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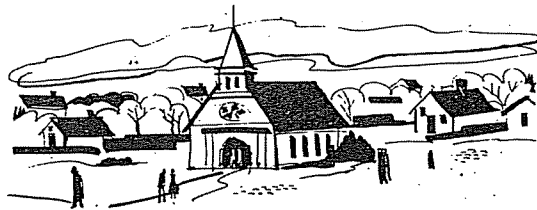
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EFFECTS of the SOIL BANK PROGRAM

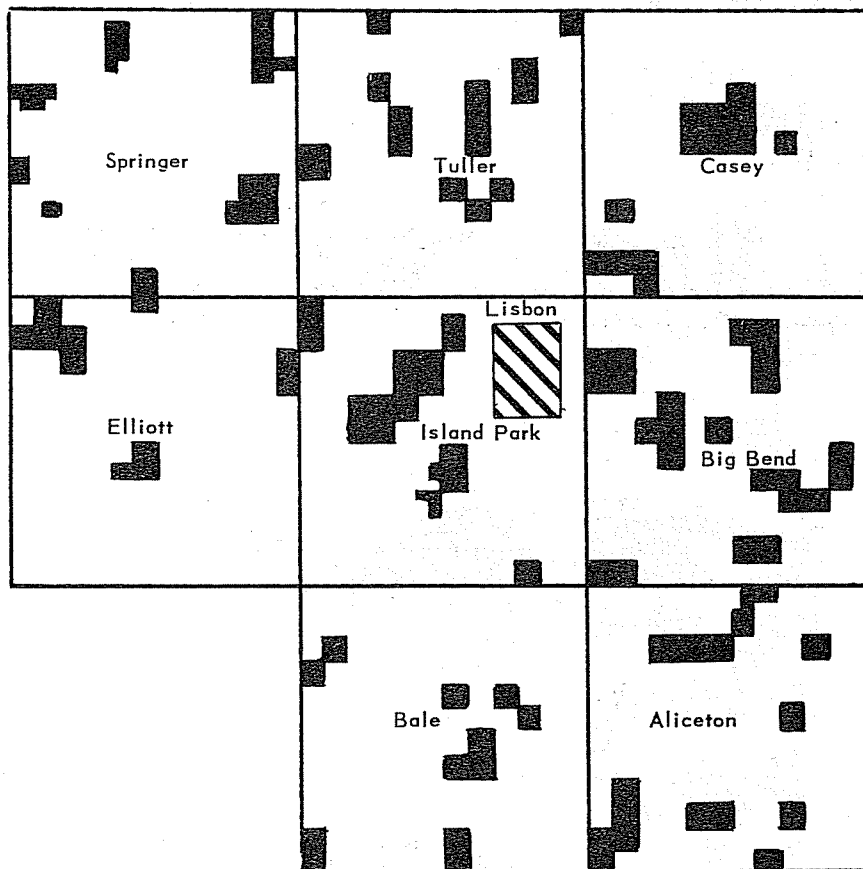


ON A
**NORTH DAKOTA
COMMUNITY**

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**FIG. I. Location of Sample Farms by Townships,
Ransom County, North Dakota**



The sample included 59 whole farms (farms having all eligible land in soil bank) in 8 townships. These farms averaged 324 acres in size and included a total of 19,382 acres of farm land, of which 14,543 acres were in the soil bank.

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EFFECTS OF THE SOIL BANK PROGRAM
ON A NORTH DAKOTA COMMUNITY

Fred R. Taylor, Laurel D. Loftsgard, LeRoy W. Schaffner¹

INTRODUCTION

In 1960, 28,659,973 acres were in the soil bank conservation reserve in the United States. This acreage represented 306,182 soil bank contracts with annual rental payments of \$339,546,311.²

North Dakota was the second highest state in terms of total acreage in the soil bank. In 1960, it had 2,720,786 acres in the soil bank conservation reserve or about 10 per cent of its total cropland. There were 12,375 contracts and annual rental payments totaled \$27,238,648. Approximately 7,804 whole farms,³ or 14 per cent of all North Dakota commercial farms, were placed in the soil bank.

The soil bank program as it is now constituted under the Conservation Reserve section of the Soil Bank Act is a long-term program designed to divert land that is regularly used in crop production to conservation uses. This program is designed to help adjust farm production to market demands and to increase the conservation of soil, water, forest and wildlife resources. The program is implemented by government assistance in establishing conservation practices and by making annual payments for land placed under the program.

All farm land regularly used in producing crops, including tame hay was eligible. To participate, a farmer enters into contracts of three to ten years duration. He agrees to keep a designated area of cropland out of production for the duration of the contract and to provide for soil protection with permanent vegetative cover.

The federal government assists cooperators by sharing up to 80 per cent of the cost of establishing conservation practices in addition to making annual payments during the period of the contract. The Agricultural Stabilization and Conservation Service (ASC) of the U. S. Department of Agriculture is responsible for the program.

Some of the basic considerations under the Conservation Reserve contract are as follows:

Diversion and Nondiversion Payments

On farms where only part of the eligible land is placed in the Conservation Reserve, there are two rates of payment. One, the diversion rate, is paid for the acreage placed in the program representing a reduction in acreage normally devoted to soil bank base crops on the farm. The other, the nondiversion rate, is 50 per cent of the diversion rate approved for the contract and is paid for acreage in the contract which does not represent a reduction in the normal acreage devoted to soil bank base crops on the farm.

¹Agricultural Economist, Associate Agricultural Economist and Assistant Agricultural Economist, North Dakota Agric. Exp. Sta.

²Agricultural Statistics, USDA, 1960, p. 530.

³"Whole farms" are defined here as farms which have all eligible land on the farm in the soil bank.

Duration of the Contract

The contract may not be for less than three years nor more than ten, depending on the practice to be used on the land and the wishes of the farmer.

Contracts for three years are limited to eligible cropland on which there is an approved vegetative cover at the time the contract goes into effect.

Contracts for land on which conservation practices are to be established must be for at least five years, except that contracts covering land to be planted to trees must be for ten years.

The Contract Agreement

A. In the contract, the Secretary of Agriculture agrees to:

- (1) Share the cost of establishing approved conservation practices on the land placed in the program.
- (2) Pay an annual rental on this land while the contract is in effect.
- (3) Protect during the contract period the acreage allotment history if acreage of allotment crops is diverted into the program.

