



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

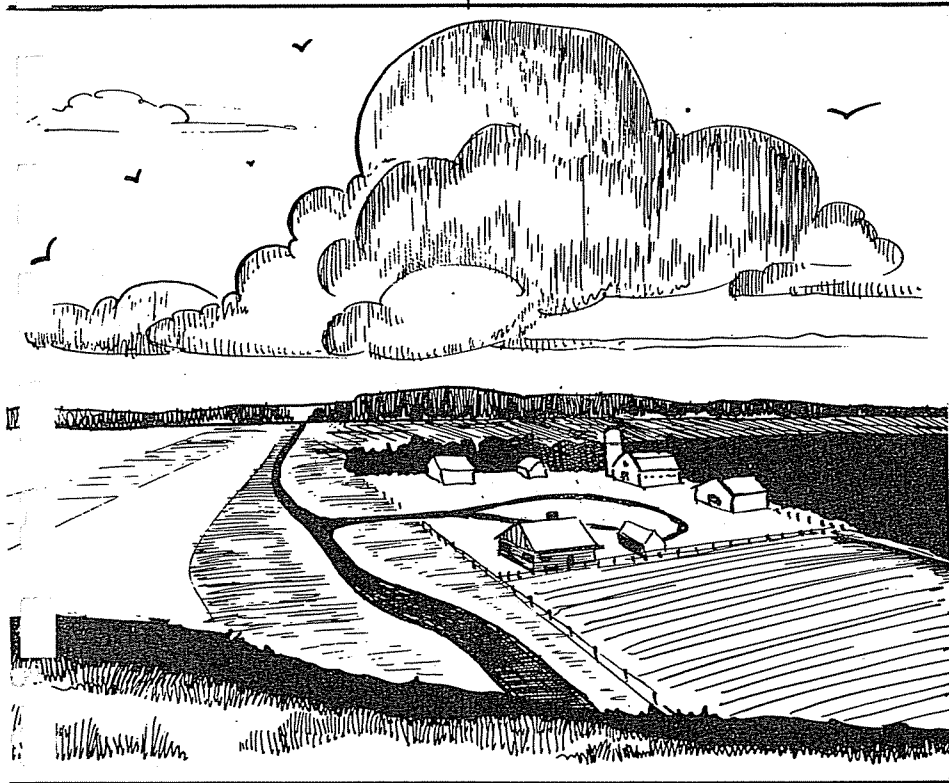
<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

For Check Out Only!



By
Erwin O. Ullrich, Jr.
and
Laurel D. Loftsgard

Farm Characteristics

for North Dakota
BY ECONOMIC AREA

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURAL EXPERIMENT STATION
NORTH DAKOTA STATE UNIVERSITY
OF AGRICULTURE AND APPLIED SCIENCE
FARGO, NORTH DAKOTA
IN COOPERATION WITH
FARM ECONOMICS RESEARCH DIVISION
ECONOMICS RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

CONTENTS

<u>Item</u>	<u>Page</u>
INTRODUCTION-----	1
LOCATION AND SIZE OF SAMPLE FARMS-----	2
GENERAL CHARACTERISTICS OF SAMPLE FARMS BY ECONOMIC AREA-----	5
LIVESTOCK CHARACTERISTICS OF SAMPLE FARMS-----	15
TENURE CHARACTERISTICS OF SAMPLE FARMS BY SIZE OF FARM AND ECONOMIC AREA-----	20
CHARACTERISTICS OF WHEAT ALLOTMENTS AND CONSERVATION RESERVE PARTICIPATION-----	29

INTRODUCTION

A survey was made in the summer of 1960 of a sample of North Dakota farms selected from ASCS office records in 27 counties. In 1961, a survey was made of sample farms in Richland, Cass, Grand Forks, Traill, and Walsh Counties, selected in the same manner, making a total sample of 3,580 farms from 32 North Dakota counties. The data collected in 1960 were for the year 1959; the data collected in 1961 were for 1960. Assembling 1959 data for the five counties surveyed in 1961 was virtually impossible due to a rearrangement of ASCS county office records.

The purpose of the survey was to provide information on distribution of farms by size, type, and tenure in each economic area and in the State. The data will be useful as background information for research, extension, and other activities.

Sampling procedure. -- A random sample was drawn as follows:

1. From a randomly selected base, every tenth name on an alphabetical list of farm operators compiled from each county ASCS office record was selected.
2. The ASCS county office manager, county extension agent, SCS Conservationist, and others within each of the sample counties were contacted to determine whether or not each selected operator farmed entirely within the county. Any operator who did not was deleted from the sample if the ASCS county office manager felt that his office did not have a complete record of the land outside his own county.
3. Sons living at home who farmed land on an informal partnership arrangement with the father were also deleted from the sample. When a sample farmer had a son at home who farmed additional land, the son's land and the father's were treated as one farm.
4. When a tract of land was operated jointly by two or more farmers and each had a separate operating unit, the jointly farmed acreage was apportioned between the joint operators.

Data obtained from County ASCS records included tenure, size of farm, cropland and non-cropland acreages, wheat base, wheat allotment and compliance-check wheat acreages, and participation in the Conservation Reserve. These data were supplemented with information on numbers and types of livestock as recorded in State Department of Agriculture census schedules for each farm operator in the sample.

LOCATION AND SIZE OF SAMPLE FARMS

A census economic area is a geographic subdivision of a state consisting of one or more counties. The counties in each economic area are sufficiently alike with respect to agricultural production (type of farming), topography, climate, and industrial and commercial activities to form an area that differs significantly from adjoining areas.

For the study reported here, counties were selected to represent each economic area of North Dakota with respect to certain farm characteristics. A 10-percent farm sample from ASCS records in about half the counties gave a fairly accurate description of grain farms. Since the data needed were primarily for farms producing wheat or those with a wheat history, livestock farms and ranches were not included. Farms with less than 40 acres were also excluded.

Data pertaining to the year 1959 were desired because the U. S. Census of Agriculture survey for that year could be used to check the reliability of the 32-county sample.

