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# FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension  
Paul E. Miller, Director Agricultural Extension

NO. 332

UNIVERSITY FARM, ST. PAUL

SEPTEMBER 28, 1951

## Cooperative Purchasing of Farm Supplies

T. W. MANNING and H. H. THOMPSON

### University Farm Radio Programs

HI-LIGHTS IN HOMEMAKING

10:45 a.m.

UNIVERSITY FARM HOUR—12:30 p.m.

Station KUOM—770 on the dial

Farmers' cooperatives were handling a large share of the supplies used by Minnesota farmers at mid-century. These associations handled a wide variety of supplies, including petroleum products, feeds, seeds, fertilizers, farm machinery, groceries, and household appliances, among others. In fact, many Minnesota farmers could buy almost all their farm supplies cooperatively.

A survey of Minnesota farmers' cooperatives conducted by the Division of Agricultural Economics revealed a total of 300 farm supply associations in the state. Six of the associations were large regional federations and centralized cooperatives, and the remaining 294 were local associations and minor federations.

Associations which dealt mainly with petroleum products and automotive supplies numbered 164. Forty-four of the associations were classified as production supply, since they primarily handled such things as feeds, seeds, fertilizers, and farm machinery. There were 86 cooperatives which primarily handled general merchandise such as groceries, dry goods, heating fuels, and home appliances. The remaining six associations handled all types of farm supplies.

In addition to the 300 supply associations, approximately 760 marketing associations (including dairy, grain, poultry and eggs, and others) and 16 service associations also handled farm supplies. However, some farm supply associations also marketed farm products and performed farm business services.

Minnesota cooperatives handled \$194.3 millions of farm supplies in the fiscal year 1949-50. This total included out-of-state business and all duplications resulting from the successive handling of the same supplies by wholesale and retail cooperatives. After these were deducted, the net amount of supplies sold to Minnesota patrons was \$110.7 millions. Farm supply associations had a gross supply business of \$140.8 millions, while the marketing and service associations accounted for the remaining \$53.5 millions in the total for farm supplies. Petroleum associa-

tions led in combined gross sales of all farm supplies with \$101.5 millions. These associations were followed by production supply cooperatives with \$24.6 millions, general merchandise associations with \$13.6 millions, and mixed supply firms with \$1.1 millions. Supply associations also marketed \$2.7 millions of farm products.

The leading products handled by farm supply associations were gasoline with gross sales of \$55.5 millions, kerosene and fuel oils with \$14.5 millions, feeds with \$11.5 millions, and groceries with \$10.7 millions (table 1). When all types of cooperatives were considered the leading supplies ranked slightly different.

Table 1. Sales of Farm Supplies by Minnesota Farmers' Cooperatives, 1949-50

Supplies handled	Gross sales*		Total	Net sales in Minnesota†
	Supply assns.	Other assns.†		
thousands				
<b>Petroleum products and auto supplies</b>				
Gasoline .....	\$ 55,539	\$ 2,167	\$ 57,706	\$ 27,479
Kerosene and fuel oil.....	14,458	752	15,210	8,331
Other .....	10,731	643	11,374	5,588
Total .....	\$ 80,728	\$ 3,562	\$ 84,290	\$ 41,398
<b>Production supplies</b>				
Feed .....	\$ 11,507	\$24,128	\$ 35,635	\$ 23,756
Fertilizer .....	7,485	3,692	11,177	5,746
Seed and crop supplies .....	4,407	6,281	10,688	5,983
Other .....	20,297	9,309	29,606	15,312
Total .....	\$ 43,696	\$43,410	\$ 87,106	\$ 50,797
<b>General merchandise</b>				
Groceries .....	\$ 10,719	\$ 3,074	\$ 13,793	\$ 12,430
Other .....	5,687	3,395	9,082	6,131
Total .....	\$ 16,406	\$ 6,469	\$ 22,875	\$ 18,561
<b>GRAND TOTAL .....</b>	<b>\$140,830</b>	<b>\$53,441</b>	<b>\$194,271</b>	<b>\$110,756</b>
Number of associations.....	300	776	1,076	

\* Figures include out-of-state business.

