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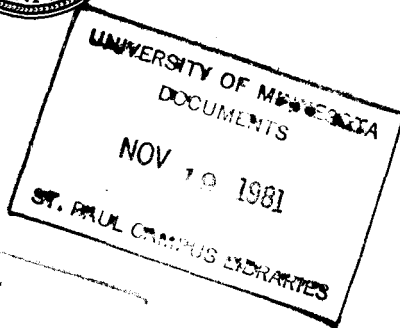
AGRICULTURAL EXPERIMENT STATION

EXPERIENCES OF NORTHERN MINNESOTA SETTLERS

BY

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CONCLUSIONS

FARM MANAGEMENT PROBLEMS

1. From a district-wide standpoint there can be no definite comprehensive organization plans for farm practice in northern Minnesota until a soil survey and land utilization survey (which can be conducted as one) are made.

2. The records of the settlers indicate that small grain crops, potatoes, garden produce, and hay may be made profitable crops in this section. Very few errors are made in choice of crops so far as climatic conditions are concerned, but the marketing facilities are the important limiting factors in crop production, once the land is ready for crops.

3. Clearing the land to make it ready for crops, which also means ready for livestock, to a certain extent, is the largest individual problem a settler has. Unless a constructive program of state aid is worked out, the settlement of many districts will proceed in the same desultory fashion as in the past.

4. The cash returns on the farms studied indicate that livestock, especially dairy stock, is a prime essential to a good income.

5. Receipts from forest products and indicated possibilities in this direction point to the desirability of developing the woods as an annual cash crop.

6. Receipts for labor performed away from the farm are decreasing in amount and importance for the better class of settlers. State aid in land clearing would eliminate largely the necessity for this kind of work.

SETTLEMENT PROBLEMS

1. As mentioned, the first step toward intelligent permanent settlement of this part of the state is a soil and land utilization survey.

2. There is urgent need of a constructive comprehensive program of state aid in land clearing to bring the land into a productive condition.

3. State and county drainage projects are required to drain large areas, under a long-time payment plan. This must be a very definite program, for miscellaneous draining of odd pieces of land with subsequent land subduing practices often constitutes a serious fire menace.

4. Honest, fearless, publicity as to existing conditions and future possibilities of the various sections of this part of the state is absolutely essential. This publicity should disclose the ownership of all

land fit for settlement as agricultural land. One of the bitter complaints of the settlers is the high price of raw land and the pernicious activities of land agents who hold the land for speculation.

5. Some system of issuing real estate licenses under safe regulations should be adopted.

6. Investigations as to cost and methods of clearing land, profitable marketing practices, types of farming, land colonization schemes, and like problems should become a part of the state's program of land reclamation and settlement.

SUMMARY OF STATISTICS COLLECTED

Total number of farms, 141. Counties: Aitkin, Beltrami and Roseau, Carlton, Cass, Hubbard, Itasca, Koochiching, Lake, St. Louis.

Number of farms homesteaded, 76; number of farms purchased, 65.

Average number of acres per farm, 150; average number of acres cleared annually per farm, 3.8; average of total number of acres cleared on each farm up to 1917, 42, ranging from 7 to 250; number of farms settled before 1900, 32; number of farms settled before 1910, 83; number of farms settled after 1910, 26.

Average estimated cost of clearing per acre, \$34, for 139 farms, ranging from \$10 an acre to \$100 an acre.

Average yearly number of acres in crops on 120 farms, 1914 to 1917, 30.

Average estimated value of land per acre on 136 farms, 1914 to 1917, \$34, as against the average price paid per acre by those who purchased their land of \$9.50.

Average livestock on farms: Horses, 3; cows, 5; other cattle, 8.4; hogs, 8.4; poultry, 44; sheep, 25.

Average amount of working capital at start for 102 of the 141 farmers, \$308. No working capital, 39. Average amount of working capital needed to start now, as estimated by 120 farmers, \$880.

Average total annual receipts per farm, \$936, ranging from \$300 to \$2,300. Receipts from crops, 24 per cent; from livestock, 42 per cent; from wood products, 23 per cent; from outside work, 11 per cent.

Principal problems of territory emphasized: Poor roads, by 66 settlers; need of markets, by 54; difficulty in clearing land, 39; high rate of interest, 41; poor stock, 17; need of state aid to clear land, 12; high taxes, 14; land speculations, 11; price of wild land, 9; miscellaneous complaints, 39.

EXPERIENCES OF NORTHERN MINNESOTA SETTLERS

By F. W. PECK

PART I

Certain problems confront every agricultural community. Most of the well-settled communities have solved fairly well, at least in a general way, such problems as cropping systems, livestock selection and breeding, seed production and distribution, exchange of help, and rural clubs.

It is in newer country that these problems are most difficult of solution because of the very sparseness of settlement. When there are added to these agricultural problems of production and disposition that must be worked out by trial and experience, such problems as large drainage projects, clearing the land of trees and stones, building substantial roads, and providing better markets, the task assumes enormous proportions.

Northern Minnesota has several inherently difficult problems that affect in large measure the successful and desirable settlement of the land. (1) There is no wide area of a single type of soil—the processes of soil formation in this part of the state, as has been explained by the geologists, were such as to create wide divergence of soil types within very small areas. There is great need for a land survey that will map and define the character of soil types as to adaptability and best utilization. (2) The climate forces the selection of certain crops for production. These crops should be made known to all present and prospective settlers. (3) Most of the land available for settlement at a fair price is cut-over land with but little tree growth. Credit to be obtained by sale of the timber, therefore, is slight. If there is timber, the individual is often unable to market it advantageously. Moreover, the average settler is a man of little means, too often made enthusiastic by rosily painted prospects, with no knowledge of how to attack the problems of a new, undeveloped region. After making a payment for the land he is usually unable to put enough of it into agricultural production to bring a living for his family and to permit him permanently to stay in the region. Many farms have changed hands two, three, and even four times with only 25 or 30 per cent of the possible agricultural land broken for crop production.

Some of the problems are beyond individual solution, for example, the draining of large areas. That becomes a county or state project

and requires time, money, and experience for its successful completion.

Widespread and very earnest efforts have been made to bring settlers into this part of the state. The state immigration department is largely concerned with this task. Various development associations, often hastily formed and without knowledge of the practical problems to be solved, have acted as agents in advertising these districts for settlement.

Many inquiries are received by the Agricultural Experiment Station asking for *definite* information as to just what are the real chances of making a home and a respectable living in the cut-over districts. Not only that, but men ask what crops should be grown, what kind of stock maintained, how much it costs to clear the land for the plow, how much cash one should have after making a payment on the land, what the conditions of the roads and markets are, whether one can work out during certain seasons, and many other questions. In short, they want to know the experience of others, for that is the only source of reliable information.

METHOD OF STUDYING THE EXPERIENCE OF SETTLERS

In the spring of 1915, the Division of Agronomy and Farm Management and the Division of Forestry formulated a project whereby the state forest rangers were to act as agents in obtaining data bearing on the problems mentioned, from settlers whom they knew personally and on whose experience, as given, full reliance could be placed.¹ The records obtained covered time and method of settling; the first crops grown; method and cost of clearing and area cleared annually; crops grown at time of record; kind and amount of livestock maintained; sources and amount of annual income; the problems believed most important by the settler and how he believed they should be solved. This personal experience and testimony was the sort of information needed. One hundred and forty-one usable records were tabulated, altho more than two hundred were obtained. The crop seasons covered were those for 1914, 1915, 1916, and a few for 1917. Obviously a very small area was covered in proportion to the large area available for settlement, but the care used in obtaining the data and the general facts used as conclusions made the data applicable to many individuals in the regions studied.

¹ The author acknowledges with thanks the assistance given by E. G. Cheyney in suggesting the need for such an investigation and in assisting in starting the project, and by D. P. Tierney in advising methods of presentation. Special thanks are due the forest rangers who gathered most of the records and the settlers who coöperated in giving the facts of their experience.

AREAS COVERED IN THE INVESTIGATION

Figure 1 shows the approximate location of the farms from which records were obtained. In Part II is presented a map of each county concerned in this investigation, showing the approximate location of each farm. Accompanying tables give the detailed information by farms, from which the averages have been calculated. Because of the variability in soil types in St. Louis County and because of the widely different conditions within this large county, the data concern two districts which are designated District No. 1 and District No. 2 in the tables.

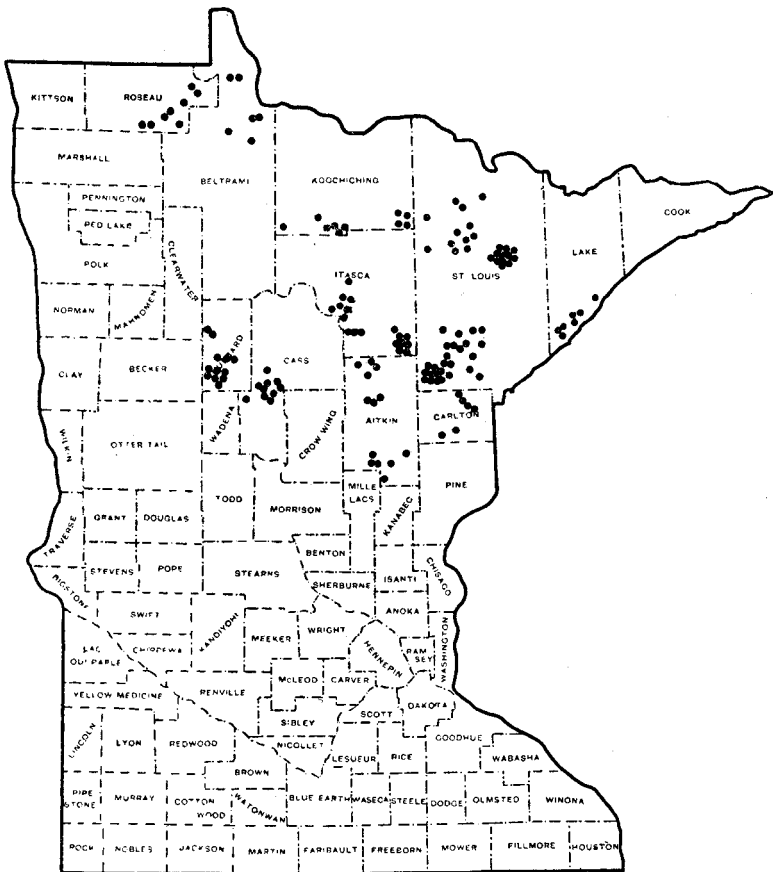


Fig. 1. Approximate Location of Farms on Which Records Were Taken

Table I gives the township and range areas covered in each county so that the portion of the county concerned in these studies can be located quite accurately.