B. In the contract, a farmer agrees to:

- (1) Place specific tracts of land in the program.
- (2) Keep the land in the approved practice throughout the contract.
- (3) Harvest no crop from this land, except wildlife, or timber under good forest management.
- (4) Permit no grazing on this land.
- (5) Prevent the spread of noxious weeds.
- (6) Comply with acreage allotments.

The 1961 crop year will be the sixth year of the Conservation Reserve. Some farms placed in the program in 1956 are now reaching the end of their contract period. It appears that future plans for continuing the soil bank program are uncertain at this time.

The Sample Area

The sample area used as a base for this study is located in Ransom county, North Dakota. A total of 70,157 acres, or 18 per cent of the total cropland acreage, was in the soil bank in Ransom county in 1960. Annual rental payments were \$769,069 and 370 contracts were involved. For 1960, Ransom county had 226 whole farms placed in the soil bank.

The sample upon which this study is based included a total of 59 whole farms within the trade area of Lisbon, North Dakota. These sample farms constituted 16 per cent of all farms that had all or part of their acreage soil banked and 26 per cent of the "whole farms" in Ransom county in the soil bank.

The 59 sample farms had 14,543 acres in the soil bank program. The soil bank acres on these farms constituted approximately 21 per cent of all soil bank acres in Ransom county in 1960. The average size of the 59 farms was 324 acres as compared with an average size of 470 acres for all farms in Ransom county in 1959.⁴

Objectives and Procedure

There have been many conflicting statements regarding the effects of the soil bank program on the agriculture of North Dakota, on individual farm incomes, on family living and on the rural communities of North Dakota. This study was designed to make some objective evaluations of the economic impacts of the soil bank program on one community.

Two major objectives formed the basis of the study:

1. To determine effects on level and stability of farm income from placing whole farms in the soil bank program.
2. To evaluate economic and social impacts of land retirement with respect to farmers directly concerned and their local community.

The Lisbon community was chosen for this study because: (1) Ransom county has the third highest percentage of cropland in the soil bank in North Dakota, (2) the Lisbon trade area is fairly well insulated from other market areas, and (3) the survey was made in late December at which time Lisbon was an accessible area in case of inclement weather.

The area selected for study included Springer, Tuller, Casey, Big Bend, Aliceton, Bale, Island Park and Elliott townships, most of which are within the Lisbon trade area.

A complete list of farms which had all eligible land in the soil bank was obtained from the county ASC office for the sample area. These farms were platted on a map and tabulated according to name of owner, address, location of farm, farmland acres, cropland acres and other pertinent data.

A personal interview survey of the sample farmers was made by staff members of the Department of Agricultural Economics during a two day period.⁵

The Lisbon Community

Lisbon is the county seat and is centrally located in the county. It was named by two settlers for their home cities of Lisbon, New York, and Lisbon, Illinois. The first settlers arrived in 1878 and two years later the town site was platted. Lisbon is located on the Sheyenne river at an altitude of 1,187 feet.

⁴1959 Census of Agriculture, Preliminary, Bureau of the Census.

⁵Special acknowledgment and credit is given to Clark Jenkins, Agricultural Director of the Greater North Dakota Association, who assisted in taking the interviews and preparing the schedule.

Lisbon is the natural shopping and marketing center for a large part of the farmers living in the southern and central parts of Ransom county. Lisbon is the center of a school reorganization district and has practically doubled its school facilities in the past five years. It has a community hospital and the North Dakota Soldiers Home.

Business of the Lisbon community are largely dependent upon the economic well-being of farmers in the trade area. When crops are good and farm income high, business prospers; when farm income is depressed, community income declines.

In 1910 the population of Lisbon was 1,785; in 1960 the population was 2,093, for a net increase of 335 (table 1). The population of Ransom county changed from 10,345 in 1910 to 8,078 in 1960.

TABLE 1. POPULATION OF LISBON AND RANSOM COUNTY

Year	Lisbon		Ransom County	
	Number	Change	Number	Change
1910	1,758	--	10,345	--
1920	1,855	+ 97	11,618	+1,273
1930	1,650	-205	10,983	- 635
1940	1,997	+347	10,061	- 922
1950	2,031	+ 34	8,876	-1,185
1960	2,093	+ 62	8,078	- 798

Data on assessed taxable valuation of property for Lisbon and Ransom county during the period 1953-60 show that total taxable valuation for Lisbon increased by \$191,946, while that for Ransom county decreased by \$87,772 (table 2). These data along with similar data for other towns in Ransom county show declines in property valuations for the rural areas as compared with increases in property valuation in the towns. Part of this decrease in property valuation for the rural areas might be attributed to the fact that some 370 farms were placed in the soil bank during this period.

TABLE 2. ASSESSED PROPERTY VALUATIONS, LISBON AND RANSOM COUNTY

Year	Lisbon			Ransom County	
	Taxable Valuation	Change	Per Cent of County Total	Valuation	Change
1953	\$ 967,122	--	10.5	\$ 9,172,877	--
1954	990,694	+23,572	10.8	9,161,158	-11,719
1955	1,079,027	+88,333	11.7	9,218,741	+57,583
1956	1,102,645	+23,618	12.1	9,084,045	-134,696
1957	1,115,979	+13,334	12.2	9,019,961	-64,084
1958	1,113,373	-2,606	12.4	8,989,381	-30,580
1959	1,146,810	+33,437	12.4	9,255,588	+266,207
1960	1,159,068	+12,258	12.6	9,105,105	-150,483

The assessed valuation of real, personal and other property, taxes levied upon various classes of property, tax levies, sales and use tax receipts, and bank debits for Lisbon and Ransom county, were studied to determine relationships that might exist among them and the amount of land in the soil bank. These statistics did not reveal significant trends which could be attributed to land being taken out of production and placed in the soil bank program.

FARMS AND FARMERS IN THE SAMPLE

The sample on which this study is based included 59 farms within the trade area of Lisbon which had all eligible acres in the soil bank (figure 1). There were 74 whole farm contracts in the sample area. However, four owners lived outside the state and 11 owners lived outside the Lisbon trade area so were not included in the study.

Number and Size of Farms

The average size farm was 324 acres, ranging from 137 to 707 acres. The average cropland acreage on these farms was 250, ranging from 49 to 589 acres.

