FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
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Labor Efficiency in Haymaking

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Haying is one of the difficult, time-consuming jobs on the farm. Farmers have tried many methods of haymaking to save time and effort. Loading with the loader and putting the hay loose in the barn is the most commonly used method. Many farmers, however, have recently started to use the pickup baler, the field chopper, and other equipment.

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

The type of equipment used affects the time needed for haying. Information concerning the effect of equipment was obtained in interviews with farmers in southeastern Minnesota in 1945 and 1946. These data are summarized in table 1. The numbers of man-hours shown in the table is the time required to put up a ton of hay multiplied by the number of men in the crew. For example, if a crew of three put up one ton an hour, they use 3 man-hours per ton. The time shown in the table is for bringing the hay from the windrow to storage, including spreading the loose hay or piling the bales.

The man-hours per ton differed materially among these methods. Farmers using loaders spent 1 man-hour per ton more than did farmers using choppers. However, the time per ton varied even more among farmers using the same method. Among farmers using loaders, the 25 per cent doing the most efficient job averaged 1.5 man-hours per ton, while the 25 per cent doing the least efficient job averaged 3.2 man-hours per ton, or more than twice as much. Differences were equally large for the other methods. Many farmers can save considerable time by improving the efficiency with which they use the equipment they have.

Table 1. Man-Hours per Ton Required to Bring One Ton of Hay from Windrow to Storage, 1945 and 1946

Method	Number of farms*	Man-hours per ton	Rods hauled	Tons per acre
Hay loader	70	2.2	77	1.9
Sweep rake (tractor-mounted)	13	1.6	80	1.7
Hand-tying baler (pickup)	35	2.3	109	1.8
Self-tying baler (pickup)	6	1.7	68	1.5
Field chopper	39	1.2	90	1.8

* These numbers are not proportional to the total number of farms in the state using these methods.

Some information concerning the reasons for these big differences was obtained in a study, during the summer of 1947, of the methods of 11 farmers in using loaders. The information was obtained by watching the men as they worked. The loads were weighed. Sizes of fields, lengths of windrows, distances from barn to field, and other dimensions were measured. The time spent in doing each part of the haying job was recorded. Information was obtained about the kind and condition of equipment, the abilities of the workers, and the methods used.

The man-minutes per ton used for the various parts of the haying job and for the entire job are shown in table 2. The time ranged from a low of 81 minutes per ton to 239 minutes. Many interesting ideas about improving working methods can be obtained by studying the reasons for the differences among these farmers. The information given in the last part of the table provides a basis for studying these differences.

In general, the farmers who used small crews spent less time in putting up a ton of hay than did those using large crews. This was true for most parts of the job. One half of the 21.3 minutes spent in going to and from the field was for the driver, the other half was for a second worker riding along. On farm No. 6 only the driver rode back and forth to the field, and he spent only 12.6 minutes per ton, in spite of the long haul. The loading time used per ton was 45.3 man-minutes for farmers when one man drove and one loaded; it was 60.8 man-minutes when one man drove and two loaded. The unloading time was 20.5 minutes when one man fastened the slings or set the fork and also drove the team or tractor on the rope; it was 32.1 minutes when two or more men were used. It was difficult to coordinate the work of large crews; workers frequently had to wait for others to complete their jobs. Delays or breakdowns wasted the time of a larger number of workers in the large crews.

