AKEY A Leader in Nutrition Solutions
Swine Nutrition Newsletter

November, 2011

Effects of Zinc Source and Level in Paylean® Diets on Pig Performance and Carcass Characteristics[1]

The growth performance and carcass benefits of feeding Paylean have been well established. Although amino acid requirements for Paylean responses are known, a lack of information exists regarding other key nutrient requirements when pigs are fed Paylean. Normal industry practice is to reduce inclusion of vitamin and trace mineral premix in late phase finishing diets, including Paylean diets. Since Paylean stimulates a large increase in protein deposition, it makes sense that key nutrient requirements like zinc (Zn) would also increase. Therefore, our objective was to compare the growth performance and carcass characteristics of pigs fed Paylean with an additional 40 ppm Zn, from either zinc sulfate or Availa® Zn above that from the vitamin-trace mineral premix.[2]

All pigs (245 lb initial wt., n=384) were fed an Akey 5 phase program prior to start of this evaluation. Treatments were arranged as 1) control diet, 2) 4.5 g/ton Paylean diet, 3) Paylean diet with 40 ppm additional Zn from zinc sulfate, 4) Paylean diet with 40 ppm additional Zn from Availa-Zn. There were 12 pigs per pen and 8 replicate pens per treatment. The average final body weight was 285 lb. Because of the need to optimize market weight, multiple marketing selections occurred. Pigs were on trial for an average of 18 days.

Pigs fed Paylean had higher ADG versus control ($P < 0.01$; Figure 1). Pigs fed Paylean with extra Zn from either source tended to have higher ADG than Paylean fed pigs without extra Zn ($P = 0.11$). Feed to gain ratio was improved for Paylean fed pigs vs. controls ($P < 0.01$; Figure 2). Pigs fed Paylean and extra Zn tended to have a better feed to gain ratio than Paylean fed pigs without extra Zn ($P < 0.09$). Cost per pound of gain was lower for Paylean fed pigs versus controls ($P < 0.03$; Figure 3) and tended to be lowest for pigs fed extra Zn ($P < 0.10$). Backfat and percent lean were not affected by treatment ($P > 0.40$).

Zinc supplementation from either source tended to improve ADG, feed to gain ratio and cost per pound gained. The additional 40 ppm Zn from Availa-Zn cost approximately $1.26/ton of feed; the added Zn from zinc sulfate cost approximately $0.15/ton. While these results indicate that adding 40 ppm Zn from either sulfate or chelate forms is sufficient to improve performance, we recognize that zinc sulfate may have a lower absorption efficiency than high quality zinc chelates, but is much less expensive. Because of this, Akey is recommending either adding 40 ppm Zn from a high quality zinc chelate or 60 ppm from zinc sulfate. To add 60 ppm from zinc sulfate, add 0.33#/ton of complete feed with Paylean, for an added cost of approximately $0.22/ton of feed.

Figure 1. Effect of Paylean, Zn Source and Zn Level on ADG of 245 to 285 lb Pigs

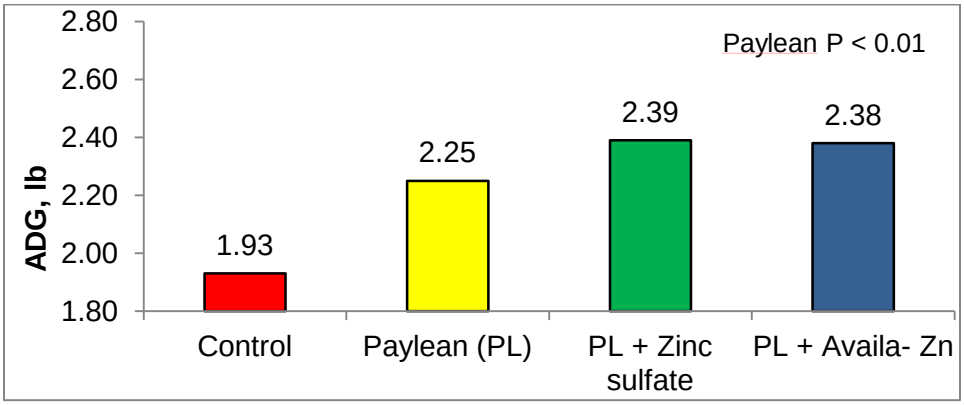

Figure 2. Effect of Paylean, Zn Source and Zn Level on Feed to Gain of 245 to 285 lb Pigs

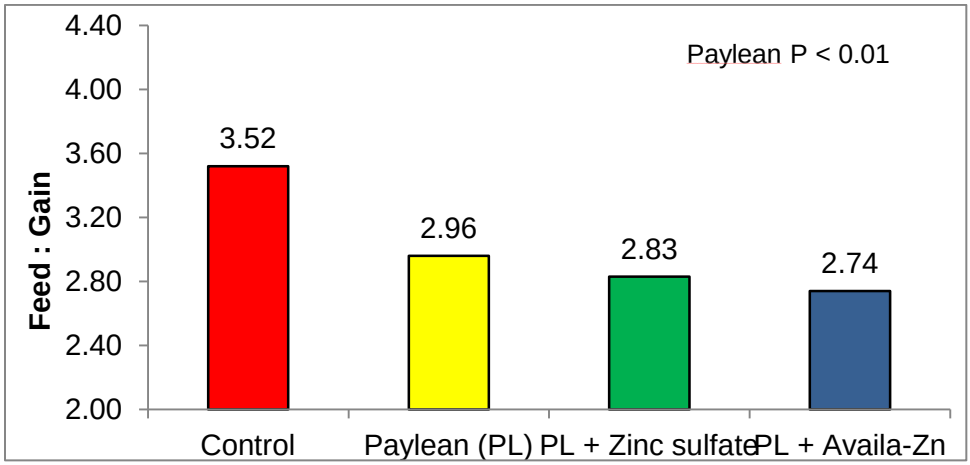

Figure 3. Effect of Paylean, Zn Source and Zn Level on $ per lb of Gain of 245 to 285 lb Pigs