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SOME TRENDS IN FARM PRODUCTION  
IN SOUTHERN MINNESOTA

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# SOME TRENDS IN FARM PRODUCTION IN SOUTHERN MINNESOTA

by

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## Introduction

Farming is a highly dynamic business. It is becoming increasingly so. New techniques that are crowding their way into the farm picture make it necessary for the farmer to be ever alert to adopt those new techniques which will fit his situation or he will lose out in competition with his more aggressive neighbors. He must evaluate each new process or practice as it comes to his attention or he will be at an economic disadvantage in a business as highly competitive as farming.

These new processes may alter the comparative advantage that certain crops or classes of livestock may have had in the past and make desirable changes in the choice of crops or livestock, in the size of the enterprise, or in the methods used in production. This report deals with changes in the choice of crops and livestock in southern Minnesota. Many of these changes call for new skills, new types of equipment and new practices. Some involve expensive equipment that is only economical if spread over more units of business. Farmers are finding it increasingly difficult to keep abreast of changing techniques in all lines of crop and livestock production and to adjust their farm business so as to use these new techniques most effectively. Decisions must be made as to just what crops, what species of livestock, and what practices in production will best utilize the operator's resources. In this report is presented a review of the changing picture of southern Minnesota agriculture and of some of the dynamic factors that necessitate or condition changes in the size of the farm unit and in techniques used in production.

It is the purpose of this study to show some of the changes that have taken place in farming in Minnesota. Major sources of data are the Minnesota State Farm Census and the farm records of the members of the Southeastern and Southwestern Minnesota Farm Management Services. Sixty-nine farmers have been members of the Southeastern Minnesota Farm Management Service since 1942; 48 farmers have been members of the Southwestern Minnesota Farm Management Service since 1945. Their farm records provide an excellent source of information concerning changes which have been made during this period of time.

### Changes in Farm Size in Minnesota

The use of power and power machinery has led to increasing size of farms in the state as a whole and in the specific areas in southern Minnesota covered by this study (see table 1). In general, the larger the acreage over which this power and machinery can be used, the less will be the cost per unit of production. The increase in size of farms in southern Minnesota is somewhat less than for the state as a whole. In this area livestock plays an important role in the farm business and size is achieved by expanding livestock production as well as by increasing the acres farmed and also by choosing more intensive types of crops and livestock.

Table 1. Average Acres per Farm and Percentage Change, 1942-57

Area	::	:	:	:	:	Percent
	::	1942	1945	1951	1957	change*
	::	:	:	:	:	:
Minnesota		173	186	194	208	+20
SE Minn. Farm Mgt. Assn. Counties		157	165	169	176	+11
SE Minn. Farm Mgt. Assn. Farms		228	239	243	252	+11
SW Minn. Farm Mgt. Assn. Counties		-	204	204	214	+ 5
SW Minn. Farm Mgt. Assn. Farms		-	265	262	275	+ 4

\* 1942-57 for Minnesota and SE Association Counties and Farms and 1945-57 for SW Association Counties and Farms.

### Changes in Crop Choice in Minnesota

Changes in crop choice for the state as a whole, for the fourteen counties in which the Southeast Minnesota Farm Management Association farms are located, and for 69 farmers in the Southeast Association for which continuous farm records for the years 1942 to 1957 are available, are shown in Table 2. The major change is a large increase in the proportion of crop land in intertilled crops, largely corn and soybeans. This trend was more pronounced in these counties than in the state as a whole--in part, at least, because this area is better adapted to the production of these crops than are central or northern Minnesota. The percentage increase in intertilled crops was greater on the Association farms than on all farms in the counties in which they are located. Soybeans is a relatively new crop in Minnesota and the increase has been rapid but the acreage is still less than one-half that of corn.

