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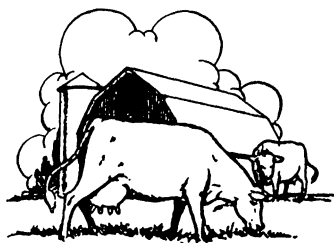
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MINNESOTA farm business NOTES



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ST. PAUL CAMPUS, UNIVERSITY OF MINNESOTA

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One-Third of Minnesota Farm Land Is in Forages

S. A. Engene and Frank Hady¹

The development and expansion of grasslands encounters many problems; knowledge of the present use of grasslands will help to understand those problems.

One-third of the land in farms in Minnesota is used for grassland crops (see table 1). This includes both hay and pasture crops. One-half of the land is used for other crops. Hay and pasture crops, then, are an important part of Minnesota farming.

Table 1. Use of Minnesota Farm Land, 1950*

Type-of-farming area	Farm land used for			
	Land in farms	Hay and pasture	Other crop-land	Other land use†
	million acres	per cent	per cent	per cent
State	32.9	34	52	14
1. Southeast	3.6	43	47	10
2. South central	5.3	35	55	10
3. Southwest	4.2	20	73	7
4. West central	5.2	19	71	10
5. East central	2.6	53	30	17
6. Northwest	4.4	41	40	19
7. Red River	4.2	22	66	12
8. Cutover	3.1	52	17	31
9. Twin Cities .....	.3	45	30	25

* From 1950 U. S. Census of Agriculture.

† Woodland, farmsteads, roads, waste.

The importance of grassland varies widely among different sections of the state. More than half of the farm land in the cutover area of northeastern Minnesota is used for hay and pasture. There are more than three acres of grassland for every acre of other crops. Along the western part of the state (type-of-farming areas 3, 4, and 7) only 20 per cent of the land is used for hay and pasture. These farmers have 3½ acres of other crops for every acre of grasses. In the rest of the state about 40 per cent of the land is used

¹ Frank Hady is a member of the staff of Agricultural Research Service, USDA.

Table 2. Forage Crops on Minnesota Farms, 1950*

Type-of-farming area	Per cent of land in farms used for				Grasslands on	
	Time hay	Cropland pasture	Wild hay	Open permanent pasture	Wood-land pasture	Tillable land
State	8	5	3	8	10	13
1. Southeast	12	10	0	9	12	22
2. South Central	8	4	4	11	8	12
3. Southwest	4	5	2	8	1	9
4. West central	4	4	3	7	1	8
5. East central	10	4	5	11	23	14
6. Northwest	9	4	5	7	16	13
7. Red River	4	4	5	4	5	8
8. Cutover	15	4	2	5	26	19

* From 1950 U. S. Census of Agriculture.

for grasses and about the same for other crops.

The grassland acreage can be divided into two main types, with different characteristics and problems. First, some hay and pasture is grown on tillable land; that is, these crops must compete with other crops for use of the land. Second, some of it is grown on land which is unsuited for any other use. Wild hay, open permanent pasture, and woodland pasture fall in this group.

Here, too, there are large differences among the different parts of the state (see table 2). In the southeastern section, with its rolling to hilly land, about half of the hay and pasture is grown on tillable land. At the other extreme are the east central counties, with almost three-fourths of the grassland nontillable land.

Use of Permanent Pasture and Hay

Woodland pasture presents a special problem on many farms. This land is used for a double purpose—to produce pasture and timber. In many cases these two uses are antagonistic. A heavy growth of trees interferes with grass production, and grazing interferes with growth and restocking of trees.

Many farmers need to study the relative returns from pastures and timber; it may be profitable to clear the land best suited to pasture, and use the rest for timber production.

In a study of grazing capacity of pastures in Houston County, farmers estimated that the grazing capacity of their wooded pastures was only one-half that of open permanent pasture.² Although no accurate measure is available, a comparison of numbers of livestock and acreages of pastures by counties indicates that on the average it takes five to seven acres of woodland pasture to carry a cow.

