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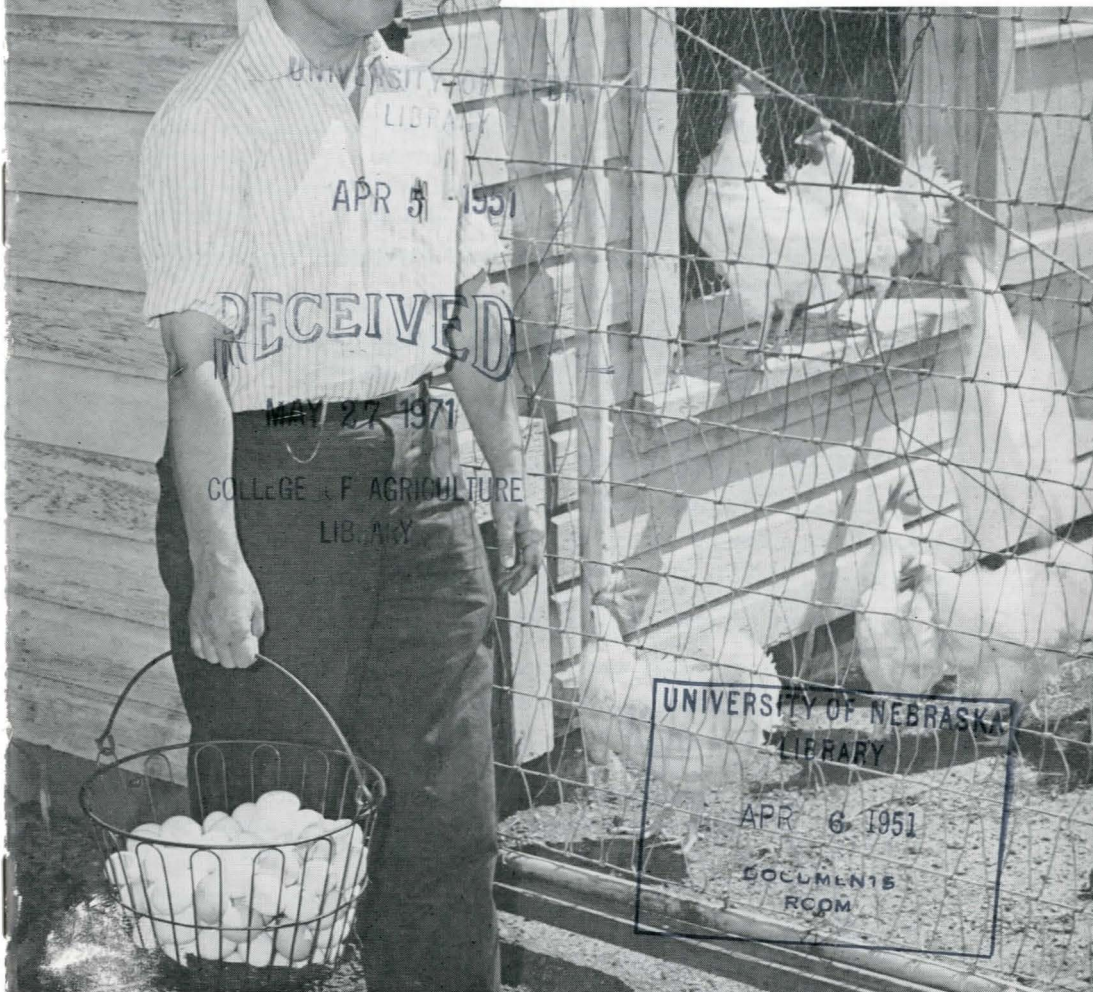
Good Eggs Sell Better



