reported volunteer rye present on their operation. Nearly 74 percent reported that they don't have volunteer rye. For those that have volunteer rye, 20.2 percent of their wheat acres are infested and 11.9 percent of their cropland is infested. Overall, 5.3 percent of the wheat acres harvested in Kansas in 1994 were infested with volunteer rye.

District	% of Total Reports				% of Acres Infested on Operations Reporting Presence		% of Acres Infested in the State	
	Yes	No	Don't Know	No Answer	Wheat	Cropland	Wheat	Cropland
Northwest	4.4	87.3	0.3	8.0	5.5	2.0	0.7	0.2
West Central	3.4	86.9	1.3	8.4	7.2	3.6	0.1	0.1
Southwest	5.7	83.1	1.8	9.4	17.4	6.3	0.9	0.4
North Central	20.7	69.7	0.4	9.2	19.1	9.1	6.2	2.8
Central	26.7	63.5	1.4	8.4	16.2	11.0	5.9	3.7
South Central	44.0	45.1	-	10.9	23.2	15.3	13.7	8.6
Northeast	2.7	88.9	1.9	6.5	4.7	1.0	0.1	1/
East Central	0.3	84.4	2.9	12.4	17.2	4.8	0.1	1/
Southeast	3.3	82.7	0.6	13.4	19.8	10.4	1.6	0.5
STATE	15.6	73.5	1.1	9.8	20.2	11.9	5.3	2.4



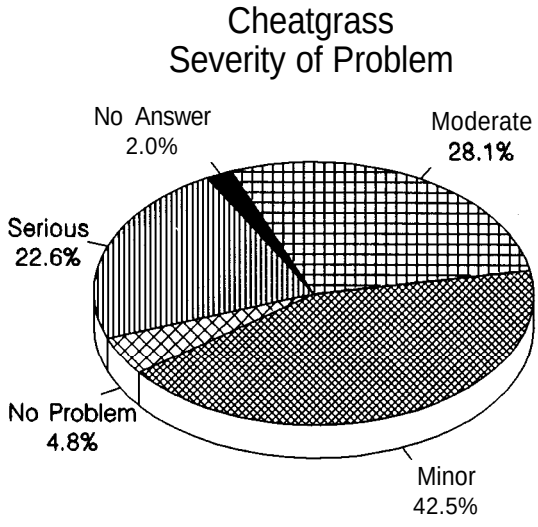
Significance of Winter Annual Grass Weed Problems

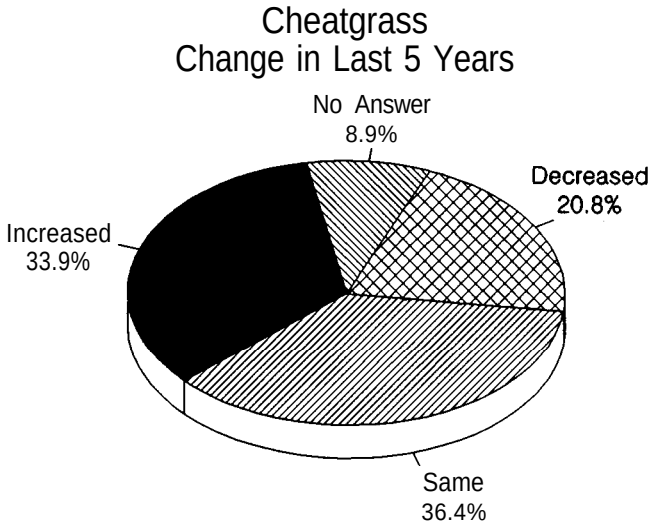
Cheatgrass

Statewide, 4.8 percent of the respondents that reported having cheatgrass present considered it to be no problem. Forty-two and a half percent said it is a minor problem, 28.1 percent claim it is a moderate problem, and 22.6 percent report that it is a serious problem.

PERCENT OF TOTAL REPORTING PRESENCE

	Severity of Problem					Change in Last 5 Years			
District	No Problem	Minor	Moderate	Serious	No Answer	Increased	Same	Decreased	No Answer
Northwest	10.1	61.8	18.1	7.6	2.4	14.1	35.7	38.2	12.0
West Central	9.0	58.4	22.9	9.7	-	16.2	40.3	34.2	9.3
Southwest	4.5	47.7	28.8	16.5	2.5	30.8	40.8	20.9	7.5
North Central	6.0	38.3	24.8	29.3	1.6	37.2	33.1	20.8	8.9
Central	3.6	44.7	30.4	19.7	1.6	31.7	38.6	22.6	7.1
South Central	3.7	31.6	35.2	27.4	2.1	40.6	35.0	16.4	8.0
Northeast	1.5	60.1	13.1	25.3	-	28.8	41.4	23.1	6.7
East Central	12.0	62.6	18.2	7.2	-	35.4	34.3	22.0	8.3
Southeast	2.4	31.8	30.1	30.6	5.1	38.8	33.5	11.9	15.8
STATE	4.8	42.5	28.1	22.6	2.0	33.9	36.4	20.8	8.9





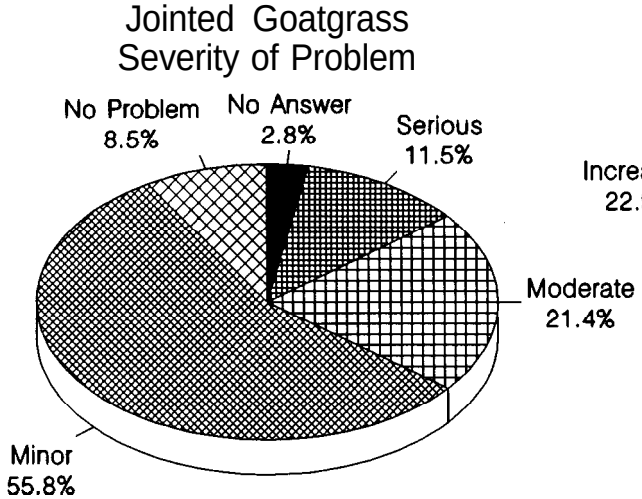
Significance of Winter Annual Grass Weed Problems

