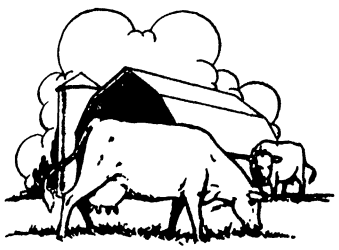

MINNESOTA farm business NOTES

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Modern Farming Is More of An Economic Risk

G. A. Pond and Truman R. Nodland

Recent years have brought striking changes in the farm expense picture. Changes in both farm techniques and the price level of farm products are reflected in the changing expense picture. Farming is becoming more commercialized and farmers are buying more of the goods and services used in production than they did years ago.

The farm expenses per 100 acres of land for a group of 150 dairy farmers in southeastern Minnesota are shown in table 1. These are shown at four-year intervals from 1928 to 1951.

The average size of these farms was 210 acres, increasing from 163 acres in 1928 to about 225 acres in later years. The most striking increases in expense were for power, machinery, and buildings.

This period from 1928 to 1951 was one of rapid increase in farm mechanization. Tractors were used on only 46 per cent of the farms included in this study in 1928, but by 1940 all had tractors. The number of work horses per 100 acres declined from 3.4 in 1928 to 0.6 in 1951, and in the latter year they were used but little. All farms used work horses in 1928 but by 1951 more than a third had dispensed with them entirely.

In this period new types of power machines such as combines, corn pickers, windrow balers, forage harvesters, and power sprayers and dusters came into the picture. Most of these were relatively expensive machines. This increase in power and machinery resulted in a big saving in labor: although the amount of livestock per 100 acres increased 14 per cent from 1928 to 1951 and the production even more, 28 per cent less labor was used in the latter year.

Table 1. Cash Farm Expenditures per 100 Acres, Based on Actual Prices Paid

	1928	1932	1936	1940	1944	1948	1951	Per cent 1951 of 1928
Livestock	$ 181	$ 75	$ 213	$ 390	$ 368	$ 465	$ 763	422
Feed	309	140	258	267	755	929	1,036	335
Miscellaneous livestock expense	36	27	40	35	68	114	147	408
Miscellaneous crop expense	106	64	90	81	206	415	395	373
Hired labor	154	110	181	191	373	470	445	289
Mechanical power, new	80	44	127	125	92	497	498	623
Mechanical power, upkeep*	102	82	162	165	307	561	584	573
Machinery and equipment, new	93	44	133	132	168	610	622	669
Machinery and equipment, upkeep	45	25	29	52	133	231	250	556
Buildings and fences, new	58	24	127	156	167	536	549	949
Buildings and fences, upkeep	33	10	30	37	103	170	162	491
Taxes	150	148	112	117	126	207	262	175
Miscellaneous	43	37	31	24	48	73	97	226
Total	$1,390	$830	$1,533	$1,772	$2,914	$5,278	$5,810	418

* Includes fuel and lubricants for tractor, trucks, and farm use of automobile and also electricity for farm use.

Table 2. Cash Farm Expenditures per 100 Acres—Adjusted to 1935-1939 Price Base

	1928	1932	1936	1940	1944	1948	1951	Per cent 1951 of 1928
Livestock	$ 124	$ 123	$ 237	$ 336	$ 226	$ 195	$ 193	156
Feed	232	230	248	268	468	390	465	200
Miscellaneous crop and livestock expense	126	146	138	129	179	257	288	229
Hired labor	101	128	193	179	142	129	116	115
Mechanical power	174	136	292	297	347	682	624	353
Machinery and equipment	137	74	166	184	264	536	451	329
Buildings and fences	83	40	162	191	206	333	298	359
Taxes	99	106	113	115	131	148	153	155
Miscellaneous	36	46	32	24	34	36	44	122
Total	$1,112	$1,029	$1,581	$1,723	$1,997	$2,706	$,2632	237

The cash expenditures for each of the years shown in table 1 has been reduced to a common price level, 1935-39, and presented in table 2. This table indicates more accurately than the other the relative quantities of goods purchased.