† Figures include approximately 760 marketing and 16 service associations.

‡ Figures include only Minnesota business. Interassociation transactions have been eliminated.

The gross value of farm supplies handled by farmers' cooperatives in Minnesota in the fiscal year 1949-50 was six and one-half times the \$29.8 millions handled in the fiscal year 1936-37. In comparison, the value of farm products marketed in 1949-50 was five and one-half times that in 1936-37.

Gross sales of production supplies and general merchandise were eight times those in the previous period, and the sales of petroleum products and automotive supplies were almost five and one-half times the previous figures. These increases were due to higher prices and greater volumes.

Most of the farm supply associations had a rather small volume of business in comparison with marketing cooperatives. There were 184 supply cooperatives with business volumes less than \$200,000 annually and only 28 with volumes greater than \$500,000. Ten associations had business volumes of one million dollars or more; five of these were regional associations. Slightly more than half had business volumes between \$100,000 and \$300,000.

The combined operating statements of the 300 farm supply cooperatives showed that their net sales totaled \$143.5 millions (table 2). Cost of sales totaled \$120.3 millions, leaving a gross margin on sales of 16.2 per cent. Total operating expenses, more than one-half of which were labor costs, were 13.1 per cent of sales. Net margins for the 300 associations combined were 5.0 per cent of sales while those of the 164 petroleum associations were 5.2 per cent of sales.

**Table 2. Combined Operating Statements of Minnesota Farm Supply Associations for the Fiscal Year 1949-50**

	Petroleum associations		All farm supply associations*	
	thousands	per cent	thousands	per cent
Net sales .....	\$101,700	100.0	\$143,482	100.0
Cost of sales .....	85,577	84.1	120,267	83.8
Gross margin on sales .....	\$ 16,123	15.9	\$ 23,215	16.2
Service income .....	824	0.8	1,173	0.8
Total gross margin .....	\$ 16,947	16.7	\$ 24,388	17.0
Operating expense .....	13,105	12.9	18,794	13.1
Net operating margin .....	\$ 3,842	3.8	\$ 5,594	3.9
Net other income .....	1,454	1.4	1,519	1.1
Net margin .....	\$ 5,296	5.2	\$ 7,113	5.0
Number of associations .....	164		300	

\* Figures include 44 production supply, 86 general merchandise, and six mixed supply associations in addition to the 164 petroleum associations.

Net sales of the 294 local farm supply associations averaged \$215,626. Mixed supply associations led in average net sales, followed by petroleum, production supply, and general merchandise associations; these totals were \$353, \$244, \$185, and \$166 thousands, respectively. Local petroleum associations led in net margins with 7.3 per cent of sales, while general merchandise ranked lowest with 2.5 per cent of sales in net margins.

Total assets of the 300 farm supply associations were \$71.0 millions, of which \$46.5 millions were members' and patrons' equities (table 3). This is a 65.4 per cent equity

and it is slightly less than the 67 per cent level usually accepted as a satisfactory minimum standard. It is considerably lower than the 71.7 per cent equity of the petroleum associations taken alone or the 74.1 per cent for the 294 local associations alone.

**Table 3. Combined Balance Sheets of Minnesota Farm Supply Associations at Close of Fiscal Year 1949-50**

	Petroleum associations		All farm supply associations*	
	thousands	per cent	thousands	per cent
<b>Current assets</b> .....				
Cash and U.S. bonds .....	\$ 4,035	7.9	\$ 5,299	7.5
Receivables (net) .....	5,457	10.6	7,832	11.0
Inventories .....	12,415	24.2	20,587	29.0
Other current assets .....	66	0.1	90	0.1
Total current assets .....	\$21,973	42.8	\$33,808	47.6
Investment assets .....	17,735	34.6	19,415	27.3
Fixed assets (net value) .....	11,186	21.8	17,100	24.1
Other assets .....	408	0.8	697	1.0
Total assets .....	\$51,302	100.0	\$71,002	100.0
<b>Current liabilities</b> .....				
Accounts payable .....	\$ 4,102	8.0	\$ 5,007	7.0
Notes payable .....	5,627	11.0	10,899	15.4
Patronage refunds payable .....	1,009	1.9	1,266	1.8
Other (including accruals) .....	924	1.8	1,533	2.2
Total current liabilities .....	\$11,662	22.7	\$18,705	26.4
Long-term liabilities .....	2,877	5.6	5,825	8.2
Net worth .....				
Capital stock .....	\$30,102	58.7	\$35,653	50.2
Patrons' reserves .....	5,352	10.4	8,057	11.3
Other reserves, etc. ....	1,309	2.6	2,762	3.9
Total net worth .....	\$36,763	71.7	\$46,472	65.4
Total liabilities and net worth .....	\$51,302	100.0	\$71,002	100.0
Number of associations .....	164		300	