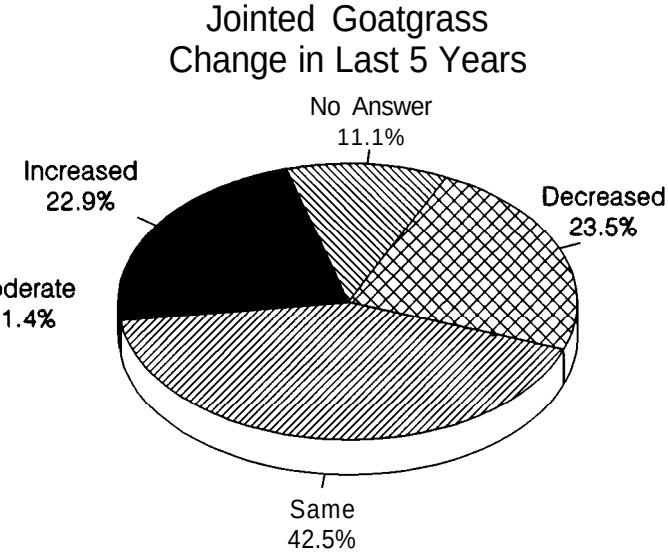
Jointed Goatgrass

Statewide, 8.5 percent of the respondents that reported having jointed goatgrass present considered it to be no problem. Nearly 56 percent said it is a minor problem, 21.4 percent claim it is a moderate problem, and 11.5 percent report that it is a serious problem.

PERCENT OF TOTAL REPORTING PRESENCE

	Severity of Problem					Change in Last 5 Years			
District	No Problem	Minor	Moderate	Serious	No Answer	increased	Same	Decreased	No Answer
Northwest	8.9	52.6	21.4	12.1	5.0	25.4	31.6	37.5	5.5
West Central	10.3	53.7	14.7	18.3	3.0	20.6	25.8	40.3	13.3
Southwest	7.0	51.1	29.8	12.1	-	30.9	39.4	25.2	4.5
North Central	10.6	54.6	19.4	15.4	-	24.0	53.9	13.2	8.9
Central	9.0	57.9	18.4	8.0	6.7	17.7	43.1	24.7	14.5
South Central	7.2	51.4	25.3	13.7	2.4	26.2	47.5	14.4	11.9
Northeast	5.0	83.8	11.2	-	-	10.6	33.4	30.5	25.5
East Central	5.7	44.3	50.0	-	-	5.7	88.6	-	5.7
Southeast	14.8	70.4	7.4	7.4	-	14.8	65.8	7.4	12.0
STATE	8.5	55.8	21.4	11.5	2.8	22.9	42.5	23.5	11.1





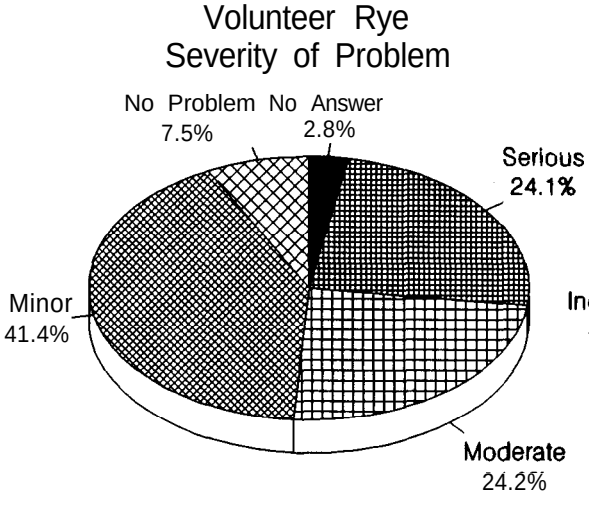
Significance of Winter Annual Grass Weed Problems

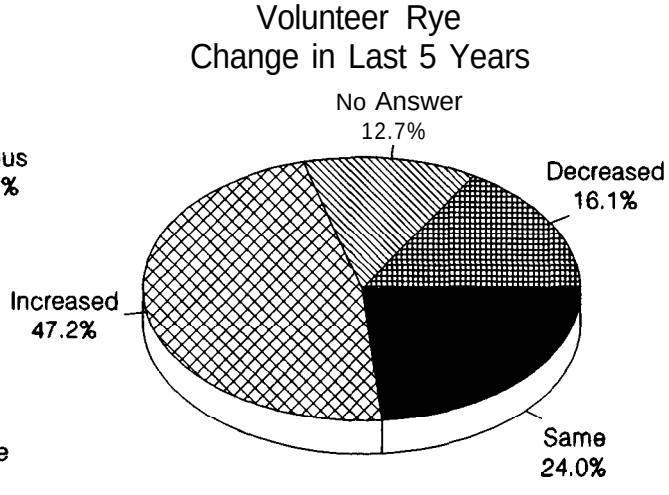
Volunteer Rye

Statewide, 7.5 percent of the respondents that reported having volunteer rye present considered it to be no problem. About 42 percent said it is a minor problem, 24.2 percent claim it is a moderate problem, and 24.1 percent report that it is a serious problem.

PERCENT OF TOTAL REPORTING PRESENCE

	Severity of Problem					Change in Last 5 Years			
District	No Problem	Minor	Moderate	Serious	No Answer	Increased	Same	Decreased	No Answer
Northwest	30.9	54.5	7.3	7.3	-	7.3	67.1	7.3	18.3
West Central	13.8	72.4	13.8	-	-	-	37.9	48.3	13.8
Southwest	11.6	32.7	26.9	28.8	-	32.7	30.8	21.1	15.4
North Central	7.4	49.9	16.3	25.3	1.1	55.9	20.1	13.7	10.3
Central	9.3	40.7	25.3	21.5	3.2	49.4	19.7	17.2	13.7
South Central	4.1	36.3	29.0	26.7	3.9	48.3	24.8	15.8	11.1
Northeast	24.0	76.0	-	-	-	9.4	33.3	9.4	47.9
East Central	85.2	14.8	-	-	-	14.8	-	-	85.2
Southeast	7.0	43.4	13.0	36.6	-	52.2	25.2	15.6	7.0
STATE	7.5	41.4	24.2	24.1	2.8	47.2	24.0	16.1	12.7





