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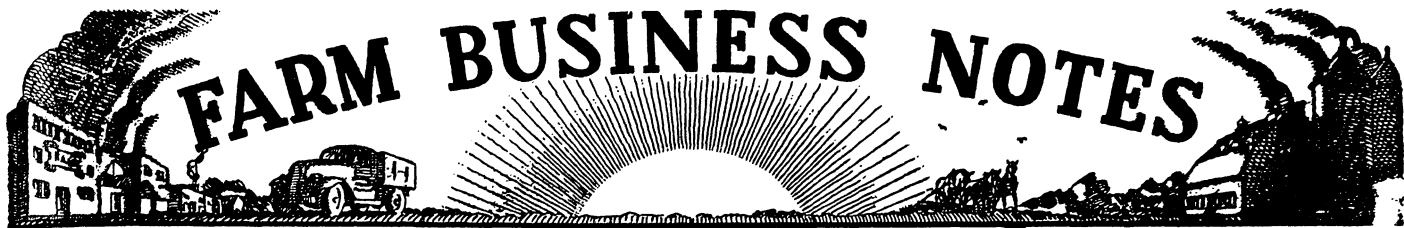
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FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
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UNIVERSITY FARM, ST. PAUL

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Use Good Work Methods

S. A. ENGENE

Farmers differ greatly in the efficiency with which they use labor. In 1943, a group of seven dairy farmers in Nicollet county averaged 120 man hours per cow per year. Another group of seven farmers averaged 166 hours, or 38 per cent more time (see table 1). The farmers in both groups had herds of about the same size and with the same levels of production.

Labor records for the hogs and poultry showed equally large differences on these farms. One group of seven hog producers averaged 2.2 hours of hog chores for each hundredweight of hogs produced; another group of seven men spent 3.2 hours, or 45 per cent more time. Comparable figures for poultry were 1.5 hours and 2.6 hours per hen.

For each of these three classes of livestock, one group of farmers spent less time than the other without any loss in production. They found efficient work methods. Many farmers, however, have lowered their production when they reduced the amount of labor they use. This can be illustrated by an analysis of the records kept by members of the Southeast Minnesota Farm Management Service. The one-third of the members who used the most labor obtained crop yields and livestock production two per cent above the average; the third who used the least labor obtained crop yields and livestock production two per cent

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below the average.¹ The loss in crop and livestock income practically offset the savings in labor. These farmers did not simplify or improve their methods; they saved time by doing this work in a less thorough or less timely manner.

Research has revealed some useful principles of efficient work. Application of these principles to farms can make a real saving in labor

without a loss in quantity of work.

Do manual work effectively

Much of a farmer's time, especially livestock chore time, is spent in manual labor. Proper work habits will save time and effort.

(1) Plan work ahead. Some farmers study their working methods carefully to select the best one, then establish a habit or routine using that method. The work can then be done easily each day. By thinking ahead to the next jobs, the farmer can move tools and supplies on trips that would otherwise be made empty-handed.

(2) Move at a reasonably brisk speed. Three miles an hour is a reasonable standard for walking. In one study, a worker used 12 per cent more energy to push a wheelbarrow over a given distance when he moved at a slow walk than he did when he moved at a brisk walk. He used 68 per cent more energy when he moved at a very quick walk.² Both slow or very rapid speeds are inefficient.

(3) Maintain a comfortable posture. Energy can be saved by standing or sitting in a position which keeps the body well-balanced. Bending or stooping is tiring. For example, the energy needed to hang laundry on the clothes line is about 50 per cent more when the basket is on the ground than if it is set at the level of a table.³ The extra energy needed for stooping does not seem great for a small job, but the extra fatigue accumulates during a full day's work.