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SEPTEMBER 1949

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING

Management Practices Necessary for Producing High Quality Market Eggs

1. Secure chicks from stock which has been bred to lay large eggs.
2. Feed a complete ration of laying mash, grain, oyster shell and fresh clean water.
3. Produce infertile eggs.
4. Sell all broody hens promptly.
5. Confine layers to houses until noon to avoid dirty eggs and eggs with objectionably dark yolks.
6. Provide one single nest for each 5 or 6 hens or one colony nest 2 feet wide and 6 feet long, for each 60 hens.
7. Maintain dry litter. Use wire screen in front and under roosts to keep hens from the droppings.
8. Gather eggs in a wire basket at least three times daily in summer and twice a day in winter.
9. Cool eggs in wire baskets immediately after gathering, then put them in cooled cases the following day with the large end up.
10. Clean soiled eggs with sandpaper or wire brush as soon as gathered.
11. Hold eggs until marketed in a cool moist place on the farm.
12. Market eggs at least once each week, preferably twice a week.
13. Handle eggs carefully. Minimize the number of handlings.

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(9-49-5M)
(3-51-5M)

Good Eggs Sell Better

J. W. Goble

The production of eggs in Nebraska is a big business, having contributed over 50 million dollars to the total cash income of farmers each year since 1943. Since poultry makes an important contribution to the farm income there is a tendency for the more efficient producers to further increase their returns by enlarging their egg laying flocks. These producers realize that quality eggs are essential for obtaining maximum returns from the poultry enterprise, since they must compete with producers of other states in securing markets for their product.

The returns from a flock are dependent upon controlling the quality of the eggs through the use of good laying stock and recommended management practices. If the quality goal is achieved, the producer then should market eggs as efficiently as possible to secure the highest returns.

INFLUENCES OF BREEDING ON EGG QUALITY

It has been proved that egg quality is influenced by breeding. Factors which affect egg values and which are known to be inherited are as follows: egg size, shape, shell color, shell texture, and interior quality. The use of good breeding stock is the most effective method of improving or maintaining these inherited qualities.

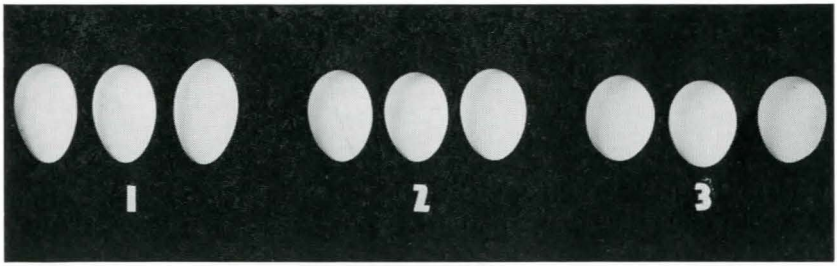
Size and Weight

Since large uniform market eggs are preferred, the producer should keep a strain of birds that will lay eggs averaging between 24 and 26 ounces per dozen. Eggs of excessive size are objectionable because of the difficulties incurred in packing which make them more subject to breakage. Small eggs (less than 23 ounces per dozen) bring a lower price on the market than those of the desired size.

Strength of Shell

If a flock produces eggs with strong shells, fewer will be broken and a larger per cent of the total production will be suitable for market. Most hens lay strong shelled eggs in winter, but individual differences will become apparent in the summer when some birds will lay eggs with weak shells. Hens should be kept that will produce eggs with strong shells both summer and winter.

High temperatures during the summer months influence the texture of the shells. When the temperature is over 80° F., there is a tendency for the shells to become thin and more fragile.



Eggs in Group 1 are too long and slender. Compare with desired shape in Group 2. Eggs in Group 3 are short, and are too large around.

Shape

The most desirable egg is somewhat tapering, as illustrated in the picture above (Group 2). An egg of this shape is least subject to breakage when packed since the containers are designed to hold it. Eggs that are long and extend above the level of the filler are easily crushed by the pressure from above. If eggs are large around, they may be damaged from side pressure within the filler.

Color

Some breeds of chickens produce eggs with dark shells; others produce eggs with white or tinted shells. Eggs with tinted or cream-colored shells may be discriminated against on the market. Uniform color is desirable in all packs of eggs.

Soft Shelled Eggs

Soft shells may be due to improper functioning of the shell gland, incomplete rations, or may occur when a bird first begins to lay.