Table 3 shows the distribution of farms by size for the 59 soil bank farms.

TABLE 3. DISTRIBUTION OF FARMS BY SIZE, 59 FARMS, RANSOM COUNTY

Total Acres	Number	Per Cent
137 - 239	15	25.4
240 - 399	33	55.9
400 - 599	6	10.2
560 - 707	5	8.5
Total	59	100.0

There were 19,090 total acres on these 59 sample farms of which 14,543 acres, or approximately 76 per cent, were in the soil bank.

Age and Tenure of Operators

The average age of the owner of these farms was 52 years. The owners ages ranged from 19 to 74 years. Table 4 shows the age distribution of the owners of the 59 farms in the soil bank.

TABLE 4. DISTRIBUTION OF FARMS BY AGE OF OWNER, 59 FARMS, RANSOM COUNTY

Age in Years	Number	Per Cent
39 and under	14	23.7
40 - 44	4	6.8
45 - 49	7	11.9
50 - 54	3	5.1
55 - 59	11	18.6
60 - 64	6	10.2
65 and over	14	23.7
Total	59	100.0

The average number of years the sample farms were owned before being placed in the soil bank was 14.6 years. Ownership ranged from 0 to 50 years. Several farms were placed in the soil bank during the first two years of the program when a farm could be bought and placed in the soil bank immediately.

Eighty-five per cent of the farms were operated by the owner before being placed in the soil bank. Twelve per cent of the farms were operated by tenants, one by the owner's father and one by a previous owner (table 5).

TABLE 5. FARM OPERATION BEFORE SOIL BANK, 59 FARMS, RANSOM COUNTY

Operated by	Number	Per Cent
Owner	50	84.7
Tenant	7	11.9
Father	1	1.7
Previous owner	1	1.7
Total	59	100.0

Seven of the 59 farms were operated by tenants at the time these farms were put in the soil bank. Two of these tenants wanted to continue farming, six owned and operated other land, and only one quit farming because the farm was soil banked. Three tenants were related to the owner. No tenants moved to another farm because the farm was placed in the soil bank.

Four of the seven tenants share the soil bank payments with the owner. Two tenants receive one-half share, one receives one-fourth share and one receives one-third share.

Operator's Residence and Retirement Status

Thirty-five farmers resided on the farm before it was placed in the soil bank. Fourteen lived in Lisbon and nine lived on another farm, while one owner lived in another town. After the farms were placed in the soil bank, six farmers moved off the farm, of which four moved to Lisbon (table 6).

Thirteen owners (22 per cent) who placed their farms in the soil bank have retired. Ten of these reported that placing the farm in the soil bank permitted them to retire. Forty-nine owners stated that placing the farm in the soil bank had no effect on their retirement; they either had already retired or did not plan on retiring. Ten owners stated that they were receiving old age assistance payments.

Twelve farm owners (20 per cent) reported owning and operating other farm units not in the soil bank program. Eight were operating the farm units themselves and four were being operated by tenants. The average number of acres of total farmland in these 12 units was 494, comprised of an average of 419 acres of cropland, 45 acres of permanent pasture and 30 acres of wasteland, roads, fencelines etc. Six owners stated that the productivity of the farm placed in the soil bank

was the same as the other farm units they were operating. Three stated the productivity of the soil bank farm was greater and two said it was less.

TABLE 6. FARM OPERATORS RESIDENCE BEFORE AND AFTER PLACING FARM IN SOIL BANK, 59 FARMS, RANSOM COUNTY

Residence	Before		After	
	Number	Per Cent	Number	Per Cent
Soil bank farm	35	59	29	49
Lisbon	14	24	18	31
Another farm	9	15	8	14
Another N. Dak. town	1	2	2	3
Outside North Dakota	0	--	2	3
Totals	59	100	59	100

Five owners reported owning other farm units that are in the soil bank program in addition to those included in this sample. The average size of these units was 251 acres, located in Ransom, Cass, Grant and Eddy counties. The average distance to these units from where they were residing was 39 miles.

Reasons for Placing Farm in Soil Bank

The 59 cooperating farmers were asked to give their reasons for placing the farm in the soil bank. They were asked to rank these reasons from most important to least important. Income was the most often mentioned reason for their first and second reasons. Approximately 44 per cent of the owners of farms that had been soil banked listed income as their first reason. Poor health and the wish to retire from farming were mentioned by 37 per cent and 19 per cent mentioned other miscellaneous reasons, table 7.

TABLE 7. REASONS FOR PLACING FARM IN SOIL BANK, 59 FARMS, RANSOM COUNTY

First Reason	Per Cent	Second Reason	Per Cent
1. Income - - - - -	44	1. Income - - - - -	60
More stable income	31	More stable income	26
Higher income	10	Higher income	25
Supplement income	3	Supplement income	9
2. Health and retirement - - -	37	2. Retire, etc. - - - - -	19
Poor health	17	Retire	4
Retire	10	Relief from farm	
Relief from farm		responsibilities	11
responsibilities	7	More leisure time	4
More leisure time	3		
3. Other - - - - -	19	3. Other - - - - -	21
Improve production	5	Improve production	11
Needed machinery	5	Cut surpluses	6
Unit too small	3	Needed machinery	4
Outlook for ag. not good	2		
Labor problems	2		
Investment	2		

Demand for Land in Soil Bank Farms

An attempt was made to determine whether the placement of the farm in the soil bank affected the demand and supply of land in the community. When asked if they had denied any requests to rent out their farms rather than placing them in the soil bank, 9 out of 56 farmers replying stated they had denied requests. Eight said they had denied the request of established farmers and one a beginning farmer.

Three owners stated that their children wanted to begin farming on the farm they had placed in the soil bank; 11 owners didn't know whether or not their children wanted to farm the soil bank farm. Fourteen owners reported that their children plan to operate the farm when the soil bank contract ends.

Duration and Payments of Contracts

The most frequent length of the soil bank contract on the 59 farms was 10 years. Although the contracts varied from 5 to 10 years, 70 per cent of the contracts were for 10 years (table 8).

TABLE 8. DURATION OF SOIL BANK CONTRACTS, 59 FARMS, RANSOM COUNTY

Years	Number ¹	Per Cent
5	15	25
7	4	6
9	1	2
10	41	67
Total	61	100

¹Some farms had more than one contract.

