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FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
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Variations in the Cost of Locker Plants

A. A. Dowell, S. T. Warrington, and L. J. Fenske

A study of the investment in a number of cold storage locker plants in operation in Minnesota indicates that there are variations in different types of plants as well as in plants of the same general type. These variations are due to differences in the investment in land and buildings, size and type of plants, type of construction, and kind and amount of equipment used.

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Three of the plants included in this study are housed in separate buildings and operated as separate or independent enterprises. These plants, which comprise Group I in table 1, are equipped with chill, processing, sharp-freeze, and locker rooms and employ butchers to process the meat. The plants included in Group II differ from those in Group I chiefly in that they are housed in creamery buildings and are operated jointly with the creamery enterprise. The plants in this group are also smaller, as measured by locker capacity, than those in Group I. The five plants included in Group III differ from those in Group II only in that butchers are not employed by the plants. The work of processing is performed by the patrons or by butchers employed by them. The two plants included in Group IV are equipped with locker rooms only, and rely upon a near-by plant to render such services as chilling, cutting, wrapping, sharp-freezing, and delivery of the frozen packages to their locker rooms.

Table 1. **Investment in Cold Storage Locker Plants**

Plant	Locker capacity	Investment per locker* in dollars							
		Land	Building	Insulation	Refrigeration	Lockers	Processing	Office	Total
Group I									
A	800	$1.87	$9.06	$6.18	$5.13	$4.12	$0.34	$0.02	$26.72
B	558	.71	4.75	4.86	4.66	5.16	1.24	.08	21.46
C	519	.13	4.05	4.26	9.63	4.97	1.26	.06	24.36
Group II									
D	475	1.47	5.35	4.69	4.52	5.04	1.54	.13	22.74
E	375	.32	10.84	4.93	5.33	5.00	1.60	.14	28.16
F	365	.78	13.73	5.62	7.87	5.36	2.19	.13	35.68
G	300	.62	6.66	5.25	6.23	4.00	.60	.05	23.41
H	270	.75	7.06	6.23	12.76	4.35	.97	.09	32.21
I	220	.11	5.23	8.52	13.18	4.00	.64	.07	31.75
J	126	.40	8.66	9.92	11.51	4.16	1.08	.12	35.85
Group III									
K	700	.43	7.23	6.72	5.76	5.00	.17	.07	25.38
L	342	.41	2.43	10.04	4.55	5.00	.07	.04	22.59
M	255	.38	4.63	8.20	6.87	4.37	.10	.06	24.61
N	255	.20	3.14	8.17	9.83	4.40	.20	.06	26.00
O	126	.43	7.70	10.55	13.67	5.39	.29	.20	38.23
Group IV									
P	120	.21	3.51	5.20	8.13	4.16	.....	.21	21.42
Q	115	.10	3.40	4.79	6.89	4.70	.....	.....	19.88

*Based upon locker capacity.

The figures on the investment in real estate and equipment were obtained from the plant managers. The actual cost of the land and buildings was used where plants were erected especially for this purpose. In case a separate building was purchased, remodelled, and equipped for the locker plant, the value of the building site was estimated and this was deducted from the total purchase price to obtain separate figures on the investment in the land and building. Plants that were installed in creamery buildings were charged with their proportionate share of the total estimated value of the land and building. This was determined by ascertaining the relationship between the floor space occupied by the locker plant and the entire floor space of the building.

As all plants had been installed and equipped since 1935, it was possible to obtain actual cost figures on insulation, refrigeration, lockers, processing, and office equipment. The figures on the investment per locker are based upon locker-room capacity and upon the assumption that all lockers were installed. Locker capacity refers to the number of lockers that could be installed without adding to the insulated locker-room space. This procedure was followed for three reasons. First, the potential volume of business that the plant can handle depends upon the number of lockers that can be installed in the locker room. Second, the cost of operating the locker room is about the same whether the locker room is full or empty. Third, the size of the chill and sharp-freeze rooms is based upon the size of the locker room, and hence the investment and operating costs of the former depend in part upon the size of the latter.

As shown in table 1, the investment per locker in the separate or independent plants included in Group I varied from $21.46 in plant B to $26.72 in plant A. The relatively high figure in the latter plant was due to a higher investment in building, insulation, and land. On the other hand, the investment in these items was less in plant C than in plant B, but the total investment per locker was greater in plant C than in plant B owing to the high investment in refrigeration.