Open permanent pasture generally has no alternative use, unless additional capital is invested. Much of it is too steep to cultivate, is too rocky, has brush or stumps, or is poorly drained.

A part of this permanent pasture land could be used profitably for other crops by clearing or drainage. This would bring a higher income and give the farmer a greater freedom of choice in selecting crops.

(Continued on page 2)

² H. O. Anderson, C. H. Welch, Jr., G. A. Pond, *Pasture Production and Use*, Minn. Agr. Expt. Sta. Bul. 368. 1943.

FORAGES IN MINNESOTA—Continued from page 1

Much of the open permanent pasture can not be converted into cropland economically. Research, however, is showing that the productivity of a part of this can be increased by renovation, cutting of weeds and brush, and better grazing practices. Additional research is needed, however, to determine where this is feasible and justifiable, and to determine the best practices.

The amount of wild hay land is relatively small. This land is distributed fairly uniformly over the state, except in the southeastern counties where there is practically none. Most of this has little alternative use unless it can be drained economically.

Grasses on Tillable Land

A part of the hay and pasture is grown on tillable land in all parts of the state. The importance of this compared with permanent hay and pasture is shown in table 2.

The proportion of tillable land used for hay and pasture is shown in table 3. Almost half of the tillable land is so used in the cutover area. The proportion is about one-third in the east central area and in the southeast. The smallest proportion is in the western counties, with 10-11 per cent.

Hay and pasture in a rotation give a return in two ways. First, they help to increase or maintain the yields of the other crops in the rotation. Second, they yield a direct income by sale of the crops or of the livestock and livestock products produced from them.

Most farmers have observed an increase in the yield of crops that follow grasses and legumes. Farmers in the Red River Valley have estimated that in a four-year rotation of summer fallow and three years of grain they can produce 4,950 bushels of grain on 300 acres of land.³ They estimate that a five-year rotation of alfalfa, summer fallow, and three years of grain will produce 4,680 bushels. Adding the alfalfa would cut the acreage of grain by 45, from 225 to 180, but it would cut production by only 270 bushels.

Looking ahead, they estimate that after using this rotation for 10 years or more they can produce more grain on the 180 acres than with the first rotation and have the alfalfa in addition.

The effect of grasses and legumes on yields will vary from farm to farm. Each farmer needs to set up compari-

sons such as the above. Many farmers will find that they can profitably increase these crops. This is especially true for farmers who expect to stay on the same farm for several years.

The acreage of hay and pasture that is profitable is also affected by the income from those crops compared with alternative crops.

Table 3. Forages on Tillable Land, Minnesota, 1950*

Type-of-farming area	Per cent of tillable land used for		
	Hay	Pasture	Total
State	12	7	19
1. Southeast	18	14	32
2. South central	12	6	18
3. Southwest	5	6	11
4. West central	5	5	10
5. East central	23	9	32
6. Northwest	17	8	25
7. Red River	6	5	11
8. Cutover	37	10	47

* From 1950 U. S. Census of Agriculture.

Detailed farm records kept by about 30 farmers in 1951-52 show the following costs per acre for producing and harvesting the principal crops:

Corn	\$35
Oats	33
Flax	29
Soybeans	28
Alfalfa hay	38

Although there are differences among these crops, the differences are not extremely great. The choice of crops can then be made largely on the basis of feed nutrient production or cash income per acre.

The comparison of feed nutrient production can be illustrated by using data from the Southwest Minnesota Farm Management Service. The 10-year average yield (1943-52) and production of total digestible nutrients (TDN) per acre was:

Corn-48 bushels	2,150 pounds TDN
Oats-44 bushels	1,000 pounds TDN
Alfalfa hay-2.2 tons	2,150 pounds TDN

Alfalfa hay produced about the same amount of feed nutrients as corn; analysis of records kept by farmers show, however, that much of this is wasted or spoiled. The effective production then is less than for corn but more than for oats. No accurate data are available for pasture on these farms. It is probable, however, that the production of feed nutrients would be about equal to alfalfa hay, and the cost would be considerably less.