\* Figures include 44 production supply, 86 general merchandise, and six mixed supply associations in addition to the 164 petroleum associations.

Current assets totaled \$33.8 millions and current liabilities were \$18.7 millions. This is a ratio of 1.87 to 1 and it is somewhat lower than the 2.00 to 1 ratio generally considered the satisfactory minimum. Local associations were much better off in this respect, with current ratios of 2.37 to 1 for all types combined.

## Costs of Farm Supplies

S. A. ENGENE

The purchase of farm supplies is an important expense on most farms. It is sufficiently important to justify the interest in purchasing organizations discussed in the preceding article.

The importance of farm supplies is shown in table 1. These figures have been taken from records kept by farmers and summarized at the University of Minnesota. The first two columns of figures were obtained from well-established farmers. Most of them operated larger-than-average farms and obtained earnings higher than the average of their communities.

More money was spent for feed than for other operating supplies. Crop expenses, including the purchase of seeds and fertilizers, were also important but not equal to

Table 1. Cash Farm Expenses—Average for 1948-1950

Item	Well-established farmers		Beginning farmers	
	Southeast Minn.	Southwest Minn.	Southeast Minn.	North Minn.
Crop expenses .....	\$ 844	\$ 1,101	\$ 394	\$ 183
Feed purchased .....	1,945	4,312	1,006	507
Gas, oil, electricity, etc. ....	844	1,062	563	361
<b>Total operating supplies.....</b>	<b>\$ 3,633</b>	<b>\$ 6,475</b>	<b>\$1,963</b>	<b>\$1,051</b>
Livestock and livestock expenses .....	\$ 1,368	\$ 5,301	\$ 812	\$ 440
New machinery and buildings .....	3,383	3,957	2,006	1,218
Repairs and upkeep.....	994	1,202	473	280
Hired labor .....	946	1,130	183	88
Other expenses .....	1,168	1,207	701	383
<b>Total farm purchases.....</b>	<b>\$11,492</b>	<b>\$19,272</b>	<b>\$6,138</b>	<b>\$3,460</b>
Per cent total operating supplies are of total farm purchases .....	32	34	32	30

feed expenses. The cost of gasoline, oil, auto and truck licenses and insurance, and electricity was about equal to the crop expense. These three groups of operating supplies are about one-third the total operating expenses.

The beginning farmers spent considerably less than did the well-established farmers. They operated smaller farms, and with less capital and lower earnings they probably were more cautious about spending.

Operating supplies have increased in importance over a period of years. Farm records have been obtained from quarter-section dairy farms in southeastern Minnesota since 1910. The percentage distribution of the expenses on these farms is summarized in table 2. In 1910 the cost of operating supplies was only 20 per cent of total expenses. But by 1949 this had increased to 35 per cent.

Table 2. Distribution of Farm Expenses on 160-Acre Farms in Southeastern Minnesota\*

	1910	1920	1930	1940	1950
	per cent				
Crop expenses .....	4	5	5	5	6
Feed purchased .....	15	12	13	15	20
Gas, oil, electricity, etc.....	1	9	9	9	9
<b>Total operating supplies.....</b>	<b>20</b>	<b>26</b>	<b>27</b>	<b>29</b>	<b>35</b>
Livestock and livestock expenses.....	25	20	12	12	10
New machinery and buildings.....	22	29	26	26	26
Repairs and upkeep.....	7	4	3	5	7
Hired labor .....	13	12	12	9	8
Other expenses .....	13	9	20	19	14
<b>Total expenses .....</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

\* W. E. McDaniel, "A Study of Technological Change and Its Effect Upon Production and Cash Expenses from 1910 to 1949 on Southeastern Minnesota Dairy Farms," Ph.D. thesis filed at University of Minnesota.