Again increases in power, buildings, and machinery stand out impressively. Increased expenditures for feed reflect the increasing use of commercial feeds, especially high-protein concentrates, as well as increased livestock numbers. Large increases in miscellaneous crop and livestock expense largely reflect increased use of (1) commercial fertilizers, (2) seed corn, as hybrid corn came into the picture, (3) sprays and dusts for weed and insect control, (4) artificial livestock breeding, and (5) vaccines, serum, and measures for the control of livestock disease.

The changes in the relative importance of the different items of expense are shown in table 3 on a percentage basis. Again the increases in outlay for power, machinery, and buildings stand out. The increase in power and machinery expenditures reflects increased mechanization of these farms.

The increased outlay for the construction and upkeep of buildings, fences, and other real estate improvements on the other hand is largely the

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result of a series of years of above-average earnings. New construction and even much of current upkeep was deferred in years of limited earnings such as the thirties. The accumulated need was then met when more ample earnings made it possible.

It is interesting to note that real estate and personal property taxes have been relatively less important expenses in recent years. In depression years such as 1932 they loom large in the farm expense budget, but they become a much less important item in years of more adequate income. If income taxes were included the picture would have been quite different.

One striking fact brought out in these tables is the growing importance of items produced by industry as compared with such farm-produced items as livestock and feed. Since prices of items of industrial origin usually lag behind those of farm products in a period of a general price decline, the farmer may be more vulnerable in such a period than he was before he was so highly mechanized. This is also reflected in the fact that in 1928 farm expense took 51 cents of every dollar of the farmer's cash income, but by 1951 the figure had risen to 74 cents.

This shrinking margin suggests the possibility that a general decline in farm prices may be an even more serious threat to the farmer's financial solvency than it has been in the past. At least it suggests that a more careful planning of capital expenditures will be needed in the future.

When prices decline the farmer may find it even more important than in the past to defer large capital outlays until industrial and farm prices come more nearly into balance.

It also suggests that a more flexible type of credit may be needed for agriculture. At least one may draw the general conclusion that while new techniques including mechanization have brought definite gains to the farmer, they have placed an increased emphasis on alert management and long-time planning.

Table 3. Percentage Distribution of Cash Expenditures, Based on Actual Prices Paid

	1928	1932	1936	1940	1944	1948	1951	Change 1928-51
	per cent							
Livestock	13.0	9.0	13.9	22.0	12.6	8.8	13.1	+0.1
Feed	22.2	16.9	16.8	15.1	25.9	17.6	17.8	−4.4
Miscellaneous crop and livestock expense	10.2	11.0	8.5	6.5	9.4	10.0	9.3	−0.9
Hired labor	11.1	13.3	11.8	10.8	12.8	8.9	7.8	−3.3
Mechanical power	12.1	15.2	18.9	16.3	13.8	20.1	18.6	+5.5
Machinery and equipment	9.9	8.3	10.6	10.4	10.3	15.9	15.0	+5.1
Buildings and fences	6.6	4.1	10.2	10.9	9.3	13.4	12.2	+5.6
Taxes	10.8	17.7	7.3	6.6	4.3	3.9	4.5	−6.3
Miscellaneous	3.1	4.5	2.0	1.4	1.6	1.4	1.7	−1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

Expense Sharing Becomes A Problem

Marvin Kottke and S. A. Engene

New farming practices and new machinery are creating problems as to how renters and landlords should share the new expenses.

There are no definite rules that apply under all circumstances. One reasonable rule, however, is that they should share the expenses in the same proportion they share the benefits. We can check this principle by seeing how farmers are handling some of the new types of costs.

Fertilizers, weed sprays, combines, and corn pickers are relatively new developments, and yet they have been used long enough for landlords and renters to adapt their leases.

The solution is simple when a farmer rents for cash—the tenant pays all of the operating expenses and gets the income from all sales. Consequently it is reasonable that he should pay all costs for new methods or new machines. And that seems to be what is being done.