The average size of sample farms in each area differed slightly from average size of farms reported in the 1959 U. S. Census, ranging from 0.4 percent smaller in Area 3A to 10.5 percent larger in Area 3C (table 1). A frequency distribution showed a heavier distribution in most eastern areas of farms having 500 acres or more in the ASCS sample than in the U. S. Census. This indicates an upward bias in average size of sample farm.

Among the known factors introducing an upward size bias in the farms in the ASCS sample are the exclusion from the sample of farms with less than 40 acres, and the treatment of father-son tracts in the sample as single farms. Possibly the 1-year time difference between 1959 and 1960 may have moved farm size slightly upward in Areas 3C and 4. The effect of limiting the sample to grain farms may partially offset this bias but in the western areas of the state the size of sample farms does not appear to have been affected to any appreciable extent.

Table 1. - Number and average size of sample farms compared with farms reported in 1959 U. S. Census of Agriculture

Economic area	Number of farms		Sample as proportion of Census	Average size of farm	
	1959 Census	Sample farms		1959 Census	Sample farms
	<u>Number</u>	<u>Number</u>	<u>Percent</u>	<u>Acres</u>	<u>Acres</u>
1-----	9,576	569	5.9	1,159	1,178
2A-----	5,714	379	6.6	893	915
2B-----	5,588	305	5.5	821	875
3A-----	12,531	629	5.0	711	708
3B-----	8,305	435	5.5	672	706
3C-----	5,122	416	8.1	505	564
4-----	8,092	827	10.2	497	533
State-----	54,928	3,580	6.5	762	761

GENERAL CHARACTERISTICS OF SAMPLE FARMS BY ECONOMIC AREA

The general characteristics of the sample farms are shown by economic area in tables 2 through 10. These characteristics include size of farm, amount of cropland, wheat allotment, and general data on livestock.

This series of tables shows that --

1. Farm size increased across the State from east to west, averaging from 533 acres in Area 4 to 1,178 in Area 1.
2. The proportion of cropland to total farmland decreased from east to west.
3. The percentage of cropland to total farmland decreased as farm size increased. On the average, the proportion of cropland to farmland for sample farms under 260 acres and for those having 1,000 to 1,999 acres was about 79 and 66 percent, respectively. Among farms of 2,000 acres or more, the proportion of cropland to farmland decreased to 51 percent when Area 1 is excluded and to 36.5 percent when it is included.
4. Wheat allotments, when expressed as a percentage of cropland, were highest in the western part of the State. Area 1 has a history of a larger percentage of cropland in wheat, corn, and summerfallow and a smaller percentage of barley and oats than other areas in the State.
5. A higher percentage of farms had "commercial" dairy enterprises than any other livestock enterprises. Cattle feeding enterprises of "commercial" size were least common of all livestock enterprises considered. The eastern part of the State had the highest percentage of farms with feeder cattle.

Individual characteristics are summarized in table 2.

Table 2. - Summary of individual characteristics of sample farms,
by economic area

Characteristic	Above average	About average	Below average
	<u>Economic areas</u>	<u>Economic areas</u>	<u>Economic areas</u>
Average size of farm-----	1, 2A, 2B	---	3A, 3B, 3C, 4
Cropland as percent of farmland-----	3A, 3B, 3C, 4	---	1, 2A, 2B
Total cropland acres-----	1, 2A, 3A, 3B	---	2B, 3C, 4
Wheat allotments as percent of cropland-----	1, 2A, 2B, 3A	---	3B, 3C, 4
Total wheat allotment acres--	1, 2A, 3A	3B	2B, 3C, 4
Percent of farmers with commercial dairy enterprise--- Size of herd-----	2B, 3A, 3B, 3C 2B	1 2A, 3B, 3C, 4	2A, 4 1, 3A
Percent of farmers with commercial beef herd----- Size of herd-----	1, 2B, 3C 1, 2B	3B ---	2A, 3A, 4 2A, 3A, 3B, 3C, 4
Percent of farmers with commercial feed-lot enterprise----- Size of enterprise----	2B, 3B, 3C, 4 1, 2A, 4	---	1, 2A, 3A 2B, 3A, 3B, 3C
Percent of farmers with commercial sow herd----- Size of enterprise----	1, 2B, 3B, 3C 3C	---	2A, 3A, 4 1, 2A, 3A, 3B
Percent of farmers with commercial ewe flock----- Size of flock-----	3A, 3B, 3C 1	---	1, 2A, 2B, 4 3A, 3C, 4

Table 3. - Characteristics of sample farms by economic area

Item	Unit	Economic area							State
		1	2A	2B	3A	3B	3C	4	
Sample farms-----	Number	569	379	305	629	455	416	827	3,580
Proportion of farms-----	Percent	15.9	10.6	8.5	17.6	12.7	11.6	23.1	100.0
Average size of farm-----	Acres	1,178	915	875	708	706	564	533	761
Cropland:									
Proportion of farm-----	Percent	42.5	62.0	47.2	74.4	73.7	72.2	86.3	64.0
Average amount-----	Acres	501	567	413	527	520	407	460	487
Wheat allotment:									
Proportion of cropland-----	Percent	32.5	31.5	28.1	28.3	24.8	14.5	22.8	26.3
Average size-----	Acres	163	179	116	149	129	59	105	128
Milk cows: 1/									
Farms having-----	Percent	36.0	26.4	67.5	40.5	47.5	40.9	21.0	37.0
Average number-----	Number	10.3	11.0	12.8	10.7	11.6	11.5	11.1	11.3
Stock cows: 1/									
Farms having-----	Percent	46.4	19.8	43.9	17.0	23.3	28.4	6.7	24.0
Average number-----	Number	41.8	29.7	35.2	24.3	28.3	31.8	25.8	33.5
Feeder cattle: 1/									
Farms having-----	Percent	1.2	.3	9.2	2.2	6.8	4.8	5.6	4.1
Average number-----	Number	40.4	50.0	25.2	20.5	22.1	30.5	46.8	32.5
Sows: 1/									
Farms having-----	Percent	20.2	5.0	34.4	6.0	20.7	41.8	11.6	17.9
Average number-----	Number	6.2	6.1	7.2	5.8	6.6	10.2	7.9	7.7
Ewes: 1/									
Farms having-----	Percent	7.2	5.5	5.2	9.1	11.6	14.2	5.1	8.1
Average number-----	Number	138.6	77.3	75.4	61.2	72.8	66.6	62.9	77.6

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle.

