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F. E. Mussehl

H. C. Filley

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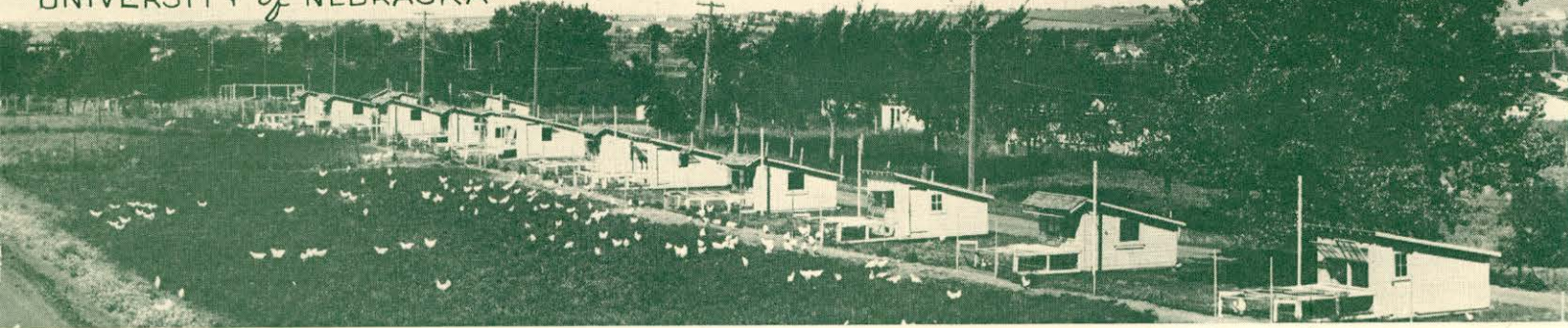


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COLLEGE OF AGRICULTURE
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Our Egg Marketing Job

F. E. Mussehl and H. C. Filley

THE GENERAL PICTURE

Eggs are one of the products which Nebraska farm families exchange for the necessities and comforts of life. Although values are measured in dollars and cents, the interest of the producers centers in the amount of useful goods and services that the eggs will buy rather than in the price per dozen or per case. Farmers are interested in a fair exchange value because they wish better homes, better schools, better churches, and better communities in general. In the typical Nebraska community, not only farmers but physicians, merchants, mechanics and school teachers are dependent for their income, either directly or indirectly, on the purchasing power of farm products. They should be interested, therefore, in efficient egg marketing.

About 60 per cent of all the eggs laid in Nebraska must be shipped to distant markets. Because the neighboring states of South Dakota, Iowa, Missouri and Kansas produce a surplus of eggs, our eggs must be sent to New York, Boston, Detroit, Philadelphia, Washington, Miami, and other eastern cities. In these markets they compete with eggs from other producing areas. Because consumers buy eggs on a quality basis, our marketing program must be directed to the production and sale of quality eggs.

In transferring eggs from Nebraska farms to the consumers in distant cities, eight distinct services must be rendered either by the producer himself, or by some agency that he may develop or employ.

These services are as follows: 1. Assembling, 2. Grading in accordance with recognized standards, 3. Packaging, which sometimes includes processing, 4. Storing of the surplus for use during periods of deficient production, 5. Transporting, 6. Financing, 7. Risk assumption, 8. Selling—wholesale and retail.

ASSEMBLING

Eggs are produced on about 108,000 farms in Nebraska, and about 90 per cent of the farms have a marketable surplus during at least a few months of the year. Some of the farms are ten or more miles from an egg buyer or a shipping point.

In order to be shipped even a short distance by train or truck, eggs must be packed in a case to assure safe handling. The ordinary egg case holds 30 dozen eggs. The most economical method of shipping eggs long distances is in a refrigerator car holding approximately 500 cases. Someone naturally must assemble the eggs into case lots and carload lots in order that they can be shipped to eastern consumers at the lowest possible cost.