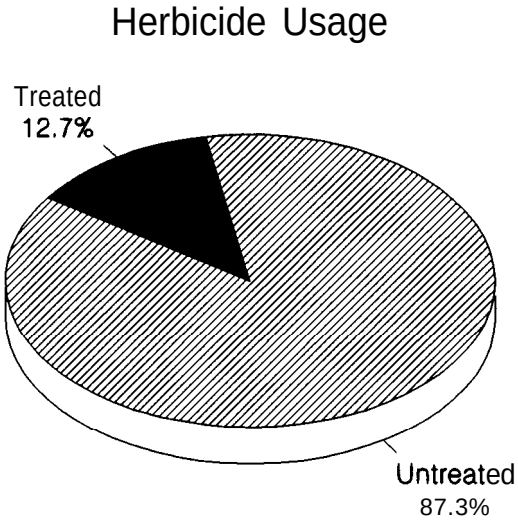
Herbicide Usage on Cheatgrass Infested Acreage

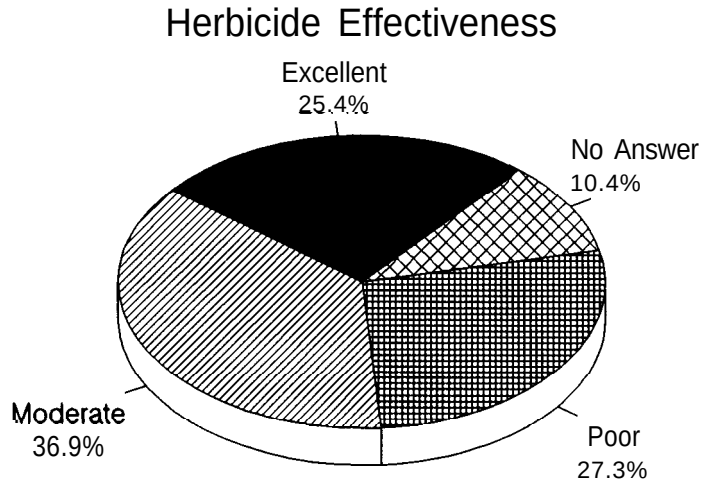
Statewide, 12.7 percent of the wheat acreage infested with cheatgrass was treated with herbicide. Over 25 percent of the respondents who used herbicides reported that they did an excellent job, 36.9 percent moderate, 27.3 percent poor, and 10.4 percent didn't state how effective the herbicide was.

STATE

Herbicide	% of Infested Acres Treated	Effectiveness (Percent of Total)			
		Excellent	Moderate	Poor	No Answer
2,4-D 2/	0.31	30.6	18.1	32.9	18.4
Ally 2/	1/	1/	1/	1/	1/
Amber	1.05	10.2	32.5	48.6	8.7
Atrazine	1/	1/	1/	1/	1/
Banvel 2/	1/	1/	1/	1/	1/
Cyclone	1/	1/	1/	1/	1/
Far-Go	1/	1/	1/	1/	1/
Finesse	2.73	14.0	46.4	34.4	5.2
Glean 2/	4.35	18.8	42.1	27.6	11.5
Hoelon	1/	1/	1/	1/	1/
Landmaster	0.53	34.0	54.7	11.3	-
Roundup	1/	1/	1/	1/	1/
Sencor	1/	1/	1/	1/	1/
Treflan	1/	1/	1/	1/	1/
Unknown	1.77	29.6	28.1	25.6	16.7
All Herbicides	12.70	25.4	36.9	27.3	10.4

1/ Not Enough Reports. 2/ Product is not labeled for cheatgrass and is not considered to be an effective control. Product may have been used to control other weeds which were also present.





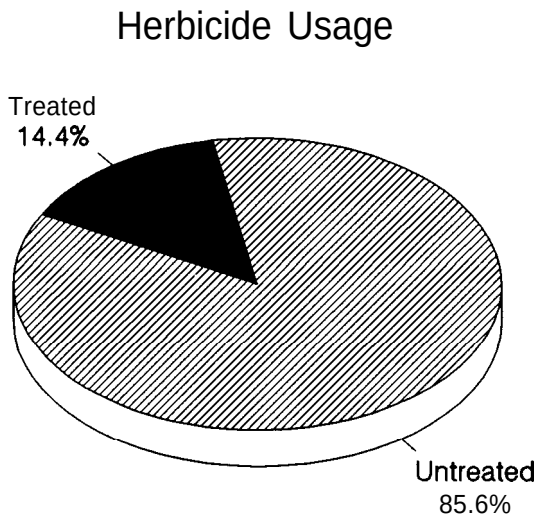
Herbicide Usage on Jointed Goatgrass Infested Acreage

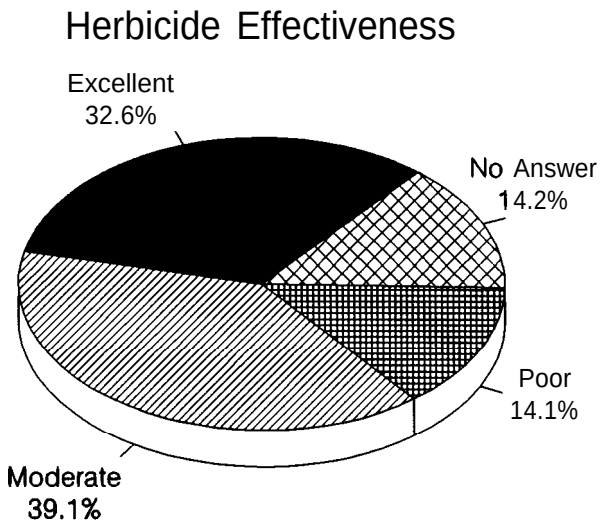
Statewide, 14.4 percent of the wheat acreage infested with jointed goatgrass was treated with herbicide. Over 32 percent of the respondents who used herbicides reported that they did an excellent job, 39.1 percent moderate, 14.1 percent poor, and 14.2 percent didn't state how effective the herbicide was.

