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# FARM BUSINESS NOTES

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

NO. 243

UNIVERSITY FARM, ST. PAUL

MARCH 22, 1943

## Selecting Crops to Meet 1943 Production Goals

GEORGE A. POND

THE 1943 goals for Minnesota do not call directly for any major shifts in crop acreages. Livestock production goals, however, indicate a need for large increases in livestock and livestock products, especially poultry, eggs, hogs, and beef cattle. To achieve this increased production we must have more feed. The acreage of feed crops grown in 1942 with normal yields would not provide the needed supply. We can hardly hope to buy much feed from other states, other than government feed wheat, since they too have livestock goals to meet and need all the feed they can raise. We have little if any new land that can be brought into cultivation for this year. Neither do we have the labor to operate more land. If we are to meet our 1943 livestock goal we must raise from the same land more feed than we produced last year.

The greatest opportunity for achieving this needed increase in feed production in Minnesota in 1943 lies in a more discriminating selection of crops for our present acreage of cropland. Farmers must select and combine those crops that will produce the maximum quantity and quality of livestock feed at the minimum cost with special emphasis on economy in the use of labor. A basis for selecting crops is suggested in table 1.

### University Farm Radio Programs

HOMEMAKERS' HOUR—10:45 a.m.

UNIVERSITY FARM HOUR—12:30 p.m.

THE FRIENDLY ROAD—1:00 p.m.

Station WLB—770 on the dial

An average yield of corn on these farms will produce 2,328 pounds of digestible feed per acre. This is twice as much as that produced by any of the small grain crops on the same farms. A bushel of oats (32 pounds) contains 22.24 pounds of digestible nutrients. To produce as much digestible feed per acre with oats as with corn would require a yield of 105 bushels (2328÷22.24). The yields for the other grain crops that would be required to equal the average production of digestible nutrients by corn are shown in table 1. Such yields are seldom attained in even the most favorable years on the best farms. Alfalfa and corn silage are the only crops that exceed corn in digestible feed production per acre.

One factor of quality in feed is the protein content. Protein is the element most likely to be deficient in livestock rations and the most expensive to purchase. Although the proportion of protein in the digestible feed produced in corn is lower than for the other crops listed, the amount produced per acre exceeds that of any of these crops except alfalfa. A cropping system containing the maximum feasible acreage of corn and alfalfa will produce not only the maximum quantity of digestible feed but also the most protein.

Corn requires approximately 50 per cent more labor per acre than small grain but because of the higher yield 70 to 100 per cent more digestible feed is produced per hour of labor. Records of a group of 26 farms in Nicollet County indicate that 10.6 hours of labor is used in producing an acre of corn and 7 hours in producing an acre of oats on the same farms. The pounds of digestible feed per hour of labor for these crops as shown in table 1 were obtained by dividing the total production of digestible nutrients per acre by these figures. Similar information for other crops is also presented in table 1. Only alfalfa exceeds corn in this respect. Although corn harvested as silage produces 21 per cent more digestible feed per acre than corn for grain only, it required 60 per cent more labor per acre and as a result the production per hour of labor is less. With labor a definite limiting factor, it is especially important to use it where it will make the greatest contribution to our feed supply.

Table 1. Comparative Crop Returns and Costs

	Yield per acre*	Pounds T.D.N.† per acre	Bushels or tons equal to corn in T.D.N.	Protein		Pounds T.D.N. per hour man labor	Cost per 100 lbs. T.D.N.
				Per cent of T.D.N.	Pounds per acre		
Corn	51 bu.	2,328	.....	9.0	210	220	\$.68
Oats	43 bu.	956	105	14.7	141	137	1.44
Barley	30 bu.	1,117	63	12.6	141	153	1.24
Wheat, winter	20 bu.	950	49	11.1	105	134	1.49
Wheat, spring	17 bu.	808	49	11.1	90	108	1.82
Rye	17 bu.	780	51	11.1	87	110	1.82
Alfalfa hay	2.4 tons	2,472	2.3	20.2	499	242	.63
Corn silage	8.4 tons	2,822	6.9	7.1	200	166	.79

\* Average yield of 150 farms in S. E. Minn. Farm Management Service, 1928-1941, inclusive. In computing the average yield of corn, the yields for those years in which open-pollinated seed was used have been increased by 15 per cent to make them comparable with those of the more recent years when hybrid seed was used.