More than half of the time was spent in bringing the hay to the barn. Savings here could be important. On many farms time and effort could be saved by not attempting to spread the hay on the wagon. The loads would be

Table 2. Man-Minutes Used per Ton and Other Factors for Hauling Hay with a Loader

Item	Farm Numbers											
	1	2	3	4	5	6	7	8	9	10	11	Average
To and from field	14.4	15.7	22.5	19.3	16.9	12.6	18.5	11.3	8.6	59.7	34.9	21.3
Hook to loader and unhook	1.3	1.6	4.0	4.6	3.8	5.3	3.5	3.4	3.2	3.4	10.9	4.1
Lay slings	.....	5.0	4.9	.....	.....	.....	.....	.....	6.0	4.8	4.1	2.2
Load	18.3	25.1	25.1	30.6	37.4	24.8	27.3	31.2	17.3	30.8	40.5	28.0
Drive in field	16.2	15.5	24.7	18.4	19.5	12.0	21.4	20.6	15.4	14.9	31.3	19.0
Wait in field	.....	.5	1.4	1.5	1.5	13.4	17.2	15.2	2.0	11.1	10.8	6.8
Other work in field	1.2	.....	.3	.....	.....	3.4	2.0	18.8	.....	.....	2.6	2.6
Pull rope back by hand	.....	1.6	1.4	.....	.2	.....	.....	3.5	4.4	2.2	4.0	1.6
Pull fork or slings out and down	1.3	1.8	2.0	3.2	6.4	1.1	1.9	3.4	3.6	3.0	2.9	2.8
Unhook and lay aside slings	.....	.9	1.1	2.3	.....	.....	.....	.....	2.1	.9	2.4	.9
Hook slings or set fork	5.3	4.5	5.9	9.2	5.5	4.5	4.4	4.7	7.1	5.7	13.3	6.5
Wait at barn	.....	1.0	3.6	2.4	14.5	5.5	6.2	3.3	3.0	4.3	9.7	4.9
To tractor or team on rope and return	1.4	2.8	.....	1.8	1.3	.5	.....	1.5	.....	.8	1.6	.9
Drive tractor or team on rope	3.9	5.0	3.2	7.8	8.0	3.6	6.4	6.4	10.5	4.3	6.6	6.0
Wait at tractor or team	.4	.....	.....	3.0	.....	5.6	4.8	2.9	5.2	4.5	8.6	3.2
Hook tractor or team to rope and unhook	.2	1.0	.7	2.8	1.1	.....	3.5	2.8	2.9	1.4	1.2	1.6
Spread hay	12.0	12.4	20.7	20.7	18.6	22.8	23.4	32.3	67.7	20.5	17.5	24.4
Wait in barn	.....	5.1	.....	.....	.....	20.0	.....	.....	.....	.....	.....	2.3
Other work at barn	4.8	.6	4.0	.....	6.8	.2	.....	.3	.....	2.2	7.3	2.4
Wait and rest	.....	1.9	7.9	6.6	6.7	14.7	14.2	3.3	16.8	13.9	28.4	10.4
Total	80.7	102.0	133.4	134.2	148.2	150.0	154.7	164.9	175.8	188.4	238.6	151.9
Adjusted total*	80.7	102.0	133.4	134.2	148.2	150.0	139.1	164.9	121.9	171.1	199.8	140.4
Number in crew	2	2	3	2½	2	7	3½	3½	4	3	2	
Number used in loading	2	2	3	2½	2	3	3	3	2	3	2	
Number used in unloading	2	2	3	2½	2	4	4	4	4	3	2	
Rods of travel per ton												
Barn to loader	45	67	322	82	24	253	110	96	36	346	90	
Loader to barn	86	94	322	82	53	251	145	96	36	343	102	
In windrow while loading	203	185	94	137	139	135	214	180	180	145	257	
Type of power												
Loading	Horses	Horses	Tractor	Tractor	Tractor	Tractor	Tractor	Tractor	Tractor	Tractor	Tractor	Tractor
Unloading	Truck	Tractor	Tractor	Tractor	Tractor	Truck	Tractor	Horses	Tractor	Tractor	Tractor	Tractor
Unloading equipment	Grapple fork	Slings	Slings	Double harpoon fork and sling	Grapple fork	Grapple fork	Grapple fork	Grapple fork	Slings	Slings	Slings	
Number of slings or forkfuls per ton	4.8	3.0	2.2	5.6	6.1	5.7	10.4	4.6	2.7	3.1	3.6	
Tons per load	1.25	1.00	1.35	.89	1.13	1.05	1.15	1.30	1.11	.98	.82	

* Time spent by children or partially disabled persons adjusted to time that would have been spent by an able-bodied adult.

smaller, although high-sided racks, with occasional tramping by the driver, would give a reasonably heavy weight per load. With only one man going to the field, and with higher speeds in traveling to and from the field and in loading, more trips could be made with the same time for the crew. The heavy job of building the load in the field would be eliminated.