Table 4. - Characteristics of sample farms by size, Economic Area 1

Item	Unit	Size (acres)						All farms
		0 - 259	260 - 499	500 - 999	1000 - 1999	2000 and over		
Sample farms-----	Number	39	115	192	168	55	569	
Proportion of farms-----	Percent	6.9	20.2	33.7	29.5	9.7	15.9	
Average size of farm-----	Acres	171	404	742	1,378	4,418	1,178	
Cropland:								
Proportion of farm-----	Percent	73.7	63.9	56.2	46.0	26.2	42.5	
Average amount-----	Acres	126	258	417	634	1,158	501	
Wheat allotment:								
Proportion of cropland-----	Percent	33.4	34.8	33.3	32.8	30.2	32.5	
Average size-----	Acres	42.1	89.9	138.9	207.7	349.2	163.0	
Milk cows: 1/								
Farms having-----	Percent	2.6	31.3	46.9	36.9	29.1	36.0	
Average number-----	Number	12.0	8.9	10.8	9.9	12.6	10.3	
Stock cows: 1/								
Farms having-----	Percent	0	14.8	45.3	69.0	80.0	46.4	
Average number-----	Number	0	18.5	24.1	34.8	104.2	41.8	
Feeder cattle: 1/								
Farms having-----	Percent	2.6	1.7	1.6	.6	0	1.2	
Average number-----	Number	20.0	15.5	55.0	67.0	0	40.4	
Sows: 1/								
Farms having-----	Percent	0	12.2	25.5	22.0	27.3	20.2	
Average number-----	Number	0	5.2	5.7	6.4	8.0	6.2	
Ewes: 1/								
Farms having-----	Percent	5.1	5.2	7.3	6.5	14.5	7.2	
Average number-----	Number	64.5	78.0	110.0	96.5	310.6	138.6	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 1 equal to 15.9 percent of State sample.

Table 5. - Characteristics of sample farms by size, Economic Area 2A

Item	Unit	Size (acres)					All farms
		0 - 259	260 - 499	500 - 999	1000 - 1999	2000 and over	
Sample farms-----	Number	27	79	155	97	21	379
Proportion of farms-----	Percent	7.1	20.8	40.9	25.6	5.5	10.6 2/
Average size of farm-----	Acres	163	403	737	1,367	3,031	915
Cropland:							
Proportion of farm-----	Percent	64.4	69.5	65.8	62.2	51.0	62.0
Average amount-----	Acres	105	280	485	850	1,546	567
Wheat allotment:							
Proportion of cropland	Percent	31.0	31.8	32.3	31.3	29.6	31.5
Average size-----	Acres	32.6	89.0	156.8	266.2	458.3	179
Milk cows: 1/							
Farms having-----	Percent	3.7	24.1	33.5	23.7	23.8	26.4
Average number-----	Number	11.0	9.5	10.3	13.9	9.6	11.0
Stock cows: 1/							
Farms having-----	Percent	7.4	5.1	20.6	26.8	52.4	19.8
Average number-----	Number	21.0	19.8	21.7	27.2	64.3	29.7
Feeder cattle: 1/							
Farms having-----	Percent	0	0	0	0	4.8	.3
Average number-----	Number	0	0	0	0	50.0	50.0
Sows: 1/							
Farms having-----	Percent	0	2.5	6.5	6.2	4.8	5.0
Average number-----	Number	0	8.5	6.0	5.3	6.0	6.1
Ewes: 1/							
Farms having-----	Percent	3.7	1.3	5.8	8.2	9.5	5.5
Average number-----	Number	22.0	50.0	52.0	76.0	237.5	77.3

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 2A equal to 10.6 percent of State sample.

Table 6. - Characteristics of sample farms by size, Economic Area 2B

Item	Unit	Size (acres)						All farms
		0 - 259	260 - 499	500 - 999	1000 - 1999	2000 and over		
Sample farms-----	Number	15	52	158	65	15	305	
Proportion of farms-----	Percent	4.9	17.0	51.8	21.3	4.9	8.5	
Average size of farm-----	Acres	153	398	726	1,287	3,040	875	
Cropland:								
Proportion of farm-----	Percent	71.2	55.3	50.0	46.4	36.7	47.2	
Average amount-----	Acres	109	220	363	597	1,116	413	
Wheat allotment:								
Proportion of cropland-----	Percent	29.5	26.5	30.1	27.5	23.3	28.1	
Average size-----	Acres	32.2	58.3	109.3	164.2	259.9	116.0	
Milk cows: 1/								
Farms having-----	Percent	26.7	59.6	78.5	64.6	33.3	67.5	
Average number-----	Number	9.3	10.5	13.1	14.2	12.6	12.8	
Stock cows: 1/								
Farms having-----	Percent	0	19.2	41.8	67.7	93.3	43.9	
Average number-----	Number	0	22.5	22.8	40.0	87.4	35.2	
Feeder cattle: 1/								
Farms having-----	Percent	0	7.7	11.4	7.7	6.7	9.2	
Average number-----	Number	0	33.3	25.1	20.2	20.0	25.2	
Sows: 1/								
Farms having-----	Percent	6.7	23.1	36.1	46.2	33.3	34.4	
Average number-----	Number	4.0	4.8	6.7	7.4	18.2	7.2	
Ewes: 1/								
Farms having-----	Percent	0	1.9	4.4	10.8	6.7	5.2	
Average number-----	Number	0	100.0	59.6	80.6	125.0	75.4	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 2B equal to 8.5 percent of State sample.