MINNESOTA farm business NOTES

Prepared by the Department of Agricultural Economics and Agricultural Extension Service.

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Corn and small grains can be sold or fed on the farm, and they can be fed to several kinds of livestock. Their use is flexible. Hay and pasture, on the other hand, have a restricted use. The market outlet is limited. They usually must be fed, and on most farms they are fed to cattle, either beef or dairy. The value of hay and pasture must then be measured in terms of livestock production.

Hog Returns Are High

The records obtained from farmers show that with the yields given above they use 4½ to 5 acres of land to feed a dairy cow and her replacement for a year if all of the feed was produced on tillable land. Using average values for 1940-52, the gross income was \$300. This same land produced about 1,800 pounds of hogs, or \$300 gross income.

The gross income was about the same for dairy cattle and hogs. The dairy cattle, however, required more buildings, equipment, and labor.

There is a big difference between dairy cows and hogs in the manner in which the land is used for feed production. With dairy cattle, 60 per cent or more of the land would be in hay and pasture crops. With hogs, only 12 per cent would be in these crops. These cropping systems might lead to a big difference in yields after a few years.

How does this check with the use of tillable land as shown in table 3? In southwestern Minnesota much of the land is relatively level and does not require a large proportion of land in grasses to help control erosion. In addition, the yields of corn, small grain, soybeans, and flax are high relative to hay and pasture yields, even after several years of heavy cropping. The farmers can obtain high incomes per acre with a low labor requirement by emphasizing cash crops, hogs, and feeder cattle. Consequently, they use a small percentage of their tillable land for hay and pasture.

In southeastern counties the yield of corn is high, but grasses and legumes

³ S. A. Engene, A. Vanvig, *Good Rotations Are Like More Land*, Minn. Agr. Ext. F. 152. 1951.

FARM MACHINERY COSTS HAVE GONE UP

S. A. Engene

How much does a farmer spend for machinery? How much have expenditures for machinery changed over the years? Records summarized for Minnesota farmers throw some light on these questions.

The longest series of records available is from the Southeast Minnesota Farm Management Service, with records covering 25 years—from 1928 through 1952.

During the depression years these farmers spent \$498 a year as an average for machinery purchases and operation (see table 1). During the last five years they have spent more than eight times as much. Higher prices account for a part of this increase. More machines, however, account for a big part. Farmers bought or replaced machines they could not get during the depression and war years, they bought bigger and better machines, and they bought new kinds of machines.

The share of the income used for paying machinery costs has been going up—it has almost doubled during the 25-year period. This increase is somewhat misleading, however. During the depression years farmers replaced only the machines that could not be repaired economically—as an average the condition of machines on farms was going

are needed to help control erosion and to help maintain the level of yields of other crops. The farmers in this area, therefore, use a large percentage of their tillable land for hay and pasture. Even here the profits from hogs and beef cattle are sufficiently high that farmers hold their forage acreage at a minimum.

In the Red River Valley level land makes it possible to use large machines and handle large acreages of small grains per man. Yields have been maintained at a good level with a minimum acreage of grasses and legumes. These farmers get a high return for their labor by concentrating on small grains and intensive crops.

In the northeastern and east central counties corn yields are low. Hay produces more feed nutrients than small grains. These farmers find it profitable to use a large percentage of their tillable land for hay and pasture crops.

Table 1. Money Spent for Power and Machinery, Southeast Minnesota Farm Management Service

Item	1948-52	1945-47	1940-44	1935-39	1930-34	1928-29
Number of farms per year ...	165	170	177	149	140	148
Acres per farm	224	223	227	218	199	170
Money spent per farm per year for:						
Power*	\$ 2,124	\$ 1,168	\$ 717	\$ 559	\$ 321	\$ 399
Machinery	1,559	885	536	348	177	262
Custom work	504	345	165	†	†	†
Total	\$ 4,187	\$ 2,398	\$1,418	\$ 907	\$ 498	\$ 661
Cash farm receipts	\$16,374	\$13,436	\$9,121	\$5,575	\$3,632	\$4,753
Per cent of receipts spent for machinery	26	18	15	16	14	14

* Tractor, farm share of truck, auto, electricity.