In contrast with the state as a whole and the other farms in the southeastern counties, both of which showed a reduction in the acreage of oats from 1942 to 1957, these Association farms showed a 61 percent increase. This, however, was accompanied by a very sharp cut in the other small grain crops--barley, wheat, flax and rye--that resulted in a 48 percent reduction in total small grain. Oats are important as a companion crop for the seeding of legumes and grasses. Land is left in legumes for a shorter term than previously and hence the need for more oats. A small but growing number of Association farmers are harvesting oats as silage. This increases materially the production of feed nutrients per acre and it gives the new seedings a much better chance of survival.

Table 2. Percentage Changes in Crop Acreages in Minnesota, in Southeastern Counties and on Farms in Southeastern Minnesota Farm Management Association, 1942-57

Crop	:: Minnesota	: 14 Counties : SE Minnesota*	: 69 SE Minn. Farm Mgt. Assn. Farms
Oats	- 2	-12	+61
Other small grain	-52	-52	-84
Total small grains	-29	-32	-48
Corn	+22	+30	+78
Soybeans	+934	+440	+226
Other intertilled crops	-26	-72	-16
Total intertilled crops	+58	+63	+87
Hay and seed crops	-15	+ 3	+23

\* Counties in which SE Farm Management Association Farms are located.

The acreage of hay and seed crops was cut in the state as a whole by 15 percent but increased slightly in the Association counties and by 23 percent on the Association farms.

In Table 3 are presented data on changes in crop acreages in Minnesota in the ten Southwest Association counties and on the 48 Southwest Association farms for which continuous farm records are available. However, these data are for a shorter period, 1945 to 1957, since the Southwest Association was started later than the Southeast Association. The total small grain acreage was reduced but corn in the southwestern counties and on the Southwest Association farms shows a substantial increase. Soybeans also show a much larger percent increase. Over the years covered by this study, corn and soybeans have been relatively high return crops as compared with oats and other small grains. The hay is largely alfalfa and alfalfa-brome mixtures in southern Minnesota and these have also proven relatively high return crops. Oats, on the other hand--at least as a grain crop--has shown a low return as compared with corn, soybeans, or hay but some small grain is needed in the rotation as a companion crop for grass and legume seedings and it helps also to distribute the crop labor load seasonally.

Table 3. Percentage Changes in Crop Acres in Minnesota, in Ten Southwestern Counties and on Farms in the Southwestern Minnesota Farm Management Association, 1945-1957

Crop	:: Minnesota	: 10 Counties : SW Minnesota*	: SW Minn. Farm Mgt. Assn. Farms
Oats	-26	-35	-18
Other small grains	-18	-48	-40
Total small grains	-23	-44	-24
Corn	- 2	+10	+11
Soybeans	+564	+391	+82
Other intertilled crops	- 1	- 1	-10
Total intertilled crops	+30	+37	+18
Hay and seed crops	-12	+19	+61

\* Counties in which Southwest Minnesota Farm Management Association farms are located

#### Changes in Livestock Production in Minnesota

Livestock provides a market for a substantial portion of the crops produced on southern Minnesota farms. The remainder of this report will deal mainly with livestock trends and numbers in the 29 counties included in crop reporting districts 7, 8, and 9 in southern Minnesota and on the farms in the Southeastern and Southwestern Minnesota Farm Management Associations. These three areas in 1959 reported 45 percent of all cattle in the state, 36 percent of all dairy cattle, 59 percent of all hogs, and 39 percent of all stock sheep and lambs. More than one-half of the eggs laid in the state were produced in these counties. The farms in the Farm Management Associations are similar in type to all farms in these areas, although somewhat larger, more heavily stocked, and with somewhat quicker adjustments to changing economic conditions. The accounting records and the advisory service of the Associations doubtless account for somewhat more prompt adjustments on the Association farms as technical and economic conditions change.