Table 1. Variations in Man Hours per Cow for Herds of Equal Size and Levels of Production, Nicollet County, 1943

Seven farmers with low man hours per cow per year			Seven farmers with high man hours per cow per year		
Average No. of cows	Butterfat per cow, lbs.	Man hours per cow	Average No. of cows	Butterfat per cow, lbs.	Man hours per cow
9.2	253	157	7.6	232	247
9.0	185	123	10.6	175	148
12.4	265	96	12.6	272	147
14.6	215	125	13.0	216	131
15.2	242	106	15.6	229	113
19.8	296	143	20.6	303	183
20.5	172	90	21.2	193	193
Average of seven farmers					
14.4	233	120	14.5	231	166

¹ R. O. Olson, "Does It Pay To Save Labor?", Farm Business Notes, No. 290, p. 3, February 24, 1947.

² G. P. Crowden, "The Physiological Cost of the Muscular Movements Involved in Barrow Work," *Ind. Fatigue Research Bd.*, Report 50, p. 15, 1928.

³ State College of Washington Agricultural Experiment Station Bul. 282, "The Human Energy Cost of Certain Household Tasks," p. 13.

(4) Frequent, short rests are more effective than a few long rest periods.

(5) Eliminate unnecessary movements, and shorten to a minimum the necessary movements. Travel takes time; this is true for walking or for hand movements.

(6) Use hands fully; most jobs involve hand work. Use both hands for work. Let the hands do effective work; do not use them for holding unless necessary. Keep the hands close together, using the eyes to direct them. Keep tools and supplies within easy reach; arrange them so that they may be picked up quickly. Keep the hands full to reduce the number of trips.

Use equipment to save labor

Equipment can economically replace some labor on many farms. The equipment, however, must be selected with care. The money spent to buy and to maintain equipment must be offset by the saving in labor.

(1) Use tools or equipment suited to the job, to the work method, to the farm, and to the worker. These should be adapted both as to type and as to size.

(2) Use power or gravity for moving materials. Elevators are frequently used to put grains and corn into bins or cribs. With a little planning and a small cost the elevator can frequently be used to transfer it from the bin to a wagon or grinder.

(3) Use wheels whenever possible if feeds or materials must be moved by hand. When using a basket, one farmer spent 11 minutes and traveled 1100 feet a day to feed 19 cows. By using a six-bushel, rubber-tired cart, he cut this to 6 minutes and 600 feet of travel.

(4) Provide an adequate number of small tools, such as forks and shovels. This makes it possible to use tools adapted to each job; it saves much useless travel; and it reduces the risks involved in carrying sharp tools.

(5) Obtain adequate instructions for new machines. One farmer assembled and adjusted a new plow according to his own judgment. For several days he lost considerable time and did a poor quality of work, because of faulty operation. At the suggestion of a neighbor he adjusted it according to the manufacturer's instruction book. After that, operation was excellent.

(6) Keep tools and equipment in good working order. Make repairs and adjustments during slack periods in order to utilize time effectively when work is pressing.

(7) Study the field layout and working methods to make the use of time more productive. Time data obtained on a farm selected at random showed that of the time charged to plowing, only 65 per cent was spent in turning soil; the other 35 per cent was spent in going to and from the field, servicing the tractor and plow, tinkering, turning at the ends of furrows, and for idle time.

Good layout can save time

Proper arrangement of work areas can save work and travel. This applies to the arrangements of the farm, farmstead, buildings, or other work areas.

(1) Locate buildings and work areas as close together as fire risk, appearance, and other factors will permit. Reduce to a minimum the trips that are made most frequently. If a worker can reduce walking by 14 feet (5 steps) each day he will save one mile, or almost one-half

hour's walking in a year. By cutting a new door between the silo room and the lean-to for heifers, one farmer saved 290 feet of travel a day in feeding silage.

(2) Locate tools and supplies where the work is being done. Some workers walk many steps a day to get forks and shovels that could be set near the place where they will be needed.

(3) Eliminate all possible steps and sills. They waste time and effort and increase the possibilities of accidents.

(4) Provide paths, alleys, and doorways that permit the use of carts.