Table 7. - Characteristics of sample farms by size, Economic Area 3A

Item	Unit	Size (acres)						All farms
		0 - 259	260 - 499	500 - 999	1000 - 1999	2000 and over		
Sample farms-----	Number	56	199	258	104	12	629	
Proportion of farms-----	Percent	8.9	31.7	41.0	16.5	1.9	17.6	
Average size of farm-----	Acres	175	401	730	1,331	2,424	708	
Cropland:								
Proportion of farm-----	Percent	70.3	73.8	76.4	74.4	64.4	74.4	
Average amount-----	Acres	123	296	558	990	1,561	527	
Wheat allotment:								
Proportion of cropland-----	Percent	24.2	28.1	28.5	28.1	29.6	28.3	
Average size-----	Acres	29.8	83.2	158.9	278.4	461.8	149.0	
Milk cows: 1/								
Farms having-----	Percent	32.1	40.7	42.6	39.4	41.7	40.5	
Average number-----	Number	8.4	9.7	11.0	12.7	14.8	10.7	
Stock cows: 1/								
Farms having-----	Percent	1.8	7.0	17.8	36.5	66.7	17.0	
Average number-----	Number	10.0	16.8	20.4	26.4	52.3	24.3	
Feeder cattle: 1/								
Farms having-----	Percent	0	1.5	1.9	4.8	8.3	2.2	
Average number-----	Number	0	21.7	19.6	22.8	10.0	20.5	
Sows: 1/								
Farms having-----	Percent	1.8	5.0	7.4	6.7	8.3	6.0	
Average number-----	Number	5.0	5.1	5.7	6.4	10.0	5.8	
Ewes: 1/								
Farms having-----	Percent	7.1	7.0	9.3	11.5	25.0	9.1	
Average number-----	Number	23.5	62.6	67.7	58.5	63.3	61.2	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 3A equal to 17.6 percent of State sample.

Table 8. - Characteristics of sample farms by size, Economic Area 3B

Item	Unit	Size (acres)						All farms
		0 - 259	260 - 499	500 - 999	1000 - 1999	2000 and over		
Sample farms-----	Number	49	154	174	67	11	455	
Proportion of farms-----	Percent	10.8	33.9	38.2	14.7	2.4	12.7	
Average size of farm-----	Acres	167	400	731	1,379	2,913	706	
Cropland:								
Proportion of farm-----	Percent	82.6	77.3	74.6	74.0	59.9	73.7	
Average amount-----	Acres	138	309	545	1,021	1,744	520	
Wheat allotment:								
Proportion of cropland-----	Percent	26.0	24.3	24.9	26.0	21.4	24.8	
Average size-----	Acres	35.9	75.1	135.8	265.8	373.9	129.0	
Milk cows: 1/								
Farms having-----	Percent	14.3	54.5	58.0	34.3	9.1	47.5	
Average number-----	Number	10.0	10.5	12.6	11.8	6.0	11.6	
Stock cows: 1/								
Farms having-----	Percent	0	8.4	27.6	53.7	81.8	23.3	
Average number-----	Number	0	16.3	19.3	34.3	70.1	28.3	
Feeder cattle: 1/								
Farms having-----	Percent	2.0	5.2	9.2	7.5	9.1	6.8	
Average number-----	Number	13.0	20.8	20.6	28.6	34.0	22.1	
Sows: 1/								
Farms having-----	Percent	10.2	21.4	23.6	22.4	0	20.7	
Average number-----	Number	4.0	6.4	6.8	7.5	0	6.6	
Ewes: 1/								
Farms having-----	Percent	4.1	7.8	14.4	17.9	18.2	11.6	
Average number-----	Number	47.5	45.5	69.9	79.8	255.0	72.8	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 3B equal to 12.7 percent of State sample.

Table 9. - Characteristics of sample farms by size, Economic Area 3C

Item	Unit	Size (acres)						All farms
		0 - 179	180 - 259	260 - 499	500 - 999	1000 and over		
Sample of farms	Number	46	27	178	118	47	416	
Proportion of farms	Percent	11.1	6.5	42.8	28.4	11.2	11.6	
Average size of farm	Acres	142	237	394	712	1,439	564	
Cropland:								
Proportion of farm	Percent	80.3	81.4	76.6	71.1	67.1	72.2	
Average amount	Acres	114	193	302	506	966	407	
Wheat allotment:								
Proportion of cropland	Percent	12.7	15.9	13.9	16.1	13.3	14.5	
Average size	Acres	14.5	30.7	42.1	81.4	128.4	59.0	
Milk cows: 1/								
Farms having	Percent	17.4	48.1	45.5	45.8	29.8	40.9	
Average number	Number	8.5	8.7	10.9	13.5	12.1	11.5	
Stock cows: 1/								
Farms having	Percent	6.5	3.7	15.7	43.2	74.5	28.4	
Average number	Number	11.3	15.0	19.7	27.8	49.7	31.8	
Feeder cattle: 1/								
Farms having	Percent	0	11.1	4.5	5.1	6.4	4.8	
Average number	Number	0	18.7	25.9	43.7	28.0	30.5	
Sows: 1/								
Farms having	Percent	19.6	33.3	37.1	56.8	48.9	41.8	
Average number	Number	4.7	7.6	7.8	10.6	18.9	10.2	
Ewes: 1/								
Farms having	Percent	6.5	7.4	9.6	18.6	31.9	14.2	
Average number	Number	40.7	68.5	44.1	57.8	109.9	66.6	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 3C equal to 11.6 percent of State sample.