TABLE I
LOCATION OF FARMS FROM WHICH RECORDS WERE TAKEN

County	Number of farms	Townships (inclusive)	Range (inclusive)
Aitkin.....	13	43 to 52	22 to 26
Beltrami and Roseau.....	14	158 to 162	31 to 40
Carlton.....	7	46 to 49	17 to 20
Cass.....	10	138 to 140	29 to 32
Hubbard.....	12	139 to 143	32 to 35
Itasca.....	18	54 to 60	22 to 27
Koochiching.....	10	63 to 64	25 to 26
Lake.....	7	53 to 55	22 to 29
St. Louis, District No. 1.....	24	60 to 65	8 to 11
St. Louis, District No. 2.....	26	51 to 56	14 to 21
Total.....	141	.....	.....

TIME AND MANNER OF SETTLING

Twenty-two per cent of the farms were settled before 1900 and 60 per cent from 1900 to 1910. On the average, in 1916, these farms had been settled about 12 years.

Fifty-four per cent of these farms were homesteaded and the rest were purchased at an average cash cost of \$9.50 per acre. The farms for the entire region averaged 150 acres in size. Table II presents these facts for each region and the average for the total number of farms. All averages are weighted averages.

TABLE II
GENERAL FACTS CONCERNING SETTLING ON THE LAND

County	No. farms	No. farms settled			No. farms		Average purchase price per acre	Average No. acres per farm
		Before 1900	1900 to 1910	After 1910	Home-steader	Pur-chaser		
Ai kin.....	13	6	4	3	6	7	\$10.00	168
Beltrami and Roseau.....	14	2	8	4	9	5	9.00	214
Carlton.....	7	2	5	0	1	6	10.50	120
Cass.....	10	1	5	4	4	6	10.50	210
Hubbard.....	12	6	5	1	5	7	10.00	196
Itasca.....	18	2	8	8	4	4	10.50	134
Koochiching.....	10	1	9	0	10	0	.....	150
Lake.....	7	2	4	1	3	4	7.00	110
St. Louis, District No. 1.....	24	3	19	2	23	1	5.00	133
St. Louis, District No. 2.....	26	7	16	3	11	15	8.25	168
Totals.....	141	32	83	26	76	65	.....	.....
Average.....	.....	.....	.....	.....	.....	.....	\$9.50	150

GETTING STARTED ON THE LAND

It is interesting to note the testimony of the settlers regarding the amount of money they possessed when they started and the amount they deem necessary under present conditions (1914-1917). This sum is in addition to the value of household goods, equipment, and the first payment on the land. The average of the replies to this question showed that 39 of the 141 farmers had no cash after getting on the farms while 102 had about \$300 each. The estimate of 120 of these men as to the amount deemed necessary now averaged almost \$900, or three times as much as they had.

TABLE III
CASH REQUIRED AND FACTS CONCERNING LAND CLEARING ON 141 FARMS

County	No. of farms	Estimated cash required		No. acres already cleared at start	No. acres cleared annually	No. acres cleared to 1917	Estimated cost of clearing per acre	Range of cost of clearing per acre
		When settled	At present					
Aitkin.....	13	None (6)* \$150 (2)...	\$900 (8)	0	2.7	35	\$36.00	\$15 to \$60
Beltrami and Roseau.....	14	None.....	1,200 (9)	15 (1)	6.5	46	20.00	10 to 50
Carlton.....	7	\$625.....	1,085	2 (3)	4.5	52	44.00	30 to 75
Cass.....	10	None (4) \$210 (4)...	1,000 (8)	16 (4)	7.0	66	26.50	15 to 50
Hubbard.....	12	None (5) \$280.....	780 (11)	71 (5)	7.0	112	15.00	10 to 25
Itasca.....	18	\$650.....	1,660	0	3.0	23	40.00	20 to 100
Koochiching.....	10	None (2) \$440 (8)...	1,000 (6)	0	2.2	25	47.50	25 to 60
Lake.....	7	None (3) \$250.....	1,300 (3)	0	2.5	22	60.00	40 to 75
St. Louis, District No. 1....	24	\$30.....	440	0	2.4	33	60.00	18 to 100
St. Louis, District No. 2....	26	\$256.....	510	0	2.5	31	35.00	17 to 65
Average.....	.....	None (39) \$308 (102)	880 (120)	.....	3.8	42	\$34.00	.....

* Figures in parentheses show the number of farms reporting. In all other instances, all in the locality have reported.

Getting started on cut-over land means clearing the land for crop production as the first step. It will be noted from Table III that very few farms possessed cleared land when settled, and that only an average of 3.8 acres were cleared annually on these farms. The average area cleared each year ranged from 2.2 to 7 acres, depending largely on the type of stumpage and the finances of the settler. The important point is that clearing is a slow process, and this fact should be known before a tract of land is taken. Up to the date of taking these records the average number of acres cleared per farm from the time of settlement ranged from 42 to 112, the latter average being in Hubbard County, which has more prairie land than any other county covered in the investigation.

COST OF CLEARING PER ACRE

The cost of clearing an acre of land and making it ready for the plow is exceedingly variable. It depends on the size, kind, and number of stumps; kind of soil; method of clearing; price of materials and labor used; and other factors. One should have these factors in mind and a general idea of the cost before the work is attempted. The cost per acre to clear for plowing as reported by these farmers, averaged \$34. The range of cost in the various localities was from \$15 in Hubbard County to \$60 in Lake and St. Louis counties (District No. 1). The range within the county was greatest in District No. 1, St. Louis County—from \$18 to \$100 per acre.

Table III shows the important phases of getting started on the land from a settlement standpoint. Tables VIII, XII, XVI, XX, XXIV, XXVIII, XXXII, XXXVI, XL, and XLIV, in Part II, give the detailed figures on these points for each farm in the respective counties. All the facts for any one farm can be assembled by following the farms by number through the set of four tables for each county group.

CROP STATISTICS

The first cropping on newly settled farms is usually a garden and a patch of potatoes. If there is any wild land on the farm it provides roughage for a team and a cow. The first cash crop is usually potatoes or a little wheat. Practically no reports were received showing crop sales the first year. As only 3.8 acres is cleared annually, on the average, increase of crop sales is very slow. Only 20 per cent of the average farm area had been cleared for crop production up to the time of recording these data. This means an average of 30 crop acres on the 141 farms, with a range of from 15 to 86 acres per farm.

These figures are presented in Table IV. It will be noted that in Hubbard County, with considerable prairie land, the crop area reaches 44 per cent of the total farm area. The average cash crop receipts per farm are also shown in Table IV. The receipts quoted are the average for the years of investigation and represent cash sales only. Potatoes and wheat, with hay in a few instances, were the principal cash crops. A few records showed sales of oats and barley and garden truck. Six farms reported sales of beans in 1916 and 1917. The average cash crop receipts per farm were \$225. The range was from \$60 in Lake County to \$700 in Hubbard County. The maximum crop receipts were \$1,875 for a 250-acre farm in Hubbard County in 1917. Wheat and barley were the principal sources of income on this farm. For cropping data for individual farms see Tables IX, XIII, XVII, XXI, XXV, XXIX, XXXIII, XXXVII, XLI, and XLV, in Part II.

TABLE IV
CROP STATISTICS ON 141 FARMS

County	Total No. acres per farm	No. crop acres per farm	Percentage of land in crop 1914-17	Crops grown first two years	Annual cash receipts from crops	
					Average	Range
Aitkin.....	168	31	18	Potatoes, garden.....	\$226 (12)	\$26-\$847
Beltrami and Roscau.....	214	56	21	Potatoes, wheat, hay.....	413	20-1,440
Carlton.....	120	27	22	Potatoes, wheat, hay.....	572	0-1,300
Cass.....	210	35	17	Potatoes, oats, hay, beans.....	258	0-1,400
Hubbard.....	196	86	44	Potatoes, oats, wheat, hay.....	700	120-1,875
Itasca.....	134	15	11	Potatoes, garden.....	165	0-660
Koochiching.....	150	18	12	Potatoes, garden, hay.....	46 (7)	50-90
Lake.....	110	21	19	Potatoes, hay.....	60	0-200
St. Louis, District, No. 1.....	133	18	13	Potatoes, garden.....	71 (19)	0-540
St. Louis, District, No. 2.....	108	24	22	Potatoes, hay, garden.....	72 (24)	0-360
Average.....	150	30	20	.....	\$225	.....

LIVESTOCK STATISTICS

Table V presents the number of each class of livestock reported as being on hand April 1 of the year for which the records were obtained.

For the entire number of farms there was an average of 3 horses, 5 cows, 8.4 head of other cattle, 8.4 hogs, and 44 chickens maintained per farm. But 14 farms reported sheep and on only 11 was the number sufficient to make this class of stock at all important. Only 71 of the farms reported any hogs, while 119 out of 141 maintained cows, the range being from 3.5 cows per farm in Koochiching and Lake counties, to 6 in Carlton, Hubbard, and St. Louis counties.

The dairy cash receipts were by far the most important livestock income, and the cows furnished the principal livestock product for home consumption. The families in this study averaged five persons.

TABLE V
LIVESTOCK STATISTICS ON 141 FARMS

County	Farms	Average number of livestock per farm						Annual cash receipts from stock	
		Horses	Cows	Other cattle	Hogs	Poultry	Sheep	Average	Range
Aitkin.....	13	4	4.5 (11)*	6.0 (11)	6.5 (11)	25 (3)	15 (3)	\$325 (12)	\$55-\$1,365
Beltrami and Roseau.....	14	4	5.5 (12)	8.0 (8)	9.0 (5)	40 (12)	75 (2)	450	0- 1,190
Carlton.....	7	3	6.0	5.0 (4)	11.0 (4)	40 (6)	0	600	0- 1,340
Cass.....	10	3	5.0 (7)	13.0 (6)	15.0 (6)	50 (3)	0	227	0- 770
Hubbard.....	12	4	6.0 (6)	23.0 (11)	13.0 (10)	60 (11)	26 (5)	973	180- 2,370
Itasca.....	18	3	5.6 (15)	9.0 (7)	8.0 (13)	57 (13)	0	394	0- 1,095
Koochiching.....	10	3	3.5 (8)	6.0 (8)	8.0 (4)	40 (6)	12 (1)	344 (7)	72- 1,100
Lake.....	7	3	3.5	5.5	2.0 (1)	30 (5)	0	236	0- 820
St. Louis, District No. 1.....	24	2	4.0 (22)	5.0 (16)	6.0 (10)	36 (17)	2 (1)	254 (11)	0- 1,200
St. Louis, District No. 2.....	26	2	6.0 (23)	6.0 (23)	2.5 (6)	44 (18)	3 (2)	284 (21)	0- 850
Average.....		3	5.0 (119)	8.4 (101)	8.4 (71)	44 (94)	25 (14)	\$393	.....