(5) Arrange buildings and work areas to provide for cross travel or circular travel. In long barns, cross alleys at each end eliminate much backtracking.

(6) Arrange buildings and fences to keep the number of doors and gates at a minimum. Farmers spend many hours a year opening and closing gates. Provide doors and gates that can be opened and closed easily.

(7) Provide adequate light to make work easier.

Study your work methods

A systematic check of the work methods on a farm against the principles listed will reveal many opportunities to save time and effort. Many farmers have saved from 10 to 25 per cent of their time and have found their work easier. The suggested changes will eliminate useless work, but will not reduce the quality of work done. By making the work faster and less tiring, the farmer may be able to do work of better quality, and may find time to do some of the many small jobs that frequently are neglected.

Testing the Equitability of Farm Rental Agreements

J. B. McNULTY

Frequently the tenant or the landlord feels that the agreement is unfair because of the terms on a particular enterprise. Other dissatisfaction may arise from the feeling that the landlord is earning too high a rate of interest on his investment, or that the tenant is receiving too much for his labor and management. But how much is too much for either the tenant or the landlord to receive? These questions are answered by applying a principle basic to all rental agreements, that is that the total income should be shared on the same percentage basis as total expenses.

This method of testing a lease for equitability is illustrated in tables 1 and 2. This farm was operated under a 50-50 livestock share lease. Average yearly expenses and income for the five-year period, 1942-46, were used to smooth out changes in costs and receipts resulting from price changes or variations in crop yields.

The landlord's expense for supervising and helping to manage his farm was estimated at \$200, item 14. A management allowance of \$200 is included in the \$1,980 allowed the tenant for labor and management, item 15. If current sale values are used in calculating the landlord's investment expense on his land and improvements, item 1, these values should also be used for the tenant's operating equipment. Current wages for labor and management should also be used in calculating these contributions

Table 1. Average Expenses per Year, 1942-46

Investment Items	Expenses				
	Value	Per cent interest	Total	Tenant	Landlord
1. Land and buildings	\$23,196	4	\$ 928		\$ 928
2. Tractors, motors, etc.	480	5	24	\$ 24	
3. General machinery	1,999	5	100	100	
4. Work animals	162	5	8	8	
5. Chickens	219	5	11	11	
6. Other productive live-stock	5,933	5	297	148	149
7. Feed for livestock	3,940	5	197	99	98
Total interest charges			\$1,565	\$ 390	\$1,175
Other expenses					
8. Buildings, fencing, etc., upkeep			\$ 233		\$ 233
9. Depreciation—buildings, fences, etc.			251		251
10. Depreciation—power machinery			141	\$ 141	
11. Depreciation—machinery and equipment....			199	199	
12. Taxes, real estate			280		280
13. Taxes, personal property			53	35	18
14. Management expense			200		200
15. Tenant's labor and management			1,980	1,980	
16. Miscellaneous livestock expense			99	61	38
17. Miscellaneous crop expense			276	142	134
18. Feed purchases			3,019	1,565	1,454
19. Custom work hired			175	127	48
20. General farm expense			102	61	41
21. Mechanical power expense			446	323	123
22. General machinery expense			67	67	
23. Livestock equipment upkeep			37	37	
24. Hired labor			480	480	
25. Board for hired labor			146	146	
26. Unpaid family labor (except operators)....			80	80	
Total farm expenses			\$9,829	\$5,834	\$3,995
Per cent of total expense				59	41

Table 1 shows that total expenses were shared on the basis of 59 per cent for the tenant and 41 per cent for the landlord. If the lease were equitable, the tenant would have received 59 per cent and the landlord 41 per cent of the receipts. But as table 2 shows, the tenant received 57 per cent and the landlord 43 per cent of the receipts.

If the tenant and the landlord had made this calculation, their estimates of the landlord's management expense and of the value of the tenant's labor and management might vary from the estimates used in table 1. They might also agree to use different interest rates in calculating investment costs.

