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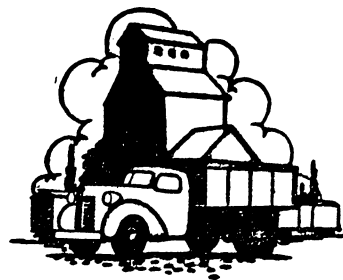
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MINNESOTA farm business NOTES



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Larger Poultry Flocks Are More Profitable

S. A. Engene and T. R. Nodland

Do owners of moderately large poultry flocks have a profit advantage over owners of small flocks? Can owners of larger flocks operate at a profit? This article provides some facts to help answer these and related questions.

Farm Flocks Grow Larger

Traditionally, most eggs produced in Minnesota came from small flocks kept as one of several farm enterprises. In the early years of the Southeast Minnesota Farm Management Service, which started in 1928, most cooperators kept a laying flock. The average size flock was less than 200 hens; a flock of 500 was considered quite large.

A large proportion of Minnesota eggs still comes from farm flocks rather than specialized poultry farms. However, these flocks are now considerably larger.

Among cooperators of Southeastern, Southwestern, and West Central Minnesota Farm Management Services who kept records during the 3 years of 1959-1961, the average size flock was 494 hens. Approximately 60 percent kept

less than 400 hens; only 15 percent had more than 800 hens. The largest flock was about 3,100 hens.

A smaller proportion of farmers keep laying hens than was true a few years ago. Only 96 of the 325 farmers who provided these 1959-1961 records had a laying flock. For the state as a whole, one half of the farmers kept a laying flock, according to the 1959 Census of Agriculture.

Poultry Returns Declined

Declining returns from poultry has been the biggest factor causing farmers to drop poultry. Records of the Southeastern Minnesota Farm Management Service (the oldest set of continuous records in the state) show that from 1928 to 1945, farm flocks returned \$180 for each \$100 of feed used. After paying feed cost the farmer was left \$80 for shelter, equipment, veterinary service, and other outlays and as return for his labor.

Since 1945 the return for \$100 feed has been about \$140. This now leaves only \$40 to pay for nonfeed costs. Because other livestock classes did not show the same decline in margins, many farmers sold their flocks.

Profit from Poultry

Table 1 provides some information on whether laying flocks can provide a profit under this situation. The 96 farm records mentioned were divided into five groups, according to flock size.

Men with larger flocks obtained higher production rates. The group with 800 or more hens averaged 40 eggs more per hen than did the group with less than 200 hens. With eggs at 28 cents per dozen, this gives an extra income of 93 cents per hen.

More feed is needed for this higher production. Feeding experiments show that about 2 pounds of feed are needed for each extra dozen eggs; 7 pounds of feed per hen are required for the extra production of the larger flocks. This compares closely with actual differences in feed consumption by these flocks.

At 3 cents per pound of feed, the extra cost for feed would be about 21 cents per hen. This is only one-quarter of the extra value of the eggs.

Another factor contributed to the higher rate of lay in large flocks. This was the practice of using mostly pullets—94 percent of the layers were pullets. In small flocks, less than two-thirds of the layers were pullets.

This difference in proportion of pullets also may have greatly accounted for the difference in death loss.

In the four smallest groups, value of cull hens sold or used in the house was less than the cost of pullets, mostly small chicks (see table 2). In the largest flocks, value of culls more than covered the cost of chicks. This difference in net value of birds produced is equivalent to a dozen eggs.

The average price received for eggs increased with flock size. A difference of 3 cents per dozen existed between the largest and smallest flocks. With 218 eggs (18 dozen) per hen, this is a difference of 54 cents.

Table 1. Production, price received for eggs, and feed consumed, by size of flock, 1959-1961

Item	Average number of hens per flock				
	Below 200	200 to 399	400 to 599	600 to 799	800 and above
Number of flocks	19	38	17	9	13
Average number of hens	158	290	482	733	1,431
Eggs per hen	189	206	228	217	229
Price per dozen eggs (cents)	26.8	27.2	28.1	29.1	29.7
Pounds feed consumed per hen:					
Grain	85	78	70	84	88
Commercial feeds	36	42	50	45	42
Total	121	120	120	129	130
Percent death loss of hens	10	8	8	8	5
Percent pullets in flock	63	75	79	89	94

Table 2. Costs and returns from poultry, 1959-1961

Item	Average number of hens per flock				
	Below 200	200 to 399	400 to 499	500 to 799	800 and above
Value of eggs	\$4.17	\$4.63	\$5.18	\$5.27	\$5.67
Value of birds	— .20	— .29	— .22	— .25	.04
Total value produced per hen	3.97	4.34	4.96	5.02	5.71
Feed cost per hen	3.33	3.44	3.58	3.61	3.67
Return above feed cost per hen	.64	.90	1.38	1.41	2.04
Return for \$100 feed consumed	120	126	136	139	156

The principal reason for the difference in egg price was the opportunity for larger flock owners to sell eggs to local hatcheries. A few of these men also had other special outlets. Farmers with larger flocks can afford to spend more time looking for better markets. And they are probably better able to guarantee a large quantity of eggs of uniform quality.

