Sponsors

University of Minnesota
College of Veterinary Medicine
College of Food, Agricultural and Natural Resource Sciences
Extension Service
Swine Center

Thank you to IDEXX Laboratories for their financial support to reproduce conference proceedings

Production Assistants
Steven Claas
Michael Klatt

Layout and CD-ROM
David Brown

Logo Design
Ruth Cronje, and Jan Swanson; based on the original design by Dr. Robert Dunlop
The effect of the addition of alternative protein sources to swine nursery diets on pig performance
B. P. Corrigan, G. S. Grinstead, and D. D. Koehler. Vita Plus Corporation, Madison, WI.

Objective
The objective of this trial was to evaluate the effect on pig performance of the addition of dried eggs, dried skim milk, or a protein-rich yeast extract to nursery swine diets.

Materials and Methods
The trial was conducted as a RCBD with six replications per treatment. A total of 312 weaned pigs (approximately 21 days of age; mean body weight = 12.18 lb) were used in a 36-day trial utilizing 26 pens (13 pigs/pen). Pigs were allotted to one of four treatments based on initial body weight. Treatments were: 1) Four-phase nursery diet sequence containing SBM at 580, 535 and 610 lb/ton in diet phases I, II, and III, respectively; Control, 2) As 1 with Dried Egg included at 183, 68, and 80 lb/ton in phases I, II, and III, respectively; Egg, 3) As 1 with Dried Skim Milk included at 225, 81, and 100 lb/ton in phases I, II, and III, respectively; Milk, 4) As 1 with a combination of Dried Skim Milk and a protein-rich yeast extract included at 120 and 125, 10 and 83, and 0 and 117 lb/ton, respectively, in phases I, II, and III, respectively; Yeast Extract. The inclusion rate of Egg, Milk, and Yeast Extracts were established by maintaining constant levels of SBM and Lysine HCl at 350 and 4, 450 and 6, and 510 and 9 lb/ton in phases I, II, and III, respectively. A common diet was fed in Phase IV. Treatments were isonitrogenous and isocaloric within diet phase. Diet phases I (pellet), II (pellet), III (meal), and IV (meal) were offered from day 0 to 7, 7 to 14, 14 to 26, and 26 to 36, respectively. Individual pig weights were taken on days 0, 26, and 36, and pen weights were taken on days 7, 14, and 20. Feed disappearance was measured on each weigh day to calculate ADFI and F/G. Pigs that were removed from test were weighed and reason for removal was recorded. Data were analyzed using GLM and ANOVA procedures.

Results
Pigs consuming the Egg diets were significantly (P<0.05) lighter on d 20, 26, and 36 compared to pigs fed any other treatment. Pigs consuming the Control diet were heavier (P<0.05) on d 26 and 36 than pigs consuming the Yeast Extract diets and were similar (P>0.10) in weight to pigs consuming the Milk diets. Pigs consuming the Control and Milk diets had greater feed intakes (P<0.05) from d 14 to 26 and the period from 0 to 26 than pigs fed the Egg or Yeast Extract diets. Pigs fed the Egg diets had lower feed intakes (P<0.05) during the entire trial period (d 0 to 36) than pigs consuming the Control or Milk diets, and tended (P=0.09) to have lower feed intakes than pigs fed the Yeast Extract diets. Daily gain was higher (P<0.05) for pigs consuming the Control or Yeast Extract diets from d 7 to 14 compared to pigs fed the Milk and Egg diets. Pigs fed the Control diets had greater (P<0.05) daily gains for the periods from d 14 to 26, 0 to 26, and the entire trial period (0 to 36) than pigs fed the Egg or Yeast Extract diets. Pigs consuming the Yeast Extract diets had improved feed/gain from d 7 to 14 compared to pigs fed the Milk or Egg diets. Feed/gain was higher (P<0.05) for pigs fed the Egg diets from d 0 to 26 compared to pigs consuming the Control, Milk and Yeast Extract diets, however feed/gain was similar among treatments over the entire trial period (d 0 to 36).

Implications
This trial indicates that the source of dried eggs used in this trial negatively impacted nursery pig performance. This trial also suggests that higher levels of SBM do not negatively impact pig performance in the nursery, however further research is warranted to determine if these results are repeatable and if the alternative proteins can be utilized in a more effective manner.