† Included with power and machinery.

down. During the years since World War II, with better incomes, farmers have been catching up on machinery investments and building ahead. In 1952 the share of the income used for power and machinery was down.

About one-half of the machine dollar goes to buy and operate the power units (tractor and farm share of auto and truck) and to pay for electricity. A little more than one-tenth goes for custom work hired, including hauling.

A more detailed breakdown of costs since 1940 is shown in table 2. During

Table 2. Money Spent for Purchase and Upkeep of Power Machinery, Southeast and Southwest Minnesota Farm Management Service

Item	1948-52	1945-47	1940-44
Number of farms per year	298	314	341
Acres per farm	237	238	253
Money spent per farm per year for:			
Purchase of power units*	\$ 976	\$ 409	\$ 280
Purchase of machinery	1,262	674	418
Gas, oil, electricity, etc.	946	617	511
Upkeep of power units*	298	277	
Upkeep of machinery	379	303	161
Custom work hired	461	338	178
Total	\$4,322	\$2,618	\$1,548

* Tractor, farm share of truck and auto.

the last five years about one-half of the machinery dollar has been used to purchase machines, and the other half has been used to operate the machines and to pay for custom work.

Most of these farmers were well established, had built up earning power and savings, and consequently were in

a financial position to buy machinery. Table 3 gives data for a group of beginning farmers—veterans who were taking on-the-farm training. Most of these men had limited capital and had not yet brought their farm operations up to full efficiency. The general pattern of machinery expenditures is quite similar to that of the other farmers. The amount spent is less per farm, but, with incomes also lower the percentage is higher.

These machinery expenses take a large share of the farmer's income. If prices of farm products drop sharply it will put a tight squeeze on the farmer's budget. Fortunately, many of these farmers have built up a line of machinery in good condition—they can operate for a few years with few replacements. Operating cost will continue high, however, so each farmer must buy and operate machines with care to hold expenses at a minimum.

Table 3. Money Spent on Power and Machinery, Beginning Farmers, 1947-51*

Item	Southern Minnesota	Northern Minnesota
Number of farms per year	186	148
Acres per farm	186	176
Money spent per farm per year for:		
Purchase of power units†	\$ 730	\$ 525
Purchase of machinery	830	348
Upkeep of power units, gas, oil, electricity, etc.†	799	482
Upkeep of machinery	164	80
Custom work hired	307	193
Total	\$2,830	\$1,703
Cash farm receipts	\$8,508	\$4,120
Per cent of receipts spent for machinery	33	41

* Veterans taking on-the-farm training.

† Tractor, farm share of truck and auto.

Minnesota Farm Prices, March-April, 1954

Prepared by Jerry M. Law

Average Farm Prices for Minnesota, March and April, 1954 with Comparisons*

	Mar. 1954	Mar. 1953	Apr. 1954	Apr. 1953
Wheat	\$2.17	\$2.17	\$2.14	\$2.18
Corn	1.30	1.30	1.32	1.30
Oats .....	.71	.71	.72	.69
Barley	1.11	1.25	1.11	1.22
Rye .....	.99	1.55	.91	1.44
Flax	3.66	3.67	3.61	3.60
Potatoes .....	.70	1.50	.60	1.15
Hay	15.10	16.90	15.10	16.30
Hogs	25.00	20.00	26.80	21.30
Cattle	16.70	17.00	16.20	17.00
Calves	19.50	22.10	18.50	20.80
Sheep-lambs	20.87	19.57	21.12	19.92
Chickens .....	.197	.237	.182	.225
Eggs .....	.330	.410	.295	.415
Butterfat .....	.70	.73	.63	.72
Milk	3.20	3.40	2.95	3.35
Wool† .....	.46	.49	.48	.50

* Average prices as reported by the USDA.

† Not included in the index numbers given below for Minnesota.

The indexes and ratios of Minnesota farm products represent the average of the increases and decreases in farm product prices in the given month of 1954 over the average of the five corresponding months of 1935-39.