The time that these contracts expire and the amount of acreage affected is of concern to the community. At the time this study was made, it was not clear whether or not these contracts can and will be renewed when they expire. Approximately 15 per cent of the contracts on the 59 farms will expire by 1963, (table 9).

TABLE 9. EXPIRATION DATE OF SOIL BANK CONTRACTS, 59 FARMS, RANSOM COUNTY

Expiration Date	Number of Contracts	Acreage	Per Cent of Total Acreage
1962	2	230	1.6
1963	11	1,934	13.3
1964	4	846	5.8
1965	5	807	5.5
1966	5	1,092	7.5
1967	9	2,499	17.2
1968	21	4,637	31.9
1969	11	2,498	17.2
Total	68	14,543	100.0

Payments for contracts on these 59 farms ranged from \$8.34 to \$14.00 per acre. The most frequent payment ranged between \$11.50 and \$12.50 per acre (table 10) Also, those contracts for only part of the farm had a lower payment than those which either brought all the remaining eligible acres under the program or put the whole farm under contract.

TABLE 10. SOIL BANK PAYMENTS, 59 FARMS, RANSOM COUNTY

Range in Dollars	Number	Per Cent
\$ - 8.34	1	1.7
9.00 - 9.49	1	1.7
9.50 - 9.99	1	1.7
10.00 - 10.49	9	15.3
10.50 - 10.99	5	8.5
11.00 - 11.49	6	10.1
11.50 - 11.99	10	16.9
12.00 - 12.49	10	16.9
12.50 - 12.99	9	15.3
13.00 - 13.49	3	5.1
13.50 - 13.99	2	3.4
14.00 -	2	3.4
Total	59	100.0

The average payment per acre for all contracts was \$11.70. Payments per acre were lower during the early years and somewhat higher during the later period (table 11).

TABLE 11. AVERAGE PAYMENTS, SAMPLE FARMS AND RANSOM COUNTY

Year	County average (dollars)	Average for sample farms (dollars)
1957	9.98	10.29
1958	9.62	10.81
1959	11.73	12.00
1960	11.82	11.93
All years	10.79	\$ 11.70 ¹

¹Weighted average.

FARM OPERATIONS AND PRACTICES BEFORE SOIL BANKING

Ransom county is included in the wheat-corn transition area which is characterized by a cash-grain type of farming. Soil bank farms in the survey sample are located on the Barnes-Aastad and Aastad-Hamerly-Barnes soil associations. These soils are medium textured and are affected more by drouth than the heavier soils in the Red River Valley. Accordingly, crop yields fluctuate widely and the level of annual farm income is highly dependent on moisture conditions throughout the year.

Value and Productivity of Farms

Land values for the 59 survey farms were reported in a range from \$32 to \$100 per acre, with an average value of \$69 per acre. Most farmers indicated their soil bank farms were increasing in value. However, it would be difficult to distinguish the amount of increased value resulting from these acres being in the soil bank because North Dakota land prices in general have been steadily increasing during latter years.

Physical productivity of the 59 soil bank farms was determined by using a detailed soils map of the area and assigning productivity ratings to each land tract. These ratings were "good", "average", "below average" and "poor" with weightings of 4,3,2 and 1, respectively. This method made it possible to assign a productivity number to each soil bank tract and average the productivity for all land tracts included in the survey.

The computed weighting factor for all soil bank farms was 2.83. Since "average" productivity was equal to 3.00, the physical productivity for land in the soil bank was determined as being just slightly less than the average productivity for Ransom county as a whole.

Further evidence that land placed in the soil bank was near average land in terms of productivity is that the average land value reported for the soil bank farms of \$69 per acre, was exactly the same as the average land value for Ransom county in 1960.⁶

Crop and Livestock Operations

Major crops grown in the survey area were wheat, oats and barley. In addition to other small grain crops, corn silage and tame hay were produced on farms having livestock. Table 12 shows the percentage of cropland used for each crop and summerfallow, average crop yields and per cent of local marketing for the 59 soil bank farms.

As mentioned previously, average farm size was 324 adres. About 77 per cent, or 250 acres, of the total farmland acreage was cropland.

⁶See "Land Prices Continue Up" by Lembke and Loftsgard, North Dakota Farm Research, March-April, 1961, Vol. 21, No. 10.

TABLE 12. PRE-SOIL BANK LAND USE, AND LOCAL MARKETING OF PRODUCTION, 59 FARMS, RANSOM COUNTY

Crop or land use	Average yield	Per cent of cropland used	Per cent of production marketed locally for cash
Oats	33.0 bu.	21%	46%
Wheat	16.0 bu.	20%	80%
Barley	24.0 bu.	18%	74%
Tame hay & pasture	1.5 ton	13%	24%
Flax	8.0 bu.	7%	82%
Corn grain	25.0 bu.	7%	43%
Summer fallow	---	6%	--
Corn silage	4.5 ton	4%	--
Millet	22.0 bu.	3%	72%
Rye	21.0 bu.	1%	75%

Waste, roads, farmstead, permanent pasture, etc., accounted for the remaining acreage or about 13 per cent of the total acreage. By using average crop yields, current costs and current product prices, the average net income per acre of cropland and per farm before soil banking was computed as follows:

Average gross income per acre of cropland = \$19.38
 Average total costs per acre of cropland = 7.38
 Average net income per acre of cropland = \$12.00
 Average net crop income per farm = 250 A. X \$12.00 = \$3,000

Since the above income figures are average composite figures for all 59 farms, they both overestimate and underestimate actual crop incomes on individual farms. Some operators indicated they had never "made any money" from their farm until they soil banked it. A more correct statement may be that they had never accumulated any capital with the income from their farms. Also, the cost figures used above do not include all fixed costs incurred on these farms. Instead, the total costs shown include all variable costs plus fixed costs in the form of machinery depreciation that is no longer realized on these farms. That is, many of the 59 farms sold part or all of their machinery after soil banking their farms. The resulting reduction in fixed costs was proportioned among all farms when determining the average total costs per acre of cropland. This procedure for handling fixed costs allows a direct comparison of net incomes before and after the soil bank enrollment.

As shown in table 12, the major share of crop production sold for cash was marketed locally. Relatively low percentage figures are shown for some feed grains, tame hay and silage because much of this production was fed to livestock rather than marketed for cash. Only a small proportion of the production not marketed locally for cash was marketed for cash outside of the Lisbon community.