† Total digestible nutrients. Analysis of these feeds was obtained from "Feeding the Dairy Herd," Minn. Agr. Ext. Bul. No. 218 (June, 1941).

The cost of producing 100 pounds of digestible feed in the different crops as shown in table 1 is based on accounting records kept on the group of Nicollet County farms just mentioned. It costs more to produce an acre of corn for grain than an acre of any of the other crops listed except corn silage. The larger production per acre, however, results in a lower unit cost than for any other crop except alfalfa. It costs 82 per cent more to produce 100 pounds of digestible feed as barley than as corn, almost 100 per cent more to produce it as oats, and 167 per cent more to produce it as spring wheat or rye. These costs are based on records kept in 1941. Costs are materially higher at the present time for all of these crops but the relative differences would remain practically the same.

These facts as to production and costs were used in planning the cropping systems shown in table 2. In the first column is shown a cropping system with the distribution of acreage between small grain, corn, and hay substantially as it has been in this area during the past 14 years. In proposed plans 1 and 2 the acreage of corn and alfalfa has been increased to secure maximum feed production. By increasing the acreages of corn and alfalfa and decreasing the acreage of oats, an increase of 35,232 pounds of digestible feed is produced from the same land. This is a gain of 22 per cent. Seventy-eight additional hours of labor is required, an increase of 9 per cent. By using eight acres of alfalfa as pasture the increase in labor would be practically eliminated with only a slight decrease in feed production. This reduction in digestible feed is based on the assumption that the digestible nutrients secured from pasture would be only 75 per cent of that from the same acreage harvested as hay. The labor is better distributed through the season under plan 2 so that the largest number of hours required in any one week for all of the crops combined is actually less than would be required at the peak load periods under the present plan. Production costs per 100 pounds of digestible feed are less under plans 1 and 2 than under the present plan and more feed is produced per hour of labor.

These facts suggest the emphasis that should be placed on corn and alfalfa in the 1943 cropping systems in all parts of the state where these crops are well adapted. The elimination of the A.A.A. restrictions on corn production definitely encourages a larger acreage. On rolling or hilly

land the risk of loss by erosion would be serious if as much as 50 per cent of the cropland was planted to corn. However, on most of the good level to gently rolling land in southern and west central Minnesota no serious loss of soil or productivity would result within the next two or three years even if one half of the cropland was in corn, especially if 25 per cent of the remainder is in alfalfa or other legume crops and the crops raised are fed on the farm. If a farmer does not have seedings of alfalfa available for use in 1943 there is little that can be done about it now, except perhaps to hold over some old seedings he was planning to plow up this year, but he can prepare his seedings this year for 1944.

These comparisons between different crops are based on the yields obtained by a group of farmers in southern Minnesota who not only have better than average land but also are above average in their managerial ability. Since most of them practice more or less systematic crop rotations it is less likely that any one crop would have the advantage of being generally grown on the best land than if all farms in the area were included. A similar comparison based on the 20-year-average yields of these same crops on all farms in southern Minnesota as reported by the federal-state crop reporting service gives substantially the same relative rating of these crops as to total digestible feed production, production per hour of labor, and cost per 100 pounds. In fact, the same general relationships hold for all of the commercial corn counties of the state although the advantage of corn decreases somewhat as the northern limit of corn production is approached. The advantage of alfalfa as an economical feed crop is materially greater in the northern counties even beyond the limits of the corn-growing section. An increase in the corn acreage very definitely offers the principal hope of our meeting our 1943 livestock production goals, and an increase in acreage seeded to alfalfa this year will contribute greatly to this end in 1944 and subsequent years.

