The University of Georgia
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HATCHERY/BREEDER TIP...

TWO-PHASE FEEDING PROGRAM FOR BROILER BREEDERS

Poor egg shell quality can be very costly to the broiler industry. Egg shell defects are problematic because they reduce the total number of hatched chicks. In addition to decreased hatachability, egg shell cracks can also contaminate other eggs with pathogens during incubation. Microbial contamination of hatching eggs can lead to the resultant chicks being regarded as poor quality with an increased occurrence of morbidity and mortality during the couple weeks of the growout. Poor egg shell quality is known to be more prevalent with older hens laying in a environment with high temperatures. Altering the feeding program may be a means of improving egg shell quality.

Egg size is known to increase as hens advance with age. Because the egg shell is being formed around a larger area, egg shell thickness may be decreased in larger eggs. One strategy to help control egg size may be to reduce the protein and/or methionine content of the diet during the latter phase of production.

What is a Breeder II Feed? When is it Fed? Broiler breeders are generally fed one feed from 20 to 65 wk of age. However, if egg shell quality becomes problematic, a two-phase feeding program may be appropriate (Phase I: 20 to 45 weeks of age; Phase II: 20 to 45 weeks of age). The Phase II feed contains a lower percentage of crude protein and higher calcium content (Table 1).

TABLE 1. NUTRIENT COMPOSITION OF FEEDS

	Phase I (20-45 wks)	**Phase II (45-65 wks)**
Crude Protein, %	15.5	14.5
Methionine, %	0.37	0.33
Calcium, %	3.20	3.80
Available phosphorus, %	0.35	0.40

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n table egg layers, altering the nutrient content of feeds has been shown to significantly increase egg shell thickness and control egg size in older hens. Even though this practice is used in the broiler breeder industry, documented research demonstrating the effectiveness of this feeding strategy with breeders is limited.

Researchers from Auburn University evaluated the performance of broiler breeder hens fed either a one- or two-phase feeding program from 20 to 65 weeks of age. All birds were fed a Phase I Feed until 45 weeks of age. At 45 weeks of

age, hens were placed in two groups and fed either a Phase-I Feed or a Phase-II Feed until 65 weeks of age. Egg production, egg weights, and egg shell quality were determined at five week intervals. The two-phase feeding program did not change egg production rate or egg size. Egg specific gravity was measured to assess egg shell quality. This measurement provides an indication of egg shell thickness. Based on research with commercial layers, an increase in egg specific gravity of 0.001 represents a 10% reduction in downgrades. In the present experiment, egg specific gravity was numerically increased by 0.001 at weeks 55 and 60 (Figure 1).

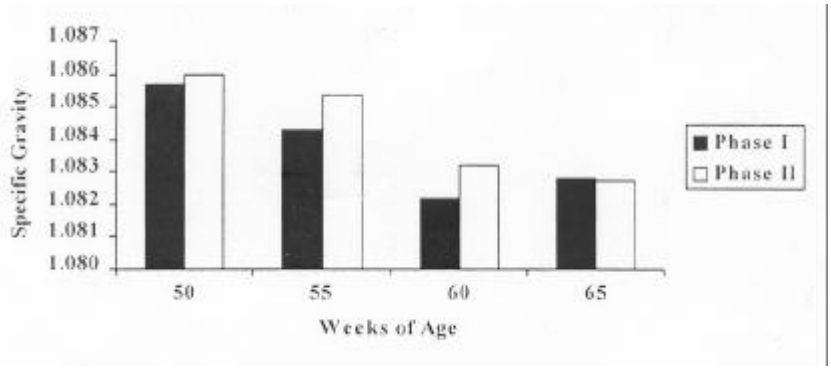

Figure 1. Egg specific gravity of broiler breeders fed either a one- or two- phase feeding program from 45 to 65 weeks of age

An added benefit with feeding a Phase II Feed was a decrease in feed cost of approximately $3.00/ton. This is advantageous as long as egg production does not decrease below two eggs per hen with feeding a two-phase feeding program.

The response with egg shell quality with broiler breeders was not significantly improved by using a two-phase feeding program and this may be partially attributable to the fact that the environmental temperature was not considered as heat stress condition. Furthermore, broiler breeders are not as productive as commercial layers in terms of egg output, thus the reduced response with broiler breeders to improve egg shell quality and egg size may relate to a decrease in nutrient output with egg formation.

Reference:

Hess, J. and R. Lien, 1994. Two-stage feeding of broiler breeders: Good egg or bad egg? Alabama Agricultural Experiment Station Highlights of Agricultural Research Vol. 41. No. 4.

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Consult with your poultry company representative before making management changes

"Your local County Extension Agent is a source of more information on this subject."

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