Nearly every grocery store in a country town buys eggs. Many village and small town merchants ordinarily pay for the eggs "in trade." This method of payment is usually acceptable to the person who sells only a few dozen eggs at a time. In many towns there are specialized produce buyers who pay cash for eggs.

The labor of assembling eggs from large flocks is less, relatively, than for small flocks. A well-managed flock of 400 or 500 hens will produce approximately a half case of eggs a day during the major part of the year. Two cases of eggs are a sufficiently large unit for delivery to an assembly point where refrigeration and grading facilities are available. The producer, who has only a few surplus eggs to market, is less disturbed by low prices due to poor quality, than is the large producer. The cost of a trip to market with a few dozen eggs may be greater than the depreciation which results from holding them too long without refrigeration.

GRADING

The consumer ordinarily buys eggs on the basis of grade and the price she pays at any particular place and time is determined in part by the grade of the product. Discriminating buyers purchase a quality product at a quality price. Eggs of poorer quality are sold to buyers who are not in a position to pay the higher price for which the best eggs sell.

Numerous standards for grading eggs have been devised. The one most commonly used was worked out by the Bureau of Agricultural Economics of the United States Department of Agriculture. The factors which are important in determining egg values are as follows:

1. Exterior qualities: (a) Size; (b) Shell cleanliness; (c) Shell soundness; (d) Uniformity of color; (e) Uniformity of shape.

2. Interior qualities: (a) Fullness, as determined by the size of the air cell; (b) Condition of the yolk, including color and visibility; (c) Firmness of the albumen.

Although eggs are not sold by the pound, the size factor is important. A dozen large eggs contain more food value than a dozen small eggs. Eggs which average 24 ounces to the dozen are taken as the ideal size because cases and equipment are adapted to handle them best. Larger eggs require larger crates and special equipment.

Eggs uniform in size and shape have a greater appeal to the consumer than eggs which are not uniform. A small egg looks smaller when placed beside large eggs than when placed alongside eggs of approximately the same size and shape.

Cleanliness of the shell is important. Clean eggs appeal to the eye and to our ideas of sanitation. Because dirty eggs and washed eggs cannot be stored satisfactorily, clean eggs are particularly desired during the storage season. Clean eggs will usually bring from five to eight cents per dozen more in the New York City market than eggs of equal quality otherwise, but with stained and dirty shells.

Eggs with cracked shells not only spoil quickly, but often break and stain other eggs. This lowers the grade of the entire package.

Eggs of a uniform color make an appeal to the eye. The popularity of white eggs on any market is due in part to the first impression made by a case of carefully graded white eggs. It is possible to secure uniformity of color with brown eggs, but unfortunately only with considerable grading effort because brown eggs are produced in many different tints and shades.

The interior quality factors are harder to determine than the exterior factors, but they are equally important in grading. The color and condition of the yolk, the firmness of the albumen, and the size of the air cell are the important re-

flectors of interior quality. Many city consumers prefer eggs with light colored yolks as a result of their using eggs of high quality which had light colored yolks. Yolk color is influenced by the xanthophyll and carotene content of the ration.

The quality of both yolk and albumen are affected very materially by temperature. Eggs contain not only the proteins, fats, vitamins, and minerals, which make them a valuable food, but some interesting substances known as enzymes. These enzymes are most active at near body temperatures, and that is why even infertile eggs, which are put in an incubator for three or four days become watery and less attractive. Because of the activity of these enzymes, eggs should be stored in a cool place from the time they are taken from the nest until they are used for food. They keep best in a refrigerator where the temperature is close to the freezing point, but may be kept for a few days on the farm in a cool cellar or cave.

Another cause of interior quality deterioration is the development of the embryo in fertile eggs. The embryo will start development at temperatures of about 75 degrees Fahrenheit. Eggs which are held for three days in a room at an average temperature of 90 degrees will undergo development to such an extent that blood will be evident in the embryo, and the egg is unfit for food. This is the justification for the infertile egg production campaigns which have been promoted consistently for the past 20 years. The production of infertile eggs does not solve all marketing problems, but it does aid in reducing losses.