* The figures in parentheses show the number of farms reporting. In all other instances, all in the locality have reported.

In some instances receipts from hogs and sheep increased the total receipts to a very good figure, as will be noted in Table V. The average cash receipts per farm from livestock were \$373, being 65 per cent greater than the crop receipts. The range per farm was from \$227 in Cass County to \$973 in Hubbard County. These figures are only relative. The price and yield per acre each year radically affect crop receipts and also livestock sales. The important point is the relation of the two sums, which illustrates the importance of livestock, especially dairy stock, on these farms. A class of livestock that makes a living possible and also increases the cash receipts is a valuable farm enterprise. Tables X, XIV, XVIII, XXII, XXVI, XXX, XXXIV, XXXVIII, XLII, and XLVI, in Part II, show the detailed livestock statistics for the individual farms.

DIFFICULTY IN MARKETING PRODUCE

One of the common complaints of the settlers in the northern part of the state is that of the lack of ready markets, or of very poor markets for their produce. Hauling cream, potatoes, grain, and vegetables becomes a heavy burden in a country relatively sparsely inhabited, over poor crossroads and with meager shipping facilities. The average distance from the 141 farms to a market for grain, potatoes, or forest products was 9.6 miles. Dairy products in many instances were hauled from 4 to 6 miles to creameries established where sufficient cows are maintained.

The writer visited a prosperous creamery, 19 miles from a railroad, that provided a market for the product of 800 cows within a radius of 6 miles.

The range of distance to a railroad market was from 5 miles for the farms in Carlton County to 17 miles for those in Koochiching County. This is one of the facts that should be known by prospective settlers; especially when a glowing prospectus advertises adequate, well-developed markets.

RECEIPTS FROM FOREST PRODUCTS

The forest products sold on many farms in Northern Minnesota are in reality crop receipts but are kept separate as very often they are not a continuous annual crop but are sold off the land but once. They should, in many instances, be made an annual crop and as such a source of income.

On the farms studied, the cash receipts from forest products amounted to \$217 per farm annually, or almost as much as the crop receipts. These products were principally posts and ties with some

poles and cordwood. The range in receipts per farm was from none in Lake County to \$468 for the farms in District No. 1, St. Louis County.

RECEIPTS FOR OUTSIDE LABOR

Outside labor has in the past provided the living for a great many settlers. In the timber days, logging in the winter and harvest work during the summer provided the cash income. During the last few years outside labor has become relatively scarce. This has undoubtedly had a good effect upon land settlement, for the men have been forced to clear the land and work it into a more productive condition. At the present time the chief kinds of outside work are logging, road building, some harvesting, and day labor in the towns.

The average cash returns per farm for outside labor amounted to \$103, or 11 per cent of the total annual receipts. The range of returns from outside labor was from \$33 per farm in Beltrami and Roseau counties to \$311 per farm in Itasca County. The large receipts for outside work were in Itasca County. Table XXXI, in Part II, shows two instances of large receipts from logging, one of \$2,000 and one of \$1,200. The greater number of settlers did no outside work and claimed the practice was really a detriment to the development of the country.

TOTAL CASH RECEIVED AND DISTRIBUTION OF RECEIPTS

Table VI shows the average total cash income per farm in each district and the average for the 141 farms. The average is \$936 per farm, with a range from \$446 in Lake County to \$1,833 in Hubbard County. Higher prices for grain during the last few years and a larger crop acreage per farm partly account for the larger incomes in Hubbard County. Within the districts the incomes vary greatly. This shows that the figures are only relative and merely indicative of actual results; any conclusions regarding farm organization and management would not be of value in this brief study with such a small number of farms.

The important feature of Table VI is the relation of each group of receipts to the total and to each other. Crops provided about one fourth of the cash income, livestock products about two fifths, forest products almost one fourth and outside labor about one tenth. These percentages vary in the different districts as shown in Table VI. Tables XI, XV, XIX, XXIII, XXVII, XXXI, XXXV, XLIII, and XLVII, in

Part II, illustrate the variation of individual farms in the different localities as regards sources and amount of income.

TABLE VI
TOTAL RECEIPTS PER FARM AND DISTRIBUTION OF INCOME

County	No. of farms	Total annual receipts per farm		Distribution of receipts			
		Average	Range	Crops	Live-stock	Forest products	Outside labor
				Per cent	Per cent	Per cent	Per cent
Aitkin.....	13	\$ 918	\$210-\$2,240	25	36	32	7
Beltrami and Roseau.....	14	976	325- 2,280	42	46	8	4
Carlton.....	7	1,341	600- 2,640	42	45	2	11
Cass.....	10	769	175- 1,740	33	30	17	20
Hubbard.....	12	1,833	600- 3,960	38	53	4	5
Itasca.....	18	1,081	297- 2,475	15	36	20	29
Koochiching.....	10	831	314- 1,340	6	47	30	17
Lake.....	7	446	225- 1,020	13	53	0	34
St. Louis District No. 1.....	24	721	150- 3,400	10	35	50	5
St. Louis District No. 2.....	26	738	120- 2,260	10	38	45	7
Average.....		\$936	\$300-\$2,300	24	42	23	11

PRINCIPAL COMPLAINTS OF SETTLERS

It is to be expected that many complaints would be made in a new, undeveloped country. A certain amount of pioneer work is necessary and this usually means hardships, inconveniences, and in many cases actual losses. A record of complaints by reliable experienced settlers may aid in understanding conditions and in approaching a method of aid in the development of the various districts. The complaints have been summarized and are presented in Table VII.

It will be noted that complaints of the roads are largest in number—22 per cent of the 302 complaints tabulated. This is very natural, for every new country must have a relatively long period of road building. Many of the complaints had to do with crossroads and roads from isolated farms to main highways. Obviously it will be some time before this country can afford good roads in all seasons for the majority of the farms.

Poor markets or the lack of markets was the ground for the second largest number of complaints—54 of the 302. This again is expected of sparsely settled regions, for large population centers create markets, and transportation facilities are created by the demands of such centers for necessary food products.

Greater development of the dairy industry in these sections will bring more creameries; the development of the sheep and hog industry will create coöperative marketing associations; and when the products in demand are produced, means for their disposition will follow. This problem should receive the attention of those interested in increased livestock production.

TABLE VII
PRINCIPAL COMPLAINTS OF SETTLERS ON 141 FARMS

County	No. of farms	Complaints regarding										Total
		Poor roads	Poor market	Slow, costly land clearing	High interest	Poor livestock	Need of state aid in clearing	High taxes	Land speculators	Price of wild land	Mis-cellaneous	
Aitkin.....	13	3	1	4	2	1	1				2	14
Beltrami and Roseau.....	14	10	5	6	8	4		1	1		7	42
Carlton.....	7	5	1	2	4	2	1		1		3	19
Cass.....	10	5	6	3	7	2	1	1	1		3	29
Hubbard.....	12	4	8	6	2		1		2		6	29
Itasca.....	18	9	7	6	6		1	1			6	36
Koochiching.....	10	6	4	2	4	1	2	3	1			23
Lake.....	7	2	1	1	3		1	3	1		4	16
St. Louis, District No. 1.....	24	5	5	3	2	3	1			2	4	25
St. Louis, District No. 2.....	26	17	16	6	3	4	3	5	4	7	4	69
Totals.....		66	54	39	41	17	12	14	11	9	39	302
Percentage of total.....		22	18	13	14	5.5	3.5	4.5	3.5	3	13	100

High interest rates and lack of means of obtaining credit were subjects for complaint, altho it is believed that this sentiment voices the abuse of earlier years more than at present. There has not yet been time for the federal farm loan act to become widely operative over this part of the state. Relief for this complaint will surely be available.

One of the greatest problems and one that is constantly before the settlers of these districts is the slowness and difficulty of clearing the land for crop production. Many settlers express their belief in the practicability of some sort of state aid as the solution of this problem. The legislature of 1916 passed an act providing for a revolving fund of \$100,000 to be spent in clearing state land before its sale to the settlers. The plan is being worked out and clearings have been made under this act, but conclusions as to its effect on the land-clearing problem would be mere conjectures at this time. This problem is the key to the constructive permanent settlement of these sections of the state. Unless this subject receives study, and a constructive, helpful program of land clearing and utilization is laid out, the northern part of the state will continue its process of a retarded haphazard development.

Among other complaints recorded from the settlers' data are those against land speculators, the high prices for wild land, high taxes, poor quality of livestock, railroad facilities, and difficulty in hiring labor. If one stops to inquire into the reason for conditions that prompt most of the complaints, it is seen at once that most of them are indigenous to a new undeveloped country. Even speculation of the land with its consequent abuses is probably a natural stage in the development of this region. This does not excuse the tolerance of dishonest practice that is known to exist in selling land. Some of the losses incurred by the buyers of land in these districts are due to their lack of common business sense in buying without investigation or intelligent inquiry. Probably the remedy for this evil lies in full publicity of the practice and impartial honest description of the land and its possibilities by the state without regard to the "advertising features" that usually color the word pictures of Northern Minnesota.

SETTLERS' IDEAS OF WHAT SHOULD BE DONE

Each settler was asked what he considered the first steps that should be taken wisely and permanently to settle his section of Northern Minnesota. From the replies to this question the following answers are selected as typical. They are given by counties and districts, and

represent in a small way the ideas of settlers who have had considerable experience. Most of them can not have a wide vision of the proper solution of the important problems to be solved, but their testimonies should be recorded as a means of getting an insight into the practical man's view of the important work of developing Northern Minnesota agriculture.

AITKIN COUNTY

1. The land should be pastured with sheep the first few years.
2. A more industrious class of people should be sought through truthful advertising.
3. Lower interest rates for farm improvements should be charged and better facilities for obtaining credit offered.
4. A county agent should be installed to advise with settlers. (A county agent is now located in Aitkin County.)
5. State aid in clearing land and truthful advertising of the actual conditions and possibilities are needed.

BELTRAMI AND ROSEAU COUNTIES

1. The land should be sold at its productive value.
2. A better cash market for products should be created.
3. The state should furnish dynamite to the settlers at cost.
4. The possibilities for dairying should be advertised.
5. Farmers with at least \$3,500 cash who know how to farm should be induced to take land.
6. Land speculators who are at present a detriment to the state should be eliminated.
7. By means of easier credit, more livestock, particularly cows and sheep, should be brought in.
8. A county agent should be employed to advise the settlers. (Each of these counties now has a county agent.)
9. Practical methods for building and improving crossroads with state aid should be devised.
10. Taxes should be raised on land held for speculation and roads built with the money.
11. Swamps should be drained by a state drainage project and crossroads built by the same means.
12. State aid for clearing land, to be charged to the settler as the farm is developed, should be the first thing provided.
13. State aid for building roads should be provided and cheaper dynamite for land should be available to the settler.