In most cases, livestock production on these farms had been quite limited. Milk cow herds and beef cow herds were the major livestock enterprises found in this area. Only 32 per cent of the farmers had reduced livestock numbers because of soil banking their farms. Many farmers in the 68 per cent who had no change in livestock numbers had no livestock before or after placing their farm in the soil bank. No attempt was made in this study to show livestock numbers before and

after these farms had been soil banked. The income analyses made in a later section required data only on changes in production inputs and marketings. Thus, farmers were asked to give only their changes in livestock numbers.

All livestock production, other than butterfat which was always sold locally, was sold outside of the Lisbon community, except for a few head of cattle sold to neighbors. The major marketing outlet for cattle, sheep and hogs was the livestock terminal at West Fargo about 70 miles from Lisbon.

Special Management Practices

The level of individual farm income is dependent not only on size of farm and the amount of operating capital employed but also on managerial practices or how resources are used in the farm business. Accordingly, it is conceivable that farm units which are soil banked may tend to be those units where recommended management practices are not generally used and where new technology has not been widely adopted. The 59 farmers in the survey were asked questions regarding their use of certain recommended farming practices. These replies are summarized in table 13.

TABLE 13. USE OF RECOMMENDED FARMING PRACTICES BEFORE SOIL BANKING, 59 FARMS, RANSOM COUNTY

Farm practice	Farmers reporting use of practice		Per cent of farmers using practices on:		
			Less than 50% of cropland	50% of Cropland	More than 50% of cropland
	Number	Per cent		Per cent	
Spraying for weeds	42	71	32	10	29
Fertilizer use	19	32	24	0	8
Soil testing	6	10	7	0	3
Use of new seed	43	73	22	2	49

Another practice with farm management implications concerns the use of farm records. Of the 59 farmers in the survey, 42 or more than 70 per cent, did not keep any type of farm record book. The other 17 farmers had maintained some sort of farm records but it appeared that none had kept detailed farm records which encompassed all phases of their farm business.

The minor role in the farm business given to the above practices, coupled with relatively low livestock numbers on these farms, indicate that income from these farms before they were soil banked could have been increased significantly, not only by improved management operations but also by greater intensity of resource use.

Machinery Considerations

A reason given by several farmers for placing their farms in the soil bank was that they couldn't afford or didn't care to make investments in machinery that was needed to continue their farming operations. On the other hand, the soil bank permitted some farmers to sell much of their machinery, thereby reducing corresponding fixed costs and personal property taxes.

Approximately one-half of the soil banked farms would have had to make an average investment of \$5,743 in machinery if they had continued to operate for another five years. Nearly all of this investment would have been used to replace wornout machinery rather than to add new or different machines.

Machinery sales were made by 44 per cent of the farms soil banked. An average of \$2,578 of machinery per farm was sold by this 44 per cent group. More than one-half, or 57 per cent of the total value of these sales was made to neighboring farmers. Local machinery dealers purchased 23 per cent of this machinery and 20 per cent was sold to buyers outside of the Lisbon community. Summary figures concerning both machinery sales and potential machinery investment are presented in table 14.

TABLE 14. POTENTIAL MACHINERY INVESTMENT AND ACTUAL MACHINERY SALES, 59 FARMS
RANSOM COUNTY

Item	Machinery investment needed to continue farming for five years	Value of machinery sold because farm was soil banked
Average for actual farms involved	\$ 5,743	\$ 2,578
Average for all farms	2,920	1,136
Total for all farms	\$172,300	\$67,025
Average per 100 acres soil banked	\$ 1,185	\$ 461

The income effects on the local community, particularly machine dealers, from potential machinery investments and actual machinery sales made by farmers are two-fold. First, machinery dealers lose the profit from machinery investments which would have been made if these farms hadn't been soil banked. Second, they lose profit from potential machinery sales to non-soil bank farmers because of used machinery sold in the community by farmers who soil banked their land. Actual measurement of these income losses to the community is included in a later section of this report.

OPERATOR'S STATUS AND RELATED FACTORS AFTER SOIL BANKING

More than 93 per cent of the farmers had some other source of income, in addition to soil bank payments, after they had placed their farm in the soil bank. Post-soil bank occupations with the number and per cent of farmers in each occupation were as follows:

<u>Occupation</u>	<u>Number of Soil Bank Farmers</u>	<u>Per Cent of All Soil Bank Farmers</u>
Farming	17	29
Retired	13	22
Employed in Lisbon	12	20
Operated business in Lisbon	8	14
Education	3	5
Other ¹	6	10

¹Includes custom farm work, railroad employment and various temporary jobs.

Even though many of the soil bank farmers had acquired off-farm employment, 86 per cent maintained their original residence. About seven per cent of the farmers moved to Lisbon and a very small per cent moved out of the community and out of state. Off-farm employment because of farms being soilbanked was reported to give a total income of \$37,337 for the 59 farms.

Farm Expenses

Farmers who soil bank their farms are supposedly obligated to control noxious weeds on their retired acreage. Consequently, a certain amount of variable expense still is incurred on this acreage even though it is out of production. For the 59 farms surveyed in this study, average annual operating expenses on the retired acreage were \$226 per farm, or \$.92 per acre. For many farmers, this expense was in the form of custom hire because they had disposed of their own machinery.

Taxes

Since machinery and livestock inventories on many farms were reduced as a result of soil banking the tillable acreage, personal property taxes also had been reduced. Twenty-one of the 59 farms surveyed reported an average decrease of \$56.10 in personal property taxes. Accordingly, the total personal property tax decrease was \$1,178.10, or an average of approximately eight cents per acre on the total soil banked cropland in the survey.

Use of and Income from Non-Diverted Acreage

Non-diverted acreage, mostly in the form of hayland and permanent pasture, was utilized in some cases after the farm had been soil banked even though this source of potential income had been essentially ignored when the farm had been cropped. Some farms used such acreage for livestock production, both before and after soil banking. For analysis purposes of this study, only the first-mentioned group of farms was important because they had income changes resulting from land use changes. Those farmers utilizing non-diverted acreage both before and after

the soil bank had no changes in income resulting from non-diverted acreage in the soil bank.

The average net income per farm realized from non-diverted acreage, and because the farm had been soil banked, was \$13. Thus, the total net income change from farm land not in the soil bank for the 59 farms was \$767. Obviously, many of the soil banked farms had little or no acreage in this class.