STATE

Herbicide	% of Infested Acres Treated	Effectiveness (Percent of Total)			
		Excellent	Moderate	Poor	No Answer
2,4-D 2/	1/	1/	1/	1/	1/
Ally 2/	1/	1/	1/	1/	1/
Amber 2/	1/	1/	1/	1/	1/
Atrazine	1/	1/	1/	1/	1/
Banvel 2/	1/	1/	1/	1/	1/
Finesse 2/	1/	1/	1/	1/	1/
Glean 2/	3.03	24.0	9.3	40.8	25.9
Landmaster	1/	1/	1/	1/	1/
Roundup	1.27	55.2	29.9	-	14.9
Treflan	1/	1/	1/	1/	1/
Unknown	1/	1/	1/	1/	1/
All Herbicides	14.43	32.6	39.1	14.1	14.2

1/ Not Enough Reports. 2/ Product is not labeled for jointed goatgrass and is not considered to be an effective control. Product may have been used to control other weeds which were also present.





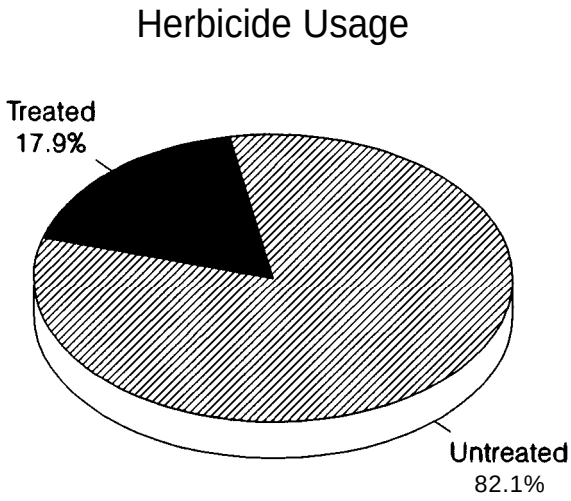
Herbicide Usage on Volunteer Rye Infested Acreage

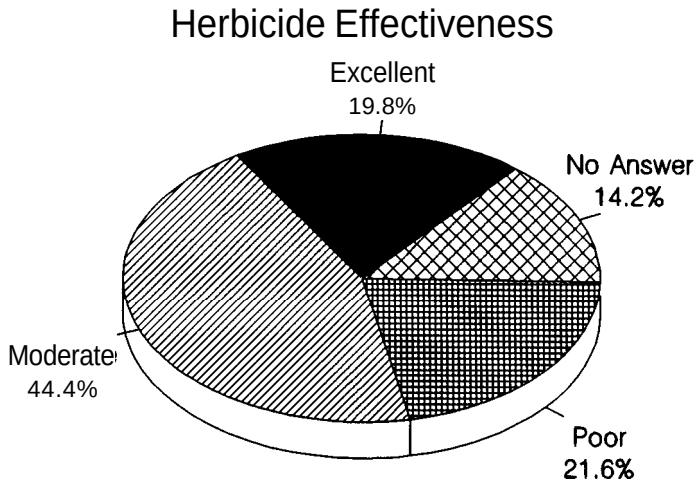
Statewide, 17.9 percent of the wheat acreage infested with volunteer rye was treated with herbicide. Nearly 20 percent of the respondents who used herbicides reported that they did an excellent job, 44.4 percent moderate, 21.6 percent poor, and 14.2 percent didn't state how effective the herbicide was.

STATE

Herbicide	% of Infested Acres Treated	Effectiveness (Percent of Total)			
		Excellent	Moderate	Poor	No Answer
Ally 2/	1/	1/	1/	1/	1/
Amber 2/	1/	1/	1/	1/	1/
Atrazine 2/	1/	1/	1/	1/	1/
Banvel 2/	1/	1/	1/	1/	1/
Finesse 2/	1/	1/	1/	1/	1/
Glean 2/	5.81	8.2	28.2	41.8	21.8
Landmaster	1/	1/	1/	1/	1/
MCPA 2/	1/	1/	1/	1/	1/
Roundup	8.63	40.1	42.5	3.9	13.4
Treflan 2/	1/	1/	1/	1/	1/
Unknown	1/	1/	1/	1/	1/
All Herbicides	17.92	19.8	44.4	21.6	14.2

1/ Not Enough Reports. 2/ Product is not labeled for volunteer rye and is not considered to be an effective control. Product may have been used to control other weeds which were also present.



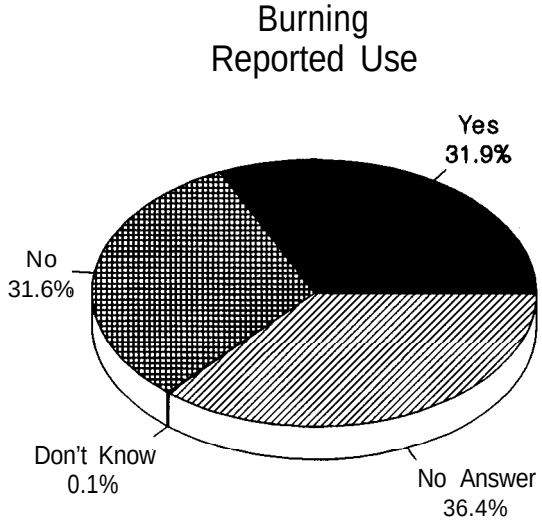


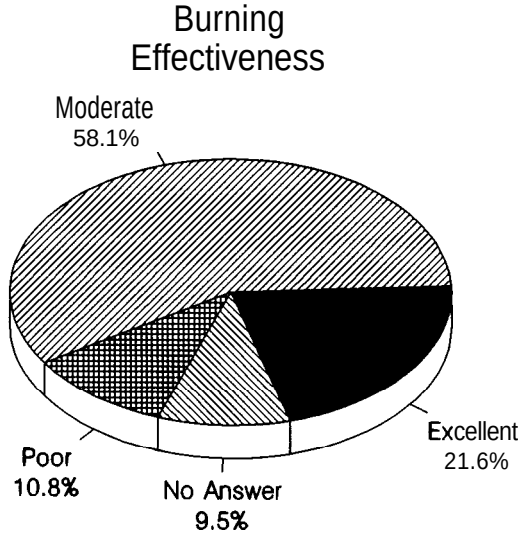
Non-Chemical Control of Winter Annual Grass Weeds

Burning

Statewide, 31.9 percent of the respondents reported using burning to control winter annual weeds. Of those that reported using burning, 21.6 percent considered it an excellent method, 58.1 percent reported moderate, 10.8 percent poor, and 9.5 percent didn't answer.