A large part of the differences among these farmers can be attributed to differences in the planning of the work. The farmers who put up hay in the least time worked at a reasonable rate of speed, but organized their work effectively. Each man had definite jobs, and those jobs were arranged to avoid delays. As soon as one job was completed, the men moved to the next. By good planning they reduced the time needed for haymaking without incurring any heavy expenses and without increasing physical exertion.

Capital Used by Beginning Farmers

R. R. Beneke

Many World War II veterans have started farming since their return from the service. They, like most beginning farmers, were faced with the problem of establishing themselves on a farm where they could use their money and their time most effectively. Information gathered from 153 southeastern Minnesota veterans enrolled in the veterans' training program gives an indication of the amount of financial resources they had available and the arrangements they worked out for setting themselves up in farming. The data given in this article were taken from inventories of January 1, 1947. At that time the veterans had been established in farming for a period averaging eight months.

The net worth of the veterans considered in the study varied from $100 up to $15,940 and averaged $3,785. Not all of this amount, however, was available for investment in farm capital. Some of it constituted household and personal assets, some of it life insurance. In addition to their own money, however, the veterans had two other sources of farm capital. They could borrow some and they could obtain the rest by a leasing arrangement with a landlord or partner. The amount available from this latter source depended upon the type of leasing arrangement worked out.

Table 1 points out the total farm capital employed on farms of different tenure classes and indicates the source of the capital being used. Veterans operating under partnership arrangements on the average employed a greater

Table 1. Farm Capital Employed by Beginning Farmers

	Owner operators	Tenants			
		Cash	Crop share	Live-stock	Part-ners
Average size of farm in acres	136	142	173	166	205
Working capital					
Supplied from operators' equity	$ 2,587	$ 2,267	$ 2,569	$ 1,868	$ 888
Borrowed by operator	1,305	2,413	1,647	2,215	363
Supplied by landlords and partners	0	0	101	3,340	9,106
Total employed per farm	3,892	4,680	4,317	7,423	10,357
Value of land and buildings					
Supplied by operator	7,183	0	0	0	0
Supplied by landlords and partners	0	9,552	10,968	14,206	14,869
Farm capital					
Supplied from operators' equity	4,733	2,267	2,569	1,868	888
Supplied by operators' creditors	6,292	2,413	1,647	2,215	363
Supplied by landlords and partners	0	9,552	11,069	17,546	23,975
Total farm capital employed per farm	11,025	14,232	15,285	21,629	25,226

amount of farm capital than those operating with other types of tenure agreements. The livestock-share tenant ranked second in this respect while the owner-operated farms employed the lowest-average farm capital. However, those veterans beginning on a partnership basis had the smallest amount of their own money invested in farm capital, with the livestock-share renters having the next smallest amount. The owner operators furnished the most farm capital from their own resources. By depending heavily upon landlords and partners as a source of farm capital, partners and livestock-share renters were able to employ a large amount of farm capital even though they owned a relatively small amount themselves. Owner operators did not have this additional source of capital.

It was necessary for the owner operators to lean heavily upon credit to achieve ownership. They borrowed an average of $6,292 and had an equity of 43 per cent in their farm capital. The veterans beginning as partners represent the other extreme, borrowing an average of only $421. Crop-share renters who borrowed an average of $1,647 ranked next to the partnership group.

