Title: Evaluation of two mycotoxin binders as a means to reduce the adverse effects of vomitoxin on the performance and health in growing/finishing pigs - NPB #: 10-079

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Abstract

Mycotoxin contamination of corn or corn-based distillers dried grains with soluble represents a serious problem to pork producers who are seeking to achieve maximum health and performance of their pigs. Recently, mycotoxin binders have been introduced to the marketplace to offset the negative impact of vomitoxin on pig performance, but there is very little published information on their effectiveness. The objectives of this grow-finish experiment were 1) to determine if Diffusion or Integral, two prominent products on the market, would eliminate or reduce the impact of vomitoxin, or DON, at moderate levels in the diet of pigs, 2) to determine the impact of ~4-5 ppm DON on pig performance and health when the vomitoxin is provided by corn distillers dried grains, as opposed to corn itself, and 3) to evaluate the economics of feeding mycotoxin binders to growing/finishing pigs. A total of 1,036 barrows and gilts were assigned to one of 4 dietary treatments across a 115-day experimental period: a positive control diet using a DDGS source with low levels of DON (0.8 ppm), a negative control diet using a DDGS source with high levels of DON (18.6 ppm), and two additional diets containing either Defusion or Integral added to the negative control diet. DON contamination reduced final body weight, ADG, ADFI and feed conversion (P < 0.05). Defusion improved all performance outcomes and resulted in final BW, ADG, ADFI and feed conversion that were not statistically different from the positive control-fed pigs (P > 0.05). The benefit of Defusion was greater in barrows than in gilts. Indeed, gilts failed to respond to Defusion to the same extent as barrows. Defusion also reduced the standard deviation of final BW (P < 0.05), although the magnitude of improvement was small. Integral improved ADG (P < 0.05), but not final BW, ADFI and feed conversion, compared to the negative control-fed pigs (P > 0.05). Integral achieved numerical improvements in final BW and ADFI, but the differences were not statistically significant (P > 0.05). The adverse impact of DON-contamination of DDGS on pig performance was clearly demonstrated. Defusion recovered about 78% of the losses in final body weight and 86% of the losses in feed.
conversion. Integral recovered about a third of the losses in body weight, but this numerical improvement was not statistically significant and may not be repeated on individual farms. An economic analysis of the experiment results was undertaken. Within 4 market ($40, $60, $80 and $100/cwt) and 3 feed ($50, $70 and $90 feed cost/pig) scenarios, the presence of mycotoxins reduced the return over feed by up to $20.68 per pig; even the lowest impact reduced returns by $2.06 per pig. Defusion affected return over feed cost, after including the cost of the product, ranging from a net cost of $0.15 per pig to a net gain of $13.25 per pig. The magnitude of the impact was a factor of market hog prices and feed cost. Integral changed return over feed cost, after including the cost of the product, ranging from a net cost of $1.37 per pig to a net gain of $5.23 per pig. Because neither improvements in market weight nor feed conversion were statistically significant with Integral, the financial benefit must be viewed with great caution. If the numerical increase in body weight and in feed conversion may be due to chance, then so too could be the financial returns. The use of mycotoxin binders offers some encouragement to pork producers faced with mycotoxin problems, but there appear to be differences among products in their effectiveness.

Key Words: Swine, Vomitoxin, Deoxynivalenol (DON)