CARLTON COUNTY

1. The state should work out a method of clearing the first 10 acres and of draining land where it is needed, and construct permanent

roads so the settler can start as a producing man without spending the first ten years trying to get a start.

2. Land speculation should be eliminated and the country truthfully advertised.
3. Better roads should be built.
4. Dynamite should be available at cost.
5. Indians should be allowed to sell their land under proper regulations so that it can be developed.
6. The interest rate should be lowered and government aid obtained for road-building.
7. There should be state aid for borrowing money for improvements and for clearing land so land can be put into crop at once.

CASS COUNTY

1. Speculation in wild land should be eliminated.
2. There should be better roads and easier terms for payment for land by the settler.
3. Workers are needed instead of hunters and fishermen.
4. The tax on personal property should be removed and interest rates should be lowered.
5. State aid is needed in clearing land and easier terms for loans for land-clearing operations should be provided.
6. The large commissions charged by land agents in selling land should be eliminated.
7. The price of wild land to the settler should be reduced.

HUBBARD COUNTY

1. State aid in clearing state lands should be given.
2. More sheep are needed.
3. The rate of interest should be lowered.
4. The federal farm loan act should be developed.
5. A railroad should be built from Detroit to Duluth. It takes two days to go to market and back with teams.
6. Some system of building better crossroads other than leaving the work to the individual settler should be devised.
7. State aid in clearing state land should be provided.
8. Land should be taken from speculators, prices lowered, and terms made easier.
9. Speculation should be controlled. Better schools and roads should be built.

ITASCA COUNTY

1. The county should be bonded to build better roads.
2. State aid in clearing land, free clover and timothy seed, and easier methods of getting more cows should be provided.

3. The state should slash and burn a portion on each 40 acres and seed it down for pasture.
4. Some method of building better roads, especially crossroads, should be provided.
5. Swamp lands should be drained.
6. Farmers with considerable capital and knowledge of farming should be induced to settle here.
7. The tax rate on speculative land should be increased and that on productive land lowered.
8. The state should aid in clearing 10 acres of each quarter section.
9. State aid in draining large areas should be given.
10. Dynamite should be obtainable at cost, and interest rates for loans to settlers lowered.
11. State and federal aid is needed in building a railroad through the country and draining swamps so the land can be cropped.

KOOCHICHING COUNTY

1. Speculators should be eliminated.
2. Taxes should be lower to settlers, and aid in road building given.
3. State aid in road making is needed and land should be ditched only when used.
4. State aid in clearing five acres and building house should be given.
5. Roads should be built and taxes lowered.
6. State aid in clearing and selling land is needed.

LAKE COUNTY

1. Taxes on improvements should be removed.
2. State aid in starting settlers on land should be provided.
3. Taxes on improvements should be removed.
4. Unscrupulous land agents should be eliminated.
5. Coöperative buying should be encouraged and state aid in starting a home provided.

ST. LOUIS COUNTY (DISTRICT NO. 1)

1. Swamps should be drained and better roads built by state aid.
2. Men with more capital and better knowledge of farming are necessary.
3. Livestock loans should be obtainable at a low rate of interest.
4. Advice and financial aid for stocking farms with cows are greatly needed.

ST. LOUIS COUNTY (DISTRICT NO. 2)

1. The state should clear part of the land to start the settler.
2. Lower interest rates and better roads should be provided.

3. Speculation on land by large corporations should be made impossible.
4. Taxes should be lower and land sold at more nearly its value.
5. Better crossroads should be built and taxes lowered.
6. Price of wild land should be reduced.
7. The state should control the price of wild land and speculation should be prohibited.

PART II

Part II contains maps of each county concerned, showing the location of the farms from which records were taken. It also presents the records of the individual farms that make up the averages presented in Part I. Such data may be exceedingly valuable in following specific farms through the various tables, showing the wide variations between farms and the productive factors of each farm.

The widely varying soil, marketing and crop-producing conditions in all the localities studied makes the individual farm record of particular value to those interested in the farm operations and problems of this part of the state. Obviously, any more detailed description of the individual farms and methods of management must be the subject of further investigation.

In all tables, the figures in parentheses indicate the number of farms used in obtaining the averages. In other cases the total number of farms is used. Where essential, the averages are weighted.

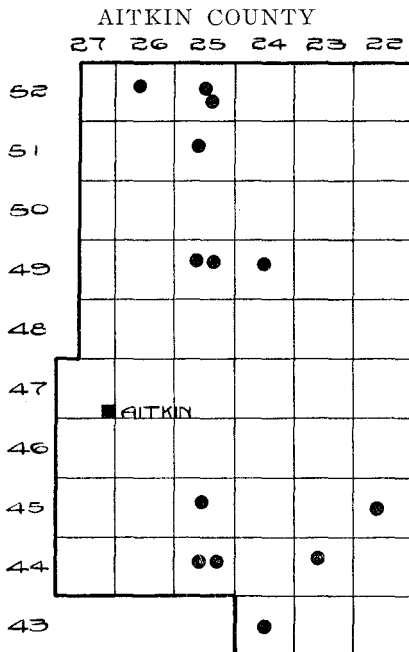


Fig. 2. Location of Coöperating Farms in Aitkin County

TABLE VIII
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 13 FARMS
IN AITKIN COUNTY

Farm No.	Year settled	Estimated Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1892	\$10	\$ 300	0	4.5	30	\$50
2	1886	None	.....	0	4.0	60	50
3	1902	None	500	0	3.0	115	20
4	1913	None	1,000	0	11.0	30	15
5	1911	None	1,000	0	2.0	10	15
6	1908	200	1,000	0	5.0	15	20
7	1889	.....	.....	0	2.5	30	.....
8	1882	None	500	0	1.2	40	20
9	1901	None	.....	0	2.0	25	35
10	1909	150	1,000	0	2.5	7	50
11	1893	.....	.....	0	1.5	12	60
12	1908	600	1,000	15	10.0	130	15
13	1895	.....	.....	0	2.0	30	51
Average.	.....	.....	\$900	0	2.7	35	\$36

TABLE IX
CROP STATISTICS ON 13 FARMS IN AITKIN COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	140	0	30.0	21.0	0	Potatoes, carrots, hay
2	280	0	73.0 (70 hay)	26.0	0	Oats, hay
3	205	0	60.0	29.0	\$665	Clover seed, peas, oats, potatoes, hay
4	140	0	.....	.....	65	Wheat, potatoes, buckwheat, onions
5	160	20	95.0 (85 hay)	60.0	110	Potatoes, corn, hay
6	120	0	16.0	13.0	65	Potatoes, corn, hay
7	240	0	21.0	9.0	60	Oats, potatoes, corn, hay
8	120	0	17.0	14.0	399	Potatoes, corn, hay
9	100	20	11.0	11.0	55	Wheat, oats, potatoes, corn
10	120	0	0.5	0.4	26	Beans, peas, potatoes
11	278	0	7.0	2.5	420	Wheat, barley, oats, potatoes
12	214	44	56.0	26.0	.....	Clover seed, buckwheat, oats, barley, potatoes
13	160	7	18.0	11.0	847	Oats, peas, hay, truck
Average.	168	.....	31.0	18.0	\$226	.....

TABLE X
LIVESTOCK STATISTICS ON 13 FARMS IN AITKIN COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	3	7	0	1	25	0	\$647
2	5	0	40	4	.....	0	526
3	10	3	3	25	.....	0	360
4	4	.....	0	.....	.....	0	100
5	4	3	1	10	.....	0	20
6	3	4	1	0	.....	0	150
7	6	5	0	0	.....	0	150
8	3	6	7	0	.....	5	200
9	2	3	1	0	.....	0	55
10	.....	.....	.....	.....	.....	.....	63
11	3	10	0	0	.....	20	260
12	2	4	.....	8	25	20	.....
13	2	9	10	2	25	0	1,365
Average.	4	4.5	6	6.5	25 (3)	15 (3)	\$325

TABLE XI
DISTRIBUTION OF INCOME ON 13 FARMS IN AITKIN COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	0	\$647	\$625	\$6	\$1,278
2	0	526	1,100	0	1,626
3	665	360	300	0	1,325
4	65	100	0	200	365
5	110	20	650	150	930
6	65	150	0	0	215
7	60	150	0	0	210
8	399	200	0	0	599
9	55	55	288	0	398
10	26	63	256	465	810
11	420	260	144	0	824
12					
13	847	1,365	130	0	2,342
Average	226	325	303	64	\$918
Percentage of total	25	36	32	7	

BELTRAMI AND ROSEAU COUNTIES

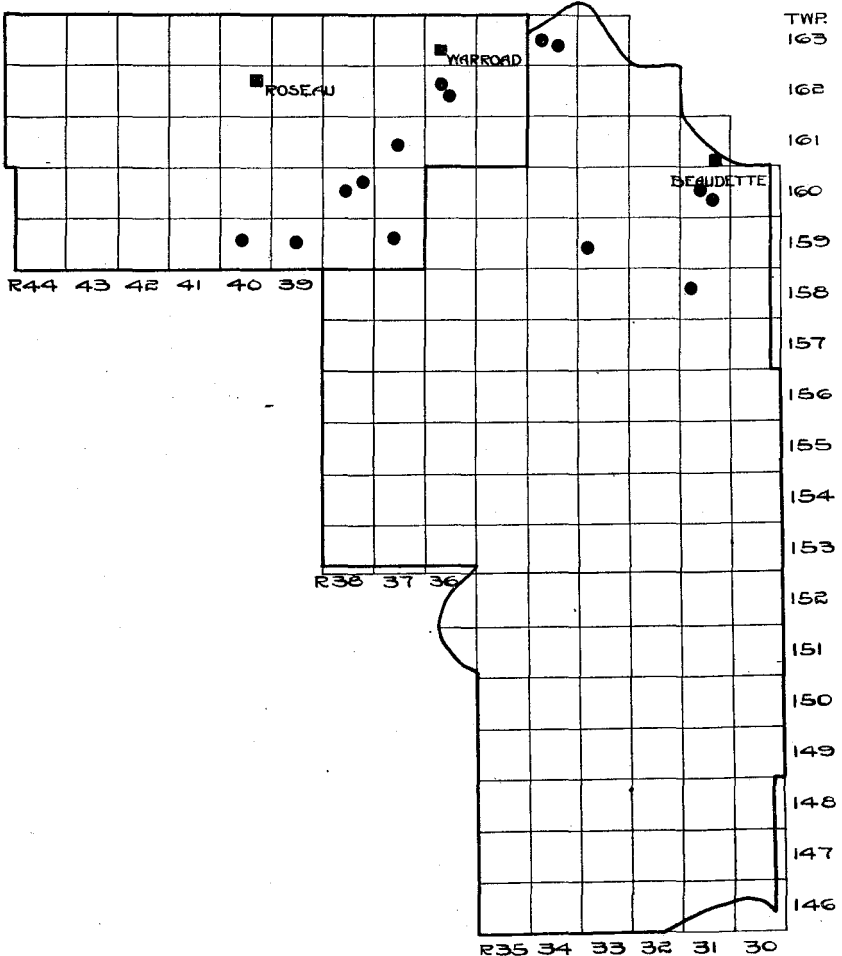


Fig. 3. Location of Coöperating Farms in Beltrami and Roseau Counties

TABLE XII
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 14 FARMS
IN BELTRAMI AND ROSEAU COUNTIES

Farm No.	Year settled	Estimated Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1904	\$200	\$1,500	0	4.0	50	\$15
2	1887	None	500	0	4.0	60	10
3	1911	None	1,600	0	2.5	10	35
4	1900	None	1,000	0	8.0	95	.....
5	1899	None	700	0	17.0	300	25
6	1908	12	1,000	0	3.5	24	10
7	1905	325	800	0	2.0	42	10
8	1906	60	.....	0	1.5	10	25
9	1913	None	2,000	0	10.0	40	50
10	1915	1,800	1,800	0	3.5	10	23
11	1912	.....	.....	0	5.0	20	25
12	1908	.....	.....	0	5.0	40	15
13	1908	50	1,000	0	3.5	40	10
14	1909	1,000	2,000	15	16.0	110	10
Average.	.....	.....	\$1,200	15 (1)	6.5	46	\$20