Table 2. Average Receipts per Year

	Total	Tenant	Landlord
1. Farm receipts	\$10,091	\$5,574	\$4,517
2. Farm produce used in home*	632	632	
3. Inventory increase—livestock	547	285	262
4. Inventory increase—feed and seed	628	324	304
Total receipts	\$11,898	\$6,815	\$5,083
Per cent of total receipts		57	43

* Farm produce used in the home included the milk, cream, meat, eggs, garden produce, fuel, and 10 per cent of the book value of the house used by the tenant.

Financial Progress of Farmers During 1947

ANDREW VANVIG

Substantial gains in net worth were made during 1947 by farmers cooperating in the Southern Minnesota Farm Management Services. Table 1 shows the average net

worth statement for 156 cooperators who kept complete records of all assets and liabilities.

The largest gains in net worth were made by the owner group with an average of \$6,708; for part-owners \$6,065; while the renter group increased their net worth by \$3,706. Most of the increase in net worth appears as increased assets rather than a reduction of liabilities. Both the owners and part-owners made substantial reduction in real estate mortgages, but this was partially offset by increased chattel mortgages for all groups.

While the part-owner group showed a sizeable increase in outside investments, most of the increase in assets occurred from increased farm capital. No changes were made in the real estate valuations because of a rise in land prices during the year. More than one-half of the increase in farm capital was accounted for by an increase in the carry-over and value of crops, seeds, and feeds on hand at the end of the year. There was an average increase of about \$800 in the inventory value of machinery and equipment, indicating that a sizeable portion of this year's earnings were used to obtain additional farm equipment.

The part-owner group operated the largest acreage and had the highest average net worth. There is a strong relationship between the size of business operated and the return to capital and family labor. Farmers are now in a stronger financial position than at any previous time.

Table 1. Average Net Worth Statement for 156 Farmers in Southern Minnesota

	Owners	Part-owners	Renters
Number of cases	76	38	42
Acres per farm			
Owned	203.6	175.4	
Rented		104.5	209.7
January 1, 1947			
Assets			
Total farm capital	\$31,054	\$30,609	\$ 9,693
Accounts receivable	466	539	127
Outside investments	5,496	4,589	1,626
Household and personal	2,311	3,372	2,284
Total assets	\$39,327	\$39,110	\$13,730
Liabilities			
Real estate mortgages	\$ 6,076	\$ 3,180	
Chattel mortgages	769	343	1,235
Notes	1,387	1,063	631
Accounts	162	265	297
Total liabilities	\$ 8,394	\$ 4,852	\$ 2,163
Net worth	\$30,933	\$34,258	\$11,567
December 31, 1947			
Assets			
Total farm capital	\$35,990	\$34,924	\$13,326
Accounts receivable	619	621	93
Outside investments	5,739	6,029	2,153
Household and personal	3,069	3,745	2,748
Total assets	\$45,417	\$45,320	\$18,320
Liabilities			
Real estate mortgage	\$ 5,145	\$ 2,512	
Chattel mortgages	1,197	762	1,656
Notes	1,269	1,545	936
Accounts	165	176	454
Total liabilities	\$ 7,776	\$ 4,996	\$ 3,047
Net worth	\$37,641	\$40,323	\$15,273
Change in net worth	+\$6,708	+\$6,065	+\$3,706
Return to capital and family labor	\$10,666	\$11,610	\$7,299

Minnesota Farm Prices For July, 1948

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

The index number of Minnesota farm prices for July, 1948 is 303. This index expresses the average of the increases and decreases in farm product prices in July, 1948, over the average of July, 1935-39, weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, July 15, 1948, with Comparisons*