The problem is more complex when the landlord receives a share of the crop as rent. Here we must see who benefits from the change to new methods and machines.

Let us start with fertilizer. Since the use of fertilizer increases yields, both the landlord and renter get some benefit and they probably should share the expense. Here is an example: assume that they spend $5.00 an acre for fertilizer and that yield goes up six bushels. At $1.50 a bushel that is $9.00, or a $4.00 profit.

If the tenant and landlord divide the crops half and half, each will get $4.50 of the increased income. Neither one can afford to pay all of the cost, for that would be $5.00 cost for $4.50 income. But if each pays one-half of the cost, each will have a $2.00 profit.

How are farmers sharing fertilizer costs? The figures in table 1 summarize information sent in by almost 1,000 Minnesota renters in 1952.

Table 1. Landlord's Share of Selected Expenses Under the Crop Share Leases

Item and kind of lease	Per cent of landlords paying				
	None	1/3	2/5	1/2	All
Fertilizer					
1/3 crop share	41	42	0	9	8
2/5 crop share	17	1	62	12	8
1/2 crop share	11	1	1	65	22
Weed spray					
Material					
1/3 crop share	60	16	0	8	16
2/5 crop share	26	0	36	5	33
1/2 crop share	19	0	1	51	29
Spraying					
1/3 crop share	66	18	0	7	9
2/5 crop share	76	0	11	3	10
1/2 crop share	57	0	0	34	9
Combining					
1/3 crop share	85	15	0	0	0
2/5 crop share	95	0	3	0	2
1/2 crop share	26	5	1	68	0
Corn picking					
1/3 crop share	88	4	0	8	0
2/5 crop share	99	0	1	0	0
1/2 crop share	61	0	0	38	1

Start with the first line under fertilizer. Of the landlords who get one-third of the crop, 42 per cent of them pay one-third of the fertilizer cost and 41 per cent pay none. The renters in the last situation may be willing to pay the full cost since they get two-thirds of the benefit. Also there are some cases where the renters agree to pay all the fertilizer cost in exchange for improvement costs carried by the landlord.

Go to the next lines in table 1. When the landlord gets two-fifths or one-half of the crop he usually pays the same proportion of the fertilizer cost.

Weed spraying is a little more complicated. Sometimes the fields are sprayed to increase yields, and in this

case both the landlord and the renter benefit. Sometimes spraying is used as a substitute for cultivation; in this case the renter gets most of the benefit, because it lowers cultivation costs.

At other times spraying is done primarily to reduce future weed problems, and here the landlord benefits.

Since the benefits of spraying are variable we would expect a big difference in the way in which the costs are shared. That is what we find in table 1.

Combining, Corn Picking Different

Combining and corn picking differ from the other operations, for these two do not increase yield. They reduce the other costs of harvesting. In former years renters with 1/3- and 2/5-share leases have customarily paid all of the threshing and picking costs. If mechanization cuts costs the renters get the benefit, so most of them now pay the full cost of combining.

Formerly, the landlord with the half-share lease usually paid half of the threshing bill. In 68 per cent of the cases he now pays half the combining.

The principle of sharing costs in the same proportion as benefits also seems to hold for the 50-50 livestock share leases, as shown in table 2.

Most of these renters and landlords share the fertilizer and spraying expenses. Apparently the landlord sometimes pays for all of the spray material while the renter does the work.

They usually share the combining costs. With the stationary thresher, the renter customarily paid half the cost of the rig and also did the work. The renter, therefore, paid more than half of the cost. Since the renter benefits the most from the use of the combine a fair number of renters now pay all.

Whereas most operating expenses are shared under the livestock share lease, nearly half of the renters pay all corn picking costs. When corn was picked by hand the renter did all the work. The only cost to the landlord was his share of the undivided corn that was fed to the horses. Most of the benefit of the mechanical picker, therefore, goes to the renter.