Income From Soil Bank Acreage

The 59 farms surveyed represented 14,543 acres of cropland that had been soil banked. Gross payments for this acreage totaled \$170,153, or an average of \$11.70 per acre and \$2,884 per farm. The actual payments received by farmers ranged from \$8.34 per acre to \$14.00 per acre.

Relation to Productivity

A much discussed idea is that soil bank payments in general tend to be "too low" for high productive land and "too high" for low productive land. Based on productivity classes described in a previous section, an attempt was made to correlate the payments for the survey farms with their productivity. However, only a somewhat sketchy analysis was possible because of the limited number of farms in the sample. Too, no detailed measurements or statistical analyses were made to determine the exact and significant relationships between payments and productivity. The main reason for this was because less than 10 per cent of the soil banked units were in the two classes of "below average" and "poor".

A comparison of land productivity and the corresponding average payments is shown in table 15. As noted, the average payment declines as productivity declines but, again, one is urged to use caution here in making definite conclusions because of few numbers of farms involved.

TABLE 15. AVERAGE SOIL BANK PAYMENT PER ACRE BY LAND PRODUCTIVITY CLASSES, 59 FARMS, RANSOM COUNTY

Productivity Class	Average Payment Per Acre
"Good"	\$ 11.75
"Average"	11.24
"Below Average"	10.66
"Poor"	10.33

Livestock Income

For all 59 farms in the survey, total livestock numbers had been reduced approximately 600 animal units because these farms were soil banked. The corresponding net income, also reduced, was estimated as \$13,585. This reduction in income must be considered with the reduction in crop income when comparing the income status of farmers before and after the soil bank. In cases where livestock numbers were unaffected by retiring the cropland acreage, no livestock income changes were considered. A summary and analysis of all income changes are given in the next section.

ANALYSES OF INCOME CHANGES AND RELATED IMPACTS

Total impacts of land retirement, or supply control by taking land out of production, go beyond the realm of changes in income to participating farmers. Although the two groups most directly involved are the farmers themselves and the community in which they reside, indirect effects are caused by a chain of reactions resulting from reduced production. Smaller supplies of inputs are needed in the form of seed, fertilizer, fuel, repairs and so on. Likewise, less output is marketed which requires less marketing facilities and a reduction in income from marketing margins. One can readily see how these factors have far reaching effects that include transportation, wholesalers, manufacturers and others. The emphasis in this study, however, is to show actual measurements of income changes and their impacts on the participating farmers and their community.

Effects on Soil Bank Farmers

A summary and comparison of income figures before and after soil banking are presented for the 59 sample farms in table 16. Each of the items involved has been discussed in preceding sections.

TABLE 16. INCOME ESTIMATES AND COMPARISONS BEFORE AND AFTER SOIL BANKING, 59 FARMS, RANSOM COUNTY

Before Soil Banking		After Soil Banking	
Item	Amount	Item	Amount
Total gross income from crops	\$281,843	Total soil bank payments	\$170,225
Total variable expenses	82,459	Income from non-diverted acreage	763
Total decrease in fixed expenses	25,465	Off-farm employment	37,337
Total net income from crops	\$173,919	Total gross income	\$208,325
Total net income from live-stock	13,585	Total expenses	13,380
Total net income	\$187,504	Total net income ¹	\$194,945
Total increase in income after soil banking, 59 farms		\$ 7,441.00	
Average increase per farm		126.00	
Average increase per cropland acre		.51	

¹Refers to net income before all taxes and living expenses are subtracted.

As shown in table 16, farmers' income was little changed as a result of soil banking. In fact, if off-farm employment was not included in the total income after soil banking, total income for these farmers would be highest before they soil banked. These figures also support the fact that more stable income rather than higher income was a major reason given for soil banking.

Effects on the Community

The income impacts of land retirement on the local community are directly realized in several ways. Probably the most obvious effects are the loss in marketing margins from the decreased use of production inputs and from the reduction in volume of output handled. Other income impacts stem from changes in consumption expenditures by the soil bank farmers. That is, if they move out of the community they no longer spend money there for living costs. Accordingly, local businesses, schools, churches and other organizations may be affected by changes in loss of population. Another consideration is that many of the soil bank farmers compete with townspeople for off-farm employment. Both the sociological and economic aspects of these factors are important.

Changes in Production Inputs

Production inputs included fuel, oil, repairs, fertilizer, chemicals, seed, feed and other miscellaneous items. Dealer's profit per unit for each of these items was obtained from local businesses. These profit margins were applied to the total quantity of inputs used before and after soil banking. The resulting figures showed the change or loss in income to local businesses because of the reduced sales of production inputs. These figures are summarized as follows:

Local business profits from production inputs before soil banking	\$13,504
Local business profits from production inputs after soil banking ⁷	<u>1,405</u>
Total loss from production inputs	\$12,099

Changes in Volume of Output

The major changes in volume of output, as they concerned the local community, were from small grains and butterfat. Although livestock numbers other than milk cows also had been reduced, sales from these other livestock enterprises had been made outside of the local community. Estimates for losses in income to the local community from reduced farm marketings are summarized as follows:

Loss from reduced volume of grain	\$7,461
Loss from reduced volume of butterfat	<u>1,476</u>
Total loss to local businesses	\$8,937

Changes in Consumption Expenditures

An important income effect of soil banking on the local community can result from changes in consumption expenditures by the soil bank farmers. For example, if all 59 farmers in the sample had moved out of the community after placing their farms in the soil bank, the major share of their payments also would have been spent outside of the community. If most of the farmers remain in the community, shifts in expenditures become important because of adverse effects on some businesses and beneficial effects on other businesses. That is, during periods of actual farm

⁷ Includes machinery considerations.

operations, capital accumulation may be reflected in increased machinery inventories and permanent improvements on the land. Expenditures for these items are beneficial to the dealers in farm machinery and supplies.

On the other hand, when farmers soil bank their acreage and move to town, income used for capital accumulation is likely to be for increased housing costs and other items more closely associated with the household than the farm.

As mentioned in a previous section, 86 per cent of the farmers had not changed residence because of soil banking their farms. Consequently, little change in community income from change in consumption expenditures was realized.

