

ORGANIZATION OF FARMS AND LAND TENURE IN THE RED RIVER VALLEY

Jonathan D. Anderson and Roger G. Johnson

The Red River Valley, formed by glacial Lake Agassiz, is a highly productive agricultural area characterized by level land and fertile soil. Located in eastern North Dakota, northwestern Minnesota, and southeastern Manitoba, Canada, the area is noted for its production of small grains, sugarbeets, and potatoes. Crop and livestock production, as well as land tenure in the North Dakota segment of the Red River Valley is described in this article.

The Red River Valley is the most productive agricultural area in North Dakota. Although the valley counties of Pembina, Walsh, Grand Forks, Traill, Cass, and Richland comprise only 11.4 per cent of North Dakota's land area, they produced 24.8 per cent of the state's total output in 1964 (1).

The average annual precipitation ranges from 17.27 inches in Park River to 20.59 inches in Wahpeton. The average number of frost-free days varies from 119 in the north to 134 in the south, and average annual temperature varies from 39.3

degrees at Park River to 43.3 degrees at Wahpeton (2).

Although small grains and specialty crops characterize agricultural production in the area, the farming pattern varies considerably from north to south. For descriptive purposes the Red River Valley in North Dakota has been divided into three homogeneous farming areas. This division is based on cropping patterns as influenced by differences in soil and climate. The three subareas, drawn on township lines, are presented in Figure 1.

The two crops that vary the most in concentration of production within the Red River Valley are corn and soybeans. The proportion of farmers in a township growing these crops was used as the basis for determining the boundaries between subareas. Subarea A includes the lighter soils of the northern Red River Valley, where little corn or soybeans are grown. Subarea B includes the heavier soils of the south-central Red River Valley where soybeans are of some importance and corn is only a minor crop. Subarea C includes the lighter soils of the southern Red River Valley where both corn and soybeans are important crops. Township data on crop and livestock production were grouped by subarea and summarized. The data were obtained from the North Dakota State Department of Agri-

Anderson is a former graduate student, Department of Agricultural Economics, now with the Department of Agricultural Economics, University of Minnesota St. Paul; Dr. Johnson is associate professor, Department of Agricultural Economics.

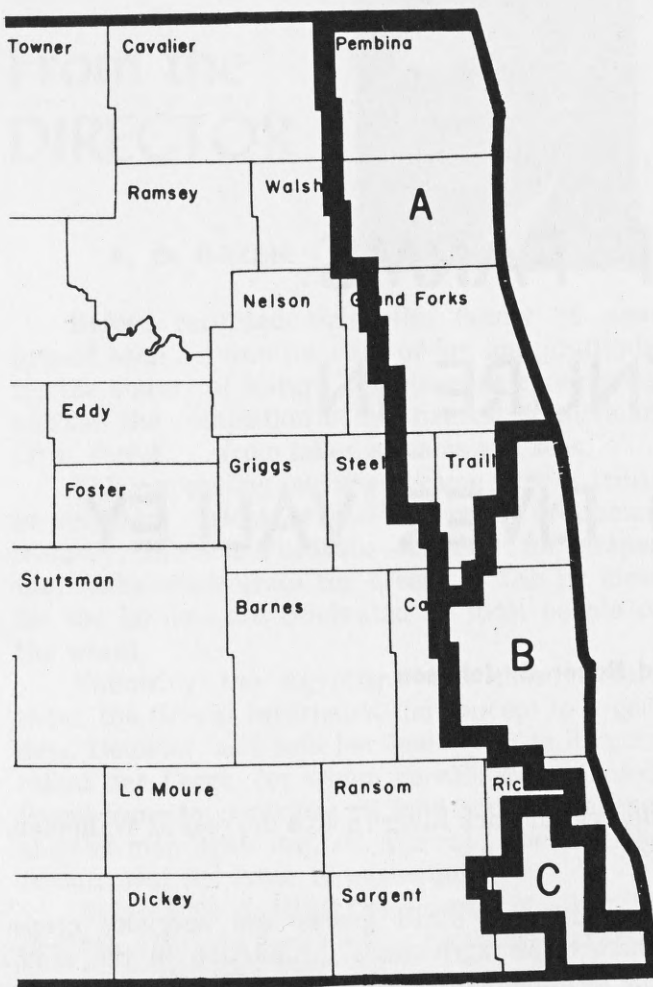


Figure 1. Subareas of the Red River Valley

culture, except sugarbeet data, which were obtained from a survey by the Department of Agricultural Economics, North Dakota State University.