TABLE XIII
CROP STATISTICS ON 14 FARMS IN BELTRAMI AND ROSEAU COUNTIES

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	240	0	7.0	3.0	\$54	Rye, potatoes
2	200	0	50.0	25.0	184	Potatoes, wheat, oats, barley, rye
3	160	0	.....	.....	.....	.....
4	160	0	67.0	42.0	1,030	Wheat, oats, barley, hay, potatoes
5	480	0	259.0	54.0	1,440	Wheat, oats, barley, hay, potatoes
6	160	0	14.0	9.0	187	Wheat, oats, barley, potatoes
7	320	0	25.0	9.0	205	Wheat, oats, corn, potatoes
8	156	0	6.5	4.0	20	Potatoes, hay, garden
9	80	0	39.0	49.0	715	Corn, oats, onions, potatoes, hay, rutabagas
10	80	0	2.0	2.5	61	Corn, oats, potatoes, rutabagas
11	160	0	3.0	2.0	200	Potatoes, rutabagas, carrots
12	360	0	35.0	10.0	525	Potatoes, rutabagas, garden
13	160	0	28.0	17.0	300	Oats, barley, potatoes
14	280	0	84.0	30.0	448	Wheat, oats, rye, potatoes, clover
Average.	214	.....	56.0	21.0	\$413	.....

TABLE XIV
LIVESTOCK STATISTICS ON 14 FARMS IN BELTRAMI AND ROSEAU COUNTIES

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	5	5	5	.....	30	0	\$95
2	2	6	.....	1	50	80	285
3	.....	.....	.....	.....	.....	.....	.....
4	4	12	.....	2	30	0	282
5	11	15	23	11	65	0	780
6	2	3	.....	5	50	75	1,190
7	3	7	.....	.....	75	0	619
8	2	2	1	.....	18	0	125
9	5	2	1	.....	50	0	490
10	1	1	7	.....	4	0	23
11	1	2	.....	.....	25	0	.....
12	1	5	8	.....	40	4	147
13	2	5	7	2	.....	0	130
14	5	7	14	24	40	1	676
Average.	4	5.5	8 (8)	9 (5)	40	.....	\$450

TABLE XV
DISTRIBUTION OF INCOME ON 14 FARMS IN BELTRAMI AND ROSEAU COUNTIES

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	\$54	\$95	0	\$175	\$324
2	184	285	0	0	469
3					
4	1,030	282	0	0	1,312
5	1,440	780	0	160	2,380
6	187	1,190	0	0	1,377
7	205	619	0	0	824
8	20	125	234		379
9	715	490	100	100	1,405
10	61	23	0	c	84
11	200				
12	525	147	708		1,380
13	300	130	0	0	430
14	448	-676	0	0	1,124
Average	\$413	\$450	\$78	\$35	\$976
Percentage of total	42	46	8	4	

CARLTON COUNTY

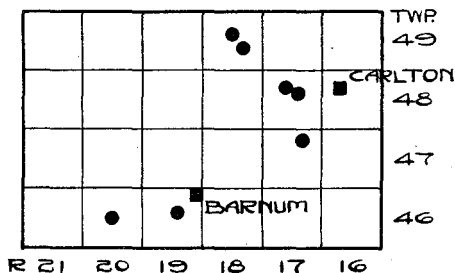


Fig. 4. Location of Coöperating Farms in Carlton County

TABLE XVI
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 7 FARMS
IN CARLTON COUNTY

Farm No.	Year settled	Estimated Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1902	\$1,000	\$2,000	0	5.5	48	\$30
2	1888	80	2,000	2	1.5	75	75
3	1902	None	500	0	2.5	25	50
4	1909	800	800	2	4.0	65	30
5	1909	None	800	0	2.0	15	30
6	1884	None	500	2	4.0	85	60
7	1913	1,500	2,000	0	10.0	50	30
Average		\$625	\$1,085	2 (3)	4.2	52	\$44

TABLE XVII
CROP STATISTICS ON 7 FARMS IN CARLTON COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	115	0	28.0	24	\$1,682	Oats, barley, potatoes, rutabagas, hay
2	160	45	28.5	18	275	Oats, potatoes, hay
3	80	0	18.0	22	0	Oats, potatoes, hay
4	80	0	38.0	47	680	Oats, potatoes, hay, cabbage, rutabagas
5	80	0	3.0	4	0	Oats, hay
6	160	0	42.0	26	70	Oats, wheat, barley, hay
7	160	100	31.0	19	1,300	Oats, wheat, rye, potatoes
Average.	120	.....	27	22	\$572	.....

TABLE XVIII
LIVESTOCK STATISTICS ON 7 FARMS IN CARLTON COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	3	5	.....	10	75	0	\$861
2	2	2	.....	.....	10	0	400
3	3	13	.....	3	40	0	1,040
4	7	5	7	18	.....	0	440
5	4	.....	5	.....	40	0	0
6	2	14	9	.....	30	0	1,340
7	2	1	1	13	40	0	120
Average.	3	6	5	11	40	0	\$600

TABLE XIX
DISTRIBUTION OF INCOME ON 7 FARMS IN CARLTON COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1.....	\$1,682	\$861	0	\$ 100	\$2,643
2.....	275	400	37	0	712
3.....	0	1,040	0	300	1,340
4.....	680	440	0	0	1,120
5.....	0	0	0	600	600
6.....	70	1,340	0	0	1,410
7.....	1,300	120	150	0	1,570
Average.....	\$563	\$603	\$28	\$147	\$1,341 *
Percentage of total.....	42	45	2	11	.....

CASS COUNTY

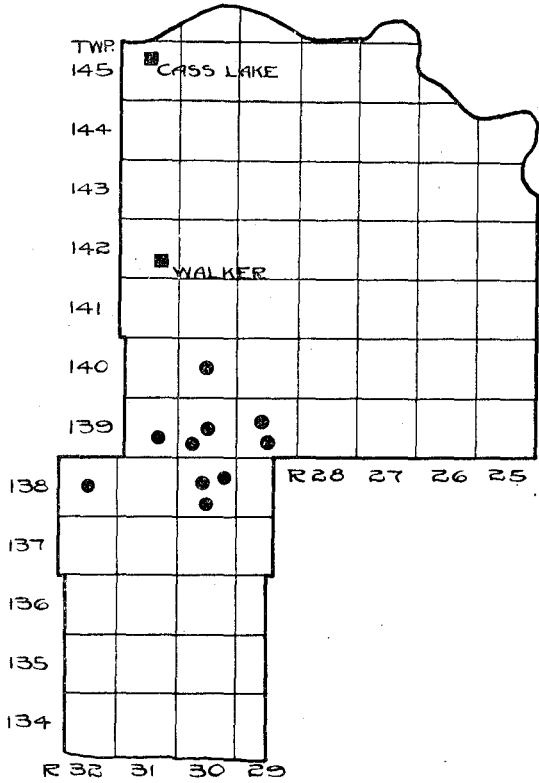


Fig. 5. Location of Coöperating Farms in Cass County

TABLE XX
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 10 FARMS
IN CASS COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1912	None	\$700	0	10.0	35	\$50.00
2	1900	\$50	2,000	0	12.0	140	10.00
3	1910	100	500	0	12.0	65	30.00
4	1913	400	2,000	0	7.5	32	25.00
5	1895	5	2,000	0	3.0	40	25.00
6	1916	None	100	30	2.0	32	20.00
7	1905	500	250	6	6.0	35	20.00
8	1913	150	.....	0	6.0	23	50.00
9	1905	None	.....	20	15.0	250	20.00
10	1908	50	500	7	1.5	12	15.00
Average.	.....	\$204 (4)	\$1,000	16 (4)	7.0	66	\$26.50

TABLE XXI
CROP STATISTICS ON 10 FARMS IN CASS COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	160	0	140	27	0	Oats, corn, potatoes
2	520	20	34	30	0	Oats, corn, potatoes
3	114	5	23	22	\$ 100	Corn, oats, clover, potatoes
4	160	0	24	15	357	Corn, oats, potatoes, beans
5	160	6	30	16	519	Oats, rye, potatoes, cabbage
6	160	0	25	16	100	Hay
7	160	0	15	19	50	Oats, potatoes, rutabagas
8	80	0	113	22	25	Oats, corn, hay, rutabagas
9	500	50	19	47	1,400	Oats, wheat, rye, clover, potatoes
10	40	0	19	47	34	Oats, corn, potatoes, flax
Average.	210	.....	35	17	\$258	.....

TABLE XXII
LIVESTOCK STATISTICS ON 10 FARMS IN CASS COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	4	3	.....	4	70	0	\$100
2	5	.....	34	30	.....	0	777
3	2	7	1	.....	.....	0	300
4	2	11	.....	11	.....	0	.....
5	2	3	.....	18	.....	0	25
6	2	2	3	.....	.....	0	75
7	3	.....	.....	.....	60	0	110
8	1	2	3	.....	.....	0	50
9	8	.....	26	24	.....	*	340
10	3	6	13	2	30	0	264
Average.	3	5	13	15	50 (3)	0	\$227

* 240 goats.