## Saving Time with Smaller Crews

NIELS RORHOLM and S. A. ENGENE

With farm labor scarce and expensive, it is important that this labor be put to efficient use. Many research workers have shown that one method of improving labor efficiency is to reduce the size of the working crew for most farm jobs. In order to test this theory, a study was made of loading and hauling manure from the loose housing dairy barn at the University of Minnesota Agricultural Experiment Station Branch at Rosemount.

A total of 213 loads was hauled in order to clean out a year's accumulation. For the first 131 loads the crew combination was three men, three tractors, and two spreaders. One man operated a tractor-mounted loader, and each of the other two men operated a tractor-drawn spreader. They used 51.3 man minutes per load—a total of 3.6 loads per hour for the crew.

For the last 82 loads the crew combination was two men, two tractors, and two spreaders. One man operated the loader and the other man hauled the spreaders with one tractor, shifting it from one spreader to the other. The man time per load was 36.6—a total of 3.3 loads per hour for the crew. Elimination of one man and one tractor reduced the accomplishment per hour from 3.6 loads to 3.3 loads—a very small difference.

Judged by ordinary observation the first method seemed reasonably efficient. Detailed time study, however, showed that the operator of the loader was idle 33 per cent of the time. The two drivers were idle 17 per cent of the time. In addition, they spent 15 per cent of their time in helping load—work which produced little. The tractor with the loader was idle 33 per cent of the time; the other tractors were idle 39 per cent of the time. No detailed time observations are available for the two-man operation, but the saving in man labor was apparently accomplished by utilizing the idle time.

Studies in hay making also show that small crews tend to operate with greater efficiency than larger crews. Observations were made on 11 farms in southeast Minnesota in 1946; all of these farmers used hayloaders and operated with crews of from two to seven men. The farmers with the two to three man crews spent 133 man minutes per ton of hay hauled, as compared with 153 man minutes for farmers with three and one-half to seven man crews.<sup>1</sup>

Less labor is used per ton with small crews than with large crews for most methods of putting up hay (see table).

Man Hours Required to Move Hay from Windrow to Storage with Small and Large Crews\*

Method	Small crews			Large crews		
	No. of records	Size of crew	Man hrs. per ton	No. of records	Size of crew	Man hrs. per ton
Hayloader .....	24	2	1.9	38	3-7	2.5
Baling .....	18	2-5	2.3	13	6-9	2.4
Chopping .....	13	1-3	1.2	15	4-5	1.3
Bucking to barn.....	2	1-2	.9	5	3-4	1.6

\* R. R. Beneke and S. A. Engene, "Labor Requirements and Costs for Different Methods of Making Hay," Mimeographed Report No. 161, Division of Agricultural Economics, University of Minnesota, April 1947.

Two factors account for a large part of the lower efficiency of the large crew. First, with a large crew it is hard to plan the work to keep each man busy at all times. With a small crew the workers can easily shift jobs to keep themselves busy at all times. Second, with a large crew more time is wasted if there is a breakdown.

In many cases, farmers may accomplish as much by working on their own farms as they can by pooling their labor. An exception to this, of course, is where large machines require a large crew.

<sup>1</sup> S. A. Engene, "Labor Efficiency in Haymaking," *Farm Business Notes*, November 28, 1947.

## Minnesota Farm Prices For July-August, 1951

Prepared by JERRY M. LAW

The index of Minnesota farm prices for July, 1951, is 273.3. For August the index is 262.4. This index represents the average of the increases and decreases in farm product prices in the given month of 1951 over the average of the five corresponding months of the period 1935-1939, weighted according to their relative importance.