	Percent of Total				Effectiveness (Percent of Total)			
District	Yes	No	Don't Know	No Answer	Excellent	Moderate	Poor	No Answer
Northwest	3.7	51.8	-	44.5	50.0	50.0	-	-
West Central	6.0	40.2	-	53.8	14.3	67.1	-	18.6
Southwest	26.0	41.8	-	32.2	22.5	60.2	12.1	5.2
North Central	20.6	33.2	-	46.2	24.3	54.5	8.9	12.3
Central	32.9	29.2	-	37.9	21.1	60.4	11.1	7.4
South Central	48.4	22.4	-	29.2	20.9	59.6	7.7	11.8
Northeast	15.2	35.3	-	49.5	44.1	30.8	25.1	-
East Central	49.9	34.2	-	15.9	23.7	53.0	16.4	6.9
Southeast	41.9	29.1	0.6	28.4	15.2	59.0	16.5	9.3
STATE	31.9	31.6	0.1	36.4	21.6	58.1	10.8	9.5



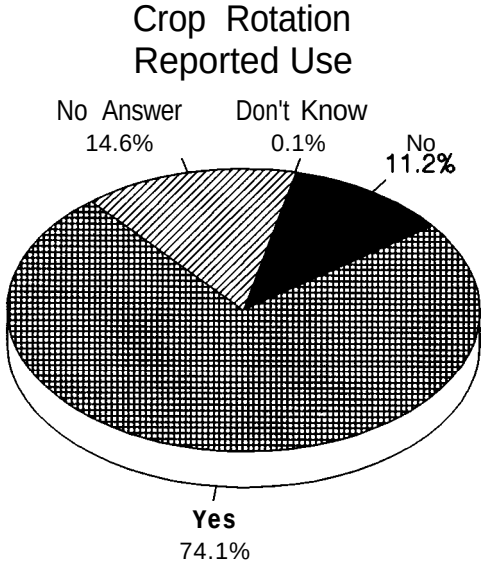


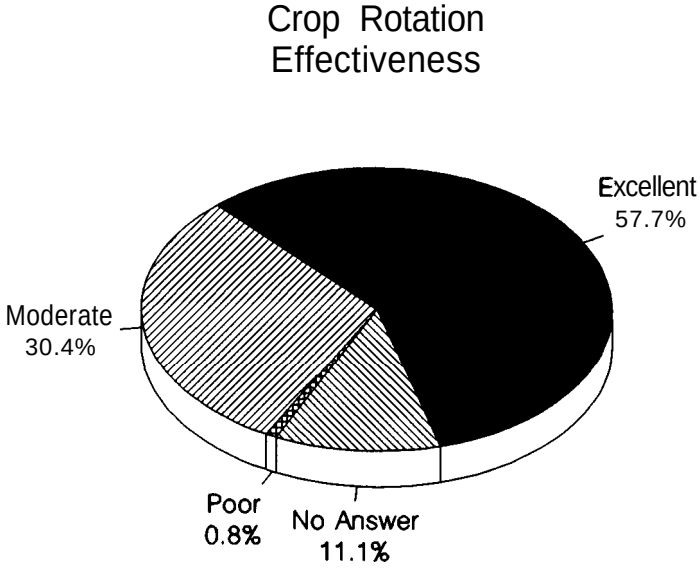
Non-Chemical Control of Winter Annual Grass Weeds

Crop Rotation

Statewide, 74.1 percent of the respondents reported using crop rotation to control winter annual weeds. Of those that reported using crop rotation, 57.7 percent considered it an excellent method, 30.4 percent reported moderate, 0.8 percent poor, and 11.1 percent didn't answer.

	Percent of Total				Effectiveness (Percent of Total)			
District	Yes	No	Don't Know	No Answer	Excellent	Moderate	Poor	No Answer
Northwest	66.4	18.9	-	14.7	48.0	39.6	2.8	9.6
West Central	74.9	10.7	-	14.4	49.0	34.6	-	16.4
Southwest	70.9	17.6	-	11.5	47.4	42.3	1.6	8.7
North Central	83.4	6.8	-	9.8	59.6	22.9	-	17.5
Central	78.7	7.1	-	14.2	61.1	27.2	-	11.7
South Central	65.3	14.2	-	20.5	64.7	25.3	0.3	9.7
Northeast	78.6	7.6	-	13.8	44.9	45.2	1.4	8.5
East Central	67.6	21.0	-	11.4	52.9	37.5	2.6	7.0
Southeast	81.3	6.4	0.6	11.7	59.4	32.7	2.8	5.1
STATE	74.1	11.2	0.1	14.6	57.7	30.4	0.8	11.1