It was estimated that before the 59 farms were soil banked, 92 per cent of the corresponding consumption expenditures were made in the local community. This figure compares with 88 per cent after the farms were soil banked. However, even though the percentage was less, total income was increased slightly after soil banking, which resulted in a very minor change of income loss to the community. The figure derived as the income loss to the community because of changes in consumption expenditures was \$305.⁸

Total Changes in Demand and the Multiplier

The foregoing classes of income losses to the community are summarized here to give an analysis of income effects resulting from the total change in income or demand. In addition to the total income losses already given, there are additional losses which can be referred to as second, third, fourth round effects and so on. The sum of these effects can be approximated by use of a multiplier.

The concept of a multiplier can be explained as follows: Suppose that spendable income for one person is reduced \$1,000. Then assume that if he had this income to spend, a second person would have received a 15 per cent margin or net income on goods that he sold the first person. Since the \$1,000 was not spent, net income to the second person was reduced by \$1,000 x 15% or \$150. This figure can be termed the second round effect of the original \$1,000 decrease in income. Likewise there are third and fourth round effects such that the original reduction in income is multiplied throughout the system. If a 15 per cent margin is realized throughout the system for an original \$1,000 reduction in income, the total decrease in demand for goods and services can be illustrated with the following example.

First round effect	=	\$1,000.00
Second round effect = \$1,000 x 15%	=	150.00
Third round effect = \$150 x 15%	=	22.50
Fourth round effect = \$22.50 x 15%	=	3.37
Fifth round effect = \$3.37 x 15%	=	.51
Sixth round effect = \$.51 x 15%	=	.07
Seventh round effect = \$.07 x 15%	=	.01
Total decrease in demand	=	<u>\$1,176.45</u>

⁸This figure would be biased downward because of sampling procedure used. Two or three farms which would have been in the sample were not included because the operators were temporarily residing out-of-state when the survey was made. Consequently, a high proportion of their consumption expenditures were made outside of the local community.

Thus, the total decrease in demand is \$176.45 greater than the original reduction of \$1,000. Or \$1,000 is only 85 per cent of the total figure. This process of determining the total decrease in demand can be shortened by the use of a multiplier which is equal to $\frac{1}{1-\text{sales margin}}$. In the above example, the multiplier is thus equal to $\frac{1}{1-.15}$ or 1.176. By using this figure times the original \$1,000, one gets \$1,176.00 which corresponds to the figure determined in the long-hand example.

Community income losses resulting from the 59 farms that were soil banked were as follows:

Total loss from production inputs	\$12,099
Total loss from decreased volume of output	\$ 8,937
Total loss from change in consumption expenditures	\$ 305
Total loss in income	\$21,341

Actual loss determined by multiplier = \$21,341 x 1.176 = \$25,097.

A weighted aggregate figure for sales margin was approximated to be 15 per cent. So, by using the resulting multiplier, it was found that total income actually had been decreased annually about \$25,097 in the Lisbon community. Since 14,543 acres were involved, this meant for every 100 acres put in the soil bank, there was an approximate loss of \$173 to the local community.

At an annual wage rate of \$5,000, the total reduction in income of \$25,097 could mean that five less people are employed in the community. It should be remembered again here that the above income losses are confined essentially to the local community. No measurements were made of the impacts on tax decreases, and on out-of-town wholesalers and distributors that supply local retail businesses. Also, the impacts on transportation carriers were not considered. These latter impacts would be relatively small when only 59 farms are considered. But they have important implications for the economy of a state when a land retirement program in its entirety is considered.

Other Changes and Effects

The above analyses concern economic impacts. Sociological effects and changes on the community can be partially implied from those results. People moving out of a community and farmers moving to town to compete for non-farm jobs have varied effects in terms of rural development. Schools, churches and various fraternal organizations are affected as well as local businesses.

Although this study did not include any detailed analysis of these aspects, some attempt was made to determine how land retirement on the 59 farms had affected enrollment in the public schools. It was found that schools in the Lisbon community essentially had been unaffected. Only one child had changed schools because his parents changed residence after soil banking their farm. Reasons why there was little or no effect on school enrollments were (1) the majority of farmers who soil banked their land were in the upper age brackets so they had no children of school age, and (2) a considerable amount of school consolidation had taken place in the community whereby many farm children already were attending schools in Lisbon. Accordingly, a change of residence from the farm to Lisbon did not result in the children changing schools.

RECOMMENDATIONS AND OPINIONS

Previous sections of this report have dealt primarily with analyses of actual data obtained and synthesized from the survey schedules. This section is concerned more with subjective recommendations and opinions of both farmers and Lisbon businessmen with regard to the Soil Bank Program.

By Farmers

In terms of changes and improvements that should be made in the soil bank program, the survey farmers offered the following statements which are listed in order of the number of times mentioned.

1. The program should not allow transfer of wheat acres
2. Only part of the farm acreage should be allowed in the soil bank
3. Nonfarmers should not be eligible for the soil bank
4. There should be more provisions for insect and weed control
5. Payments should be based on land productivity
6. Soil bank farmers should be obligated or forced to maintain residence on their soil banked farm
7. One should be allowed during a feed emergency to use hay and pasture from the soil bank acreage
8. The whole program should be thrown out
9. The program should limit the number of farms per township in the soil bank
10. There should be provisions for fire protection from soil banked land
11. The use of fertilizer should be banned
12. Those receiving social security payments should not be eligible for the soil bank.

Other opinions from the survey farmers concerned the economic and social impacts of the soil bank program on the Lisbon community. These statements are listed below in order of the number of times mentioned.

1. It has hurt machinery dealers, fuel dealers and elevators
2. It has had no effect on businesses
3. It has increased the competition for jobs
4. It has caused more money to be spent in the community
5. It has forced people to leave the community
6. It has caused less money to be spent in the community
7. It has created more stable income for the community
8. It has made it hard for young people to get started in farming
9. It has helped older people to retire
10. It has been hard on schools

These responses show several differences of opinions and, in some cases, conflicting views regarding the soil bank. Because these differences prevail not only among farmers but also among nonfarmers, the need for research and findings such as reported in this study is imperative. These findings can help individuals make more objective appraisals and solutions concerning a program such as land retirement.