The major sources of data used are (1) the records of the kind and number of livestock on farms in Minnesota as a whole, (2) the number on farms in crop reporting areas 7, 8 and 9 in southern Minnesota, and (3) the annual records of the members of the Southeastern and Southwestern Farm Management Associations in these southern areas. Only a limited number of continuous records are available for these Association farms. They are representative of the type of farming and farm practices characteristic of the general area in which they are located. Sales of dairy products are the largest single source of income on the farms in southeastern Minnesota, with hogs second in importance. On the farms in southwestern Minnesota the largest single item of sales is beef cattle but most of these are purchased as feeders. Crop sales are a more important source of income in southwestern Minnesota than in southeastern--especially sales of corn and soybeans.

The proportion of all farms in Minnesota reporting the principal classes of livestock are shown in Table 4. These data bring out the increasing

specialization in certain classes of livestock. Farmers are reducing the number of classes of livestock maintained but increasing the number per farm of those that are retained (see Table 5). In the counties in which the Association farms are located, this same reduction in livestock numbers occurred (see Table 6).

Table 4. Percentage of All Farms Reporting Specific Classes of Livestock in Minnesota, 1940-54\*

Class of Livestock	:: 1940	: 1945	: 1950	: 1954	: Change 1940-54
Cattle and calves	89.5	87.7	84.2	84.2	- 6
Hogs	68.2	63.9	61.9	59.0	-14
Sheep	18.3	16.0	10.5	13.4	-27
Chickens	82.4	83.5	76.1	72.8	-12
Turkeys (raised)	8.5	2.6	1.8	1.6	-81

\* Minnesota Agriculture, 1858-1959. Minnesota Federal-State Crop and Livestock Reporting Service, June 1959.

Table 5. Number of Livestock per Farm Reporting on All Farms in Minnesota\*

Class of livestock	:: 1940	: 1945	: 1950	: 1954	: Percent change
Cattle & calves, January 1	19.3	23.1	21.5	28.0	+45
Hogs, January 1	28.4	29.4	30.9	30.4	+ 7
Sheep and lambs, January 1	35.1	43.1	39.9	44.5	+26
All chickens, January 1	128.6	189.2	187.7	201.2	+57
Turkeys**	180.0	817.0	1328.0	2938.0	+1632

\* Minnesota Agriculture, 1858-1959. Minnesota Federal-State Crop and Livestock Reporting Service, June 1959.

\*\* Total number of turkeys raised.

Table 6. Percentage of All Farms in Association County Groups Reporting Decreases in Dairy Cattle, Hogs, and Hens, 1942-1957

Class of livestock	Percentage decrease	
	SE Association*	SW Association**
Milk cows and heifers	30.5	41.5
Sows farrowing spring pigs	45.2	41.9
Laying hens	40.8	32.0

\* All farms in counties in which SE Association farms are located.

\*\* All farms in counties in which SW Association farms are located.

The same general trend toward specialization in fewer classes of livestock is apparent in the records of the Southeastern Minnesota and Southwestern Minnesota Farm Management Association farms (see Tables 7 and 8). In the Southeastern Association the percentage of farmers reporting each class of livestock decreased from 1942 to 1957. In the Southwestern Association the number of farmers reporting each class of livestock showed a decrease from 1945 to 1957 except sheep, which registered a small increase. The 69 members of the Southeast Farm Management Service reduced the average number of livestock enterprises maintained per farm from 3.7 in 1942 to 3 in 1957, or a decrease of approximately 20 percent. The 48 members of the Southwest Minnesota Farm Management Service decreased the average number of livestock enterprises maintained per farm from 4 in 1945 to 3.2 in 1957. This is a highly significant indication of the extent of increased specialization in livestock production on these farms.