## Lend-Lease Shipments Of Dairy Products

WILLIAM H. DANKERS

Purchases of dairy products by the Food Distribution Administration (formerly by the Agricultural Marketing Administration), U.S.D.A., were over twice as large in 1942 as in 1941.

Of the products shipped to the United Nations in 1941, on a milk solids basis, evaporated milk made up almost 60 per cent of the total, American cheese 27 per cent, and dried skim milk 13 per cent. In 1942, evaporated milk made up only 21 per cent of the total, American and processed cheese 45 per cent, dried skim milk 30 per cent, and butter 3 per cent. Small quantities of dry whole and condensed milk also were shipped.

During 1942 we shipped 28 per cent of our cheese and 24 per cent of our dried skim milk to the United Nations, 9 per cent of our condensed and evaporated milk, 6 per

Table 2. Comparative Feed Production with Different Cropping Systems

	Cropping System		
	Present	No. 1	No. 2
<b>Acres of crops</b>			
Oats .....	35	10	10
Barley .....	15	15	15
Corn .....	33	50	50
Alfalfa hay .....	17	25	17
Alfalfa pasture .....	.....	.....	8
<b>Total</b> .....	<b>100</b>	<b>100</b>	<b>100</b>
<b>Pounds of T.D.N.</b> .....	<b>169,167</b>	<b>204,399</b>	<b>199,613</b>
<b>Hours of labor</b> .....	<b>891</b>	<b>969</b>	<b>900</b>
<b>T.D.N. per hour labor</b> .....	<b>190</b>	<b>211</b>	<b>222</b>
<b>Cost per 100 lb. T.D.N.</b> .....	<b>\$.87</b>	<b>\$.74</b>	<b>\$.73</b>

Table 1. Purchases of Dairy Products by the F.D.A. under the General Commodities Purchase Program, 1941-42

	1941-1942 Mar. 15, 1941 to Dec. 31, 1942	1941 average monthly purchases	1942 average monthly purchases
	1,000 lbs.	1,000 lbs.	1,000 lbs.
American cheese .....	409,573	17,541	20,245
Canned proc. cheese .....	26,319	105	2,110
Evaporated milk .....	1,874,043	80,417	92,507
Condensed milk .....	7,098	0	592
Dried skim milk:			
Total .....	286,583	4,082	20,651
Roller .....	185,227	2,469	13,461
Spray .....	101,356	1,612	7,170
Dried whole milk .....	8,998	271	535
Butter .....	33,720	16	2,798

cent of our dried whole milk, and 0.8 per cent of our butter. All of the butter was sent to Russia but the major part of the other dairy products was sent to Great Britain. About 3½ per cent of our total milk supply was used in products shipped to the United Nations.

Total purchases of dairy products and average monthly purchases under this program are given in table 1.

The war demand for dairy products has changed from time to time since the program was inaugurated and has affected F.D.A. purchases. Monthly purchases are also influenced by the seasonality in milk production.

Purchases of American cheese were heavy in the early part of 1942, but lighter in the latter part. Indications are for larger cheese purchases again in early 1943.

Purchases of evaporated and condensed milk were heavy in late 1941 and early 1942. The shortage of materials for manufacturing cans, and the handling and shipping of unnecessary bulk, shifted the emphasis to the purchase of dried skim milk and dried whole milk. Powdered milk can be packed into about one fourth the shipping space required for evaporated milk.

Government purchases of butter began in December, 1941, and were small during 1942, because proteins, minerals, and vitamins were needed rather than fat in the countries that were then receiving lend-lease aid. Lower cost fats were also available. Expansion of the lend-lease program to new areas has resulted in an increased demand for butter.

Present indications are that government purchases of cheese, butter, and dried skim milk will be large in 1943. There will also be increased purchases of dried whole milk as manufacturing techniques are developed and keeping qualities are improved.