TABLE XXIII
DISTRIBUTION OF INCOME ON 10 FARMS IN CASS COUNTY

Farm No.	Income from				Total
	Crops	Livestock	Forest products	Outside labor	
1	0	\$100	\$195 (logging)	\$1,400	\$1,695
2	0	777	650	0	1,427
3	100	300	0	0	400
4	357	.....	32	0	.....
5	519	25	0	30	574
6	100	75	0	0	175
7	50	110	225	0	385
8	25	50	175	46	296
9	1,400	340	0	0	1,740
10	34	264	0	85	383
Average.	\$358	\$227	\$130	\$154	\$769
Percentage of total.	33	30	17	20	.....

HUBBARD COUNTY

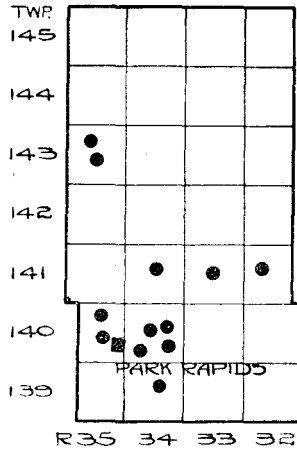


Fig. 6. Location of Coöperating Farms in Hubbard County

TABLE XXIV
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 12 FARMS
IN HUBBARD COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1882	None	\$800	90	11.0	250	\$15.00
2	1886	None	.....	0	2.5	90	10.00
3	1900	None	500	35	12.5	120	12.00
4	1889	\$250	1,000	0	9.0	60	.....
5	1902	None	700	0	3.5	82	15.00
6	1908	400	700	0	8.0	60	12.00
7	1894	30	1,000	0	4.0	80	20.00
8	1905	30	500	0	6.0	25	25.00
9	1898	1,000	1,000	140	25.0	240	10.00
10	1897	None	600	80	7.0	130	16.00
11	1905	None	1,500	10	12.0	148	20.00
12	1914	200	300	0	20.0	60	20.00
Average.	.....	\$280	\$780	71 (5)	7.0	112	\$15.00

TABLE XXV
CROP STATISTICS ON 12 FARMS IN HUBBARD COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	365	0	250	68	\$1,278	Oats, wheat, corn, rye, clover, potatoes
2	160	10	52	33	912	Oats, wheat, corn, rye, clover, potatoes
3	160	0	125	78	684	Oats, corn, rye, potatoes
4	160	0	62	39	162	Wheat, oats, corn, beans, potatoes, clover
5	160	0	45	28	1,480	Corn, clover seed, potatoes, onions
6	200	0	66	33	1,175	Oats, corn, clover seed, potatoes
7	233	0	87	37	120	Oats, wheat, corn, potatoes
8	160	20	27	17	142	Oats, wheat, rye, hay
9	240	0	220	92	1,875	Oats, wheat, rye, corn, hay
10	160	0	104	65	10	Oats, corn, potatoes, hay
11	160	0	148	93	361	Oats, wheat, barley, rye, hay
12	200	0	60	30	0	Potatoes, beans, hay
Average.	196	.....	86	44	\$700	.....

TABLE XXVI
LIVESTOCK STATISTICS ON 12 FARMS IN HUBBARD COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	6	.....	26	14	75	0	\$600
2	2	5	4	2	75	0	515
3	5	.....	40	5	90	75	1,067
4	2	2	6	2	75	0	182
5	2	.....	22	.....	40	0	500
6	4	7	10	.....	50	25	855
7	4	.....	20	18	40	2	1,000
8	1	4	7	7	.....	0	300
9	5	10	15	12	40	0	1,910
10	19	.....	42	48	40	24	2,376
11	7	.....	60	16	60	6	1,923
12	5	7	.....	7	60	0	450
Average.	4	6 (6)	23	13	60	26 (5)	\$973

TABLE XXVII
DISTRIBUTION OF INCOME ON 12 FARMS IN HUBBARD COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	\$1,278	\$600	0	0	\$1,878
2	912	515	0	0	1,427
3	684	1,067	0	0	1,751
4	162	182	280	0	624
5	1,480	500	0	25	2,005
6	1,175	855	350	300	2,680
7	120	1,000	0	0	1,120
8	142	300	0	250	692
9	1,875	1,910	120	0	3,905
10	10	2,376	0	0	2,386
11	361	1,923	0	0	2,284
12	0	450	0	600	1,050
Average	\$700	\$973	\$68	\$92	\$1,833
Percentage of total	38	53	4	5	.....

ITASCA COUNTY

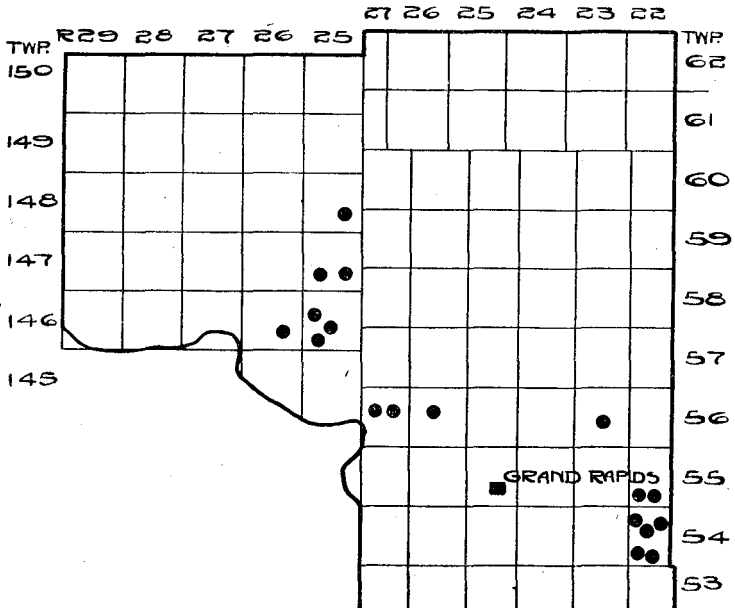


Fig. 7. Location of Coöperating Farms in Itasca County

TABLE XXVIII
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 18 FARMS
IN ITASCA COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1904	None	\$1,500	0	5.0	25.0	\$65
2	1906	\$200	2,500	0	1.5	25.0	50
3	1911	100	1,500	0	4.5	22.0	80
4	1905	None	800	0	1.0	25.0	25
5	1913	1,300	500	0	2.5	7.5	100
6	1887	None	250	0	1.0	18.0	39
7	1904	1,100	1,000	0	7.5	39.0	20
8	1915	3,400	5,000	0	11.0	33.0	25
9	1915	1,500	3,000	0	5.5	17.0	30
10	1916	2,000	4,000	0	3.5	7.0	20
11	1910	None	500	0	4.0	20.0	20
12	1914	None	3,000	1	.....	38.0	25
13	1908	300	2,000	0	1.2	10.0	75
14	1907	.....	.....	0	2.0	12.0	25
15	1911	500	1,000	0	6.0	38.0	20
16	1907	.....	.....	0	2.5	30.0	25
17	1896	None	50	0	2.0	30.0	40
18	1915	.....	.....	0	1.0	3.0	40
Average.	.....	\$650	\$1,660	0	3.0	23.0	\$40

TABLE XXIX
CROP STATISTICS ON 18 FARMS IN ITASCA COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	200	30	25	12.5	\$650	Oats, barley, potatoes, hay
2	80	2	8	10.0	661	Potatoes, rutabagas, strawberries, hay
3	80	5	11	13.0	243	Oats, beans, beets, potatoes, hay
4	120	26	14	12.0	262	Oats, barley, potatoes, hay
5	83	7	4	5.0	80	Oats, barley, potatoes, hay
6	160	0	20	12.5	250	Oats, hay
7	145	0	38	26.0	0	Oats, hay
8	160	25	25	16.0	100	Oats, barley, potatoes, hay
9	160	0	11	7.0	100	Oats, potatoes, hay
10	180	22	6	3.0	102	Potatoes, hay
11	120	0	15	12.5	432	Hay
12	80	0	21	21.0	60	Wheat, oats, barley, potatoes, hay
13	45	0	1	2.0	20	Potatoes, strawberries
14	80	0	10	12.5	41	Potatoes, hay
15	400	200	14 (20 hay)	7.0	0	Oats, barley, potatoes, hay, rutabagas
16	40	0	29	72.0	16	Oats, potatoes, hay, rutabagas
17	240	0	20	8.0	150	Hay
18	40	0	3	1.5	0	Potatoes, hay
Average.	134	.....	15	11.0	\$165	.....

TABLE XXX
LIVESTOCK STATISTICS ON 18 FARMS IN ITASCA COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	3	4	.....	32	40	0	\$671
2	2	8	.....	13	75	0	503
3	2	3	.....	5	30	0	135
4	4	5	.....	4	73	0	163
5	2	2	4	.....	.....	0	130
6	3	1	.....	2	40	0	55
7	3	25	.....	25	40	0	675
8	3	7	.....	9	.....	0	284
9	4	4	.....	6	15	0	280
10	5	5	.....	2	30	0	440
11	.....	2	7	2	100	0	0
12	2	2	3	1	25	0	175
13	.....	2	4	.....	25	0	228
14	1	1	.....	.....	.....	0	18
15	4	12	35	8	200	0	1,095
16	2	.....	1	2	.....	0	240
17	5	.....	10	.....	50	0	160
18	1	2	3	1	.....	0	60
Average.	3	5.6	9 (7)	8 (13)	57 (13)	0	\$394

TABLE XXXI
DISTRIBUTION OF INCOME ON 18 FARMS IN ITASCA COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	\$650	\$671	\$330	0	\$1,651
2	661	503	210	0	1,374
3	243	135	140	0	518
4	262	163	207	0	632
5	80	130	0	\$106	316
6	250	55	250	550	1,105
7	0	675	900	900 (logging)	2,475
8	100	284	112	0	496
9	100	280	0	0	380
10	102	440	0	0	542
11	432	0	582	0	1,014
12	60	175	150	100	485
13	20	228	455	350	1,053
14	41	18	123	297	479
15	0	1,095	0	0	1,095
16	16	240	20	100	376
17	150	160	0	1,200 (logging)	1,510
18	0	60	320	2,000 (logging)	2,380
Average	\$165	\$394	\$216	\$306	\$1,081
Percentage of total	15	36	20	29	.....