Table 7. Number of Farms with Continuous Records Reporting Specific Classes of Livestock in Southeastern Minnesota Farm Management Association, 1942-57

Class of livestock	1942	1945	1951	1957	% change 1942-57
Dairy and dual purpose cattle	67	67	62	61	- 9
Beef breeding herd	7	7	7	5	-29
Feeder cattle	13	8	6	12	- 8
Hogs	69	67	62	58	-16
Sheep	28	26	18	15	-46
Chickens	65	66	63	56	-14
Avg. number of classes per farm	3.7	3.6	3.2	3.0	-19

Table 8. Number of Farms with Continuous Records Reporting Specific Classes of Livestock in Southwestern Minnesota Farm Management Association, 1945-57

Class of livestock	:: 1945	: 1951	: 1957	: % change 1945-57
Dairy and dual purpose cattle	35	32	20	-43
Beef breeding herd	13	10	10	-23
Feeder cattle	30	26	29	- 3
Hogs	48	44	40	-17
Sheep	19	14	20	+ 5
Chickens	42	41	34	-19
Avg. number of classes per farm	4.0	3.5	3.2	-20

This specialization in fewer classes of livestock was accompanied by an increase in the number of each class of livestock retained on these farms (see Tables 9 and 10). All classes of cattle registered a material increase in number or production on the farms on which they were maintained. If all livestock numbers are reduced to a comparable basis (animal units), there was an increase of 15 percent per farm in the Southeastern Association and 46 percent in the Southwestern Association (see Tables 11 and 12). In both associations the major increases were in feeder cattle and the major decreases in dual purpose cattle and turkeys.

Table 9. Average Number of Livestock or Amount of Production per Farm Reporting--69 Identical SE Minnesota Association Farms

Class of livestock	:: Unit	: 1942	: 1945	: 1951	: 1957	: % increase 1942-57
Dairy cows	no.	19.1	18.8	19.1	23.8	25
Beef cows	no.	15.7	13.1	18.5	26.2	67
Ewes	no.	30	29	35	41	37
Feeder cattle produced	lbs.	5354	11036	22737	23414	337
Hogs produced	lbs.	23474	21482	27168	34758	48
Litters of hogs	no.	15	14	17	20	33
Hens	no.	248	268	273	288	16

Table 10. Average Number of Livestock or Amount of Production per Farm Reporting--48 Identical SW Minnesota Association Farms

Class of livestock	Unit	1945	1951	1957	% increase 1945-57
Dairy cows	no.	8.2	8.2	13.7	65
Beef cows	no.	15.5	14.7	25.8	67
Ewes	no.	26	39	47	81
Feeder cattle produced	lbs.	14945	26515	44297	196
Hogs produced	lbs.	40413	55793	54806	36
Litters of hogs	no.	23	32	30	30
Hens	no.	230	253	343	49

Table 11. Number of Animal Units of Livestock per Farm and Percentage Distribution by Classes of Livestock on 69 Identical Farms in Southeastern Minnesota Farm Management Association

Item	1942	1945	1951	1957	% change in an. units 1942-57
Number animal units per farm	60.5	59.9	59.6	69.5	+15
Percentage distribution of animal units by classes:					
Dairy cattle	41.0	41.7	40.5	44.6	+ 9
Dual purpose cattle	5.2	5.4	4.3	1.5	-71
Beef breeding cattle	3.3	3.1	3.4	3.4	+ 3
Feeder cattle	3.2	4.4	8.2	12.1	+278
Hogs	30.7	28.8	30.9	29.3	- 5
Sheep--farm flock	3.7	3.8	3.1	2.2	-40
Sheep--feeders	1.3	.5	.1	-	-
Laying hens	7.7	3.7	8.3	6.8	-22
Turkeys	3.9	8.6	1.2	.1	-98
Total	100.0	100.0	100.0	100.0	

Table 12. Number of Animal Units of Livestock per Farm and Percentage Distribution by Classes of Livestock on 48 Identical Farms in Southwestern Minnesota Farm Management Association

Item	:: 1945	: 1951	: 1957	: % change in : animal units : 1945-57
Number of animal units per farm	69.1	87.6	101.1	+46
Percentage distribution of animal units by classes:				
Dairy cattle	12.3	9.6	8.7	-29
Dual purpose cattle	1.7	.6	.2	-88
Beef breeding cattle	7.4	4.3	6.3	-15
Feeder cattle	21.6	30.1	43.5	+101
Hogs	46.6	46.7	32.6	-30
Sheep--farm flock	2.7	2.6	3.6	+33
Sheep--feeders	1.5	1.2	.3	-80
Laying hens	5.8	4.9	4.8	-17
Turkeys	.4	-	-	-100
Total	100.0	100.0	100.0	

The increase in the size of herds and flocks on these association farms is indicated in Tables 13 and 14. The small livestock enterprises have been eliminated and those retained have been substantially increased.