Table 10. - Characteristics of sample farms by size, Economic Area 4

Item	Unit	Size (acres)						All farms
		0 - 179	180 - 259	260 - 499	500 - 999	1000 and over		
Sample farms-----	Number	112	53	333	252	77	827	
Proportion of farms-----	Percent	13.5	6.4	40.3	30.5	9.3	23.1	
Average size of farm-----	Acres	144	225	376	706	1,430	533	
Cropland:								
Proportion of farm-----	Percent	85.4	83.6	86.4	86.4	86.4	86.3	
Average amount-----	Acres	123	188	325	610	1,235	460	
Wheat allotment:								
Proportion of cropland-----	Percent	22.9	24.4	23.0	22.2	23.0	22.8	
Average size-----	Acres	28.2	45.9	74.7	135.6	284.1	105.0	
Milk cows: 1/ Farms having-----	Percent	11.6	24.5	22.8	22.6	19.5	21.0	
Average number-----	Number	9.7	9.1	9.6	14.1	9.7	11.1	
Stock cows: 1/ Farms having-----	Percent	.9	1.9	3.3	10.7	19.5	6.7	
Average number-----	Number	12.0	11.0	15.5	25.4	36.1	25.8	
Feeder cattle: 1/ Farms having-----	Percent	.9	1.9	3.9	7.9	14.3	5.6	
Average number-----	Number	3.0	11.0	21.8	40.8	94.5	46.8	
Sows: 1/ Farms having-----	Percent	4.5	5.7	11.1	15.1	16.9	11.6	
Average number-----	Number	6.6	4.7	6.8	8.2	11.4	7.9	
Ewes: 1/ Farms having-----	Percent	1.8	0	4.2	8.3	6.5	5.1	
Average number-----	Number	25.0	0	50.6	60.0	124.8	62.9	

1/ Only farms with "commercial" enterprises were included, minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle. 2/ Sample farms in Area 4 equal to 23.1 percent of State sample.

LIVESTOCK CHARACTERISTICS OF SAMPLE FARMS

Sixty-one percent of the sample farmers had at least one commercial livestock enterprise, nearly 10 percent had only home use (non-commercial) livestock enterprises, and 29 percent had no livestock (tables 11 and 12). The Red River Valley (Economic Area 4) had the lowest percentage of farmers having livestock and also the lowest percentage with only home use enterprises. Economic Area 2B had the highest percentage of farmers with one or more commercial livestock enterprises.

Farms having livestock were 5 to 18 percent larger than average, depending on the economic area. In Area 1, for example, the average size of livestock farms was 1,329 acres versus 663 acres for cash-grain farms. This difference in size was much less in Area 4, where farms generally are smaller. Farms having livestock averaged about 567 acres as compared with 488 acres for non-livestock farms.

Livestock depend heavily on noncropland for summer pasture. Thus farms with livestock are likely to have a smaller proportion of cropland than cash-grain farms. In Area 1, for example, the proportion of cropland to farmland on the sample farms was about 60 percent for cash-grain farms as compared with 40 percent for farms with livestock. In Area 4, an area with smaller farms, this percentage difference is much less.

Additional information concerning average animal units per farm and average acres per animal unit is shown in table 13. Wide differences existed between economic areas in average animal units per farm and average acres used per animal unit. These differences can be explained largely by differences in soil type and the proportion of cropland to farmland, which in turn are dependent upon geographical location, climatic conditions, and types of agriculture.

In most of Economic Area 1, annual precipitation is usually low. Range livestock and wheat production predominate. Farms and ranches are relatively large and have lower than average percentages of cropland.

For many years, Area 2A has had a history of cash-grain farms with relatively small livestock enterprises and little cropland devoted to raising feed.

Economic Area 2B has a large percentage of rough broken land dotted with many sloughs. Much of the area is devoted to range livestock and production of livestock feeds; in other sections of the area, combination cash grain-livestock farms are more common. Straight cash-grain farms are few and often are farmed on a part-time basis.

Area 3A has a relatively high percentage of cropland. Cash grain farming predominates in production areas such as the "durum triangle," in which relatively few livestock enterprises are found. In Benson and McHenry counties, combination grain-livestock farms are common.

Although parts of Area 3B contain land of high fertility and are topographically suited to production of small grain, there is a generalized type of agriculture in the area -- about three-fourths of the sample farms had livestock.

Area 3C also is suited to production of livestock, although as a whole the area has a high percentage of farmland in cropland. In the "sandhills" part of the area, range livestock predominate; in other sections, a general type of farming is commonly found.

In Economic Area 4 land values are generally higher than in other sections of the state. Moisture conditions are usually good and the land is suited for a wide variety of crops -- potatoes, sugar beets and soybeans, in addition to the small grains and corn. Although range livestock can be found on some farms, feeder cattle, hogs, and grade A dairying probably are more profitably associated with the high-value land.

Table 11. - Sample farms having specified numbers of animal units by economic area

Economic area	Number of animal units per farm 1/										Total
	0	1 to 5.9	6 to 9.9	10 to 14.9	15 to 19.9	20 to 29.9	30 to 49.9	50 to 99.9	100 to 199.9	Over 200	
1-----	129	27	22	43	49	96	95	76	25	7	569
2A-----	150	34	35	38	24	43	36	17	2	0	379
2B-----	37	6	8	14	15	61	85	66	11	2	305
3A-----	198	33	57	93	79	89	53	24	3	0	629
3B-----	110	21	27	53	41	85	86	28	3	1	455
3C-----	78	36	34	56	35	72	55	37	11	2	416
4-----	356	122	85	98	45	60	40	17	3	1	827
State-----	1,058	279	268	395	288	506	450	265	58	13	3,580

-----Number of farms-----

1/ 1 milk cow, 2 yrs. or over = 1 A.U.
 1 bull, 2 yrs. or over = 1 A.U.
 1 beef cow, 2 yrs. or over = .9 A.U.
 1 yearling = .8 A.U.
 1 calf = 1 A.U.
 1 ewe = .14 A.U.
 1 sow (or gilt) = .2 A.U.
 1 pig = .1 A.U.

