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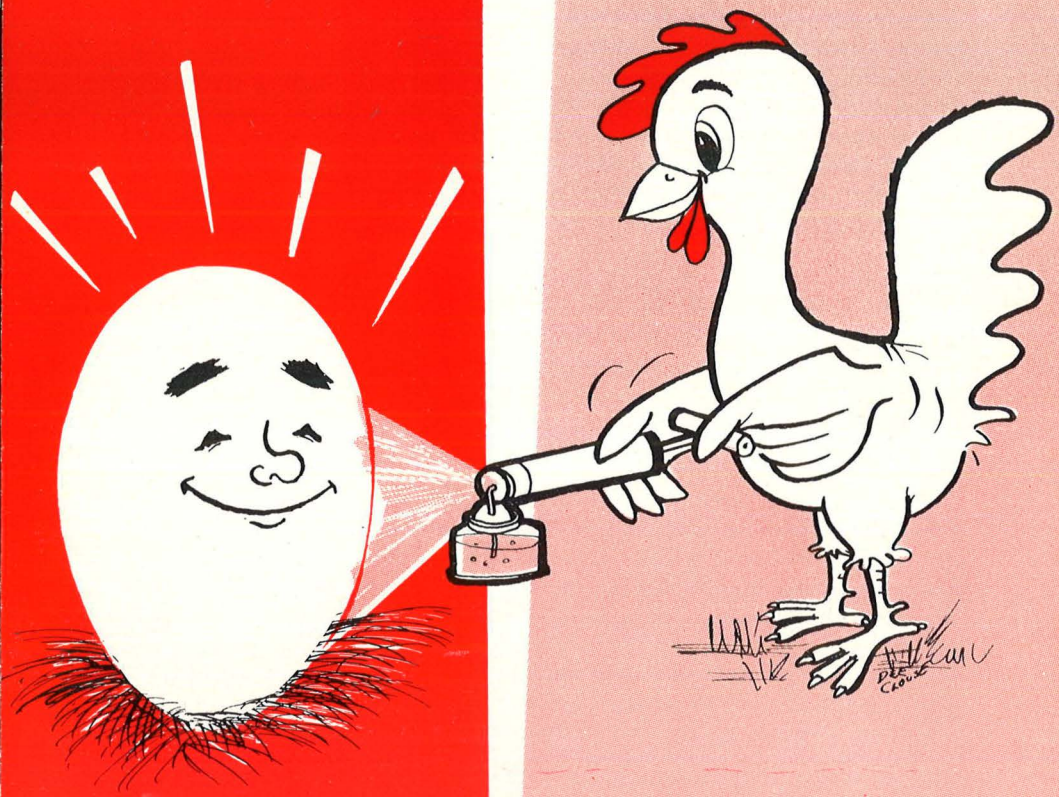
WHY OIL HELPS EGG QUALITY



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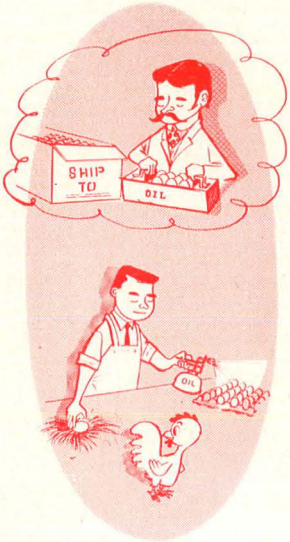
Why Oil Helps Egg Quality

By John L. Skinner, Extension Poultryman
University of Nebraska

INTRODUCTION

Midwestern egg producers are constantly being advised that they must produce a top quality product. To do this, various practices are recommended. One of these practices is shell treatment with oil or compounds containing a large percentage of oil.

Paraffin base mineral oils have been used to seal egg shells for more than 150 years. Until recently, however, this treatment had been associated only with eggs being held for storage for prolonged periods or eggs being shipped and in transit for a prolonged period of time. Today, this is no longer the case. Many marketing agencies are requiring producers to "oil" all eggs within 24 hours of the time they are laid. This raises a series of questions: whether or not "oiling" is desirable, when should it be done, by whom, in what manner and what benefits can be expected from this practice?