Production of milk in 1943 may not exceed the production in 1942. The combined demand from lend-lease, military, and civilian consumers will be considerably in excess of a year ago. To assure sufficient supplies for lend-lease and military purposes it will be necessary to curtail civilian consumption considerably below that desired in a period of increased purchasing power. To assure itself of the needed supplies the Food Distribution Administration has issued "set-aside" orders for the three main products. Under these orders, 30 per cent of the butter, 50 per cent of the Cheddar cheese, and 90 per cent of the *spray process* dried milk *must be* offered to the Food Distribution Administration.

## Farm Labor Losses in 1942

GEORGE A. POND

Military service and defense plants have taken a heavy toll of farm workers during the past year. This loss was particularly serious because of the pressure on farmers for increased food production and because of the disturbance of the work program by excessive rainfall. Just how serious this loss has been in Minnesota is indicated by a recent survey of 324 farmers in the southern part of the state. Forty-five per cent of these farmers report losing regular farm workers during 1942. Of those lost, 27 were sons and 193 were hired men. Some lost only one man during the year and others as many as five.

Practically all of the farmers' sons who left during the year entered the armed services. Of the hired men, 40 per cent entered military service and 16 per cent went to defense plants. Of the remaining workers lost, about two thirds went to other farms and one third to other types of employment. These last two groups probably represent a movement of farm labor that is more or less normal and not necessarily associated with the war situation.

Fifty-one per cent of the farmers reporting losses said they were able to replace the men lost, 11 per cent reported partial replacements, and 38 per cent said they had to carry on with what help was left. About one half of the replacements were regular month hands. The others were day laborers, boys, girls, or older men capable of limited service. There was no evidence of any general employment of workers not experienced in agriculture.

Those farmers who were unable to find replacements report that as a result they were short the equivalent of two months of labor per farm. They met this shortage in part by working more hours per day, by eliminating outside or custom work, and by reducing livestock, especially dairy cows. Some left second crops of hay uncut or sold the hay standing. Others either bought laborsaving machinery or hired work done on a custom basis. Many reported that they slighted their work, postponed normal repairs, and eliminated all but the most pressing operations.

The average size of these farms was approximately 250 acres. The average number of workers for the year was 2.2 (work of women and children reduced to a man equivalent basis). Of this, 36 per cent was hired and the rest performed by the farmer and unpaid family workers. For 275 of these 324 farmers, a record of the amount of help used in 1941 and in 1942 is available—28 months in 1941 and 26 months in 1942. There was a reduction of 11 per cent in hired labor and 5.1 in family labor or 7.5 per cent for all labor.

Since these farms were not only above average in size but also were more heavily stocked, the losses were doubtless greater than those on smaller farms where the family furnishes a larger proportion of the labor supply. Even if no further losses occur in 1943 these farmers will be confronted with the task of meeting increased production goals with a reduced labor supply. Only by careful advance planning of the labor program can farmers meet 1943 goals with their present labor force.

# Minnesota Farm Prices For February, 1943

Prepared by H. G. HIRSCH

The index number of Minnesota farm prices for February, 1943, is 163. This index expresses the average of the increases and decreases in farm product prices in February, 1943, over the average of February, 1935-39, weighted according to their relative importance.

**Average Farm Prices Used in Computing the Minnesota Farm Price Index, February, 1943, with Comparisons\***

	Feb. 15, 1943	Jan. 15, 1943	Feb. 15, 1942		Feb. 15, 1943	Jan. 15, 1943	Feb. 15, 1942
Wheat	\$ 1.21	\$ 1.17	\$ 1.04	Hogs	\$14.50	\$14.00	\$11.80
Corn	.79	.76	.65	Cattle	12.30	11.70	9.70
Oats	.51	.48	.46	Calves	13.80	13.50	11.70
Barley	.70	.67	.68	Lambs-Sheep	13.30	12.72	10.17
Rye	.62	.59	.65	Chickens	.19	.19	.14
Flax	2.67	2.51	2.09	Eggs	.32	.34	.25
Potatoes	1.10	.95	.85	Butterfat	.52	.52	.39
Hay	7.10	6.80	5.50	Milk	2.50	2.45	2.10
				Wool†	.39	.39	.37

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

† Not included in the price index number.