Table 12. - Sample farms with any livestock and those with commercial livestock enterprises, by economic area

Economic area	Total farms	Farms with livestock		Farms with one or more commercial livestock enterprises ^{1/}		
				Farms	Percentage of -	
					Farms with livestock	All farms
	Number	Number	Percent	Number	Percent	Percent
1-----	569	440	77.3	408	92.7	71.7
2A-----	379	229	60.4	174	76.0	45.9
2B-----	305	268	87.9	262	97.8	85.9
3A-----	629	431	68.5	380	88.2	60.4
3B-----	455	345	75.8	324	93.9	71.2
3C-----	416	338	81.3	307	90.8	73.8
4-----	827	471	57.0	328	69.6	39.7
State----	3,580	2,522	70.4	2,183	86.6	61.0

^{1/} Includes only farms with "commercial" enterprises: a minimum of 5 dairy cows, 3 sows, 10 beef cows, 20 ewes, or 10 feeder cattle.

Table 13. - Sample Farms: number, average size, average cropland, and percent of cropland acreage of sample farms with and without livestock, by economic area

Economic area	Farms without livestock				Farms with livestock					
	Number of farms	Average size Acres	Average acres cropland	Percent of cropland	Number of farms	Average size Acres	Average acres cropland	Percent of cropland	Average animal units	Average acres per A. U.
1-----	129	663	402	60.6	440	1,329	530	39.9	42.9	31.0
2A-----	150	664	469	70.6	229	1,079	631	58.5	22.5	47.9
2B-----	37	578	362	62.6	268	916	420	45.9	42.9	21.4
3A-----	198	597	488	81.7	431	759	545	71.8	21.4	35.5
3B-----	110	546	442	81.0	345	757	545	72.0	27.9	27.1
3C-----	78	386	316	81.9	338	605	428	70.7	30.1	20.1
4-----	356	488	434	88.9	471	567	480	84.7	16.5	34.4
State-----	1,058	556	435	78.2	2,522	847	509	60.1	28.7	29.5

TENURE CHARACTERISTICS OF SAMPLE FARMS BY SIZE OF FARM AND
ECONOMIC AREA

Forty percent of the sample farmers owned all the land they farmed (table 14). Full owner-operatorship was highest in Area 1 and lowest in Area 2A. Full tenancy was lowest in Area 1 and highest in Area 3A.

To enter into farming as a full-time occupation has been increasingly difficult. Capital requirements for land, equipment, and machinery have increased substantially even within the past few years. This situation coupled with increasingly narrow profit margins has put more emphasis on tenancy as a method of gaining control of land. This is particularly true in areas where land prices are relatively high in relation to productivity. In the western part of the state, where risks are high and productivity is relatively low, it is more difficult to attract outside capital. Consequently, absentee ownership and tenancy are less common.

In the survey, it was found that full ownership of land was associated with the relatively smaller farms within an economic area (tables 15 and 28). Farms operated by full tenants were most heavily concentrated in the medium to small size groupings. In all areas, part-ownership tended to increase as farm size increased.

Table 14. - Tenure of sample farm operators by economic area

Economic area	Full owner		Part owner		Tenant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1-----	280	49.2	215	37.8	74	13.0	569	100
2A-----	104	27.4	198	52.3	77	20.3	379	100
2B-----	113	37.0	144	47.2	48	15.8	305	100
3A-----	226	35.9	247	39.3	156	24.8	629	100
3B-----	186	40.9	179	39.3	90	19.8	455	100
3C-----	165	39.7	162	38.9	89	21.4	416	100
4-----	357	43.2	297	35.9	173	20.9	827	100
State-----	1,431	40.0	1,442	40.3	707	19.7	3,580	100

Table 15 - Tenure of sample farm operators by size of farm, Economic Area 1

Size of farm (acres)	Full owner		Part owner		Ten-ant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 259-----	31	79.4	4	10.3	4	10.3	39	100
260 to 499----	74	64.4	19	16.5	22	19.1	115	100
500 to 999----	103	53.7	64	33.3	25	13.0	192	100
1,000 to 1,999	61	36.3	90	53.6	17	10.1	168	100
2,000 and over	11	20.0	38	69.1	6	10.9	55	100
All farms----	280	49.2	215	37.8	74	13.0	569	100

Table 16.- Average size of sample farms by tenure of operator, Economic Area 1

Size of farm (acres)	Full owner	Part owner	Ten-ant	All operators
	Acres	Acres	Acres	Acres
0 to 259-----	170	189	160	171
260 to 499-----	395	440	406	404
500 to 999-----	724	786	700	742
1,000 to 1,999-----	1,326	1,427	1,300	1,378
2,000 and over-----	3,981	4,750	3,116	4,418
All farms-----	835	1,713	917	1,178

Table 17. - Tenure of sample farm operators by size of farm, Economic Area 2A

Size of farm (acres)	Full owner		Part owner		Tenant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 259-----	21	77.8	0	0	6	22.2	27	100
260 to 499----	41	51.9	16	20.3	22	27.8	79	100
500 to 999----	31	20.0	91	58.7	33	21.3	155	100
1,000 to 1,999	9	9.3	73	75.2	15	15.5	97	100
2,000 and over	2	9.5	18	85.7	1	4.8	21	100
All farms---	104	27.4	198	52.3	77	20.3	379	100

Table 18. - Average size of sample farms by tenure, Economic Area 2A

Size of farm (acres)	Full owner	Part owner	Tenant	All operators
	Acres	Acres	Acres	Acres
0 to 259-----	162	---	167	163
260 to 499-----	403	412	398	403
500 to 999-----	679	759	730	737
1,000 to 1,999-----	1,385	1,376	1,309	1,367
2,000 and over-----	6,000	2,752	2,115	3,031
All farms-----	629	1,140	722	915

Table 19. - Tenure of sample farm operators by size of farm, Economic Area 2B

Size of farm (acres)	Full owner		Part owner		Ten-ant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 259-----	9	60.0	2	13.3	4	26.7	15	100
260 to 499----	25	48.1	12	23.1	15	28.8	52	100
500 to 999----	64	40.5	72	45.6	22	13.9	158	100
1,000 to 1,999	13	20.0	45	69.2	7	10.8	65	100
2,000 and over	2	13.3	13	86.7	0	0	15	100
All farms---	113	37.0	144	47.2	48	15.8	305	100