By Local Businessmen

In most cases, there was general concern by Lisbon business people regarding the effects of the soil bank on their community. A major opinion was that "they didn't like it". Individual opinions ranged from extreme resentment to indifference. Some indication was given that the number of farm machinery dealers in Lisbon will be reduced because of the soil bank. Other business places had noted a reduction in sales of products and volume of products handled, particularly fuel dealers and elevators.

Similar to farmers opinions, businessmen gave many and varied responses concerning their ideas on the soil bank. Although concern was general in this area, few actual facts were cited to substantiate their statements. A prerequisite for furtherance of community development in this area appeared to be a clearer understanding of how and why land retirement affects the community. Coupled with this information was a need for understanding the adjustments taking place in agriculture and how technological advances have affected these adjustments. In other words, there was a tendency to suggest remedial measures that would not cause any changes in local businesses rather than trying to determine how the community also would adjust to utilize most effectively its total resources, including labor.

Future Plans of Soil Bank Farmers

Because of the prevalence of relatively long contracts, many farmers could not accurately predict plans for their farms after their soil bank contracts expired. About two-thirds of the farmers indicated that they planned to crop their farms after the contract expired. Less than 10 per cent of the farmers planned to sell their farms either before or when the contract expired. For those who didn't plan to sell, there was approximately equal opinions regarding who would operate the farms - owners, tenants, or "didn't know".

Payments Needed to Renew Contract

General satisfaction with the amount of payments being received was indicated by the responses shown in table 17.

TABLE 17. PAYMENT CONDITIONS NEEDED TO RENEW SOIL BANK CONTRACT AND PER CENT OF FARMERS REPORTING, 59 FARMS, RANSOM COUNTY

Payment condition	Per cent of farmers
Same payment	83.0
Greater payment	11.9
Less payment	1.7
Would not renew	3.4
	<u>100.0</u>

The responses in table 17 were based on the condition that the cost-price relationships in farming remain about the same as in 1959-60. As noted, less than 4 per cent of the farmers indicated they would not renew their contracts when the present ones expire. A much higher percentage indicated general dissatisfaction with the soil bank program. However, nearly 85 per cent of the farmers would renew their contracts for the same and less payments if the current cost-price situation continues.

PARTICIPATION IN CONSERVATION RESERVE IN NORTH DAKOTA (ESTIMATED)- 1956-60

County	Total No. of Con-tracts	Total Acres Con-tracted	Crop-land Acres ('54 Cens)	% of Crop-land Part.	Total Annual Payments	No. of Whole-farm Cont's	Agre- age on Whole farms
Adams	144	42,057	338,079	12.2	376,348	89	26,730
Barnes	351	68,043	762,594	8.9	729,937	216	47,538
Benson	189	44,949	620,550	7.2	429,348	158	40,638
Billings	72	20,125	119,791	16.8	175,215	58	16,185
Bottineau	773	182,045	841,513	21.6	1,934,270	532	133,176
Bowman	96	31,512	333,417	9.5	261,705	83	26,630
Burke	224	52,255	454,759	11.5	483,184	165	42,518
Burleigh	178	39,420	467,449	8.4	316,959	104	25,456
Cass	402	80,372	997,051	8.1	1,082,951	206	43,697
Cavalier	197	36,180	764,531	4.7	388,780	88	22,768
Dickey	266	57,023	489,354	11.7	515,037	165	35,566
Divide	337	99,688	555,835	17.9	905,477	251	82,987
Dunn	137	28,733	445,333	6.5	233,264	101	23,166
Eddy	215	56,085	280,814	20.0	498,455	140	41,006
Emmons	89	19,548	534,923	3.7	159,198	46	11,567
Foster	104	25,685	317,375	8.1	231,815	59	17,114
Golden Valley	77	21,159	241,428	8.8	188,906	57	17,154
Grand Forks	483	80,749	772,530	10.5	1,073,893	185	39,041
Grant	105	27,674	455,598	6.1	230,745	78	22,735
Griggs	173	40,229	336,438	12.0	379,984	108	29,754
Hettinger	133	43,426	524,988	8.3	404,393	97	34,115
Kidder	265	65,347	428,924	15.2	512,914	157	42,959
LaMoure	369	76,834	564,849	13.6	746,911	183	40,608
Logan	107	19,383	356,216	5.4	163,743	60	13,079
McHenry	458	102,919	772,125	13.3	892,452	320	75,051
McIntosh	100	13,745	392,147	3.5	118,422	51	7,816
McKenzie	171	43,259	511,131	8.5	371,187	120	34,317
McLean	217	50,699	879,060	5.8	443,792	163	41,652
Mercer	89	17,928	296,130	6.1	160,089	65	15,814
Morton	148	33,278	530,995	6.3	283,040	107	26,384
Mountrail	188	43,017	695,260	6.2	365,831	165	40,158
Nelson	298	60,609	501,198	12.1	629,220	164	40,473
Oliver	54	10,982	200,442	5.5	97,650	31	7,987
Pembina	446	69,556	575,190	12.1	958,218	164	32,902
Pierce	170	43,600	515,410	8.5	361,697	133	35,858
Ramsey	276	60,221	666,139	9.0	652,410	170	43,609
Ransom	370	70,157	386,307	18.2	769,069	226	47,098
Renville	257	63,845	442,794	14.4	654,593	184	53,146
Richland	440	57,949	744,503	7.8	754,105	190	28,034
Rolette	241	52,509	372,221	14.1	503,761	174	41,817
Sargent	308	58,421	412,166	14.2	623,995	183	38,386
Sheridan	99	21,200	354,916	6.0	176,482	77	18,047
Sioux	67	17,267	149,162	11.6	137,673	31	8,541
Slope	60	17,214	263,701	6.5	132,233	38	12,323
Stark	196	59,444	530,828	11.2	569,468	158	51,820
Steele	107	20,216	367,496	5.5	227,699	43	9,982
Stutsman	338	86,044	946,425	9.1	769,594	224	63,394
Towner	99	22,955	559,123	4.1	224,897	46	13,715
Traill	136	23,246	494,612	4.7	310,894	63	13,391
Walsh	464	68,711	722,875	9.5	953,589	245	47,101
Ward	329	76,793	952,575	8.1	750,748	274	68,726
Wells	198	45,057	628,857	7.2	432,430	134	35,271
Williams	564	151,424	841,494	18.0	1,489,978	475	131,285
	12,375	2,720,786	27,699,621	9.8	27,238,648	7,804	1,960,285

SOURCE: ASC - USDA.