Interior Quality

The interior quality of an egg is influenced by breeding and management. If the albumen (white) is thin, the egg will appear watery and flattened when broken out. A thick white which stands up firmly is preferred by consumers because the characteristic is associated with high quality. Hens that lay eggs with a minimum amount of thin white are desirable.

High temperatures associated with low humidity may have an adverse influence upon the thickness of albumen. After the eggs are laid they should be cooled rapidly and then held in a cool moist storage room.

FEEDING

Hens must be fed a complete ration and provided with an adequate supply of fresh water and oyster shell or limestone if high quality eggs are to be produced.

A good feeding program recognizes the importance of calcium and vitamins in producing eggs with strong shells. There is a direct relationship between vitamin D and the utilization of calcium and phosphorus in the diet. Without an adequate amount of vitamin D the calcium and phosphorus cannot be fully utilized.

A lack of vitamin K in the ration is sometimes responsible for bloodspots in eggs. The use of alfalfa leaf meal in the ration will help to provide the necessary amounts of this vitamin.

Feeds such as rape, onions, and low quality fish oil may cause eggs to have undesirable flavors. Eggs laid by hens that have free range will vary both in quality and flavor.

Yolk color is partially determined by the ingredients of a ration. The color may vary from light to dark depending upon the kinds and quantity of feeds consumed. Yellow corn and green feed are primary determinants of the intensity of the color. If the ration includes excessive amounts of green feed, olive-colored yolks may result. The producer should attempt to maintain a uniform yolk color irrespective of the intensity.

MANAGEMENT

The management given a laying flock has an important influence upon the quality of eggs that will be produced. Cleanliness and interior quality are primarily affected by management practices.

Floor Space

Three square feet of floor space should be provided for each hen of the light breeds and 3½ to 4 square feet for each bird of the heavy breeds. The amount of floor space provided for each bird affects the cleanliness of eggs. If the birds are crowded the litter may be damp and dirty. The hens will then carry filth on their feet into the nest where some of it will be transferred to the eggs.

Nesting Space

A minimum of one open nest should be provided for every 5 or 6 hens and should be arranged in banks or tiers along the sides of the building. Some provision for closing the nest at night will facilitate maintenance of clean nest litter. A satisfactory method is to make a hinged landing perch which can be lifted to close the nest entrance. A shortage of nests or a preference for certain nests may result in soiled and cracked eggs.

Confinement

Birds that are confined will produce a higher per cent of clean eggs than those birds permitted to run out of doors. The quality of such eggs is also more uniform since the ration of confined hens can be controlled, thereby regulating factors of quality attributable to feed.

If birds are permitted to run outside they should not be released until after noon, since the majority of eggs are laid in the morning. When birds are confined during the forenoon, the eggs are less subject to soiling.

Litter Material

Several satisfactory materials are available for use as litter in poultry houses. Wheat straw is one of the most widely used. Other materials such as wood shavings have proved of value. In the last few years the use of cobs, either ground or whole, has been found satisfactory. Materials that are absorbent can generally be used satisfactorily.

Infertile Eggs

Infertile eggs are produced when male birds are not permitted to run with the hens. Fertile eggs held under conditions that are unfavorable will deteriorate more rapidly than will those that are infertile. If the temperature is above 68° F., embryonic development will occur in fertile eggs, causing a rapid decline in the quality.

It is a common practice for producers to leave a few male birds in the flock for eating purposes. Since one or more male birds can cause a portion of the eggs to be fertile, every male should be removed from the flock. If they are being saved for the home meat supply they should be segregated from the laying flock.

HANDLING EGGS

Gathering

Eggs should be gathered at least three times per day and more frequently if possible. By gathering often and by using wire baskets, eggs can be cooled more rapidly than if closed containers are used. The continued use of the nests by hens during the day will cause the temperature of the eggs to remain near body temperature unless they are gathered frequently.

Cooling

After the eggs are gathered they should be cooled quickly. The wire baskets containing the eggs should be placed in a cool moist place of 55°–65° F. temperature for a period of 12 hours or more.