The companion article in this issue outlines possibilities for obtaining higher prices when selling a large volume of eggs of uniform quality. A farmer can do this if he has a large flock. Or several farmers with flocks of moderate size can agree to uniformly feed and manage their flocks and sell as a group. But each farmer must adhere to the specified management methods and take needed steps to preserve egg quality.

Feeding efficiency was equal on flocks of all sizes. Differences in feed consumption were about equal to requirements for differences in rate of lay.

With a higher rate of lay and higher prices, the farmers with larger flocks obtained a higher return above feed cost per hen and a higher return per \$100 feed than did farmers with small flocks.

The return above feed cost for flocks with less than 200 hens was only 64 cents per hen. Costs other than feed and quantity of labor used are not available from these records. But records from other studies show that poul-

trymen spend about 2 hours per hen per year on flocks of about 200. This gives a return of 32 cents per hour of labor with nothing for other costs. Or if all costs are paid, little or nothing is left to pay for labor. Few people love poultry well enough to keep them under these circumstances. More of these small flocks will probably disappear in the future.

How about returns for flocks with 800 or more hens? Here return above feed cost was \$2.04 per hen. Based on estimates from a detailed study of farm costs in 1951-1953, costs other than labor and feed are now probably near \$1.00 per hen. This leaves another dollar as return to labor. If these farmers can hold their labor requirement to 1 hour per hen, the return per hour is about \$1.00. An hour a hen per year for a flock of 1,400 hens is equal to 4 hours per day throughout the year for feeding, management, handling of eggs, and marketing.

Farmers with these large flocks may possibly find it is profitable to continue. And they might increase their profits further by adding more hens.

Large flocks represent a rather large investment and a large annual operating cost. The 13 farmers with the largest flocks (averaging 1,431 hens each) annually used feed worth \$5,500. This is enough feed to produce 200 hogs for market.

These figures are the average of a group of farmers. Some individuals within the group received a smaller return than we showed. The more efficient received more. Although these data are not conclusive, they suggest that a farmer with 500 hens or less must hold his efficiency at a high level or operate under unusual circumstances.

It may possibly be profitable to keep a laying flock of 1,000 to 2,000 hens. This is especially true for the superior poultryman.

These data do not clearly indicate possibilities with very large flocks, but it seems probable that some of those flocks are profitable.

Minnesota Producers Can Receive Higher Egg Prices

W. K. Ullman

Quality Eggs—Higher Price

Some egg buyers now offer up to 2 cents premium per dozen for volume production of quality eggs. This was revealed in a recent Minnesota study.

One buyer's premium begins with 1 cent for volumes between 10 and 20 cases (30 dozen) per week. An additional cent is paid on all volume over 20 cases per week. Another buyer pays a premium of 1 cent for volume of 15 to 25 cases per week. He adds one-half cent for volume between 25 and 35 cases per week, with an additional one-half cent for all volume over 35 cases.

These buyers emphasized that they give volume premiums only to producers of quality eggs. They added volume premiums because of savings in farm pickups and in-plant handling costs. One buyer listed separately the following costs which are reduced by purchasing eggs in volume from producers:

1. A check costs 38 cents to write.

When eggs are received in single case lots (30 dozen), administrative cost to the buyer in paper work and preparation of a vouchered check is 38 cents. This is 1.3 cents per dozen. With 10 cases cost per dozen is one-tenth as much or .13 of a cent per dozen. This represents a saving of over 1 cent per dozen for the larger volume purchase.

Sixty percent of Minnesota producers have flocks of 400 birds or less. Assuming 60 percent production and delivery twice weekly, this provides approximately 70 dozen (slightly over two cases) for each delivery. If payment is made after each delivery, administrative cost of making payment ranges from 1.3 cents per dozen for single case lots to 0.4 of a cent per dozen for three case lots.

2. Each lot of eggs requires a slowing down at the grading point.

Modern egg grading is automated. Before a new egg lot is started through the grader, grading of the previous lot

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must be completed and grades recorded. This represents a greater in-plant time loss per dozen when small lots predominate.

