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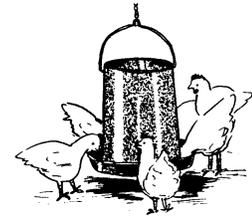
**Cooperative Extension Service**

*College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356*

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## ***BACKYARD FLOCK TIP . . .***

### **INFLUENCE OF DIETARY PROTEIN LEVEL AND A DIRECT FED MICROBIAL ON BOBWHITE QUAIL PERFORMANCE**

In Georgia, approximately five million quail are produced and marketed each year for hunting preserves. Feed cost represents a majority of the expense for raising Bobwhite quail. Birds require nutrients such as protein/amino acids, minerals, vitamins, carbohydrates, and water for growth, reproduction, and to maintain life. They utilize dietary protein for the development of lean tissue, egg production, blood, hormones, feathers, and immune response. Bobwhite quail need to consume feed that is higher in protein compared with other birds. One reason for the increased need for protein is that quail do not consume as much feed as chickens or turkeys. Thus, they need more dietary protein as a percentage of the feed to ensure an adequate amount of it is consumed. Another reason for the increase need of dietary protein as a percentage of the diet is the Bobwhite quail quadruples its weight from hatching in only a few days, thus the high rate of growth requires a high level of dietary protein.

Some quail producers generally provide only one level of protein in the feed throughout the growout, which is not a common practice in the commercial poultry industry. The problem with providing a feed having the same level of protein is that the bird's need for protein changes with age. The protein level needed during the first two weeks of life may be excessive by eight weeks of age. Feed having excess protein may not be physically harmful to the bird, but feed cost heightens as the dietary protein content of the feed increases. Therefore, it may be more cost effective to consider feeding a series of feeds in sequence that contain protein content to meet the bird's needs. Unfortunately, limited research has been conducted evaluating the optimum dietary protein levels for Bobwhite quail.

It is not uncommon for flock mortality to be approximate 20%. This can be a large financial loss

#### **PUTTING KNOWLEDGE TO WORK**

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to the producer. Quail enteritis is partially responsible for the high rate of mortality. *Coccidia*, *E. Coli*, and *Salmonella* cause this disease. Unfortunately, very few anti-microbials (antibiotics and coccidostats) are approved for quail production. One approach has been to add Direct-Fed Microbials (DFM's) in either the feed or water. DFM's consists of naturally occurring bacteria found in the gastrointestinal tract of poultry. These bacteria are considered beneficial because they have the ability to reduce the growth of harmful bacteria.

A research study was conducted at North Carolina State University (Davis and Minear, 2001) to evaluate responses of Bobwhite quail provided feeds containing various levels of protein with or without the addition of a DFM (Primalac). Feed conversion, feather score, and the incidence of mortality from one-day of age to 10 weeks was observed. A total of 720 Bobwhite quail were divided into eight groups and distributed into 48 floor pens (15 birds/pen) in a facility having forced-air ventilation. The birds were fed eight treatments: 1-2) Providing a feed containing 26% protein from 0-5 weeks and a feed consisting of 20% protein from 6-10 weeks with or without DFM; 3-4) Providing a feed consisting of 28% from 0-10 weeks with or without DFM; 5-6) Providing a feed containing 28% protein from 0-5 weeks and a feed having 24% protein from 6-10 weeks with or without DFM; 7-8) Providing a feed of 30% protein from 0-2 weeks and a feed containing 26% protein from 3-10 weeks with or without DFM.

Birds consuming a 26% protein feed from 0-5 weeks and 20% protein feed from 6-10 weeks had poorer feed conversion ratio (5.59 vs. 5.23) and reduced feather score (4.6 vs. 6.0) than the birds provided the other feeds. The addition of DFM decreased the incidence of mortality (2.5 vs. 8.6%), improved feed conversion ratio (5.28 vs. 5.30), and increased feather score (6.8 vs. 4.6). These results provide evidence that for optimum performance the starter feed should contain 28-30% protein and the grower feed needs to approximate 24-26% protein. With the addition of a DFM, the incidence of mortality was reduced by 29%.

### Reference

Davis, G. S. and L. R. Minear, 2001. The effects of feeding different levels of protein with and without the dfm, primalac, on production parameters in bobwhite quail. Poultry Sci. Vol. 80 (suppl.1):127.

*William A. Dozier, III*

William A. Dozier, III  
Extension Poultry Scientist

County Extension Coordinator/Agent