Table 20. - Average size of sample farms by tenure, Economic Area 2B

Size of farm (acres)	Full owner	Part owner	Ten-ant	All operators
	Acres	Acres	Acres	Acres
0 to 259-----	149	197	140	153
260 to 499-----	405	378	403	398
500 to 999-----	697	761	697	726
1,000 to 1,999-----	1,234	1,309	1,244	1,287
2,000 and over-----	5,084	2,725	---	3,040
All farms-----	728	1,070	638	875

Table 21. - Tenure of sample farm operators by size of farm, Economic Area 3A

Size of farm (acres)	Full owner		Part owner		Tenant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 259-----	35	62.5	3	5.4	18	32.1	56	100
260 to 499----	107	53.8	42	21.1	50	25.1	199	100
500 to 999----	66	25.6	123	47.7	69	26.7	258	100
1,000 to 1,999	15	14.4	72	69.2	17	16.4	104	100
2,000 and over	3	25.0	7	58.3	2	16.7	12	100
All farms----	226	35.9	247	39.3	156	24.8	629	100

Table 22. - Average size of sample farms by tenure, Economic Area 3A

Size of farm (acres)	Full owner	Part owner	Tenant	All operators
	Acres	Acres	Acres	Acres
0 to 259-----	171	206	177	175
260 to 499-----	393	430	393	401
500 to 999-----	696	745	736	730
1,000 to 1,999-----	1,309	1,340	1,315	1,331
2,000 and over-----	2,233	2,464	2,570	2,424
All farms-----	532	907	648	708

Table 23. - Tenure of sample farm operators by size of farm, Economic Area 3B

Size of farm (acres)	Full owner		Part owner		Ten-ant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 259-----	38	77.6	1	2.0	10	20.4	49	100
260 to 499----	93	60.4	26	16.9	35	22.7	154	100
500 to 999----	47	27.0	92	52.9	35	20.1	174	100
1,000 to 1,999	8	12.0	50	74.6	9	13.4	67	100
2,000 and over	0	0	10	90.9	1	9.1	11	100
All farms---	186	40.9	179	39.3	90	19.8	455	100

Table 24. - Average size of sample farms by tenure, Economic Area 3B

Size of farm (acres)	Full owner	Part owner	Ten-ant	All operators
	Acres	Acres	Acres	Acres
0 to 259-----	167	240	162	167
260 to 499-----	393	419	403	400
500 to 999-----	713	760	677	731
1,000 to 1,999-----	1,442	1,373	1,356	1,379
2,000 and over-----	---	2,988	2,169	2,913
All farms-----	473	1,003	597	706

Table 25. - Tenure of sample farm operators by size of farm,
Economic Area 3C

Size of farm (acres)	Full owner		Part owner		Ten-ant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 179-----	36	78.3	2	4.3	8	17.4	46	100
180 to 259----	13	48.2	7	25.9	7	25.9	27	100
260 to 499----	73	41.0	58	32.6	47	26.4	178	100
500 to 999----	34	28.8	61	51.7	23	19.5	118	100
1,000 and over	9	19.2	34	72.3	4	8.5	47	100
All farms---	165	39.7	162	38.9	89	21.4	416	100

Table 26. - Average size of sample farms by tenure, Economic Area 3C

Size of farm (acres)	Full owner	Part owner	Ten-ant	All operators
	Acres	Acres	Acres	Acres
0 to 179-----	137	119	173	142
180 to 259-----	237	235	241	237
260 to 499-----	381	408	395	394
500 to 999-----	691	747	651	712
1,000 and over-----	1,435	1,477	1,129	1,439
All farms-----	437	749	462	564

Table 27. - Tenure of sample farm operators by size of farm, Economic Area 4

Size of farm (acres)	Full owner		Part owner		Ten-ant		All operators	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 to 179-----	92	82.1	2	1.8	18	16.1	112	100
180 to 259----	32	60.4	8	15.1	13	24.5	53	100
260 to 499----	158	47.4	94	28.3	81	24.3	333	100
500 to 999----	57	22.5	144	56.9	52	20.6	253	100
1,000 and over	18	23.7	49	64.5	9	11.8	76	100
All farms---	357	43.2	297	35.9	173	20.9	827	100

Table 28. - Average size of sample farms by tenure, Economic Area 4

Size of farm (acres)	Full owner	Part owner	Ten-ant	All operators
	Acres	Acres	Acres	Acres
0 to 179-----	141	157	159	144
180 to 259-----	226	233	221	225
260 to 499-----	361	401	378	376
500 to 999-----	703	720	667	706
1,000 and over-----	1,423	1,472	1,219	1,430
All farms-----	400	726	473	533

CHARACTERISTICS OF WHEAT ALLOTMENTS AND CONSERVATION
RESERVE PARTICIPATION

In most economic areas, wheat allotments expressed as a percentage of cropland tended to be smallest on farms of about 200 acres or less. In a few areas, allotments tended to be smallest for farms ranging in size from 300 to 400 acres. An exception is Area 4 (the Red River Valley) where farms of less than 500 acres, with the exception of very small-sized farms, have a slightly higher percentage of wheat allotments to cropland than the larger farms. Reasons can be hypothesized only; wheat acres were allotted on the basis of historical acreages. The underlying factors very likely are characteristic of the individual farm.

Smaller farms in areas of high risk and relatively low productivity are less likely to remain economic units when operated as straight cash grain enterprises than when a livestock operation is included. Diversification of operations tends to stabilize cash returns to a degree, particularly for the smaller farms. Most full-time farming operations on the smaller farms are of a general type. Major explanation for this situation stems from the need for maintaining income by relatively intensive land use as results on livestock farms. Too, periodical cuts in the wheat base acreage have had a more pronounced income effect on smaller farms and livestock enterprises are added or enlarged to compensate for the income loss from wheat.