The capital outlay per locker in Group II varied from $22.74 in plant D to $35.85 in plant J. Thus the smallest plant in this group had the highest investment per locker, while the largest plant had the lowest investment. However, the investment per locker did not vary uniformly with variations in size. For example, the total investment per locker in plant F, which was the third largest in the group, was higher than in any other plant except plant J. The relatively high investment in plant F was due primarily to the high building cost per locker. The investment in refrigeration was also higher in this plant than in plants D, E, or G. In general, however, the investment in insulation and refrigeration decreased with increasing size of plant.

The investment per locker in Group III varied from $22.59 to $38.23. The second largest plant in this group had the lowest investment per locker, while the smallest plant had the highest investment. With the exception of plant K, the investment per locker increased with decreasing size. As in Group II, there was a relatively higher investment per locker in refrigeration in the smaller plants. With the exception of plant L, the same tendency is evident with respect to the investment in insulation. A high investment in the building was responsible for the total investment per locker in plant K, exceeding that in plants L and M. The investment in processing equipment was considerably less in the plants included in Group III than those in Group II.

The capital outlay per locker was much lower in the two small plants included in Group IV than in the smallest plants in Group II and Group III. This was due to the fact that the plants in Group IV were equipped with locker rooms only. They were not equipped with chill, sharp-freeze or processing rooms. This greatly reduced the investment in insulation and refrigeration and also reduced the investment in land and buildings.

From these figures, it appears that the capital outlay per locker in separate or independent plants with from 500 to 800 lockers does not vary greatly from the investment per locker in plants with 300 to 475 lockers that have the same facilities and offer the same services but are housed in creamery buildings and operated jointly with the creamery enterprise. On the other hand, the investment per locker tends to be higher in plants with less than 300 lockers that are housed in creamery buildings and offer the same services. The average investment per locker in plants with locker rooms only was less than the average investment per locker in any of the other groups and much less than in plants of approximately the same locker capacity.

The table indicates that there is considerable variation in the building, insulation, and refrigeration cost per locker. The variation in the capital outlay in buildings was due chiefly to variations in the age and type and hence value of the buildings in which the plants were housed. The variations in insulation cost per locker result to quite an extent from differences in size. The larger the plant, the lower the cost. However, there is some variation between plants of the same general size. This results from differences in the kind and amount of insulation used. The low insulation cost per locker in plants in Group IV, compared with other plants of similar size, is due to the fact that these plants do not have chill or sharp-freeze rooms. Refrigeration costs per locker, although related to the size of plant, vary considerably between plants of similar size. This may result either from the type of refrigeration machinery or the joint use of the ice machine by both the locker plant and the creamery. There was less difference in the investment in lockers than in any of the other important items, and these variations were due to the type of locker used rather than to size of plant. In most of the plants, the investment per locker in land was a minor item. Where the higher land investment is due to a more convenient location, it may result in greater earnings through increased patronage. The investment in processing equipment also varied considerably from plant to plant in groups I and II, where butchers were employed by the plants. These variations were due to the kind and amount of power and hand equipment used. The investment in office equipment was relatively unimportant.

Since the cost of operating the plant depends in part upon the investment in real estate and equipment, it is important that the size and type of plant be in keeping with the patronage that can be reasonably expected and that it be operated as near capacity as possible.

Four Years' Experience In Hybrid Corn

TRUMAN R. NODLAND

Farm records kept by approximately 150 dairy farmers in the southeastern Minnesota Farm Management Service from 1935 to 1938 show that the acreage planted with hybrid corn has been increasing at a rapid rate. In 1935, only 3.4 per cent of these farmers grew hybrid corn exclusively. Another 16.9 per cent planted a part of the acreage of corn for grain with hybrid seed (table 1). By 1938, over 90 per cent of the farmers in this region were growing hybrid corn. The greatest increase in the amount grown occurred in 1938. Farmers who keep records us-

Table 1. Trends in the Use of Hybrid Corn, 1935-1938

Per cent of total acres of corn for grain that is hybrid	Proportion of farms using hybrid corn			
	1935	1936	1937	1938
per cent	per cent	per cent	per cent	per cent
100	3.4	10.1	19.3	62.7
40-99	6.8	8.1	29.2	24.6
1-39	10.1	10.1	17.4	4.2
0	79.7	71.7	34.1	8.5
Total	100.0	100.0	100.0	100.0

ually are above average in aggressiveness and tend to utilize new developments more rapidly than the average farmer. While the shift to hybrid corn by the farmers in this group probably has been more rapid than for farmers generally, it indicates the trend toward hybrid corn.