Table 2. Landlord's Share of Selected Expenses Under the 50-50 Livestock Share Lease

Item	Per cent of landlords paying		
	None	½	All
Fertilizer	1	95	4
Weed spray material	3	71	26
Weed spraying	21	67	12
Combining	20	79	1
Corn picking	47	52	1

Machinery Costs About $1,000 Yearly

S. A. Engene and Niels Rorholm

How much is your crop machinery costing you? If you are anything like a group of 33 southern Minnesota farmers in 1951 and 1952, you paid out $1,046 a year for crop machinery other than tractors.

In this article we will examine the records of these farmers—probably typical for the area—to see where their machinery dollar goes. The farms averaged 222 acres—only slightly larger than typical farms in the area.

The average cost for operating tractors on these farms was $942. But since space is limited we will discuss only crop machinery in detail.

This crop machinery cost, about a thousand dollars, is important enough that farmers need to study it carefully. Here are some of the details:

Depreciation	$ 478
Interest	162
Repairs and upkeep	165
Servicing	138
Fuel (mounted motors)	9
Shelter	94
Total	$1,046

Depreciation and interest make up about two-thirds of the cost. That means that most of the cost is set when the farmer buys his machinery. Careful operation and wise repairing, of course, can help to spread this cost over more years. The most important thing, however, is to study before buying.

The cost of $1,046 per farm was for the work done on each farmer's own place. The cost for machinery for doing custom work for others added another $80 per farm, for many of these farmers did custom work to help carry the cost of the expensive machines.

The machinery costs on these farms amounted to $6.43 for each acre of land in crops other than pasture. Custom work hired added an additional $1.20 an acre. This, of course, included the charge for labor and power as well as machinery.

There was a big difference in costs among these farmers. The lowest cost was $2.09 per acre; the highest was $14.09. Seven had costs of less than $4.00, while five had costs of more than $9.00.

Here are reasons why some farmers had lower costs than others:

- They owned machines only if they had enough use to justify it.
- If they could not justify a new machine, some of them bought a second-hand one.
- They did custom work to help pay for expensive machines.
- They owned some machines in partnership with neighbors.
- They operated their machines carefully and serviced them properly to give long life.

The machinery cost per acre for the different crops was as follows:

Soybeans	$4.52
Flax	5.44
Corn (husked)	6.65
Oats	7.29
Alfalfa (hay and silage)	7.79
Corn silage	9.27

Machinery costs were highest for corn silage and alfalfa. About 80 per cent of this alfalfa was put up as hay and the rest as silage. Since both alfalfa hay and silage usually were harvested from the same land, it is impossible to show costs per acre separately. But we have estimated the machinery costs to be approximately $2.65 per ton of hay and $1.00 per ton of silage.

The cost per farm for the different kinds of machines is shown in the table. This was calculated by taking the total for all farms and dividing by the number of farms. General machinery includes wagons, boxes, racks, manure spreaders, and manure loaders. The tillage machinery includes all of the machines used for seedbed preparation.

The total cost of all harvesting machinery is $514—half the total machinery cost. Three harvesting machines—the chopper, combine, and corn picker—total $331, or about one-third of the machinery cost.

Most of these costs are for machines that can hardly be eliminated in modern farming. By shrewd buying and careful management, however, the costs can be reduced.

Annual Crop Machinery Cost—Average of All Farms

Kind of machinery	Cost
General machinery	$ 208
Tillage machinery	156
Planting and cultivating machinery	
Corn	78
Grain	38
Harvesting machinery	
Hay mower and rake	74
Hay loader, sweep rake	15
Baler	18
Field chopper	102
Grain binder	12
Thresher	18
Swather and combine	119
Corn picker	110
Portable elevator	46
Crop sprayer	21
Total	$1,046

FARM POULTRY FLOCK CAN ADD TO FAMILY INCOME

Frank T. Hady[1] and Truman R. Nodland

If you are like the average farm poultry flock owner your flock adds to your family income but it does not pay you hired man's wages for the time spent on it.