When the heat has been removed the eggs should be placed in pre–cooled cases with the large end up to prevent tremulous air cells. Warm eggs that are placed directly in the case will cool very slowly because of the insulating effects of the fillers and flats within the case.

It was found at the Massachusetts Experiment Station [1] that eggs placed in a wire basket at 66° F. required 5 hours to cool while those in galvanized pails required 9 hours, and eggs that were put directly into the case without pre–cooling required 12 hours to cool.

The same precaution should be taken in winter as in summer to preserve the quality. In summer it is necessary to guard against hot weather whereas in winter, cold weather may present a problem. A cave or cool basement free of objectionable odors may be used throughout the year for holding eggs. The practice of holding eggs in a warm room in the winter to prevent freezing should be avoided since the effects are similar to those caused by summer heat.

Holding

Eggs should be held on the farm under conditions where a relative humidity of at least 60 per cent can be maintained. If the humidity is too low, evaporation from eggs will be greater, causing the quality to be materially lowered. Proper humidity will reduce the loss of moisture. If necessary, the moisture content of the air in the holding room can be increased by artificial means. This may be done by keeping moistened sand in the room or by using simple home–constructed evaporators. Where moisture is increased in the holding room adequate ventilation is necessary to prevent the growth of molds.

An experiment was conducted at the Oregon Experiment Station [2] to determine the effect of humidity upon the grade of eggs. It was found that eggs held in a feed room with 52 per cent relative humidity and an average maximum temperature of 70° F. yielded 34.07 per cent grade AA, 44.26 per cent grade A, 20.83 per cent grade B, and 0.28 per cent grade C. Eggs held in a room with an average relative humidity of 83 per cent and a maximum temperature of 66° F. produced 63.61 per cent grade AA, 32.04 per cent grade A, 3.33 per cent grade B, and 0.65 per cent grade C. The reduction in temperature was due to the cooling effects of the moisture.

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[1] Vondell, John H. "Quality Eggs." Ext. Leaflet 160, Mass. State College, May, 1943.

[2] Bennion, N. L., and Price, F. E. "Factors Affecting Egg Quality." Station Circular 138, Oregon State College, December, 1940.

Foreign Flavors

Since eggs readily absorb foreign odors, they should be held away from any material that might impart an undesirable flavor. Materials such as kerosene and onions should not be kept near eggs because of their strong odor. Eggs may also acquire foreign flavors from cases that have taken up odors from material that was stored near by.

Dirty Eggs

The problem of dirty eggs has caused much discussion. The producer should make an effort to prevent the occurrence of dirty eggs, although under the best system of management he cannot eliminate all of them.

The cleaning of dirty eggs is a controversial subject. Most buyers insist that producers should not clean dirty eggs by washing, but recommend the use of sandpaper or a similar abrasive. Their reasoning is that washing may cause the eggs to deteriorate if placed in storage. An experiment conducted by Funk [3] indicated that dirty eggs could be successfully cleaned by washing in a one per cent solution of lye water. The method described by Funk, however, is difficult to use because of the caustic action of lye and the danger involved in its use. Some work has been done using detergents in water for cleaning eggs. Recently, several types of machines have been placed on the market for washing eggs. Several experiment stations and commercial organizations are conducting research projects in an attempt to find a satisfactory method of cleaning eggs.

MARKETING

Frequency of Marketing

Eggs should be marketed at least once each week and preferably twice. When proper holding conditions are not available, eggs should be marketed more often. This will tend to reduce the loss of quality occurring from improper storage conditions on the farm.

Method of Selling

In most communities the farmer has a choice of two methods of selling: on grade, or as current receipts. By current receipts is meant the selling of eggs on an ungraded basis at one price. Selling on grade refers to the sorting of the eggs according to quality and usually size, with a separate price paid for each group.

The producer of good eggs can secure an advantage by selling on grade, since each producer is paid according to the value of the products sold.

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[3] Funk, E. M. "Improving the Keeping Quality of Eggs by Cleaning With Sodium Hydroxide." Res. Bul. 277, University of Missouri, February, 1938.