Cropping Patterns and Yields

Land use in the three subareas of the Red River Valley is presented in Table 1.

Small grains are important in all subareas. In addition, potatoes and sugarbeets are important crops in subarea A, soybeans in subarea B, and both soybeans and corn in subarea C. Sunflowers have increased in importance as a specialty crop throughout the Red River Valley in recent years.

Summerfallow is a major land use in the Red River Valley, being exceeded only by wheat in terms of acreage. Summerfallow acreage increases from south to north. Wheat is most often grown the year following summerfallow. In addition, sugarbeets are nearly always planted after summer-

Table 1. Per cent of land in each crop in three subareas of the Red River Valley, North Dakota, 1967.

Crop	Subarea of the Red River Valley			
	A	B	C	Valley
	per cent			
Corn grain	.1	2.8	9.8	1.8
Corn silage	.4	1.2	2.2	.9
Oats	5.5	6.9	11.2	6.7
Barley	14.7	18.1	7.3	14.7
Rye	.1	.2	.6	.2
Hard spring wheat	24.0	17.5	9.5	20.2
Durum wheat	2.2	1.3	.3	1.7
Flax	2.9	4.2	2.5	3.2
Potatoes	4.7	.5	-	2.9
Soybeans	.1	14.6	17.6	6.6
Sunflowers	1.9	2.1	.6	1.8
Dry beans	.6	.2	.2	.4
Hay	3.4	6.3	6.3	4.6
Sugarbeets	4.0	1.5	.3	2.3
Summerfallow	17.5	13.5	7.2	14.9
Pasture and other	17.9	9.1	24.4	17.1
TOTAL	100.0	100.0	100.0	100.0

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

fallow. Barley and other small grains are less frequently grown following summerfallow.

Crop yields vary from one subarea to another because of differences in climate and soil. Also, average wheat yields are affected by the proportion of wheat grown after summerfallow. Almost equal proportions of wheat are grown after summerfallow in subareas A and B, but only about one-half the proportion is grown after summerfallow in subarea C. Three-year average yields for various crops in the three subareas are presented in Table 2.

Table 2. Average crop yields in three subareas of the Red River Valley, North Dakota, 1965-1967.

Crop	Subarea of the Red River Valley			
	A	B	C	Valley
	bushels per acre			
Corn grain	*	41.6	49.4	46.9
Oats	52.2	61.5	51.6	54.6
Barley	37.5	41.5	42.3	39.2
Rye	*	31.6	25.6	27.8
Hard spring wheat	28.5	29.0	23.9	28.3
Durum wheat	30.6	34.8	32.4	32.1
Flax	10.2	12.4	11.8	11.2
Soybeans	*	18.6	17.4	18.2
Corn Silage (Tons/acre)	7.0	7.7	7.6	7.3

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

*Insufficient acreage grown to establish reliable yield averages.

Livestock

Livestock enterprises account for a relatively small part of total farm income in the Red River Valley. The importance of livestock declines as one goes north in the Valley. Livestock enterprises are most common in subarea C, where corn is an important crop. Raising beef cattle is the most import-

ant livestock enterprise. Average size of livestock enterprises is relatively small, which suggests that even those farmers who have livestock have it as a secondary enterprise.

The number of farms with livestock is declining in the Red River Valley, especially in the northern areas. In recent years milk cow and sheep numbers have declined the most. Beef cattle numbers have declined slightly, but hog numbers have increased (2). The percentage of farmers producing various classes of livestock is presented in Table 3. A farmer was considered as a livestock producer only if the number of livestock units was greater than that generally used for home consumption.

