

Public Abstract

First Name:Adam

Middle Name:Ray

Last Name:Birk

Adviser's First Name:Jeffre

Adviser's Last Name:Firman

Co-Adviser's First Name:N/A

Co-Adviser's Last Name:N/A

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Title:Nutritional Intervention in the Early Growing Broiler Chick

As the broiler chicken continues to grow faster and larger, the time to slaughter continually decreases. Broilers are commonly slaughtered at 5-8 weeks of age and so the post-hatch period has become a larger and more significant portion of their life. It is commonly accepted that the chick, and more specifically the digestive tract, is still developing and that digestion and absorption are impaired during the first 2 weeks of age. Thus the use of highly digestible feed ingredients during this period of life may positively impact performance at market. Since the chick is so small during this period and consuming relatively little feed, it is possible to feed more expensive ingredients without significantly raising the total cost of feed per bird.

A floor pen trial was conducted to determine the effect of high dietary fat inclusion in the pre-starter ration of broilers to both 10 and 14 days. Treatments consisted of an industry standard control diet, 6% added yellow grease, and 8% added yellow grease. Crude protein, macrominerals, and amino acids were balanced to maintain a consistent ratio to energy. High dietary fat inclusion did improve growth performance during the treatment period and immediately following at 10, 14, and 17 days. After 17 days no significant differences were found between dietary treatments.

Porcine spray dried plasma protein was added to the pre-starter ration of broilers to 10 days in a floor pen trial under normal, industry conditions. Treatments consisted of an industry standard control diet with no plasma protein, 0.5% plasma protein, and 1.0% plasma protein. Treatments were balanced to maintain similar nutrient content. No differences in growth performance were observed due to the addition of plasma protein. Although plasma protein appears to improve growth and livability in high pathogen environments, it lacks positive effects in industry standard conditions.

Nutritional intervention in the early growing broiler chick has the potential to cheaply improve the growth and efficiency of broilers, potentially saving the broiler industry billions of dollars. The presented research suggests high dietary fat inclusion or spray dried plasma protein inclusion in the pre-starter ration of broilers are not effective methods for improving growth performance at market. Research in how the young chick utilizes and adjusts to nutrients should be continued to better improve nutrition during the first 2 weeks.