KOOCHICHING COUNTY

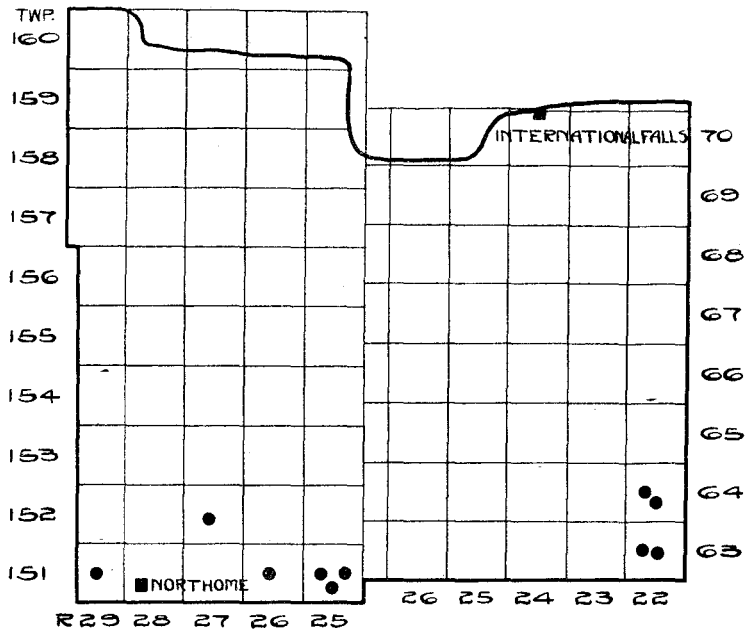


Fig. 8. Location of Coöperating Farms in Koochiching County

TABLE XXXII

CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 10 FARMS
IN KOOCHICHING COUNTY

Farm No.	Year settled	Estimated Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1906	\$200	\$1,000	0	5.5	28	\$25.00
2	1906	900	.....	0	1.5	17	25.00
3	1909	100	1,000	0	2.5	15	40.00
4	1907	2,000	75,000	0	3.0	36	60.00
5	1902	None	.....	0	1.0	30	60.00
6	1904	None	1,500	0	1.5	10	50.00
7	1907	100	500	0	1.0	15	60.00
8	1902	.....	.....	10	2.0	50	60.00
9	1901	200	1,000	25 (hay)	1.0	15	60.00
10	1899	35	1,000	0	1.0	15	35.00
Average	.....	\$440 (8)	1,000 (6)	0	2.2	25	\$47.50

TABLE XXXIII
CROP STATISTICS ON 10 FARMS IN KOOCHICHING COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	160	0	.....	.....	.....	No report
2	160	0	.....	.....	0	Potatoes, hay, oats
3	160	0	9.0	5.5	\$15	Potatoes, hay, oats, wheat, carrots
4	160	0	56.0	35.0	75	Potatoes, hay, oats, wheat, barley
5	180	0	19.0	11.0	75	Potatoes
6	80	0	0.5	0.6	50	Potatoes
7	160	0	6.0	4.0	0	Wheat, barley, potatoes
8	120	0	18.0	15.0	.....	Wheat, oats, corn, potatoes, hay
9	160	0	15.0	9.0	60	Grain, hay
10	160	0	6.5	4.0	50	Oats, speltz, potatoes
Average.	150	.....	18.0	12.0	\$46 (7)	.....

TABLE XXXIV
LIVESTOCK STATISTICS ON 10 FARMS IN KOOCHICHING COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	2	.....	.....	.....	.....	0	.....
2	2	2	.....	.....	24	0	\$21
3	1	2	1	2	.....	0	0
4	7	3	12	25	60	0	1,100
5	2	.....	15*	.....	40	0	680
6	0	1	2	.....	40	0	100
7	1	6	10	3	.....	0	612
8	8	7	18	.....	.....	0	.....
9	2	4	.....	.....	50	0	72
10	2	2	3	2	25	12	196
Average.	3	3.5 (8)	6 (8)	8 (4)	40 (6)	.....	344 (7)

* Includes milk cows.

TABLE XXXV
DISTRIBUTION OF INCOME ON 10 FARMS IN KOOCHICHING COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	.....	.....	.....	.....	.....
2	.....	.....	.....	.....	.....
3	\$15	0	\$575	\$0	\$590
4	75	\$1,100	0	0	1,175
5	75	680	0	0	755
6	50	100	89	75	314
7	0	612	480	250	1,342
8	0	.....	840	.....	.....
9	60	72	1,168	.....	1,300
10	50	196	100	346
Average	\$46	\$390	\$250	\$145	\$831
Percentage of total	6	47	30	17

LAKE COUNTY

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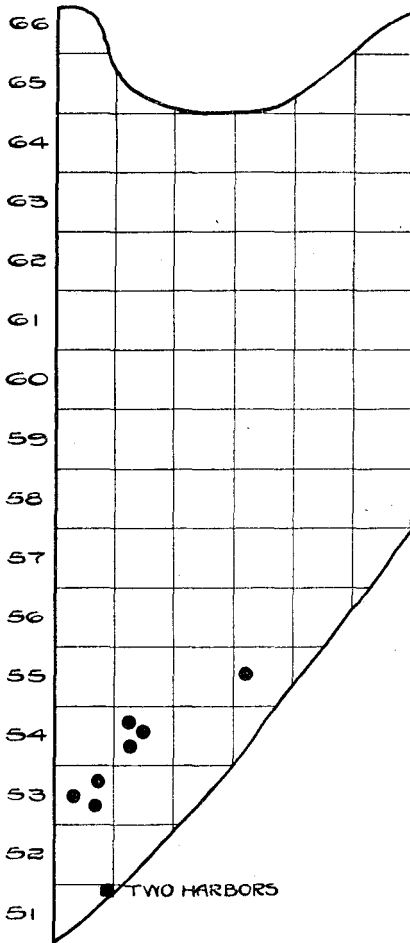


Fig. 9. Location of Coöperating Farms in Lake County

TABLE XXXVI

CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 7 FARMS
IN LAKE COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1906	\$100	.....	0	2.0	16	\$50
2	1896	None	\$1,000	0	2.5	45	75
3	1909	500	800	0	2.0	15	75
4	1896	None	2,000	0	1.5	30	65
5	1915	300	.....	0	3.0	6	60
6	1906	100	.....	0	2.0	16	50
7	1902	None	.....	0	5.0	25	40
Average.	.....	\$250	\$1,300 (3)	0	2.5	22	\$60

TABLE XXXVII
CROP STATISTICS ON 7 FARMS IN LAKE COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	77	0	20.0	26	\$25	Oats, potatoes, hay
2	160	0	29.5	18	90	Oats, potatoes, hay
3	40	0	11.5	29	.....	Potatoes, hay
4	160	0	23.0	14	200	Oats, wheat, potatoes, truck
5	160	0	27.0	17	0	Oats, potatoes, hay
6	77	0	20.0	26	25	Oats, potatoes, hay
7	100	0	25.0	25	0	Oats, potatoes, hay
Average	110	.....	21.0	19	\$60	.....

TABLE XXXVIII
LIVESTOCK STATISTICS ON 7 FARMS IN LAKE COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	2	5.0	.....	.....	25	.....	\$250
2	3	5.0	10.0	.....	.....	.....	.....
3	2	.....	6.0	.....	.....	.....	.....
4	1	5.0	.....	.....	75	.....	350
5	4	2.0	0	.....	20	.....	0
6	2	5.0	.....	.....	20	.....	.....
7	2	6.0	.....	2	30	.....	820
Average	3	3.5	5.5 (3)	.....	30	.....	\$236

TABLE XXXIX
DISTRIBUTION OF INCOME ON 7 FARMS IN LAKE COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	\$25	\$250	0	\$200	\$475
2	90	0	0	0	.....
3	.....	.....	.....	.....	.....
4	200	350	0	0	550
5	0	0	0	300	300
6	25	0	0	200	225
7	0	820	0	200	1,020
Average	\$60	\$236	0	\$150	\$446
Percentage of total	13	53	0	34	.....

ST. LOUIS COUNTY, DISTRICT NO. 1

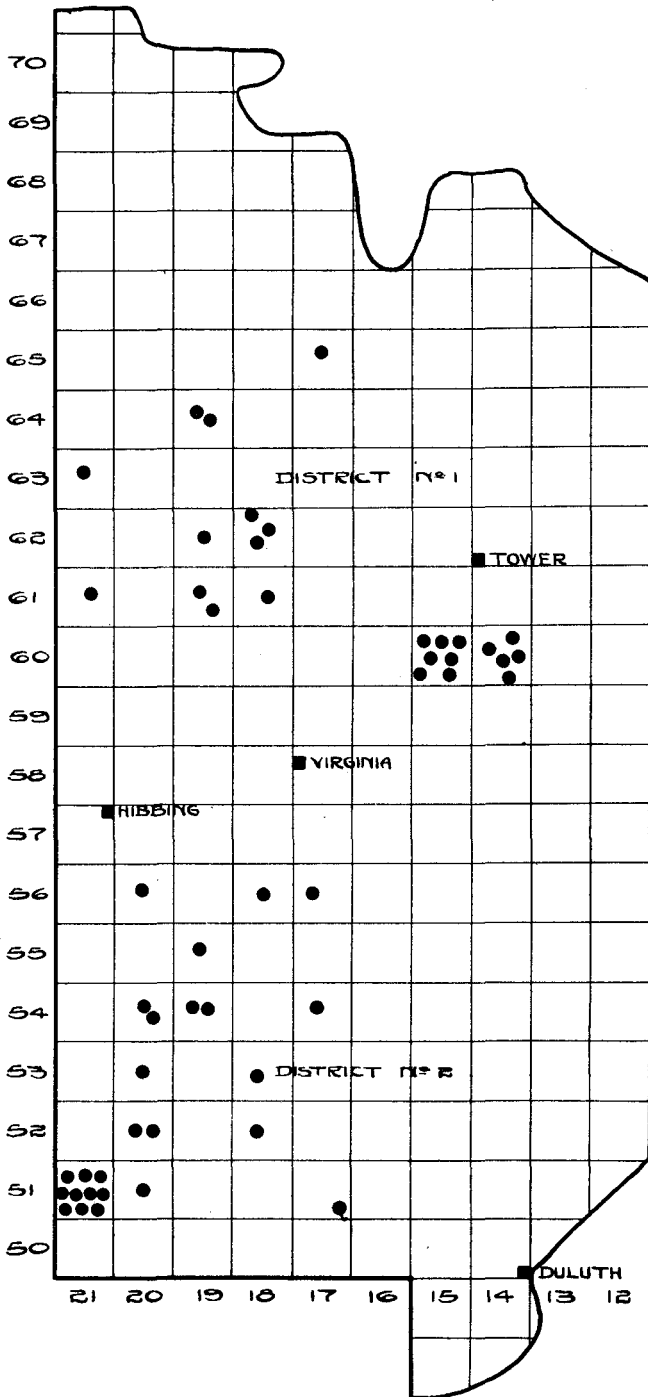


Fig. 10. Location of Coöperating Farms in St. Louis County

TABLE XL
CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 24 FARM
IN DISTRICT NO. 1, ST. LOUIS COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1899	None	.....	0	2.0	60	\$100
2	1906	None	.....	0	1.5	20	175
3	1901	None	.....	0	2.0	40	60
4	1900	\$50	None	0	1.5	30	75
5	1901	18	\$500	0	1.0	40	100
6	1901	20	400	0	1.0	15	100
7	1905	.....	.....	0	2.0	30	.....
8	1905	.....	.....	0	2.0	25	25
9	1905	.....	.....	0	1.5	25	30
10	1904	None	500	0	1.5	25	60
11	1908	.....	.....	0	3.0	25	40
12	1912	.....	.....	0	3.0	10	30
13	1903	.....	.....	0	3.0	20	30
14	1900	50	.....	0	4.0	100	50
15	1903	None	.....	0	3.0	40	25
16	1899	.....	.....	0	2.0	.....	.....
17	1896	None	300	0	2.0	50	60
18	1908	900	900	0	5.0	40	50
19	1907	.....	.....	0	4.0	35	50
20	1902	None	4,000	0	2.5	35	18
21	1909	50	500	0	2.0	10	75
22	1908	None	.....	0	6.0	64	40
23	1912	None	400	0	1.0	5	50
24	1909	50	500	0	2.0	10	75
Average.	.....	\$30	\$440	0	2.4	33	\$60