	July 15, 1948	June 15, 1948	July 15, 1947		July 15, 1948	June 15, 1948	July 15, 1947
Wheat	\$2.14	\$2.26	\$2.46	Hogs	\$24.70	\$22.00	\$20.30‡
Corn	1.86	2.05	1.87	Cattle	25.50	24.50	19.00‡
Oats .....	.83	1.05	.91	Calves	27.00	26.50	21.40‡
Barley	1.69	2.05	1.88	Lambs-Sheep	24.28	22.09	19.63‡
Rye	1.72	1.94	2.72	Chickens .....	.270	.223	.228
Flax	5.83	5.84	5.75	Eggs .....	.395	.383	.400
Potatoes	1.80	1.60	1.45	Butterfat .....	.91	.90	.73
Hay	16.60	14.00	11.50	Milk	4.10	4.00‡	3.20‡
				Wool† .....	.46	.45	.43‡

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

† Not included in the price index number.

‡ Revised.

The prices of Minnesota farm products rose 2 per cent from June to July. Livestock prices increased 8 per cent and livestock products 2 per cent, while crop prices declined 10 per cent.

Price movements during the last 3 months have been especially favorable for livestock producers. Declining feed grain prices and increasing livestock prices have brought all of the feed ratios to their most favorable level in more than a year. The hog-corn ratio has increased from 9.6 in April to 13.3 in July, the beef-corn ratio from 9.8 to 13.7, the butterfat-grain ratio from 23.4 to 30.3, and the egg-grain ratio from 10.4 to 12.1.

Indexes and Ratios for Minnesota Agriculture*

	July 15, 1948	July 15, 1947	July 15, 1946	Average July 1935-39
U. S. farm price index	281.8	258.4	228.5	100
Minnesota farm price index	303.0	268.1	229.8	100
Minn. crop price index	287.1	322.1	258.3	100
Minn. livestock price index	322.9	273.4	211.4	100
Minn. livestock product price index	292.1	242.2	234.5	100
U. S. purchasing power of farm products	140.3	139.8	143.5	100
Minn. purchasing power of farm products	150.9	145.1	144.3	100
Minn. farmers' share of consumers' food dollar	58.9†	62.1	60.0	47.0
U. S. hog-corn ratio	12.8	10.9‡	8.6	11.9
Minnesota hog-corn ratio	13.3	10.9‡	8.9	14.3
Minnesota beef-corn ratio	13.7	10.4	9.0	12.0
Minnesota egg-grain ratio	12.1	11.3	10.4	14.4
Minnesota butterfat-farm-grain ratio	30.3	22.5	25.6	29.8

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

† Figure for April, 1948.

‡ Revised.

The New Parity Formula

K. E. OGREN

The Agricultural Act of 1948, recently passed by the Congress and signed by the President, establishes a new parity formula effective January 1, 1950. This new formula is designed to recognize changing price relationships among the various farm commodities, but not to affect the level of parity prices of all farm products as a whole.

Base prices for individual commodities will be obtained by using the average price of the most recent 10-year period. For example, if the new formula were in effect on July 15, 1948, the 10-year period would be 1938-47. Since the index of prices received by farmers in this period was 68 per cent above the base period, 1909-14, the "adjusted" base price for each commodity would be computed by dividing its 1938-47 average price by 1.68. The parity price would then be obtained, like the present formula, from multiplying the "adjusted" base price by the index of prices paid by farmers on July 15, 1948. Thus, the parity prices of those commodities which in the 10-year period were more than 68 per cent above the 1909-14 base period, would be higher than under the present formula. The July 15 parity prices of selected commodities are compared in table 1 with the parity prices as computed under the new formula.

Table 1. Illustrative Comparison of Parity Prices under New Formula and Present Formula, July 15, 1948

Commodity	New parity price	Present parity price	New parity as per cent of present parity
Hogs	\$18.70	\$18.20	103
Beef cattle	16.30	13.60	120
Butterfat .....	.648*	.616*	105
Eggs .....	.446*	.513*	87†
Corn	1.42	1.61	88†
Oats .....	.82	1.00	82†

* Adjusted for seasonal variation.

† If the new parity price is lower, it cannot be reduced from the old parity price more than 5 per cent a year.

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