3. Group scanning of high quality eggs reduces in-plant labor costs.

When high quality eggs are consistently received, the egg receiver can safely use the group scanning (flash candling) method. Low quality eggs must be hand candled at a higher labor cost per dozen.

A U.S. Department of Agriculture cost study revealed that hand candling and manual packaging of eggs, sized separately, cost 59 cents per case. Group scanning, electronic bloodspot detection, and in-line automatic sizing and packaging cost 48 cents per case—an 11 cent per case saving.

4. Study of one buyer's egg route showed that from the time the trucker turned in at the farm gate until he left averaged 20 minutes plus time spent in actual loading. So time per case is higher on the farm with small volume.

The trucker is the contact or public relations link between the egg producer and the buyer. He must often appraise the producer's problems and make recommendations when quality problems develop. This service requires essentially the same time regardless of flock size.

Assuming that truckers work a normal 8 hour day, this service alone limits the number of pickups possible per day. Since loading, unloading, and travel between farms require time, the realized farm stops also depend on concentration of egg producers, weather, and road conditions. One buyer stated that farm stops on his routes varied between 8 and 20 per day while daily loads varied between 185 and 225 cases.

The daily cost of operating the route truck and the route man's wage must be assessed against cases of eggs delivered to the plant. Because different routes have different concentrations of producers and egg volume varies among farms, cost of assembling eggs varies on a per dozen basis.

A recent USDA study showed that the average assembling cost per case in Western States, where large flocks predominate, was 9.7 cents. Average cost in the North Central States was 31 cents. This cost difference represents over two-thirds of a cent per dozen. When applied to egg shipments of semi-trailer sizes, this would pay one-third of the trucking cost of Minnesota eggs to New York city.

These buyers expect their volume premium program to grow. Returns to the producer are in line with this higher quality standard demanded and savings in procurement costs are passed on to the producer.

What Volume Premiums Mean

On the basis of current volume premiums paid for quality eggs, a minimum weekly sale of 15 cases yields a volume premium of \$4.50 or more. This amounts to \$234 or more annually.

If a farmer's sales exceed 35 cases per week, he receives the full 2 cents premium on his entire output. This weekly premium returns \$21 or more. Over a year this weekly premium yields at least \$1,094 added egg income.

Of course a producer's volume varies throughout the year. Premiums are computed weekly. As a producer qualifies for a higher premium he is paid on that basis. These premiums are also paid on all output above these minimums.

In order to produce sufficient eggs to qualify for the minimum volume premium of 1 cent per dozen based on 15 cases per week, it is necessary to house a flock ranging between 1,300 and 1,400 birds. This allows for a normal production range averaging between 60 and 65 percent with a reasonable annual death loss. Good producers may do better. Producers striving for the maximum volume premium of 2 cents per dozen must consider a flock of 3,500 birds or more.

Factors That Affect Demand

About 70 percent of Minnesota's eggs must be consumed outside the state. Areas not producing enough eggs throughout the year look to the Midwest for supply. These egg-shortage centers are currently east and south of Minnesota.

It currently costs 3 cents per dozen and requires 72 hours for over-the-road trucks to reach Minnesota's most distant markets—1,500 miles. So eggs must be purchased from Minnesota farmers at approximately 3 cents below equal quality eggs produced in the New York marketing area, or they cannot compete in these shortage centers.

Consumers demand high egg quality and uniform yolk color. Uniform yolk color can only be obtained by feeding a uniform ration to confined birds. High egg quality must be maintained until eggs reach the final consumer. This can

be 2 weeks or more for some of Minnesota's table eggs.

Quality Buyers Influence the Market

Local eastern egg producers have a short marketing channel. They frequently market eggs direct to consumers, small retailers, and institutional buyers. This makes it difficult for large eastern food-retail buyers to secure a stable supply of quality eggs in eastern shortage areas. These large retailers purchase eggs in wholesale quantities. Quality of wholesale eggs available varies seasonally and between different wholesalers. So they chose to establish their own buying stations to insure a stable supply of uniform high quality eggs.

Many of these buyers recently established procurement stations in Minnesota. Midwest eggs produced under confinement with proper handling and cooling on the farm can be cartoned in the Midwest. These eggs receive equal consumer acceptance in eastern stores under their own brand label.

These supervised or coordinated production-marketing programs represent more than just open market specification buying and mere financing by hatcheries and feed companies. Higher than local market prices are paid when certain production practices are followed. Such practices insure that mid-west eggs will be more acceptable to eastern consumers when they are used 10 days to 2 weeks later.

