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Farm-Level Characteristics of Southern Nebraska Farms/Ranches with Annually-Planted Crops

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Abstract

The information presented in this report represents data collected from farming and ranching operations in the southern two tiers of counties in Nebraska. This study was based on a random sample of 151 southern Nebraska farms that have annually-planted crop acreage. Information was obtained for the 1997 crop year. This data set is referred to as the MSU/UNL survey data.

From the MSU/UNL survey data, the average size of the farming operations in the survey, in 1997, was 1,316 acres. Of these, 856 acres were planted to annual crops, and the remaining 460 acres included 61 acres in fallow, 29 acres in hay, 287 acres in range and pasture, 28 acres in CRP, and 55 acres in other uses. Operation size was largest in the west, due mostly to a large number of range and pasture land acres per operator. Average farm size decreased in the east as range and pasture land acres and acres fallowed per farm both decreased. Acreage planted to annual crops was similar from east to west.

Irrigated and dryland grain corn was the predominant crop grown in the survey area. Other major crops included soybeans, sorghum, and winter wheat. An estimated 44 percent of the respondents' cropland acreage was dedicated to corn production. Other annual crops included soybean (21 percent of cropland acreage), sorghum (10 percent of cropland acreage), winter wheat (12 percent of cropland acreage), and minor crops (4 percent of cropland acreage) with most of the remaining cropland in fallow. The distribution of these crops varied across the southern tier of Nebraska counties. Winter wheat was most common in the west and soybean was more prevalent in the east. About 65 percent of total cropland acreage reported was dryland while the remaining 35 percent was irrigated. Significantly more irrigation takes place in the central area.

Two-thirds of the operations surveyed reported some type of livestock enterprise. Cattle were the most common type of livestock reported, followed by hogs and sheep. Breeding cattle numbers were greater than feeder cattle numbers. Dairy cattle were rarely reported except in the eastern counties. Producers in the central and eastern counties also reported hog production, with feeder hogs greatly outnumbering breeding animals.

Comparisons of acres planted and crop yields from the MSU/UNL survey data to data collected by Nebraska Agricultural Statistics Service (NASS), for the same year, show little differences. Most estimates are within 2 percentage points of each other.

Farm-Level Characteristics of Southern Nebraska Farms/Ranches with Annually-Planted Crops

The purpose of this report is to summarize the data obtained from a survey of farm operations in Southern Nebraska (MSU/UNL survey data). This summary is meant to provide an overview of the farming operations, focusing on product mix, land use, and yields. Further analysis of the MSU/UNL survey data will be forthcoming in other publications.

Description of Survey Region

The Nebraska Crop Production Practices Survey for 1997 was conducted in the spring of 1998 in cooperation with the Nebraska Agricultural Statistics Service. The survey region consisted of the southern two tiers of counties in Nebraska along the Nebraska-Kansas border (Figure 1). The survey region was divided into three regions moving from west to east to account for varying levels of precipitation resulting in different crops, management practices, and yields. Producers in 26 counties were randomly sampled, with a total of 151 producers responding (Table 1). Survey results are presented by region. The results present a snapshot of agriculture in southern Nebraska in 1997 and comparisons between the three regions within the survey area.