Table 3. Per cent of the farmers producing various classes of livestock in three subareas of the Red River Valley, North Dakota, 1967.

Type of Livestock	Subarea of the Red River Valley			
	A	B	C	Valley
	per cent			
Dairy	9.0	9.4	22.3	11.2
Beef	25.2	27.1	45.0	28.6
Hogs	5.4	15.0	27.3	11.6
Sheep	3.9	6.6	9.7	5.6
Poultry	3.3	3.0	6.7	4.0
Calves on feed	3.5	4.2	8.9	4.5
No livestock	64.2	58.0	32.3	57.5

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

Farm Size and Tenure

The average size farm unit in the Red River Valley is slightly over one section of land. However, about two-thirds of the farmers operate less than 700 acres. The estimated median (equal number of farmers operating more and less acres) was 547.3. The average number of owned and rented acres per farm by subarea is presented in Table 4.

Table 4. Number of acres operated, owned and rented per farm in three subareas of the Red River Valley, North Dakota, 1967.

Item	Subarea of the Red River Valley			
	A	B	C	Valley
	acres			
Average acres owned	380.6	308.6	320.8	349.1
Average acres rented	330.3	341.1	245.0	321.0
Average acres operated	710.6	649.7	565.8	670.1
Median acres operated	556.2	548.2	519.4	547.3

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

The land operated can be divided into owned and rented land. The per cent of total land that was rented was 46.5 per cent in subarea A, 52.5 per cent for subarea B, 43.3 per cent in subarea C, and 47.9 per cent for the Red River Valley.

The size distribution of farm units in the Red River Valley is shown in Table 5.

Table 5. Percentage distribution of farms by acres operated in three subareas of the Red River Valley, North Dakota, 1967.

Acres Operated	Subarea of the Red River Valley			
	A	B	C	Valley
	per cent			
0-399	33.6	33.0	36.3	33.8
400-699	31.4	34.3	38.2	33.3
700-999	17.2	16.5	12.6	16.3
1,000-1,499	10.7	11.0	9.9	10.7
1,500 and over	7.1	5.2	3.0	5.9
TOTAL	100.0	100.0	100.0	100.0

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

Farm units tend to be concentrated in the smallest two size categories. This is especially true in subarea C, where livestock and row crops have greater importance.

Most farmers own at least some land. Over one-third own all of the land they operate, about one-fifth rent it all, and the rest both own and rent land. The percentage of owners, part-owners, and renters is presented by subareas in Table 6.

Table 6. Tenure of operators in three subareas of the Red River Valley, North Dakota, 1967.

Tenure Class	Subarea of the Red River Valley			
	A	B	C	Valley
	per cent			
Owners	38.6	30.1	35.1	35.6
Part owners	45.4	44.5	47.1	45.4
Renters	16.0	25.4	17.8	19.0
TOTAL	100.0	100.0	100.0	100.0

Source: Unpublished township data obtained from the North Dakota State Department of Agriculture.

Summary

Farming in the Red River Valley of North Dakota increases in intensity from north to south. Increased intensity is evidenced by less land summerfallowed, more land in row crops, more livestock and smaller farms. The land tenure pattern is quite similar throughout the area except for a slightly higher proportion of renters and rented land in the south-central portion of the valley.

Literature Cited

1. U. S. Bureau of the Census, **U.S. Census of Agriculture: 1964**, Volume 1, North Dakota, Part 18, U.S. Government Printing Office, Washington, D.C., 1966, pp. 206-211, 232-237.
2. Heltemes, C. J., and Taylor, F. R., **North Dakota Crop and Livestock Statistics, 1968**, Agricultural Statistics No. 19, Department of Agricultural Economics and Statistical Reporting Service, U.S.D.A., Fargo, North Dakota, May, 1969, pp. 4-6, 57-59.