Even with excellent management, there are always some eggs that are small, or dirty, or cracked, or thin shelled, and must be placed in one of the lower grades even though the contents of the shell is in excellent condition. Some of these eggs can be used in the home, and others can be sold locally.

The Federal Food Distribution Administration has proposed the following description for U. S. Grade A eggs:

U. S. Grade A

Minimum requirements:

Shell. Clean; sound; normal.

Air-cell. Two-eighths inch in depth, regular.

Yolk. Fairly well centered; outline may be moderately defined; may be slightly mobile; free from visible germ development and practically free from other defects and blemishes.

White. Firm, clear.

These standards can easily be attained for 80 per cent of the production of any well-cared-for flock.

PACKAGING

The common egg case holding 30 dozen eggs is a relatively economical and satisfactory package. A

better package could be made, but it would be more expensive. Most egg cases are made of cottonwood. The ends, centers, tops, bottoms, and sides are made into bundles at the factory and assembled at the plant where the eggs are graded and packed for shipment. Cases are usually returned to the shipper when the distance to the terminal market is short, but those shipped from the Midwest to the eastern markets are not returned as the cost of the return shipment is greater than the value of the case. The cost of the case with its complement of flats and fillers is a part of the cost of marketing most Nebraska eggs. Some very satisfactory paper egg cases are also being manufactured at the present time.

Honeycomb fillers, each holding 36 eggs are standard equipment. These are made in several weights. The railroads require fillers weighing at least three and one-half pounds per set of ten. White fillers cost slightly more than brown fillers, but are preferred for packing high quality white eggs.

The strawboard flat, which was formerly used almost exclusively, has been replaced to a considerable extent by a patented flat known as the Mapes flat. In these flats, the eggs are supported by a cushion cup, which decreases the danger of breakage. Eggs should be placed in the fillers with the small end down. This gives the greatest protection at the weakest point of the shell, improves the appearance of the eggs in the case, and has the added advantage of placing the egg in a position so that the air cell is at the upper end.

A development in egg packing, which has taken place in relatively recent years is "oil processing." The eggs are processed by being dipped in paraffin oil or some other neutral oil. The oil reduces evaporation from the egg, and aids in preventing the entrance of bacteria or mold producing organisms. The dipping is done by machines at a cost of from one to one and one-half cents per dozen.

STORING EGGS

Eggs are a seasonal crop with the peak of production in the United States occurring during March, April, May, and June. The months of low production are September, October, November, and December. By storing eggs during the months of abundant production, supplies are available during the months of low production. Equalizing the supply of eggs aids in equalizing the price. The purchase of eggs for storage increases the price paid the producer during the months when production is largest and decreases the price which the consumer must pay during the season when production is light.

In some years, the storage of eggs is very profitable, but in other years the stored eggs are sold at a loss. During the months when the eggs are

placed in storage, no one knows how strong the demand for eggs will be during the autumn, or the volume of eggs that will be produced during these months. Production during the late fall and early winter is dependent to some extent upon the weather. Ordinarily about 10 or 11 per cent of our total egg production is held in storage for one month or longer.

Cold storage warehouses are usually kept cool by mechanical refrigeration. Temperatures of from 29 degrees to 32 degrees Fahrenheit are maintained for shell eggs. A relative humidity of 85 per cent is considered desirable. The activity of enzymes is practically stopped at 32 degrees Fahrenheit.

Only clean, fresh eggs of high quality packed in clean flats and fillers should be stored. The quality of an egg is never improved during storage, but the quality of poor eggs may deteriorate noticeably. Washed eggs cannot be stored satisfactorily.

The cost of storage varies according to the number of cases stored under one ownership, and according to the length of time that the eggs are left in storage. A typical storage tariff is as follows:

Less than 50 cases, first month.....	18c per case
Each month or part after first month	9c per case
Lots of 200 cases or more, first month	14c per case
Each month or part after first month.....	7c per-case

In general, storage costs are somewhat lower in the Midwest where most of the surplus eggs are produced, than in the larger markets where wage rates and real estate values are higher.