**Average Farm Prices Used in Computing the Minnesota Farm Price Index, July-August, 1951, with Comparisons\***

	July 15, 1951	August 15, 1951	August 15, 1950		July 15, 1951	August 15, 1951	August 15, 1950
Wheat .....	\$ 2.11	\$ 2.09	\$ 2.10	Hogs .....	\$19.70	\$21.50	\$21.30
Corn .....	1.51	1.55	1.31	Cattle .....	29.10	29.40	25.00
Oats .....	.75	.71	.65	Calves .....	33.70	34.30	28.60
Barley .....	1.14	1.18	1.24	Lambs-sheep .....	29.02	28.79	23.93
Rye .....	1.62	1.46	1.19	Chickens .....	.21	.21	.16
Flax .....	3.21	3.14	3.38	Eggs .....	.39	.45	.30
Potatoes .....	1.10	1.25	1.30	Butterfat .....	.74	.74	.66
Hay .....	13.90	14.40	13.80	Milk .....	3.50	3.60	3.00
				Wool† .....	.82	.78	.52

\* These are the average prices for Minnesota as reported by the United States Department of Agriculture.

† Not included in the price index number.

Prices received by Minnesota farmers for the major agricultural products during August averaged slightly higher than a month earlier.

Compared with a year ago prices of barley, flax, and potatoes during August, 1951, were somewhat lower, while prices received for most other commodities increased.

The Minnesota beef-feed ratio declined slightly from July to August and the hog-corn ratio remained unchanged, while other feed ratios increased.

**Indexes and Ratios for Minnesota Agriculture\***

	July 15, 1951	Average July, 1935-39	Aug. 15, 1951	Average Aug., 1935-39
U. S. farm price index .....	275.3	100	276.5	100
Minnesota farm price index .....	273.3	100	262.4	100
Minn. crop price index .....	241.3	100	234.8	100
Minn. livestock price index .....	318.9	100	332.6	100
Minn. livestock product price index .....	246.5	100	244.6	100
U. S. purchasing power of farm products .....	122.6	100	122.6	100
Minn. purchasing power of farm products .....	121.7	100	116.3	100
Minn. farmers' share of consumers' food dollar .....	59.4†	47.0	58.0‡	48.4
U. S. hog-corn ratio .....	12.8	11.9	12.8	12.3
Minnesota hog-corn ratio .....	13.0	14.3	13.9	14.6
Minnesota beef-corn ratio .....	19.6	12.0	19.0	12.0
Minnesota egg-grain ratio .....	13.1	14.4	15.3	15.9
Minnesota butterfat-farm-grain ratio .....	30.3	29.8	30.6	33.5

\* Explanation of the computation of these data may be had on request.

† Figure for April.

‡ Figure for May.

### UNIVERSITY FARM, ST. PAUL 1, MINNESOTA

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## Food Fats Outlook

R. W. Cox

Production of edible fats and oils is to continue high according to latest estimates of the Bureau of Agricultural Economics, USDA. This is the result of the record 1950 soybean crop, the large 1950 and 1951 pig crops, the large 1951 cotton acreage, and the prospective large 1951 soybean crop.

Production of soybean, cottonseed, corn, and peanut oils in the first half of 1951 was about the same as a year earlier, but exports of soybeans and peanuts were above the level of last year. The output of these vegetable oils, including the oil equivalent of soybeans and peanuts exported for crushing in the second half of 1951, is likely to be somewhat larger than in the same period last year.

The output of lard in the first half of 1951 was about 10 per cent larger than the year before. Production in the second half is expected to remain above the 1950 level, reflecting the significant increases in the pig crops of last fall and the past spring.

Total apparent disappearance of food fats in 1950 was the highest in 20 years of record. Disappearance per civilian in 1950 totaled 45.5 pounds—3.2 pounds more than the previous year and the most since 1941. Disappearance in 1951 will probably drop well below this figure; however, it will remain above the level of recent years. A sharp drop in shortenings, butter, and other edible oils is not likely to be offset by increases in margarine and lard.

Exports of food fats and oils during January-June, 1951, was about three per cent less than in 1950. Prices are lower now compared with the earlier months of the year and this may encourage some increases in exports in the remaining part of 1951. A factor which may be of increasing importance in determining the level of exports of edible vegetable oils from the United States is the recent re-entrance of Manchurian soybeans into Western Europe.

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