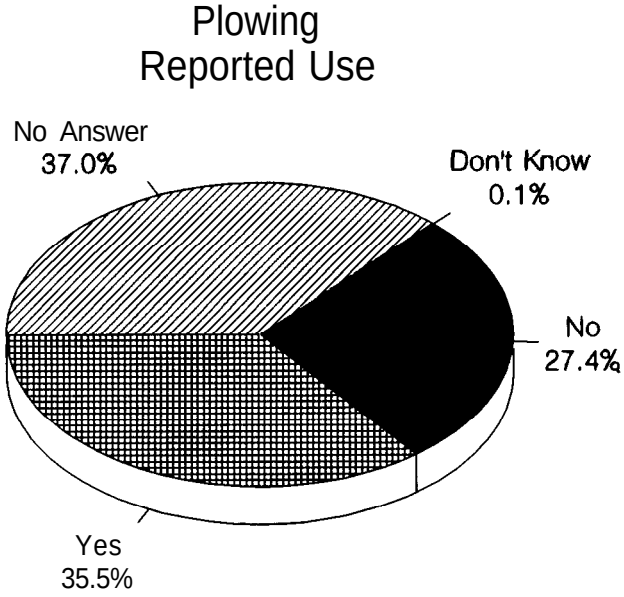


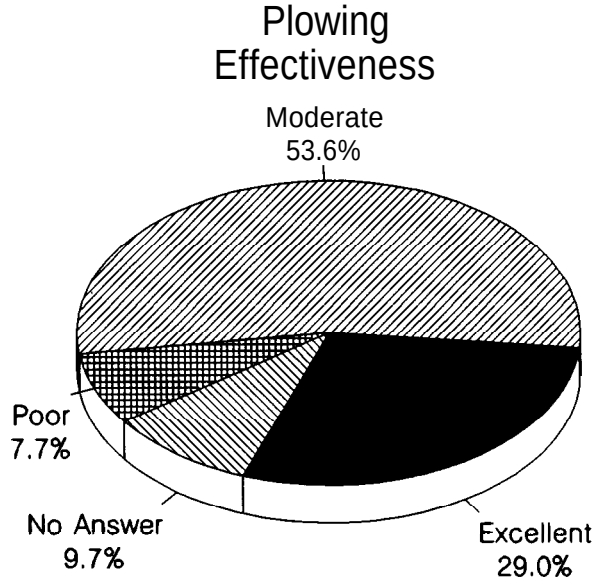
Non-Chemical Control of Winter Annual Grass Weeds

Plowing

Statewide, 35.5 percent of the respondents reported using plowing to control winter annual weeds. Of those that reported using plowing, 29.0 percent considered it an excellent method, 53.6 percent reported moderate, 7.7 percent poor, and 9.7 percent didn't answer.

	Percent of Total				Effectiveness (Percent of Total)			
District	Yes	No	Don't Know	No Answer	Excellent	Moderate	Poor	No Answer
Northwest	14.5	47.0	-	38.5	44.2	50.1	-	5.7
West Central	18.7	33.3	-	48.0	38.3	55.5	6.2	-
Southwest	19.5	46.1	-	34.4	35.8	38.1	15.1	11.0
North Central	31.2	24.5	-	44.3	30.0	43.7	3.6	22.7
Central	38.8	21.1	-	40.1	33.2	46.5	9.9	10.4
South Central	53.3	18.5	-	28.2	26.2	58.2	7.1	8.5
Northeast	26.5	24.9	-	48.6	23.0	72.5	4.0	0.5
East Central	25.6	46.9	-	27.5	15.2	57.1	14.3	13.4
Southeast	34.8	29.2	0.6	35.4	25.3	66.4	8.3	-
STATE	35.5	27.4	0.1	37.0	29.0	53.6	7.7	9.7



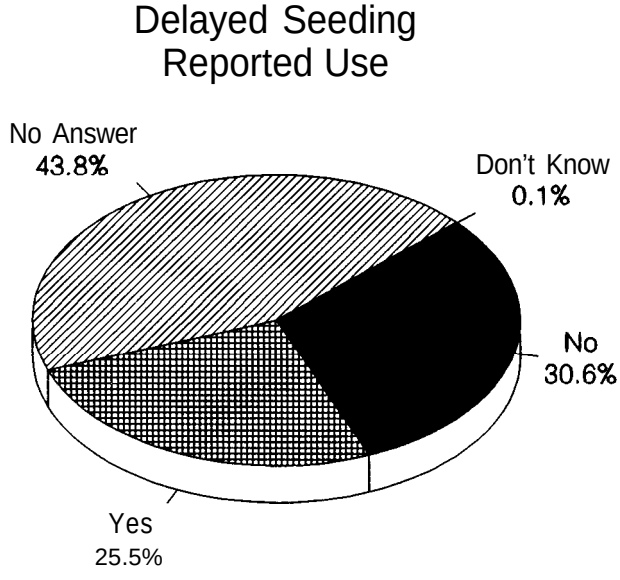


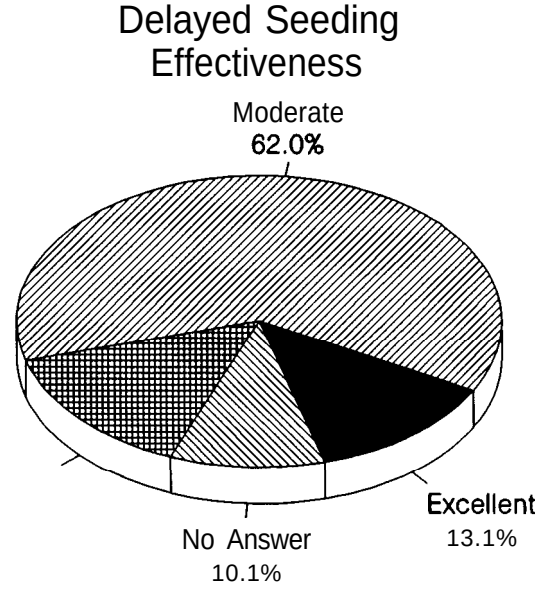
Non-Chemical Control of Winter Annual Grass Weeds

Delayed Seeding

Statewide, 25.5 percent of the respondents reported using delayed seeding to control winter annual weeds. Of those that reported using delayed seeding, 13.1 percent considered it an excellent method, 62.0 percent reported moderate, 14.8 percent poor, and 10.1 percent didn't answer.

	Percent of Total				Effectiveness (Percent of Total)			
District	Yes	No	Don't Know	No Answer	Excellent	Moderate	Poor	No Answer
Northwest	24.4	36.2	-	39.4	11.0	73.8	4.2	11.0
West Central	23.9	26.2	-	49.9	27.8	48.2	13.2	10.8
Southwest	26.8	39.5	-	33.7	7.6	65.1	15.1	12.2
North Central	20.4	28.7	-	50.9	13.5	61.3	12.7	12.5
Central	29.0	23.6	0.2	47.2	16.8	62.5	11.4	9.3
South Central	30.9	26.1	-	43.0	10.1	57.9	21.0	11.0
Northeast	11.0	35.3	-	53.7	19.5	80.5	-	-
East Central	20.7	56.3	-	23.0	17.7	58.4	7.3	16.6
Southeast	22.7	37.0	0.6	39.7	8.2	70.3	18.8	2.7
STATE	25.5	30.6	0.1	43.8	13.1	62.0	14.8	10.1





Statewide, 8.4 percent of the respondents reported using other methods to control winter annual weeds. Of those that reported using other methods, 46.2 percent considered it an excellent method, 38.0 percent reported moderate, 6.5 percent poor, and 9.3 percent didn't answer. The most common other methods used were summer fallow, conservation tillage, and chiseling.