WHAT OIL DOES

The fact that oiled eggs retain their quality for longer periods of time than those not oiled is well recognized. Oil seals the pores of the shell. This retards loss of moisture and carbon dioxide from the contents of the egg. Retaining moisture and CO_2 at or near the levels known to be present at the time an egg is laid causes the egg to appear similar to a recently laid egg when broken out. Thus, oil, by slowing down evaporation of moisture and dissipation of gases helps preserve egg quality. In the process of sealing the shell against rapid loss of moisture and gas, the oil also enables the egg to better withstand movement and transportation where variations in temperature and humidity are apt to occur.

In addition to the physical protection afforded, oil also tends to give all of the eggs in a carton or case a uniform appearance.

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WHEN TO OIL EGGS

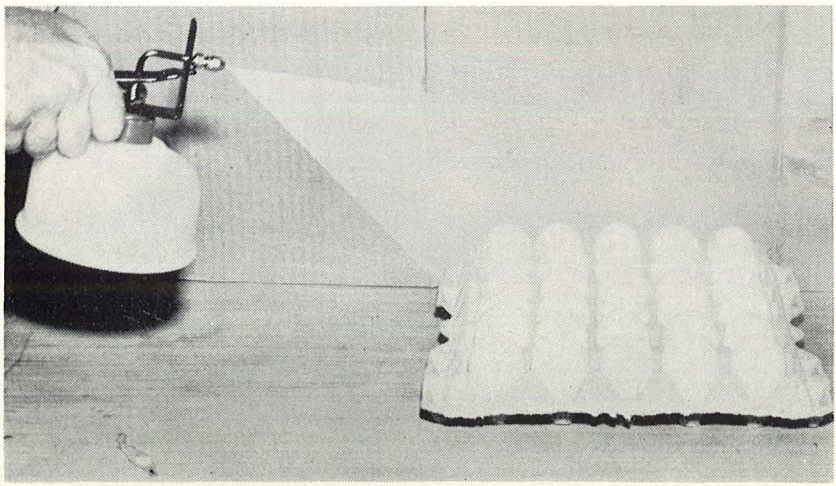
Oil does not add to egg quality. It simply aids in retaining the quality that is already present. To be most effective the oil must be applied shortly after the egg is laid. This will usually mean as soon as the egg is gathered, cooled and cleaned and certainly before the egg is 24 hours old. The earlier (in the egg's life) oil is applied, the more effective are the results.

When eggs are oiled soon, or within a few hours after they are laid, the albumin may show a slightly cloudy appearance. This will disappear after three or four days but it is a condition that should be known by persons attempting to candle oil treated eggs.

HOW TO APPLY THE OIL

At first, application of oil involved dipping eggs in oil heated to 120°F. This process, while effective, used a large amount of oil and took considerable time and labor. Some grading machines were equipped with mechanical oiling devices but eggs were usually several days old when graded. The most recent development is the application of oil in spray form by the producer. This is usually done at the time the eggs are cased. A greater amount of the original quality is present at the time of treating and better results can be obtained by oiling when the eggs are fresh.

Spraying eggs after placing them in filler flats (see photo) will cover ⅔ or ¾ of the shell surface. This is nearly as effective as complete coverage of the surface, especially for short periods of time.



Spraying after placing eggs in filler flat.

CAN THE OIL BE BLENDED?

The use of emulsions (mixtures of oil and water) has proven to be nearly as effective as pure oil.

The use of oil or oil emulsions with a small amount of silicones included has given superior results to either material without the addition of silicones.

CONCLUSION

- The oiling of eggs is a definite aid in retaining a greater amount of the initial quality. It adds to the uniformity of appearance consumers demand.

- Oiling can most logically be done by the producer within 24 hours of the time the egg is laid—while a high percentage of the original quality is still present.

- Spray type application of oil emulsions containing small amounts of silicones will give the greatest protection for the cost and effort expended.

- We can expect to see the oil treatment of eggs increase as we place more and more emphasis on the ultimate quality of the product.

WHAT KIND OF OIL TO USE

The type of oil normally used to "process" eggs is a light-weight odorless and tasteless mineral oil that has no color. This should be obtained from a hatchery, poultry supply dealer or egg marketing agency.