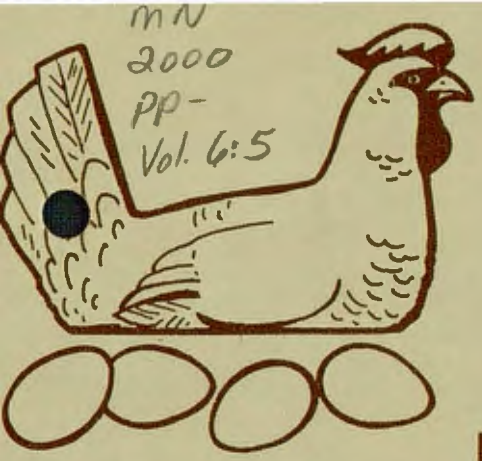

Poultry Patter

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ALBUMEN QUALITY

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Successful quality shell egg programs require constant attention to the production and maintenance of eggs with thick, firm albumen, and free from other defects. Albumen quality determines the Haugh unit value for break-out scores and is of vital importance in determining candled grade. Since the stresses of long periods of sustained high egg production tend to reduce quality, management must provide the essentials for producing and maintaining the maximum number of high quality eggs from the flock.

A variety of conditions can be responsible for albumen quality problems. Some of these problems, such as weak, watery whites, generally become more evident during the hotter temperatures of summer and fall. The holding of older laying flocks during periods of high egg prices also results in production of more eggs with poorer albumen quality.

Two considerations are important in a quality egg program. First, the eggs produced must be of high initial albumen quality. Second, these eggs must be handled to minimize the decline in albumen quality.

Good Flock Health Important

Good pullet management includes a recommended vaccination schedule that is completed before the birds are placed in the laying house. A sound disease prevention program can reduce the risks of losses due to poor albumen quality and other adverse effects on egg production.

Infectious bronchitis and Newcastle disease can cause production of eggs with weak, watery whites. A mild case of one of these diseases may seriously affect both egg production and quality. In some instances quality improvement will not be noted for some time after the rate of production has returned to normal.

Heredity Factor

Most poultrymen are aware that each strain of birds has its strong and its weak points. Strains differ in albumen quality, percent of eggs with blood and meat spots, and other economic egg quality factors.

In the latest report of egg production tests, the 78 strains and trade names tested had an average Haugh unit value of 77.7. Scores ranged from a low of 73.5 to a high of 83.

Considerable variation in albumen quality among hens within strains is also noted. The producer should be concerned with the initial quality level achieved by the pullet as she begins to lay large eggs, as well as with the rate of quality decline from this point.

Nutritional Problems

Although many egg quality problems are often blamed on the feed, the diet is seldom a cause of poor albumen quality. Some abnormalities in ration ingredients can affect the albumen. Improperly processed cottonseed meal may cause pink whites if used in layer rations. The feeding of Arasan-treated grains to hens results in production of thin, watery whites. Phosphorus sources high in vanadium can also cause egg white thinning.

The use of drugs according to accepted recommendations must also be emphasized. Improper use of sulfanilamide has been reported to cause poor albumen quality. Nithiazide used for blackhead prevention in laying hens produces a yellow coloring in the white.

Age of Bird

Initial albumen quality is probably most influenced by the age of the bird. A rather slow decline in albumen quality takes place from the start of production. After 8 to 10 months this decline becomes more rapid, especially if the bird is stressed by poor management or environment. Poor albumen as well as shell quality of eggs from old hens have led to restrictions on age of flock participating in quality egg marketing programs.

Prompt Cooling Important

Heat is one of the greatest causes of loss in albumen quality. The temperature of the egg is about 105°F. when laid. It must be cooled quickly since interior quality declines rapidly at temperatures above 70° F. Not only does the albumen become thinner, but the yolk tends to flatten rapidly at high temperatures.

The effect of temperature on the loss of initial egg quality is shown in the accompanying table. In this research conducted at Washington State, 3 days of storage at 72°F. reduced quality as much as 14 days at 55°F.

TEMPERATURE	DAYS AFTER LAY	AVERAGE QUALITY (C B A AA)	PERCENT OF INITIAL QUALITY
55°F	1		94
	3		90
	7		88
	14		82
	21		78
72°F	1		87
	3		82
	7		77
	14		66
	21		55

Farm egg coolers should be operated at 50° to 60°F. Eggs marketed twice weekly from these coolers should lose little of their interior quality at the farm. Prompt gathering of the eggs is especially important during hot weather. Eggs exposed for extended periods of time to the warm house environment with its ammonia content decline in quality rapidly.

Relative humidity of the egg cooler should be kept at 70 to 80 percent. Low humidity speeds loss of egg weight as well as quality. If the humidity gets above 85 percent, mold problems may develop.

Control of environment in the market channel can do much to retain albumen quality. The time from laying to gathering, laying to pickup at the farm, the rate of cooling, temperature and humidity of storage, and methods of handling on the farm and during delivery can influence candled grade and break-out scores.

Oiling to Maintain Quality

Oiling is becoming a part of many quality egg programs. Oil can't increase egg quality, but combined with refrigeration, it is an effective aid in maintaining initial egg quality.

A fine film of oil helps seal the pores of the shell and reduces the rate of carbon dioxide and moisture loss from the egg. As carbon dioxide is lost the albumen becomes more alkaline and breakdown of the thick white more rapid. Air cell expansion and egg weight loss are also slowed by oiling.

To be most effective, oiling must be done soon after laying. Small pressure sprayers can be used to oil each flat of eggs at the egg room. If you don't oil your eggs, now is a good time to check with your egg buyer about starting this practice.

A good egg production program needs periodic evaluation. Some egg quality improvement results in most instances with a little more attention to the factors reviewed in this article. Each one of these factors is not an end in itself, but is simply part of an over-all program. Proper attention to a well-outlined program will contribute to maximum production of high quality eggs.

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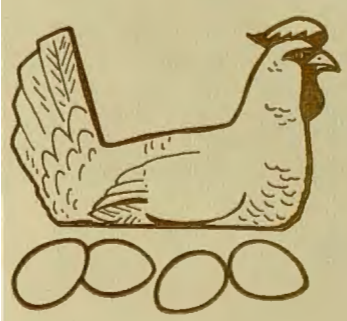

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