Wheat Acreage Diverted To Hay Or Other Use

Statewide, 10.7 percent of the respondents who had cheatgrass present on their total acres reported that they diverted wheat acreage to other uses because of the cheatgrass. For those with jointed goatgrass, 6.7 percent diverted wheat acreage, while 17.0 percent of those reporting that volunteer rye was present diverted wheat to uses other than grain.

WHEAT ACREAGE DIVERTED TO HAY OR OTHER USES

(Percent of Total Reporting Presence)

	Cheatgrass				Jointed Goatgrass			
District	Yes	No	Don't Know	No Answer	Yes	No	Don't Know	No Answer
Northwest	-	92.1	-	7.9	-	93.8	-	6.2
West Central	-	97.2	-	2.8	5.2	85.3	-	9.5
Southwest	11.6	85.9	-	2.5	11.6	79.3	-	9.1
North Central	8.7	88.9	-	2.4	12.8	78.3	-	8.9
Central	8.5	87.2	-	4.3	3.5	83.4	-	13.1
South Central	20.4	76.2	-	3.4	8.1	82.7	-	9.2
Northeast	-	89.7	-	10.3	-	95.0	-	5.0
East Central	3.9	79.1	-	17.0	-	100.0	-	-
Southeast	11.7	74.0	1.7	12.6	7.4	92.6	-	-
STATE	10.7	83.6	0.2	5.5	6.7	84.1	-	9.2

WHEAT ACREAGE DIVERTED TO HAY OR OTHER USES

(Percent of Total Reporting Presence)

	Volunteer Rye			
District	Yes	No	Don't Know	No Answer
Northwest	-	100.0	-	-
West Central	10.3	65.6	-	24.1
Southwest	-	84.6	-	15.4
North Central	9.2	83.4	-	7.4
Central	15.8	79.0	-	5.2
South Central	22.9	71.5	-	5.4
Northeast	-	90.6	-	9.4
East Central	-	100.0	-	-
Southeast	25.3	67.7	-	7.0
STATE	17.0	76.7	-	6.3

Dockage Received Due To Weed Contamination

Statewide, 25.6 percent of the respondents who had cheatgrass present on their total acres reported that they received dockage due to cheatgrass seed contamination. For those with jointed goatgrass, 11.6 percent were docked for seed contamination, while 25.2 percent of the respondents with volunteer rye received dockage.

DOCKAGE RECEIVED DUE TO WEED CONTAMINATION

(Percent of Total Reporting Presence)

	Cheatgrass				Jointed Goatgrass			
District	Yes	No	Don't Know	No Answer	Yes	No	Don't Know	No Answer
Northwest	8.4	82.6	-	9.0	19.3	71.8	-	8.9
West Central	2.4	95.2	-	2.4	2.2	86.8	3.0	8.0
Southwest	7.5	89.7	-	2.8	6.6	87.3	-	6.1
North Central	25.2	70.8	1.6	2.4	9.2	81.9	-	8.9
Central	24.6	71.2	0.3	3.9	13.4	75.4	-	11.2
South Central	33.0	63.1	1.1	2.8	14.9	75.0	1.2	8.9
Northeast	16.7	70.0	3.0	10.3	12.8	82.2	-	5.0
East Central	17.7	69.9	3.7	8.7	11.4	88.6	-	-
Southeast	52.2	39.0	1.3	7.5	14.8	85.2	-	-
STATE	25.6	68.9	1.1	4.4	11.6	79.6	0.5	8.3

DOCKAGE RECEIVED DUE TO WEED CONTAMINATION

(Percent of Total Reporting Presence)

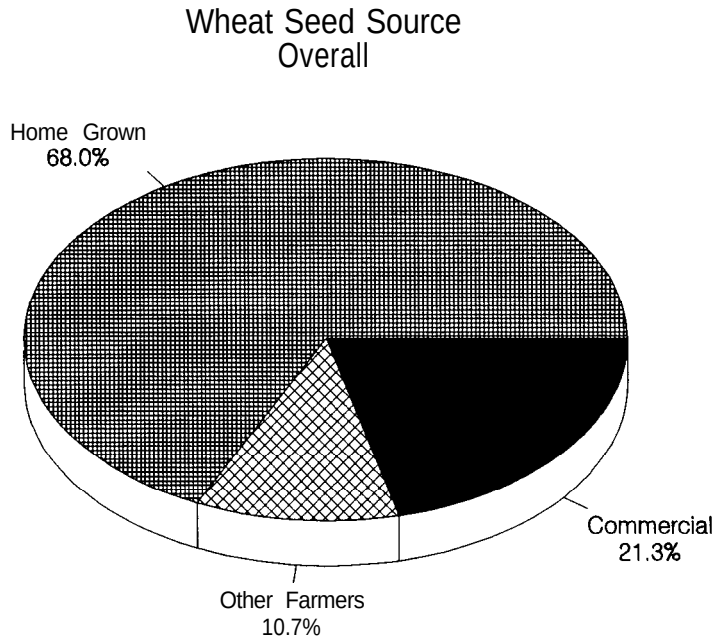
	Volunteer Rye			
District	Yes	No	Don't Know	No Answer
Northwest	-	100.0	-	-
West Central	-	75.9	-	24.1
Southwest	5.8	88.4	-	5.8
North Central	17.4	70.1	3.0	9.5
Central	22.9	70.6	1.2	5.3
South Central	32.7	62.3	0.4	4.6
Northeast	33.3	57.3	-	9.4
East Central	-	100.0	-	-
Southeast	18.3	81.7	-	-
STATE	25.2	68.0	1.0	5.8

Winter Wheat Seed Source

For the wheat crop harvested in 1994, 68.0 percent of the seed used was home grown. Over 21 percent of the seed used was purchased from commercial seed dealers, while the remaining 10.7 percent was purchased from other farmers.