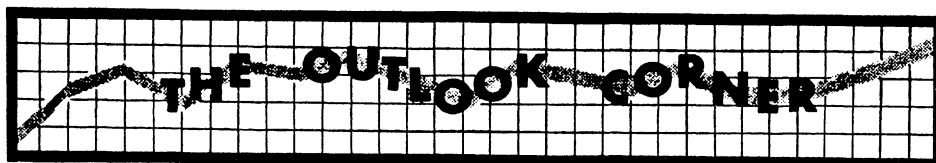
This direct buying trend in the Midwest production areas is being accelerated by rapid growth of large supermarkets. Estimates are that 70 percent of the nation's food business is handled by supermarkets. With direct buyers for these concerns established in Minnesota, a large potential egg market is open to producers who can competitively produce this "quality egg."

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Trends In Minnesota Egg Production

W. H. Dankers and S. A. Engene

Minnesota now produces a smaller proportion of total eggs in the United States than it did before. Back in 1925-1929 Minnesota produced 3.7 percent of U. S. eggs (see table 1). By 1955 Minnesota produced 7.2 percent of the total.

Minnesota slipped back considerably during the last 6 years. Now we produce only 5.6 percent of the total egg supply.

U.S. egg production increased rapidly during the 1940's. It continued to climb, but at a slower rate than in Minnesota, until 1956. Since then production has been at an almost constant rate, except for the unnecessary large volume in 1959.

Minnesota farmers began to increase their egg production in the 1930's. They also rapidly stepped up production during and following the war until reaching the peak in 1955. Since then production fell steadily and rapidly—almost one-quarter from 1955 to 1961.

Early indications are that the decline in Minnesota egg production compared with the nation will continue into 1963. The hatch of egg-type chicks in the United States for the first 7 months of 1962 was about 7 percent below last year. In Minnesota the hatch for these same 7 months was down more than 14 percent—twice as much as for the entire nation.

This drop in egg production in Minnesota is not due to lower production per hen. In each of the past 10 years, production was about 10 eggs more per hen in Minnesota than in the United States. Previously, Minnesota farmers increased the rate of lay from 10 eggs less than the U. S. average in 1925-1929 to 10 eggs more than the average 30 years later.

One factor that may account for part of the decrease in total egg production is the decline in egg prices (see table 2). The average price received by U. S. producers fell from 42.6 cents per dozen in 1945-1949 to 35.3 cents in 1961. In Minnesota the price dropped from 37.3 to 27.2 in the same period. So in 1945-1949 Minnesota producers received 5.3 cents per dozen less than the average price in the nation. In 1961 the disad-

vantage for Minnesota producers was 8.1 cents per dozen.

Another article in this issue shows that net returns in egg production fell with declining price. An added market price disadvantage of about 3 cents per dozen will reduce the net returns seriously.

The decrease in Minnesota egg production resulted from owners of small flocks dropping out of production (see table 3). The number of flocks of less than 400 hens dropped by more than half from 1930 to 1959; this drop continued since that last Census count.

During the time that many producers with small flocks were dropping out, some egg producers increased the size of their flock. Some larger flocks also were added. Apparently net returns are still adequate to maintain production in these large flocks.

Will Minnesota continue to fall in the importance in egg production? It probably will unless producers develop a reputation for high quality eggs and find markets and market facilities giving them higher prices. Nationwide effort should also be made to reduce marketing costs because they increased sharply during the last decade.

More than half of the eggs in the state still are produced in flocks of less than 400 hens. Net returns are narrow for these flocks and we can expect to see many drop out of production. An

Table 1. Eggs produced in the United States and Minnesota

Year	U.S. production	Minnesota production	
		Number	Percent of United States
billion eggs			
1925-1929	37.4	1.4	3.7
1935-1939	36.4	1.6	4.4
1945-1949	55.7	3.8	6.8
1950-1954	58.4	3.9	6.7
1955	59.5	4.3	7.2
1956	61.1	4.2	6.8
1957	61.0	4.0	6.6
1958	61.6	3.9	6.3
1959	63.3	3.8	6.0
1960	61.4	3.6	5.8
1961	61.3	3.5	5.6

Table 2. Prices received for eggs by producers, United States and Minnesota

Years	United States	Minnesota	Difference
cents per dozen			
1945-1949	42.6	37.3	5.3
1950-1954	42.0	36.6	5.4
1955-1959	36.6	29.1	7.5
1960	35.4	27.8	7.6
1961	35.3	27.2	8.1

Table 3. Number of poultry flocks by size of flock, Minnesota

Size of flock	1930	1954	1959
Under 400	166,004	92,656	70,162
400-799	1,366	16,166	12,726
800-1,599	87	2,008	2,462
1,600-3,199	18	197	509
3,200 and over	None	71	208

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