TRANSPORTATION

The sections of the country which are definitely deficit with respect to egg production include the North Atlantic states, and some of the southern states. About 20 per cent of the population of the United States live in cities of 100,000 or over in an area which has Boston, Buffalo, Pittsburgh, and Washington at the four corners. The farmers in this area produce relatively little grain. A large part of the grain fed to poultry and dairy cows in this region is shipped in from other areas. The cost of shipping a car load of eggs from Omaha to New York City is materially less than the cost of shipping for that distance the grain fed the hens producing the eggs.

The freight rate on eggs in carload lots from Lincoln, Nebraska, to New York City is \$1.23½ per hundred, or a little less than three cents per dozen. Less than carload lots takes a slightly higher rate.

Eggs are sometimes shipped from Nebraska to eastern markets by express despite the fact that the rate is materially higher than the freight rate. The present express rate from Lincoln to New York City is \$4.20 per hundred, which makes the

case rate about \$2.35, or about 8 cents per dozen, not including the case. Express shipments are not justifiable, unless an increase in price of at least 10 cents per dozen can be secured. Motor trucks are sometimes used for short hauls, but are not so well adapted to long hauls as refrigerator cars.

FINANCING

Under normal conditions, about 12,000,000 cases of eggs are in storage on the first of August. At the conservative valuation of \$10.00 per case, the owners have \$120,000,000 invested in these eggs. Even in the ordinary movement of eggs to market, someone must furnish the capital essential to ownership from the time the eggs leave the producer until they reach the ultimate consumer.

Warehouse receipts for eggs held in cold storage warehouses are accepted by banks as collateral. The maximum amount that a bank will loan is ordinarily about three-fourths of the value of the eggs stored. Loan rates vary to some extent, but in recent years have not ordinarily exceeded six per cent a year, and loans have been made at a lower rate.

RISK ASSUMPTION

The seventh marketing function listed is that of accepting the risk of ownership. Ownership of anything, anywhere, at any time carries with it the possibility of loss through price change, depreciation in quality, or destruction by fire or tornado. It is possible to shift some of the risks of ownership. Stored eggs may be insured against loss by fire or tornado or hedged against a falling market by selling eggs for future delivery. An owner of property always bears the risk of ownership, or pays some one else for assuming the risk.

SELLING

Market eggs are ordinarily transported to consuming markets in carload lots of about 500 cases. These are usually sold to wholesale receivers in

carload lots who in turn sell the eggs to retailers in case lots or in cartons, each holding one dozen eggs. The retailer may need to buy ten or twenty cases of eggs or the equivalent to supply his trade for two or three days while the smaller retailer will buy only one case or less at a time.

Both wholesaler and retailer must watch credits and collections, supply accounting service, and provide cold storage when necessary.

The use of cartons for packing eggs sold at retail has increased in recent years. The cartons cost from three-fourths to one and one-half cents each, and make a satisfactory and attractive package. The cartons are usually packed at the wholesale plant, but sometimes the retailer buys in case lots, and the eggs are transferred to cartons in his store.

SUMMARY

Marketing eggs does not consist merely of taking the eggs to the grocery store or the cream station. On the average Nebraska eggs are shipped not less than 1000 miles before they reach the ultimate consumer. The marketing process includes the various services that are rendered to get the eggs to the consumers in good condition.

Every step in marketing is important to the egg producer, because the price which he receives is the price which the consumer pays less transportation and handling costs. The consumer wishes a quality product, and a less desirable product can be sold only at a lower price.

Improvements in marketing will come as rapidly as our appreciation of the essential marketing services is developed. A study of marketing helps producers to discover weak points in the production program. The egg purchased by the consumer is never of a better quality than when it was delivered by the producer at some local assembly point. The first step in market improvement is to deliver a product the consumer wants.