Although hybrids are a relatively new development, they have already established their superiority in yield and their resistance to disease, wind, and other unfavorable conditions. Data secured from the farm records offer a comparison of the yield of hybrids and of other corn. A summary of the yields obtained is shown in table 2. The average annual differences in yield of hybrid corn over the open-pollinated varieties ranged around 20 per cent.

Table 2. **Comparative Yields of Hybrid and Other Corn, 1935-1938**

Per cent of total acres of corn for grain that is hybrid	Yield per acre							
	1935		1936		1937		1938	
	Hybrid	Other	Hybrid	Other	Hybrid	Other	Hybrid	Other
per cent	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.
100	57.9	.....	37.8	.....	48.3	.....	54.2	.....
40-99	60.9	44.8	40.6	32.3	48.8	38.1	53.1	43.2
1-39	53.3	47.0	37.9	34.1	48.5	41.0	47.4	41.2
0	.....	45.7	.....	33.6	.....	41.2	.....	45.8

Eighteen different varieties of hybrid corn were grown by the farmers in this group in 1938. In many cases, the farmer planted more than one variety. Minhybrid 301 proved to be the most popular, with 55 per cent of the farmers growing hybrid corn having at least a part of their acreage planted to this variety. Some of the other more common varieties used and the per cent of the farmers using them are as follows: Kingscrost, 26 per cent; Jacques, 20 per cent; Minhybrid 403, 15 per cent; and Iowealth, DeKalb, and Pioneer Hi-Bred each about 6 per cent. Three of the four most common varieties were developed in this state.

The use of hybrid corn is apparently here to stay because of the higher yields as compared with the ordinary open-pollinated varieties. In fact, the trend indicates that in a very few years most of the corn grown in southeastern Minnesota will be of hybrid origin. The same will doubtless be true for the Corn Belt as a whole.

What Is a Minnesota "Family"?

LOWRY NELSON

Ordinarily when we use the term "family" we refer to a group of related individuals consisting of father, mother, and one or more children. A moment's thought, however, reminds us that there are many families which consist of other combinations of persons. There are many couples, for example, some of them just beginning married life, and there are elderly people whose children have left home. We are also reminded that there are widows and widowers—with children and without—and a considerable number of single persons maintaining separate households.

The United States Census has defined a family as "a group of persons, related either by blood or by marriage or adoption, who live together as one household, usually sharing the same table. Single persons living alone are counted as families, however, as are a few small groups of unrelated persons sharing the same living accommodations as 'partners'."[1]

In 1930 there were 606,496 families in Minnesota. Of this number 307,734 or 50.7 per cent were urban; 189,115 or 31.2 per cent were rural-farm; the remainder, 109,647 or 18.1 per cent, were rural non-farm (living mainly in villages of less than 2,500 population).

In the matter of size, these families show wide variation. The rural families are larger than the urban or rural non-farm. A smaller percentage of the farm families is composed of one, two, three, or four persons when compared with the urban or non-farm, and correspondingly larger percentages in the five-person households or larger. The median size of urban family is 3.32; of rural-farm 4.16, and of rural non-farm, 3.14. It might be a surprise to some people to learn that the median size of family is greater in urban than in the rural non-farm or village group. The explanation lies in the fact, well known to students of population, that the village is a favorite dwelling place for elderly people, and has rather appropriately been called a "home for the aged." The percentage of one-person households in the rural non-farm group is more than double that of the farm, (12.4% non-farm, 6.1% farm, 6.9% urban) and almost double that of the city. The number of two-person households is likewise relatively greater in the village than either the farm or city groups, although the difference between the village and city is not great (urban, 24.5%; farm, 14.5%; non-farm, 24.9%). Undoubtedly, a larger proportion of the village two-person families are elderly retired couples than is true of the city, where there are no doubt more young couples without children.

The conclusion is supported by the fact that more than one home in six of the rural non-farm families contain no "gainful workers." One may infer, therefore, that these "families" are predominantly retired or disabled individuals or couples. On the other hand, less than 2 per cent of the rural households are without any person gainfully employed. The percentage for the city is 6.8.

Variation in the composition of the rural family in Minnesota is further shown by the analysis of some data secured in a survey of 1,588 open-country families in St. Louis County in 1936. It was found that only 60.5 per cent of these families were "normal" in that they contained husband, wife, and children. About 10 per cent were husband-wife families, while another 10 per cent were "broken," consisting of either a father and children or mother and children. Nearly 12 per cent were single-person "families."