Seed Source - Overall Acres

District	Percent of Acres Seeded		
	Home Grown	Other Farmers	Commercial
Northwest	68.0	11.2	20.8
West Central	74.7	13.1	12.2
Southwest	71.5	9.0	19.5
North Central	65.5	10.2	24.3
Central	67.9	10.4	21.7
South Central	71.4	11.9	16.7
Northeast	46.2	7.0	46.8
East Central	38.5	6.1	55.4
Southeast	58.4	9.3	32.3
STATE	68.0	10.7	21.3



WINTER WHEAT
ANNUAL GRASSES AND WEEDS SURVEY
AUGUST 1994

KANSAS STATE
BOARD OF AGRICULTURE
DIVISION OF STATISTICS

KANSAS AGRICULTURAL STATISTICS
632 SW VAN BUREN, RM. 200
P.O. BOX 3534
TOPEKA, KANSAS 66601-3534
I-800-258-4564

Dear Reporter:

Kansas Agricultural Statistics is cooperating with Kansas State University Agricultural Research Station at Hays and the Kansas State University Agronomy Department to assess the winter annual weed problems in wheat. The results of this survey will help Kansas State University plan research and programs to address winter annual weed problems in wheat.

Sincerely,

T.J. Byram
State Statistician

Please verify name and address for this operation. Make corrections (including correct operation name) on label and continue.

SECTION 1 - ACRES

1. Do you (the name on the label) operate a farm or ranch in Kansas?

   Yes [ ] Continue No [ ] Go to SECTION 4

2. How many acres of cropland are on your operation? . . . . . 100 Acres

3. How many acres of winter wheat were harvested on your operation in 1994? . . . . 102 Acres

SECTION 2 - WINTER ANNUAL WEEDS

1. Were any of the following annual grasses or weeds present on your winter wheat acres or total cropland in 1994?

	Please Check One			If Yes, Please indicate Acres Infested	
				Acres Infested	
	Yes	No	Don't Know	Wheat	Total Cropland
a. Cheatgrass (Cheat, Japanese or Downy Brome) . . .	200	201	202	203 Acres	204 Acres
b. Jointed Goatgrass (Joint Grass)	205	206	207	208 Acres	209 Acres
c. Volunteer Rye	210	211	212	213 Acres	214 Acres

If "Yes" checked in 1 a, b, or c, continue; otherwise, go to question 7.

2. How serious of a problem do you consider each of the grasses or weeds to be on the total acres you operate? Please check appropriate responses for each grass or weed. Also indicate how the problem has changed in the last 5 years.

	No Problem	Minor	Moderate	Serious	Change in Last Five Years		
					Increased	Same	Decreased
a. Cheatgrass	215	216	217	218	219	220	221
b. Jointed Goatgrass	222	223	224	225	226	227	228
c. Volunteer Rye . .	229	230	231	232	233	234	235

3. For the acres of wheat reported as infested in question 1 above, how many acres were treated with herbicides and how effective was the treatment?

	Acres Treated	Herbicide Used	Effectiveness			Office Use
			Excellent	Moderate	Poor	
a. Cheatgrass	236 Acres		237	238	239	600
b. Jointed Goatgrass	240 Acres		241	242	243	601
c. Volunteer Rye . .	244 Acres		245	246	247	602

Please continue on next page

SECTION 2 - WINTER ANNUAL WEEDS - Continued

4. What other methods of control of these grasses or weeds have you used and how effective were the treatments? (Please check ALL that apply)

	Used			Effectiveness of Method		
	Yes	No	Don't Know	Excellent	Moderate	Poor
a. Burning	248	249	250	251	252	253
b. Crop Rotation	254	255	256	257	258	259
c. Plowing	260	261	262	263	264	265
d. Delayed Seeding	266	267	268	269	270	271
e. Other_____	272	273	274	275	276	277

5. Was any wheat acreage diverted to hay or other use because of:

	Yes	No	Don't Know
a. Cheatgrass	278	279	280
b. Jointed Goatgrass	281	282	283
c. Volunteer Rye	284	285	286

6. Did you receive any dockage because of weed contamination from:

	Yes	NO	Don't Know
a. Cheatgrass	287	288	289
b. Jointed Goatgrass	290	291	292
c. Volunteer Rye	293	294	295

7. What were the seed sources by percent used for the wheat crop harvested in 1994? (Please report ALL that apply)

	Percent Used
a. Home Grown	296 %
b. Other Farmers	297 %
c. Commercial	298 %
	100%

SECTION 3 - OTHER INFORMATION

1. During the last 12 months, what was the largest number of the following livestock or poultry on hand at any one time on the total acres operated?

a. CATTLE and CALVES	300
(1) MILK COWS	301
b. HOGS	302
c. SHEEP and LAMBS	303
d. LAYERS 20 weeks old and older	304
e. HORSES	305
2. During the past 12 months, what was the largest number of HIRED AGRICULTURAL WORKERS, including paid family members, on any one day?	306
3. What is the TOTAL GRAIN STORAGE CAPACITY on the acres you operate?	307

GO TO SECTION 5

SECTION 4 - CHANGE IN OPERATOR

1. Has this operation been sold, rented out or turned over to someone else?
   Yes [ ] Continue ↓ No [ ] End survey. Please return in the enclosed envelope.

2. What is their name and address?

Operation Name_____

Name_____

Address_____

City_____ State_____ Zip_____

Phone ( )_____

SECTION 5 - CONCLUSION

1. Would you like to receive a copy of the results of this survey?
   Yes [ ] No [ ]

Office Use 099

This completes the survey. Thank you for your help.

Respondent's Name:_____ Date:_____

Telephone No: ( ) -_____

OFFICE USE

Respondent		Response Code		Enumerator
1 = Operator 2 = Spouse 3 = Other	101	2=Tel 3 = Int 7=TR 8=IR 9 = Inacc	910	098

Dallas E. Peterson
Extension Specialist, Weed Science
Kansas State University

Phillip W. Stahlman
Research Weed Scientist
Kansas State University Agricultural Research Center, Hays

Acknowledgments

Funding for this project was provided by the Kansas Wheat Commission, the National Jointed Goatgrass Initiative, the Kansas Agricultural Experiment Station, and the Kansas Cooperative Extension Service.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2085 March 1995