The prices of most commodities rose from 2 to 6 per cent over the corresponding January prices. The price of potatoes increased by almost one sixth. Butterfat and wool prices remained unchanged, while the egg price declined slightly.

The Minnesota farm price index is 26 per cent higher than one year ago. The relative price increase of most individual commodities is similar to this average increase. The farm price index of 163.4 is slightly higher than the February, 1919 index. The livestock price index of 181.3 is the highest for any February on record. The livestock product price index of 154.2 is surpassed only by the February, 1919 and 1920 indices. The hog-corn and beef-corn ratios are about the same as in January. However, the egg-grain and the butterfat-farm-grain ratios are narrower because of higher feed prices.

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

	Feb. 15, 1943	Feb. 15, 1942	Feb. 15, 1941	Average Feb. 1935-39
U. S. farm price index	166.0	135.3	96.1	100
Minnesota farm price index	163.4	130.0	94.2	100
Minn. crop price index	136.3	114.2	67.6	100
Minn. livestock price index	181.3	145.7	104.9	100
Minn. livestock product price index	154.2	118.6	93.4	100
U. S. purchasing power of farm products	127.9	114.9	97.5	100
Minn. purchasing power of farm products	125.9	110.4	95.5	100
Minn. farmers' share of consumers' food dollar	60.4†	55.0	44.3	48.0
U. S. hog-corn ratio	16.2	15.2	12.8	13.1
Minnesota hog-corn ratio	18.4	18.2	16.5	15.5
Minnesota beef-corn ratio	15.6	14.9	18.6	12.1
Minnesota egg-grain ratio	18.9	17.2	14.8	14.4
Minnesota butterfat-farm-grain ratio	34.3	28.6	40.7	34.2

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

† For January, 1943.

# Margins, Farm and Retail Prices

The farmers' share of the consumers' food dollar tends to change directly with changes in the general price level. Thus, it was 60.6 cents in the inflationary year 1920, 37.8 cents in the depression year 1932, and 57.1 cents in 1942. Processors' and distributors' margins tend to remain stable; in consequence, the relative fluctuations of retail prices are less pronounced than the changes in farm prices.

The monthly expenditure for beef, pork, dairy and poultry products, potatoes, bread, and flour by a typical workingman's family in Minneapolis averaged \$20.50 in 1935-39. The farmer received \$9.76, or 47.6 per cent, of this outlay. The remaining \$10.74, or 52.4 per cent, went to processors and distributors.

	Retail expenditure			Retail expenditure		
	Farmers' share	Margins	dollars	Farmers' share	Margins	dollars
1935-39	9.76	10.74	20.50			
1940	8.58	11.31	19.89	May	13.72	10.91
1941	10.85	10.85	21.70	June	13.90	10.74
1942	14.13	10.64	24.77	July	14.31	10.69
1941				Aug.	14.75	10.23
Dec.	12.56	10.04	22.60	Sept.	14.49	10.78
1942				Oct.	15.21	10.66
Jan.	12.76	10.65	23.41	Nov.	15.06	11.13
Feb.	12.99	10.64	23.63	Dec.	15.37	10.74
Mar.	13.27	10.44	23.71	1943		
Apr.	13.80	10.04	23.84	Jan.	15.84	10.38

After a decline of consumers' expenditure and farmers' returns in 1940, significant increases occurred during the past two years. In 1941 the monthly retail expenditure averaged 6 per cent higher than in 1935-39; farmers' receipts were 111 per cent and margins were 101 per cent of the base period. In 1942 the monthly retail expenditure averaged 21 per cent higher than in 1935-39. The farmer received \$14.13, or 45 per cent more than in 1935-39, while \$10.64, or 1 per cent less than in the base period, was absorbed by the margin. The January, 1943, retail expenditure amounted to 28 per cent more than in 1935-39, but the farmer received 62 per cent more than in the base period. The margin amounted to only 97 per cent of the base period margin.

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