Figure 1. Map of Survey Regions in Southern Nebraska

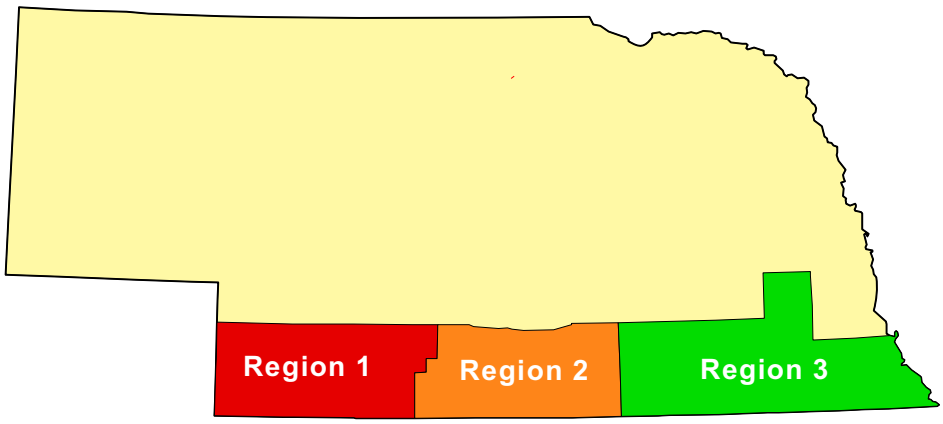

Table 1. Number of Respondents and Counties by Region

Region	Number of Respondents	Counties
1-Western	23	Chase, Dundy, Hayes, Hitchcock, Frontier, Red Willow
2-Central	33	Adams, Gosper, Harlan, Furnas, Franklin, Kearney, Phelps, Webster
3-Eastern	95	Clay, Fillmore, Gage, Jefferson, Johnson, Lancaster, Nemaha, Nuckolls, Pawnee, Richardson, Saline, Thayer

Land Use, Ownership, and Average Yields from MSU/UNL Survey Data

There are noticeable differences among the major land uses and total acres in the average farm operations across regions in southern Nebraska (Table 2). Average acres of annually planted cropland remain relatively constant. Summer fallow decreases from an average 275 acres per operation in the western region to 65 acres in the central region and to an average of only 7 acres of summer fallow per operation in the eastern region. Similarly, there is substantially more range and pasture land per farm in the western region than in the other two regions. Total average acres per farm (defined as the sum of all acres in all uses) are greatest in the western region and the smallest in the eastern region.

Table 2. Average Farm-Level Land Use by Region

	Region			
Major Land Use	**1 Western**	**2 Central**	**3 Eastern**	**All Regions**
	---------- acres ----------			
Planted to annual crops	887	829	859	856
Summer fallow	275	65	7	61
Hay	24	30	30	29
CRP	32	7	35	28
Range and pasture	815	294	157	287
Other uses*	35	59	68	55
Average acres per farm	2,068	1,284	1,156	1,316

*Other uses include building sites, wetlands, roads, green manure and idled non-CRP land.

The average, smallest, and largest number of acres per farm in planted to annual crops in each region are noted in Table 3. Nearly seventy percent of the farms surveyed in southern Nebraska also reported range and pasture in their operations. Among those farms reporting range and pasture, farmers in the western region reported an average 987 acres per farm (Table 4). The average number of acres in range and pasture decreases when moving east, as does the percentage of total farms with range and pasture land.

Table 3. Average, Maximum, and Minimum Acres Planted to Annual Crops per Farm*

Region	**Average**	**Maximum**	**Minimum**
1-Western (23)**	887	2,081	20
2-Central (33)**	829	1,800	36
3-Eastern (95)**	859	4,500	200

*Does not include summer fallow.

**Number in parentheses are the number of operators reporting annually planted cropland.

Table 4. Average, Maximum, and Minimum Acres of Range and Pasture Land for Farms Reporting Such Acreage

Region	Average	Maximum	Minimum	Percentage of Farms with Range and Pasture
1-Western (19)*	987	3,800	12	83%
2-Central (22)	441	2,150	12	67%
3-Eastern (63)	236	1,500	14	66%

*Number in parentheses are the number of operators reporting range and pasture land acreage.

Ownership of land in the operation is another statistic of interest in southern Nebraska (Table 5). The western region is the only survey region where farmers own most of the land in production. There, 55 percent of the land in production is owned by the operator with the remainder split between cash lease and crop share agreements, with cash lease being the most common of the two. In the central and eastern regions of southern Nebraska, operators own 41 percent and 38 percent, respectively, of the total land in their operation. The most common lease agreement type in the central and eastern regions are crop share agreements.

Table 5. Percentage of Land Owned or Leased by Region

Ownership or Lease of Production Acreage	Region		
	1 Western	2 Central	3 Eastern
	---------- percent ----------		
Owned	55	41	38
Crop share	17	34	41
Cash lease	28	23	21
Other (trades, etc.)	0	2	0
Total	100	100	100

The proportions (or percentages) of the total annually planted cropland in major crops and summer fallow are presented in Table 6. The proportion of a crop in each region is defined as acres of cropland planted to the subject crop, divided by total cropland acres reported in corn, soybeans, sorghum, winter wheat and fallow. Producers across southern Nebraska dedicated almost 70 percent of available acres to corn and soybeans. Corn was the most common crop, with 45 percent of all acres planted to irrigated and dryland corn. Both corn for grain and seed corn were included in the survey, but seed corn acreage was minimal (less than one percent of total cropland) and no seed corn production was reported on dryland. Soybean represented another 22 percent of dryland and irrigated cropland acres.

