
Free Choice Feeding for Free Range Meat Chickens

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Introduction

The results of a research project support the idea of using a free-choice feeding system as an alternative way to provide feed for meat chickens raised in production systems that include access to the outdoors.

The most common type of feed used in commercial poultry production is a formulated complete feed usually presented to the birds in a pellet or a crumble form, or formulated, mixed and fed in a meal form. It is widely believed that this formulated complete feed will provide the birds with a better balance of the ingredients that provide the energy, protein, vitamins and minerals to optimize bird health and performance. In addition, formulated complete feeds make feeding poultry less complicated and easier to manage in automated feeding systems.

However, for poultry that are raised in a free range system where they have regular access to the outdoors, free choice feeding may offer some advantages and should be considered as a viable option. Free choice feeding is a method that offers birds separate feedstuffs (e.g. grains, protein concentrates, natural vitamin and mineral sources) from which they can self-select a diet suited to their needs which can vary in response to environmental and physiological conditions. It is reasonable to expect that free range raised birds will often encounter a greater range of environmental requirements than those raised in confinement. It has been suggested that chickens do not choose diets to maximize growth and efficiency; rather they self-formulate to enhance their well-being in their environment and for long-term survival benefits.

Animals are born with innate preferences for and aversions to particular feed ingredients. Poultry have the ability to learn to select a diet that avoids deficiencies or toxic excesses. By providing essential feed ingredients in a free choice system, the birds are theoretically able to balance their own diets by selecting ingredients that supplement the nutrients obtained from their outside environment, such as forages or insects.

In addition to this ability to self-balance their own diets, poultry have a digestive system that is capable of processing whole grain. Because of this, it seems logical to reduce the energy and costs related to processing or pre-grinding by providing at least some of the diet as whole grain. However, it is important that oyster shell (grit) needs are provided for, in order to enable the bird's gizzard to function effectively. Free choice feeding can reduce the need for formulation, grinding, mixing, pelleting and transportation, potentially reducing the energy expenditure and costs associated with them.

Trial Outline

Researchers at the University of Arkansas set up a feeding trial with 200 meat-type chickens (considered to be a slow growing hybrid) to determine the effect of free-choice feeding on the performance of free- range raised

chickens. The one day old chicks were randomly assigned to pens of 20 birds each with 5 pens assigned to a treatment group where the feed was provided as a fully formulated crumble diet (FF) and the other 5 pens assigned to a treatment group where the feed was provided as a free-choice (FC) diet. During the brooding period (0-27 days) all birds were fed on the formulated diet which was a commercial no medicated starter/grower diet intended to be used for the entire life of the broiler. All birds were allowed outside every day after 5 weeks. From day 28-49 the FC group received both the fully formulated diet as well as the free choice diet. From day 49-83 the FC group received only free choice ingredients. The free choice feedstuffs offered were cracked corn, whole wheat, soybean meal, fishmeal, crushed oyster shell, kelp meal, bone meal and trace mineral salt with all ingredients provided in separate feeders. From day 49-83 the FF group received the fully formulated commercial diet only. It was made up mainly of corn, soybean meal and fishmeal.

Results

The formulated diet contained 63.5% corn, 30.5% soybean meal and 2.5% fishmeal with an overall protein content of 20.75%, while the protein content of the free choice diet was lower and was calculated to be approximately 13.2%. By the end of the trial it was determined that the free choice diet was made up of 89% grain (37% whole wheat), 7% soybean meal and 1.2% fishmeal.

The final live chicken weights did not differ between treatments, however carcass yields were higher and as well, the breast yields were 7% higher for the formulated feed (FF) group. It was suggested that the higher protein levels and higher amino acids in the formulated feed likely contributed to the higher breast yields.

The NRC recommends an 18% protein diet for 6 to 8 week old broilers. While the FC group consumed a much lower protein level, it is possible that they may have consumed additional protein from forage plants and insects. Interestingly, researchers noted that there was less residual forage left in the paddocks of the FC fed birds and it is assumed that they consumed more forage than the FF fed group.

Feed intake was higher and feed efficiency was inferior for the FF fed group in the finisher period from day 49 to day 83. The feed conversion during that time period for the FF group was 5.6 to 1 and for the FC group the feed conversion was lower at 3.8 to 1.

In this study, where all feed ingredients were purchased, it showed that feed costs were less expensive for the free choice fed group (\$.07/kg) versus the formulated feed fed group (\$.08/kg).

Summary

The results of this study indicate that providing access to feed ingredients with a free choice feeding system can be a viable alternative option for feeding free range meat chickens. Formulated feeds may continue to be a more convenient way for many producers to feed their chickens. However, in particular for producers who grow the majority their own feed, there may be an opportunity to reduce feed costs with a free choice feeding system by eliminating or at least minimizing the need for formulating, grinding, mixing, pelleting and transporting their feed ingredients. Free choice feeding also enables the feeding of whole grains which poultry are naturally able to process and make use of. Feeding a portion of a poultry diet as whole grain has been shown to enhance the development of the gastrointestinal tract which can improve the bird's ability to absorb nutrients from the various

feed ingredients that are consumed as part of their diet.

References

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