Table 13. Percentage of Farms Reporting Specified Classes of Livestock, Frequency Grouping of Farms by Numbers of Livestock per Farm for Specified Years, 1942-57, and Percentage Change in Numbers in Each Frequency Group, 1942-57, 69 Identical Farms in South-eastern Minnesota Farm Management Association

Class of livestock	1942	1945	1951	1957	% change in numbers of those reporting, 1942-57
Dairy cows--% farms reporting	97.1	97.1	89.9	88.4	
Less than 10 cows	8.8	7.5	6.3	8.2	- 7
10 - 19 cows	54.4	55.2	55.6	21.3	-61
20 - 29 cows	29.4	31.3	36.5	52.5	+79
30 or more cows	7.4	6.0	1.6	18.0	+143
Hogs--% farms reporting	100.0	97.1	89.9	84.1	
Less than 10 litters	27.9	36.4	32.3	31.0	-11
10 - 19 litters	48.5	42.4	35.5	27.6	-43
20 - 29 litters	17.7	15.2	14.5	17.2	- 3
30 or more litters	5.9	6.0	17.7	24.2	+310
Laying hens--% farms reporting	94.2	95.7	91.4	81.2	
Less than 150 hens	24.6	19.7	20.6	28.6	+16
150 - 299 hens	53.8	51.6	46.0	35.7	-34
300 - 449 hens	12.3	19.7	19.0	17.9	+46
450 or more hens	9.3	9.0	14.4	17.8	+91
Feeder cattle--% farms reporting	18.8	11.6	8.7	17.4	
Avg. number per farm	10.4	22.9	56.1	48.5	+366
Beef breeding herds--% farms reporting	10.1	10.1	10.1	7.3	
Avg. number per farm	15.7	13.1	18.5	26.2	+67
Farm flock of sheep--% farms reporting	36.3	32.0	24.7	14.5	
Avg. number ewes per farm	29.8	29.1	35.1	41.2	+38

Table 14. Percentage of Farms Reporting Specific Classes of Livestock, Frequency Grouping of Farms by Numbers of Livestock per Farm for Specified Years, 1945-57, and Percentage Change in Numbers in Each Frequency Group, 1945-57, 48 Identical Farms in Southwestern Minnesota Farm Management Association

Class of livestock	1945	1951	1957	% change in numbers of those reporting, 1945-57
Dairy cows--% farms reporting	73.0	66.7	41.7	
Less than 10 cows	74.3	68.8	50.0	-33
10 - 19 cows	14.3	21.9	10.0	-30
20 - 29 cows	11.4	3.1	30.0	+163
30 cows and over	-	6.2	10.0	+61*
Hogs--% farms reporting	100.0	91.7	83.3	
Less than 10 litters	12.5	13.6	23.7	+90
10 - 19 litters	35.4	11.4	15.8	-55
20 - 29 litters	22.9	27.3	5.3	-77
30 or more litters	29.2	47.7	55.2	+89
Laying hens--% farms reporting	87.5	85.5	70.8	
Less than 150 hens	21.4	22.0	17.6	-18
150 - 299 hens	52.4	41.5	32.4	-38
300 - 449 hens	23.8	31.7	26.5	+11
450 or more hens	2.4	4.8	23.5	+879
Feeder cattle--% farms reporting	62.5	54.2	60.4	
Average number per farm	23.9	48.6	72.7	+201
Beef breeding herd--% farms reporting	27.1	20.8	20.8	
Average number per farm	19.3	21.3	29.0	+50
Farm flock of sheep--% farms reporting	31.3	20.8	35.4	
Avg. number ewes per farm	26.0	39.0	47.0	+81

\* Percent change, 1951-57.