Corn is the crop occupying the most acres of annually planted cropland in each region of southern Nebraska. Winter wheat is a common crop in the western counties, following closely behind corn acreage. Going east across the State, the percentage of winter wheat acres decreases and the percentage of soybean acres increases.

Table 6. Acreage Planted to Major Annual Crops and Fallow

	Region			
Crop and Land Use	**1 Western**	**2 Central**	**3 Eastern**	**All Regions**
	---------- percent of total ----------			
Grain corn (dryland)	13.4	11.8	21.1	17.7
Grain corn (irrigated)	23.6	53.4	19.0	27.3
Seed corn (dryland)	0.0	0.0	0.0	0.0
Seed corn (irrigated)	0.0	0.0	1.2	0.7
Soybean (dryland)	0.0	1.3	26.0	15.8
Soybean (irrigated)	0.7	8.8	7.7	6.6
Sorghum (dryland)	5.2	4.2	15.2	11.0
Sorghum (irrigated)	0.0	0.4	0.4	0.3
Winter wheat (dryland)	31.0	12.6	8.5	13.6
Winter wheat (irrigated)	0.5	0.0	0.0	0.1
Summer fallow	25.6	7.5	0.9	6.9
Total	100.0	100.0	100.0	100.0

About 65 percent of total cropland acreage in fallow or planted to corn, soybean, sorghum, or winter wheat reported in southern Nebraska was in dryland production, while the remaining 35 percent was irrigated production (Table 7). If winter wheat and fallow are excluded, the percentage of irrigated acreage in the western region increases greatly (Table 8).

Table 7. Dryland vs. Irrigated Acreage: Corn, Sorghum, Soybean, and Winter Wheat*

	Region			
	1 Western	**2 Central**	**3 Eastern**	**All Regions**
	---------- percent of acres planted ----------			
Dryland acreage	75	37	72	65
Irrigated acreage	25	63	28	35

*Includes fallow with dryland acreage.

Table 8. Dryland vs. Irrigated Acreage: Corn, Sorghum, and Soybean*

	Region			
	1 Western	2 Central	3 Eastern	All Regions
	---------- percent of acres planted ----------			
Dryland acreage	44	22	69	56
Irrigated acreage	56	78	31	44

*Excludes fallow.

The land use intensity of dryland cropland is a measure of how often cropland is fallowed (Table 9). Here, the ratio is based only on those farms reporting some fallowed acreage. Land use intensity is defined as annually planted acres over total acres, which is annually planted acres plus acres fallowed. If an alternating crop-fallow-crop system was in use, the land use intensity would be close to 0.50, since about half of the cropland would be planted in any one year. While this ratio varies some between regions, the greatest contrast can be seen in the percentage of producers reporting fallowed acreage. While almost all respondents in the western region reported some land in fallow, a much smaller proportion reported fallowed land in the eastern region.

Table 9. Cropland Use Intensity among Those Reporting Fallow

Region	Annually Planted Acres/Annually Planted Acres plus Fallow	Percentage of Producers Reporting Fallowed Acreage
1- Western	.73	91%
2- Central	.84	48%
3- Eastern	.88	11%

Weighted yields were calculated by accounting for the acreage reported by each producer for every crop (Table 10). Under dryland production, corn, soybean, and sorghum yields tend to increase in an easterly direction across the southern tier of Nebraska counties. Winter wheat yields under dryland production are relatively consistent. There are no appreciable differences in yields for soybean, sorghum, grain corn, and winter wheat production under irrigation.

Table 10. Weighted 1997 Yield Averages by Region

Crop, Irrigated, or Dryland	Region 1 Western	2 Central	3 Eastern	All Regions
	---------- average yields in bushels per acre ----------			
Grain corn (dryland)	72	71	101	94
Grain corn (irrigated)	165	161	166	164
Seed corn (dryland)	--	--	--	--
Seed corn (irrigated)	--	--	70	70
Soybean (dryland)	--	32	37	37
Soybean (irrigated)	59	57	53	54
Sorghum (dryland)	50	71	83	80
Sorghum (irrigated)	--	100	106	105
Winter wheat (dryland)	42	39	39	40
Winter wheat (irrigated)	50	--	50	50

Survey respondents reported the maximum number of each class of livestock on their operation during the 1997 production year. The mix of livestock varies by region with the western and central region producers owning mainly breeding or feeder cattle (Table 11).