Weights for the Minnesota indexes are the average sales in the five corresponding months of 1935-39. Weights for the United States indexes are the average sales of 60 months in 1935-39.

Minnesota farm prices averaged lower in April than in March. The over-all decline was due to lower prices mainly for cattle, eggs, butterfat, and milk. Hog prices increased approximately 7 per cent. Prices this April averaged above April, 1953.

Indexes and Ratios for Minnesota Agriculture

	Mar. 1954	Average Mar. 1935-39	Apr. 1954	Average Apr. 1935-39
U. S. farm price index	234.4	100	234.9	100
Minnesota farm price index	227.2	100	224.6	100
Minnesota crop price index	167.1	100	184.5	100
Minnesota livestock price index	268.8	100	275.6	100
Minnesota livestock products price index	208.1	100	190.4	100
Purchasing power of farm products				
United States	103.9	100	104.4	100
Minnesota	100.7	100	99.8	100
Minnesota farmers' share of consumers' food dollar	57.5*	48.3	57.4†	47.9
U. S. hog-corn ratio	17.2	13.4	18.3	12.5
Minnesota hog-corn ratio	19.2	16.5	20.3	15.4
Minnesota beef-corn ratio	12.8	12.9	12.3	12.6
Minnesota egg-grain ratio	11.7	13.6	10.5	13.7
Minnesota butterfat-farm-grain ratio	30.9	32.4	27.5	31.8

* Figure for November

† Figure for December

The Outlook Corner - FLAXSEED

World production of flaxseed in 1953 was the second lowest since 1946. The United States harvest exceeded the 1952 production by 22 per cent but was 6 per cent below the 1945-49 average.

Flaxseed Acreage, Yield, Production, and Foreign Trade, United States

Year beginning July	Acre- age har- vested	Yield per acre	Produc- tion	Foreign trade*
	million acres	bushels	million bushels	million bushels
1930-34	2.1	5.4	11.5	+12.3
1935-39	1.5	7.4	11.0	+18.2
1940-44	3.8	9.2	35.1	+ 7.7
1945-49	4.1	9.5	39.2	+ 2.2
1950	4.1	9.8	40.2	- 3.5
1951	3.9	8.9	34.7	- 4.5
1952	3.3	9.1	30.2	- 4.3
1953	4.4	8.4	36.8	- 5.2
1954	5.6†	.....	46.0‡	.....

* + = net imports; - = net exports.

† Intentions to plant.

‡ Estimated.

During World War II, the United States flax acreage expanded rapidly and has been maintained at twice the level of the 1930's. Yield also increased, so production now averages about three times the former level.

The increase in United States production has been accompanied by a decline in imports. During the 1930's and earlier years, imports from South America contributed from one-third to one-half of our supply. Since 1943, with the exception of two years, the United States has been a net exporter of flaxseed and linseed oil. It is unlikely that this situation will change soon.

Farmers placed about one-half of the 1953 flaxseed crop under the support program. Flaxseed prices have av-

eraged below the national average support price of \$3.79 per bushel. The lower support price of \$3.14, or 70 per cent of parity for the 1954 crop will encourage crushers of flaxseed and users of linseed oil to reduce their inventories to a minimum this spring and early summer.

With about 19 million bushels of free flaxseed and commercial requirements estimated at 26 million bushels, a substantial quantity of the flaxseed under support will have to be redeemed if requirements for linseed oil are to be met. Under these conditions a gradual rise in the market price of flaxseed may be expected.

Producers have indicated that they expect to increase planted acreage of flax by 18 per cent even in the face of a drop in the support levels. This increase is in part a reflection of the corn and wheat acreage allotments.

In North and South Dakota, farmers intend to increase flax plantings by 26 per cent. In Minnesota plantings are expected to be 10 per cent smaller. The Dakotas and Minnesota account for about 93 per cent of the total acreage.

If yields equal the 1948-50 average, the intended acreage will produce 46 million bushels or a record output. This output plus the expected large carry-over probably will mean a market price near the \$3.14 support level for the 1954 crop.

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