Petroleum Cooperatives Diversify

E. Fred Koller

A steady increase in the volume of business and a trend toward further diversification are among the important changes shown by an analysis of the sales of a representative group of 85 Minnesota farm petroleum cooperatives. Indicative of their growth, the 1938 sales of these organizations averaged $73,357, while the 1946 sales of this identical group of cooperatives averaged $166,891, an increase of 128 per cent.

That these organizations are providing their patrons with a widening range of goods and services is shown by the fact that in 1946 petroleum sales constituted 72.3 per cent of all sales while other farm supply items totaled 17.7 per cent (table 1). In 1938, petroleum made up 91.3 per cent of sales, and the nonpetroleum items represented only 8.7 per cent.

Among the items supplied by these associations, the largest group, other than oil, consisted of the related automotive supplies (tires, tubes, batteries, etc.). All of the associations supplied these items and the 1946 sales averaged $18,474, or 11.1 per cent of the total as compared with 4.8 per cent in 1938. Hardware and steel items which represented less than 1 per cent of total sales in 1938 were 4.9 per cent of total volume in 1946. Many associations have added new lines of supplies since 1938. Among the newer lines are: groceries, added by 10 of these associations since 1938; electrical appliances and supplies, added by 10; feed and flour, by 13; fertilizers, by 14; and farm machinery, by 15. Owing to the limited availability of this equipment, farm machinery sales averaged only $11,429 in 32 associations reporting sales in 1946.

With the addition of various lines of farm supplies, the typical oil association of this area is gradually developing into a general farm supply cooperative. There are a number of advantages in having the oil associations handle more of the supplies and services desired by farmers. This practice eliminates the duplication of facilities and services that would result from the organization of additional cooperatives for this purpose. By satisfying the needs and convenience of its patrons for other goods and services, the association furthermore may attract additional patronage for its oil and other departments. An important advantage in extending the services provided by the oil association is that the enlarged volume may enable it to reduce per unit costs of operation and may improve its net margins.

There are also some limitations and problems in the addition of new lines of supplies which should be recognized. Probably the chief of these is that the point of maximum advantage in adding new lines may be reached at an early stage because the management may not be qualified to handle a more varied or complicated business. In a highly diversified supply association the management should be of a much higher caliber than in a simple specialized oil association.

Table 1. Sales of 85 Minnesota Cooperative Petroleum Associations, 1946

Supply item	Average sales per association	Per cent of total	Average sales in associations having given supply items
Petroleum products	$120,749	72.3	$120,749 (85)*
Automotive supplies	18,474	11.1	18,474 (85)
Hardware and steel†	8,138	4.9	11,724 (59)
Farm machinery	4,303	2.6	11,429 (32)
Groceries	3,789	2.3	32,207 (10)
Feed and flour	3,024	1.8	15,122 (17)
Electrical appliances	2,833	1.7	14,164 (17)
Services‡	2,020	1.2	2,910 (59)
Fertilizer	1,051	.6	5,957 (15)
Miscellaneous§	2,510	1.5	5,615 (38)
Total sales	$166,891	100.0	$166,891 (85)

* Numbers in brackets indicate number of associations reporting given supply item.
† Also includes roofing and paints.
‡ Includes automotive repairing, wiring, feed mixing, etc.
§ Includes a wide range of general farm supplies such as seeds, twine, coal, bottled gas, etc.

Minnesota Farm Prices For October, 1947

Prepared by W. C. WAITE and K. E. OGREN

The index number of Minnesota farm prices for October, 1947, is 300.2. This index expresses the average of the increases and decreases in farm product prices in October, 1947, over the average of October, 1935-1939, weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, October, 1947, with Comparisons*