Table 11. Average Peak Number of Livestock Held*

Livestock	Region 1 Western	2 Central	3 Eastern	All Regions
	---------- average number held ----------			
Breeding beef	124 (16)	109 (25)	74 (48)	93 (88)
Feeder cattle	191 (4)	142 (62)	99 (27)	117 (39)
Dairy cattle	0	0	85 (4)	86 (4)
Breeding sheep	0	0	**	**
Feeder sheep	0	0	**	**
Breeding hogs	0	0	72 (4)	72 (4)
Feeder hogs	0	**	491 (9)	522 (10)

*Numbers in parenthesis indicate number of survey responses reporting positive amounts of livestock from a total of 151 respondents.

**Too few respondents to report actual numbers.

An estimated two-thirds of the farms in the eastern region of southern Nebraska have livestock enterprises, with cattle operations predominant (Table 12). Slightly higher percentages of the farms in the central and western regions have livestock enterprises, almost exclusively beef cattle enterprises.

Table 12. Percentage of Farms with Livestock Enterprises

	Region		
	1 Western	**2 Central**	**3 Eastern**
	---------- percent ----------		
Breeding beef	70	76	51
Feeder cattle	17	2	28
Dairy cattle	0	0	4
Sheep	0	0	2
Breeding hogs	0	0	4
Feeder hogs	0	3	9
All Livestock	70	76	66

Comparisons of MSU/UNL Survey Data and NASS Data

A comparison of the MSU/UNL survey data to data from Nebraska Agricultural Statistics Service (NASS) for the same year, shows that the two sources of information are reasonably similar. There are some differences in the percent of acres planted, but most estimates are within 2 percentage points of each other. The largest discrepancy is that the MSU/UNL survey data percentage of irrigated corn acres planted was 6 points lower than the NASS data percentage, and dryland soybean acreage was 4 points higher. Weighted yield comparisons between the two data sources reveal few large differences (Table 13). Irrigated corn, soybean, and wheat yields are consistently lower in the NASS data across the regions, with irrigated soybeans in the west and wheat in the eastern region differing by -23% and -18%, respectively. Dryland sorghum NASS yields in the western region are 18% higher than MSU/UNL yields. All other yield differences are less than or equal to 10% with most in the one to five percent range. The larger yield variations observed in Region 1 (west) may be due to the small number of respondents.

Table 13. Comparison of Weighted Crop Yields, MSU/UNL Survey Data and NASS Data, 1997

	NASS	MSU/UNL	% Diff
	-------- bushels --------		
Region 1–Western			
Grain corn (dryland)	65.3	72	-10%
Grain corn (irrigated)	156.1	165	-6%
Soybean (dryland)	30.8	--	
Soybean (irrigated)	47.0	59	-23%
Sorghum (dryland)	60.1	50	18%
Sorghum (irrigated)	110.0	--	
Winter wheat (dryland)	43.4	42	3%
Winter wheat (irrigated)	48.4	50	-3%
Region 2–Central			
Grain corn (dryland)	77.2	71	8%
Grain corn (irrigated)	158.4	161	-2%
Soybean (dryland)	30.1	32	-6%
Soybean (irrigated)	52.5	57	-8%
Sorghum (dryland)	73.8	71	4%
Sorghum (irrigated)	94.7	100	-5%
Winter wheat (dryland)	40.9	39	5%
Winter wheat (irrigated)	42.2	--	
Region 3–Eastern			
Grain corn (dryland)	103.0	101	2%
Grain corn (irrigated)	159.8	166	-4%
Soybean (dryland)	36.6	37	-1%
Soybean (irrigated)	50.6	53	-5%
Sorghum (dryland)	83.6	83	1%
Sorghum (irrigated)	104.8	106	-1%
Winter wheat (dryland)	39.6	39	1%
Winter wheat (irrigated)	41.7	50	-18%