Increased Livestock Production and Increased Production Efficiency  
Come with Increased Specialization

There was a definite trend on the Farm Management Association farms with records for a period of years to decrease the number of classes of livestock maintained as time went on. With so many new techniques coming into the picture with all classes of livestock, no one farmer can keep up with all of them. As a result the number of classes maintained per farm was decreased and more attention was given to those retained. Also, through a better selection of the animals retained and more attention to efficient feeding, production per animal increased with less feed used per unit of production (see Tables 15 and 16).

Table 15. Increase in Livestock Production and Feeding Efficiency on 69 Identical Farms in Southeastern Minnesota Farm Management Association, 1942 and 1957

Item	::	:	:	Percent
	::	:	:	change
	::	:	:	:
Pounds of butterfat per cow per year	264		339	+28
Pigs weaned per litter	6.5		7.1	+ 9
Eggs laid per hen per year	155		190	+23
Pounds feed per 100 pounds hogs produced	498		441	-12

Table 16. Increase in Livestock Production and Feeding Efficiency on 48 Identical Farms in Southwestern Minnesota Farm Management Association, 1945 and 1957

Item	::	:	:	Percent
	::	:	:	change
	::	:	:	:
Pounds of butterfat per cow per year	238		299	+26
Pigs weaned per litter	6.1		7.3	+20
Eggs laid per hen per year	179		204	+14
Pounds feed per 100 pounds hogs produced	523		460	-12

The members of these Associations had the benefit of their accounting records as a guide to adjustments in their business. These records served as a check on the efficiency with which each class of livestock was using feed, labor, and the other factors of production. They also had the counsel and advice of the Association fieldmen and the extension and research workers who were collaborating with them. The more factual evidence the farmer has

available covering his own farm operations and the more technical advice he can command, the more basis he has for making wise decisions in keeping his farm business adjusted to the ever-changing economic and technical developments that confront him.

### General Summary and Observations

There was a time, in contrast with the highly dynamic agriculture of today, when changes in crop and livestock choice were relatively few and infrequent. Once a farm was cleared, fenced and generally set up as a family unit, the operator made relatively few changes in his choice of crops and livestock and in his production techniques. A prominent agriculture economist who had made an intensive study of agricultural history made this epigrammatic observation back in the twenties, "Most changes in agriculture are made by the sheriff and the undertaker." In retrospect, at that time there was considerable basis for such a statement but our fast moving agriculture of today doesn't wait for death to bring in a new operator to change the farm set-up. The farmer, be he tenant or owner, who fails to follow the current kaleidoscopic changes in farming technique that are forging their way into the farm picture must face a sharp cut in his earnings. He must accept a lower level of living even though he may be able to escape foreclosure.

Agriculture today is highly dynamic. No one individual can keep abreast of all the new techniques that are sweeping down on agriculture like a flood. Both agricultural and industrial agencies are bringing to the service of the farmer this wealth of new inventions, new techniques, and new equipment. With this has come new educational and extension agencies to supply the farmer with the information on these new inventions and innovations. But the responsibility of making wise decisions as to what and how much and where and when still rests with the farm operator.

It was pointed out previously that the members of the Farm Management Services were making adjustments to changing conditions somewhat more rapidly and perhaps also more accurately than was true in the neighborhood as a whole. The authors of this report wish to stress the fact that management is steadily becoming a more specialized factor in farming. The farmer who has recorded facts about his own operations from year to year is apt to be in a more strategic position to keep his operation adjusted to the dynamic changes that confront him than his neighbor who lacks such information. In addition there are both cooperative and commercial agencies coming into the picture that offer management advice and service to farmers and farm owners. Management as a specialized function in farming is gradually becoming recognized as a separate function that ranks with land, labor and capital as basic to profitable farming. Keeping the farm business adjusted to these new techniques, together with the larger size of unit needed to use them effectively, are the key to farm success in the future.