This article brings this out in a summary of the poultry records of about 500 farmers per year in the Southeast and Southwest Minnesota and Veterans Farm Management Services since 1947. Some of the implications may aid you in your own poultry enterprise.

Table 1 shows the physical data regarding the flocks of the record-keeping farmers. In this table the feed fed per hen includes the feed for chicks.

Table 2 gives the average costs and returns per hen. Man-labor costs are based on 2.1 hours per hen for the year, valued at the average wage of hired labor for the year. The item "return above costs" is the difference between total costs and total value produced.

In each of the five years of study, the poultry enterprise added to the farmer's income but in no year did it pay well enough to break even if the time spent on it is valued at hired man's wages. The loss in return above costs varied from $1.33 per hen in 1950 to virtually nothing in 1949. However, this is usually not a loss in income.

The last item in table 2, net returns per hour of labor, indicates how well the poultry enterprise paid the farmer for the time spent on it. The average for the five years was 41 cents.

From these data it becomes evident that the average farmer could not afford to hire labor (at regular hired man's wages) to care for his poultry flock, nor could he afford to spend his own time during any period that he valued his time at hired man's wages. However he could add to his total income by keeping a poultry flock, providing the labor used would not have earned more at some other activity.

There are several sources from which labor of this type may be drawn. In the first place the operator himself may have some periods during the day when he has no better alternative for the use of his time than the poultry flock will offer him. This may be especially true during the winter and off-peak seasons of the year.

The hired man may be drawn on to care for poultry if he has to be paid anyway and if there is no better alternative use for his time. On many farms the operator's wife, children, or other relative may also be drawn on for labor for the poultry enterprise.

These people may be more interested in adding something to the family income than in insisting on receiving hired man's wages for their time. Frequently combinations of all of these sources may be drawn on to keep the poultry enterprise going.

All of this means also that under the conditions that prevailed from 1947-51 the average poultry flock could be no larger than that which could be cared for by the available supply of this special kind of labor. To profitably expand the size of the flock beyond this point the farmer must increase his efficiency above the average enough to pay the higher labor costs.

[1] Bureau of Agricultural Economics, USDA

Table 2. Average Costs and Returns per Hen

	1947	1948	1949	1950	1951	Average 1947-51
Costs per hen						
Feed	$5.07	$4.42	$3.76	$4.15	$4.61	$4.40
Man labor	1.50	1.58	1.54	1.52	1.66	1.56
Shelter and equipment	.42	.47	.47	.48	.53	.47
Other cash costs	.38	.42	.40	.41	.37	.40
Total cost	7.37	6.89	6.17	6.56	7.17	6.83
Value of production per hen						
Eggs	$5.33	$5.61	$5.59	$4.64	$6.09	$5.45
Poultry*	.76	.83	.57	.59	.67	.68
Total value produced	6.09	6.44	6.16	5.23	6.76	6.13
Return above costs	—1.28	—.45	—.01	—1.33	—.41	—.70
Returns per $100 total cost	$ 83	$ 93	$100	$ 80	$ 94	$ 90
Returns per $100 feed fed	$120	$146	$164	$126	$147	$139
Net returns per hour of labor	$ .10	$ .54	$ .73	$ .09	$ .60	$ .41

* Sales less cost of chicks purchased, death loss, and depreciation.

Table 1. Size of Flocks, Rate of Lay, and Feeds Consumed per Hen

	1947	1948	1949	1950	1951	Average 1947-51
Number of flocks	516	549	532	432	392	484
Average number of hens	198	199	201	219	220	207
Per cent of hens that were pullets	79	72	76	82	81	78
Per cent death loss of hens	13	13	12	13	14	13
Number of chicks purchased	382	287	366	378	351	353
Pounds of poultry produced	1,094	876	1,059	1,139	1,067	1,047
Eggs laids per hen	159	162	170	177	175	169
Feed consumed per hen (pounds)						
Grain	98	86	99	94	96	94
Commercial feeds	43	38	42	46	45	43
Total feed per hen	141	124	141	140	141	137

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