	Oct. 15, 1947	Sept. 15, 1947	Oct. 15, 1946		Oct. 15, 1947	Sept. 15, 1947	Oct. 15, 1946
Wheat	$2.81	$2.52	$1.94	Hogs	$27.80	$27.40	$20.60
Corn	2.14	2.37	1.69	Cattle	19.40	20.70	16.50
Oats	1.06	1.06	.74	Calves	23.00	23.20	15.90
Barley	2.07	2.10	1.47	Lambs-sheep	19.80	20.82	16.20
Rye	2.68	2.69	2.13	Chickens	.202	.226	.305
Flax	6.50	6.22	3.79	Eggs	.464	.460	.450
Potatoes	1.45	1.50	1.20	Butterfat	.84	.90	.93
Hay	12.90	12.60	9.30	Milk	3.95	3.85	4.60
				Wool†	.42	.42	.46

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

† Not included in the price index number.

Minnesota farm prices decreased by 1.3 per cent from September to October, largely because of a drop of about 5 per cent in the prices of livestock products. Prices of crops increased by less than 2 per cent, and livestock prices decreased by less than 2 per cent.

A comparison of the price indexes of livestock products and crops on October 15, 1947, and October 15, 1946, indicates that Minnesota farmers in October, 1947, received prices for livestock products about 12 per cent lower and prices for crops about 40 per cent higher than in the previous year. These relative price changes are reflected in the butterfat-farm-grain and egg-grain ratios on October 15, 1947, which are considerably lower than the corresponding ratios of 1946 and the 1935-1939 averages.

Indexes and Ratios for Minnesota Agriculture*

	Oct. 15, 1947	Oct. 15, 1946	Oct. 15, 1945	Average Oct. 1935-1939
U. S. farm price index	272.1	257.0	187.5	100
Minnesota farm price index	300.2	252.5	170.0	100
Minn. crop price index	366.8	261.8	192.4	100
Minn. livestock price index	303.2	235.5	160.1	100
Minn. livestock product price index	238.9	272.7	167.5	100
U. S. purchasing power of farm products	141.4	154.2	128.0	100
Minn. purchasing power of farm products	156.0	151.5	116.0	100
Minn. farmers' share of consumers' food dollar	62.1†	69.5	61.0	47.6
U. S. hog-corn ratio	12.4	13.5	12.5	14.1
Minnesota hog-corn ratio	13.0	12.2	13.7	17.8
Minnesota beef-corn ratio	9.1	9.8	10.3	14.7
Minnesota egg-grain ratio	11.4	15.2	16.5	20.9
Minnesota butterfat-farm-grain ratio	22.8	34.8	36.9	36.4

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

† Figure for July, 1947.

The Price Structure

W. C. WAITE and H. W. HALVORSON

An analysis of the structure of the component groups of prices in the Bureau of Labor Statistics Index of Wholesale Prices indicates marked similarities between the present price structure and that of previous high-price years like 1928, 1929, and 1930. The present price structure is less similar to the structure of those years which are thought to be somewhat more nearly normal, and markedly different from that of years of depression.

The measurement of the degree of similarity in price structure between previous years and the present time is derived by comparing the average difference of the commodity groups from the total price index as compared with June, 1947. A low average for a year indicates less dissimilarity in price relationships than a large average. The measurements for the individual years since 1919, ranked in order of increasingly different price structure from June, 1947, are presented in table 1.

Present price structure is less comparable to those years which are commonly regarded as approximating a normal period than to boom years, and is indicative of potential structural adjustments within the price system which must subsequently take place.

Table 1. Price Structure in 1947 Compared with Earlier Years

Year	Index of structural change from June, 1947	Year	Index of structural change from June, 1947
1946	4.3	1936	22.8
1945	9.3	1941	24.0
1943	9.5	1924	25.6
1944	10.1	1923	27.1
1929	14.7	1922	30.3
1928	15.2	1938	32.7
1942	15.3	1940	33.2
1920	16.7	1921	33.5
1927	20.1	1939	34.7
1930	20.3	1931	35.2
1925	21.9	1934	38.1
1935	22.0	1933	54.0
1937	22.1	1932	61.7
1926	22.3		

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