TABLE XLI
CROP STATISTICS ON 24 FARMS IN DISTRICT NO. 1, ST. LOUIS COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	160	60	15	9.0	\$48	Barley, hay, potatoes
2	160	40	9	5.5	11	Wheat, rye, oats, hay, potatoes
3	120	0	20	12.0	36	Barley, oats, hay, potatoes
4	120	0	8	6.5	35	Hay, potatoes
5	160	60	11	7.0	18	Wheat, hay, potatoes
6	160	60	11	7.0	60	Wheat, hay, potatoes
7	160	80	2	1.2	30	Oats, hay, potatoes
8	160	0	18	16.0	.....	Oats, hay, potatoes
9	40	0	25	62.0	540	Barley, oats, hay, potatoes
10	160	35	13	8.0	.....	Oats, hay, potatoes
11	40	0	10	25.0	70	Oats, hay, potatoes
12	40	10	4	10.0	.....	Oats, hay, potatoes
13	160	10	3	2.0	15	Potatoes
14	120	3	29	24.0	.....	Wheat, oats, barley, potatoes
15	160	40	29	18.0	.....	Oats, hay, potatoes
16	160	122	.....	.....	.....	No report
17	160	110	50	31.0	.....	Clover, corn, wheat, oats, potatoes
18	160	0	24	15.0	3	Oats, barley, hay, potatoes
19	160	20	22	14.0	.....	Oats, hay, potatoes
20	200	0	19	9.5	.....	Oats, hay, potatoes
21	160	0	12	7.5	200	Wheat, oats, barley, hay, potatoes
22	120	0	.....	.....	90	Wheat, oats, barley, hay, potatoes
23	40	0	1	.....	.....	Potatoes
24	160	60	12	7.5	200	Oats, hay, potatoes
Average.	133	60	18	13.0	\$72	.....

TABLE XLII
LIVESTOCK STATISTICS ON 24 FARMS IN DISTRICT NO. 1, ST. LOUIS COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1	2	5	6	2	50		\$765
2	1	3	5		13		25
3	2	4	6		12		
4	1	4	6				185
5	2	4	3		48		72
6	1	5	5	1	15		138
7	2	4	3	1	50		215
8	3	3	10	1	30		690
9	1	3	2		40		75
10	1	3	4		30		153
11	1	5	5	1			100
12	1	1	2		5		
13	2	1	3			2	48
14	2	7		20	33		
15	3	5			35		
16	3	10	6	4	60		
17	6	10	5	3	50		1,200
18	2	2	4				
19							
20	3	3		23			168
21	2*	3			40		88
22	2	5	8	9	100		860
23							
24	2*	4	3	4	86		50
Average.	2	4	5	6	36		\$252

*Oxen

TABLE XLIII
DISTRIBUTION OF INCOME ON 24 FARMS IN DISTRICT NO. 1, ST. LOUIS COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1	\$48	\$765	\$825		\$1,638
2	11	25	150	\$10	196
3	36		800		836
4	35	185	125	70	415
5	18	72		300	390
6	60	138		150	348
7	30	215			245
8		690	2,700	30	3,420
9	540	75			615
10		153	360	100	612
11	70	100			170
12			235	100	335
13	15	48	475	40	578
14					
15					
16					
17		1,200	600		1,800
18	3		144		147
19					
20		168			168
21	200	88	200		488
22	90	860			950
23				400	400
24	200	50	200		450
Average.	\$72	\$252	\$360	\$37	\$721
Percentage of total.	10	35	50	5	

ST. LOUIS COUNTY, DISTRICT NO. 2

TABLE XLIV

CASH REQUIRED TO START AND FACTS CONCERNING LAND CLEARING ON 26 FARMS
IN DISTRICT NO. 2, ST. LOUIS COUNTY

Farm No.	Year settled	Cash required		No. acres cleared when farm was taken	Average No. acres cleared annually	Total No. acres cleared to 1917	Estimated cost of clearing per acre
		When settled	At present				
1	1891	\$75	\$1,000	0	2.0	160	\$120
2	1905	None	1,000	0	5.0	65	65
3	1902	600	1,000	0	4.0	20	50
4	1914	1,000	1,400	0	2.0	4	25
5	1911	100	800	0	2.5	10	35
6	1913	160	1,000	0	20.0	60	17
7	1902	.....	.....	0	4.0	54	30
8	1902	40	600	0	3.0	30	50
9	1898	25	250	0	4.0	80	40
10	1894	600	600	0	3.0	35	35
11	1895	400	500	0	4.0	30	35
12	1896	.....	.....	0	4.0	35	28
13	1900	500	500	0	2.5	15	42
14	1896	250	250	0	4.0	35	45
15	1896	350	500	0	3.0	30	35
16	1900	42	250	0	2.5	16	35
17	1902	150	250	0	1.5	10	35
18	1902	500	500	0	2.0	32	32
19	1902	350	500	4	3.0	42	32
20	1905	250	250	0	2.5	44	26
21	1903	475	475	0	1.5	23	30
22	1897	25	500	0	1.5	33	30
23	1905	150	450	0	2.0	18	25
24	1906	.....	.....	0	3.0	10	.....
25	1905	.....	.....	0	1.5	12	50
26	1904	50	100	0	1.0	18	25
Average.....	.....	\$256	\$510	0	2.5	31	\$35

TABLE XLV

CROP STATISTICS ON 26 FARMS IN DISTRICT NO. 2, ST. LOUIS COUNTY

Farm No.	Total acres in farm	No. acres unfit for agriculture	No. acres in crop	Percentage of farm in crop	Annual cash receipts from crops	Crops grown last few years
1	520	0	.....	.....	.....	.....
2	160	0	50.0	31	\$360	Oats, potatoes, hay
3	80	5	20.0	25	30	Beets, beans, onions, hay, potatoes, oats
4	40	0	2.0	5	0	Beets, beans, onions, hay, potatoes, oats, cabbage
5	40	0	10.0	25	0	Potatoes, hay
6	103	5	63.0	61	221	Potatoes, carrots, rutabagas, hay
7	320	0	38.0	12	60	Potatoes, oats, hay
8	120	0	22.0	18	0	Potatoes, oats, rye
9	240	0	40.0	17	0	Potatoes, oats, hay
10	160	0	15.0	9	0	Potatoes, oats, rye, hay
11	160	0	17.0	11	125	Potatoes, oats, hay
12	120	0	18.0	15	63	Potatoes, oats, hay
13	80	0	13.0	16	50	Potatoes, oats
14	160	0	18.0	11	.....	Potatoes, oats, hay
15	134	0	21.0	16	0	Potatoes, oats, hay
16	80	0	14.5	18	180	Oats, potatoes, hay
17	40	0	9.5	24	0	Oats, potatoes, hay
18	80	0	32.5	41	210	Oats, potatoes, hay
19	120	0	40.0	33	.....	Oats, potatoes, hay
20	80	0	43.0	53	0	Oats, potatoes, hay, rye
21	80	0	23.5	30	0	Oats, potatoes, hay, rutabagas
22	80	0	32.0	40	0	Oats, potatoes, hay
23	120	0	17.5	15	0	Oats, potatoes, hay
24	40	5	10.0	25	200	Potatoes, hay
25	80	0	7.5	9	0	Potatoes, hay
26	94	0	18.0	19	200	Wheat, oats, potatoes, hay
Average.....	108	.....	24.0	22	\$72	.....

TABLE XLVI
LIVESTOCK STATISTICS ON 26 FARMS IN DISTRICT NO. 2, ST. LOUIS COUNTY

Farm No.	No. of stock on hand April 1—first year record was taken						Annual cash receipts from stock
	Horses	Cows	Other cattle	Hogs	Poultry	Sheep	
1							
2	2	3	7				\$33
3	1	3		3	10		848
4	4	3		2	25		50
5	1	4	3	2	20		44
6	2				60		14
7	4	7	10			4	365
8	4	6	2		13		
9	4	8					
10	2	6					
11	2	4		1			
12	3	8	6	11			
13	1	6	4				
14	2	8	6				
15	2	8	5			2	
16	2	0	0	0	0	0	0
17	3	8	12		25		419
18	2	7	6		50		352
19	2	8	13		45		185
20	3	8	9				375
21	1	8	8		40		415
22	1	6	9		35		220
23	2	5	8				150
24	1	4	3	4	86		586
25	1	3	2	2			550
26	2	4			30		128
Average.	2	6	6 (23)	2 (6)	44 (18)	3 (2)	\$284 (16)

TABLE XLVII
DISTRIBUTION OF INCOME ON 26 FARMS IN DISTRICT NO. 2, ST. LOUIS COUNTY

Farm No.	Income from				Total
	Crops	Live-stock	Forest products	Outside labor	
1					
2	\$360	\$33	\$0	\$0	\$393
3	30	848	270	0	1,148
4	0	50	0	300	350
5	0	44	0	33	77
6	221	14	319	175	729
7	60	365	241	0	666
8					
9			350		350*
10			120		120*
11	125				125*
12	63				63*
13	50				50*
14					
15					
16	180	0	0	0	180
17	0	419	0	0	419
18	210	352	403	0	965
19	0	185	745	0	930
20	0	375	450	0	825
21	0	415	0	0	415
22	0	220	180	0	400
23	0	150	900	0	1,050
24	200	586	0	190	976
25	0	550	180	75	805
26	200	128	1,340	600 (logging)	2,268
Average	\$72	284	332	52	738
Percentage of total	10	38	45	7	

* Not in average.