Farmers operating under full tenancy had a slightly higher percentage of their land in wheat allotments than did either of the other tenure classes.

Part-farm participation in the Conservation Reserve increased directly with increase in farm size. Conversely, whole-farm participation was greatest proportionately at the small-farm level and decreased as farm size increased.

The Conservation Reserve Program was designed to take land out of production and yet maintain farm income at or near the level that would be expected if the land remained in production. Participation in the Conservation Reserve program offered a guaranteed level of income for a specified period, while leaving management decisions and the use of land that had not been entered in the Program with the farmer. The Conservation Reserve may have been especially attractive to farmers about to retire, those temporarily or permanently incapacitated, or those with opportunities for gainful off-farm employment. Participation in the Program was somewhat lower in the western half than in the eastern half of the State. Whole-farm participation was higher in most of the western areas and part-farm participation was higher in the eastern areas. Wheat allotments on farms with whole-farm contracts were substantially smaller than on farms with part-farm contracts or farms remaining out of the Program. Farmers with part-farm contracts averaged 118 planted acres of wheat and 147 acres of allotment.

Table 29. - Sample farms: Wheat allotments as percentage of cropland, by total cropland acreage and economic area

Cropland acreage	Area 1	Area 2A	Area 2B	Area 3A	Area 3B	Area 3C	Area 4	State
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Under 80-----	19.6	11.2	18.7	16.5	36.0	12.2	19.8	17.3
81 to 120-----	28.8	24.8	24.0	19.3	22.9	16.3	24.9	22.7
121 to 180-----	30.1	30.9	28.1	26.4	22.3	13.4	22.9	23.5
181 to 300-----	32.3	30.6	27.2	26.3	23.6	15.0	23.2	25.6
301 to 420-----	29.4	31.1	30.6	28.4	23.7	13.4	23.2	25.2
421 to 540-----	32.6	30.9	27.3	27.0	23.2	15.2	22.0	25.4
541 to 700-----	33.0	31.8	26.4	28.1	25.3	16.9	22.5	26.5
701 to 860-----	31.1	31.9	29.9	29.9	25.3	14.1	20.9	26.7
861 to 1,060-----	32.6	31.7	25.3	27.5	26.0	12.6	21.0	26.2
1,061 and over-----	33.0	31.2	21.0	27.6	24.8	12.7	22.2	26.5
All farms-----	32.5	31.6	28.1	28.3	24.8	14.5	22.8	26.3

Table 30. - Sample Farms: Average size, amount and percentage of cropland, and size of wheat allotment, by tenure and economic area

Economic area	Full owner				Part owner				Tenant			
	Size of farm		Acres	Wheat allot.	Size of farm		Acres	Wheat allot.	Size of farm		Acres	Wheat allot.
	Acres	Percent			Acres	Percent			Acres	Percent		
1-----	835	401	48.0	128	1,713	641	37.4	210	917	473	51.6	160
2A-----	629	365	58.0	112	1,140	720	63.2	230	722	447	61.9	136
2B-----	728	357	49.0	106	1,070	480	44.9	128	638	344	53.9	103
3A-----	532	392	73.7	109	907	676	74.5	190	648	486	75.0	142
3B-----	473	353	74.6	85	1,003	726	72.4	182	597	454	76.0	115
3C-----	437	315	72.1	44	749	531	70.9	79	462	353	76.4	53
4-----	400	353	88.3	79	726	627	86.4	141	473	418	88.4	94
State----	562	363	64.6	95	1,034	637	61.6	169	611	433	70.9	114

Table 31 - Participation of sample farms in Conservation Reserve, by size of farm

Size of farm (acres)	No participation		Part farm participation		Whole farm participation		All farms	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Under 100-----	27	67.5	0	0	13	32.5	40	100
100 to 179-----	168	66.7	18	7.1	66	26.2	252	100
180 to 259-----	103	78.0	11	8.3	18	13.7	132	100
260 to 499-----	881	79.4	102	9.2	127	11.4	1,110	100
500 to 999-----	1,089	83.3	164	12.5	55	4.2	1,308	100
1,000 to 1,999--	513	84.0	91	14.9	7	1.1	611	100
2,000 and over--	109	85.8	18	14.2	0	0	127	100
All farms----	2,890	80.7	404	11.3	286	8.0	3,580	100

Table 32. - Participation of sample farms in Conservation Reserve,
by economic area

Economic area	No participation		Part farm participation		Whole farm participation		All farms	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1-----	477	83.8	34	6.0	58	10.2	569	100
2A-----	316	83.4	28	7.4	35	9.2	379	100
2B-----	268	87.9	27	8.8	10	3.3	305	100
3A-----	499	79.4	82	13.0	48	7.6	629	100
3B-----	352	77.4	60	13.2	43	9.4	455	100
3C-----	331	79.6	53	12.7	32	7.7	416	100
4-----	647	78.2	120	14.5	60	7.3	827	100
State-----	2,890	80.7	404	11.3	286	8.0	3,580	100

Table 33. - Characteristics of sample farms, by participation in the Conservation Reserve and by economic area

Economic area	No participation				Part farm participation				Whole farm participation			
	Size of farm		Cropland		Wheat allot.		Size of farm		Cropland		Wheat allot.	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
1-----	1,252	517	41.3	168	1,301	605	46.5	192	510	312	61.2	109
2A-----	968	604	62.4	172	814	525	64.5	164	547	301	55.0	96
2B-----	891	419	47.0	119	913	420	46.0	110	453	261	57.6	67
3A-----	698	518	74.2	149	955	728	76.2	194	389	273	70.2	75
3B-----	732	538	73.5	118	841	623	74.1	150	311	234	75.2	56
3C-----	552	397	71.9	63	776	577	74.4	78	363	237	65.3	30
4-----	534	466	87.3	104	639	534	83.6	135	302	248	82.1	54
State-----	788	495	62.8	132	836	591	70.7	147	405	269	66.4	72

-34-