Appreciation of this wide diversity in the composition of families is important to extension workers, social workers, and others who are attempting to administer programs which are intended to be helpful to families. Obviously, a program suitable to one type of family would not be helpful to another type without intelligent adaptation.

[1] Fifteenth Census, 1930, Population, Vol. VI, pp. 5, 6.

Minnesota Farm Prices for February 1939

Prepared by W. C. WAITE and W. B. GARVER

The index number of Minnesota farm prices for the month of February 1939 was 70. When the average of farm prices of the three Februarys 1924, 1925, and 1926 is represented by 100, the indexes for February of each year from 1924 to date are as follows:

1924— 88	1928—101	1932— 46	1936— 87
1925—100	1929—106	1933— 36	1937—101
1926—115	1930—102	1934— 54	1938— 77*
1927—113	1931— 69	1935— 86	1939— 70*

* Preliminary

The price index of 70 for last month is the net result of increases and decreases in the prices of farm products in February 1939 over the average of February 1924, 1925, and 1926 weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, February 15, 1939, with Comparisons*

	Feb. 15, 1939	Jan. 15, 1939	Feb. 15, 1938		Feb. 15, 1939	Jan. 15, 1939	Feb. 15, 1938
Wheat	$0.59	$0.60	$0.96	Cattle	$6.80	$6.50	$5.70
Corn	.35	.37	.43	Calves	8.90	8.10	8.40
Oats	.21	.22	.24	Lambs-sheep	7.36	7.36	6.66
Barley	.35	.36	.57	Chickens	.11	.11	.14
Rye	.32	.33	.61	Eggs	.13	.14	.13
Flax	1.65	1.73	1.93	Butterfat	.27	.27	.33
Potatoes	.50	.50	.41	Hay	4.60	4.80	6.18
Hogs	7.30	6.90	7.60	Milk	1.45	1.50	1.80

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

Declines occurred in all the grain crops from January to February. These declines all ran counter to the normal seasonal direction. By "the normal seasonal direction" it is meant that if there were no upward or downward trend in grain prices they would rise from January to February by an amount approximating the cost of storage and holding. Many of the grain prices are down in the range of the low prices experienced during 1932 and 1933. The principal livestock prices showed in general the usual seasonal rise from January to February, with calves rising slightly more than seasonally. Butterfat remained at 27 cents as against the usual seasonal decline of one cent.

Indexes and Ratios of Minnesota Agriculture*

	Feb. 1939	Jan. 1939	Feb. 1938	Average Feb. 1924-26
U. S. farm price index	64.8	66.2	68.3	100
Minnesota farm price index	69.7	68.5	76.6	100
U. S. purchasing power of farm products	84.3	83.3	84.5	100
Minnesota purchasing power of farm products	90.7	86.2	94.8	100
Minnesota farmer's share of consumer's food dollar	.....	.....	46.2	53.2
U. S. hog-corn ratio	16.4	15.4	15.0	11.4
Minnesota hog-corn ratio	20.9	18.6	17.7	13.7
Minnesota egg-grain ratio	17.4	17.9	12.3	18.3
Minnesota butterfat-farm-grain ratio	40.5	38.8	38.2	36.4

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

November Hog Prices Relative to March Prices

The seasonal movement of hog prices tends to differ between years depending upon whether hog production is increasing or decreasing. When hog production is increasing, the decline from March, the usual month of the spring peak, to November tends to be larger than in the years when hog production is decreasing. The table below shows the average Minnesota farm prices for March and November in years of differing production trend.

Average Minnesota Farm Prices (1910 to 1938)

Hog production	March	November
15 years of decreasing production	$8.96	$8.34
13 years of increasing production	9.01	7.86

The average decline has been nearly twice as great in the years of increasing hog production.

In terms of deflated prices, we also tend to get an indication of the late fall price relative to the spring price from the movement of prices between March and April. The table below is in terms of deflated prices, that is actual hog prices divided by the index of farm prices. This division tends to remove the influence of general changes in prices from the comparison, and leaves only movements resulting from changes in the hog situation itself.

Comparison of Hog Prices

	Years November above March prices	Years November below March prices
Years April above March prices	6	1
Years April below March prices	6	16

In the seven years in which deflated April prices have been above March prices, November prices have also exceeded March prices in six of them. In the 22 years in which deflated April prices have been below March prices, the November price has been above in 6 years but below in 16 years.

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