Technical Bulletin

In-vivo Impact of DON on Growing Pigs

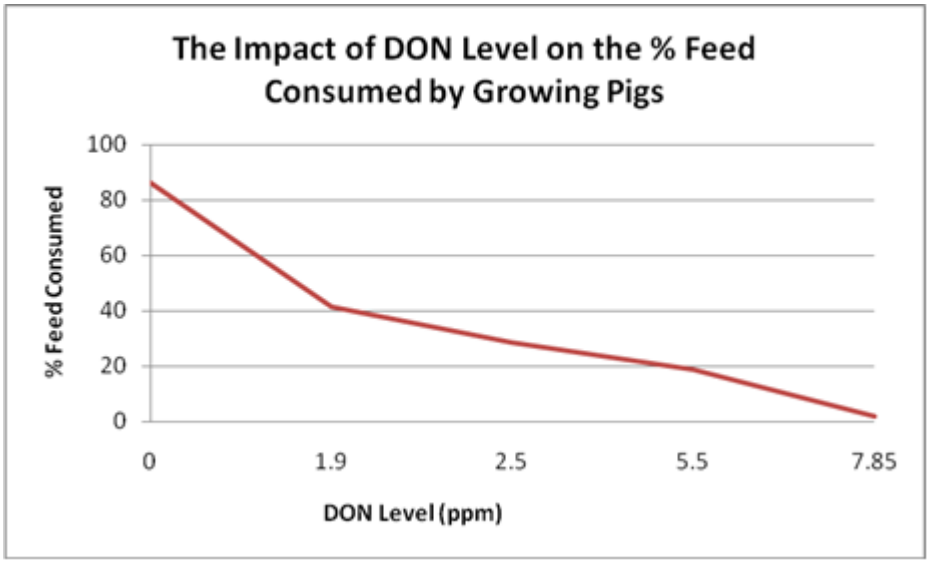
Objective: To evaluate a) the in-vivo impact of different levels of DON (0, 1.9; 2.5; 5.5; and 7.85 ppm DON) on the feed consumption of growing pigs, and b) establish the effects of FloMatrix® Feed Technology (FloMatrix® FT) at 5 or 10 lb per ton of feed on feed consumption, average daily gain, and feed:gain when growing pigs were fed diets containing 0.9 and 1.8 ppm DON.

Experimental Design: For the titration study; 10 pigs (40 to 60 lb) in 10 individual pens with 2 pigs per treatment (DON level). The titration study was repeated twice. For the FloMatrix® FT trial, 64 commercial pigs (32 gilts, 32 barrows) approximately 9 weeks old were randomly placed into individual pens at Virginia Diversified Research Corp's Lacey Spring North Facility and conducted by Michael Sims in 2010. The pigs weighed between 40 and 60 lbs with 4 pigs in each of the 8 treatment groups (0 ppm DON; 0 DON+5 lb FM; 0.9 ppm DON; 0.9 ppm DON+5 lb FM; 0.9 ppm DON+ 10 lb FM; 1.8 ppm DON; 1.8 ppm DON+ 5lb FM; and 1.8 ppm DON+ 10 lb FM) which were replicated 8 times. Gilts and barrows were equally represented in each of the treatment groups. Each pen contained 1 water fountain and a 50 lb capacity feeder. The pens were 4' x 4'. All pigs were weighed on day 0 and day 7, and all pen feeds were weighed back on day 7. Visual health inspections were performed at least twice daily.

For both trials, DON contaminated corn was purchased from a supplier in Iowa (analyzed to contain 5.6 ppm DON). A commercial feed concentrate (44.4%) and corn meal (55.6%) made up the diet. The non-contaminated corn meal was blended with the contaminated Iowa corn meal to make a feed for both the titration and the FloMatrix® FT ameliorating study. The DON values reported in these trials were the levels that were confirmed by mycotoxin analysis (AnaLab, Fulton IL).

Results:

A. Titration Study. Feed consumption was significantly reduced with increasing level of DON (Figure 1). At the high levels of 5.5 and 7.85 ppm DON feed consumption was so severely reduced that pigs had to be removed after 3 days, which established the period for the second titration trial.



B. FloMatrix® FT Trial.

Since there were no significant differences ($p \geq 0.05$) between the addition 5 lb and 10 lb FM/ton of feed, the data for 5 lb/ton FM is presented below. Pigs fed a diet containing 0.9 ppm DON alone consumed significantly ($p \leq 0.05$) less feed, gained less weight and had poorer feed:gain than the control or the FloMatrix® FT (5 lb/ton) treatments

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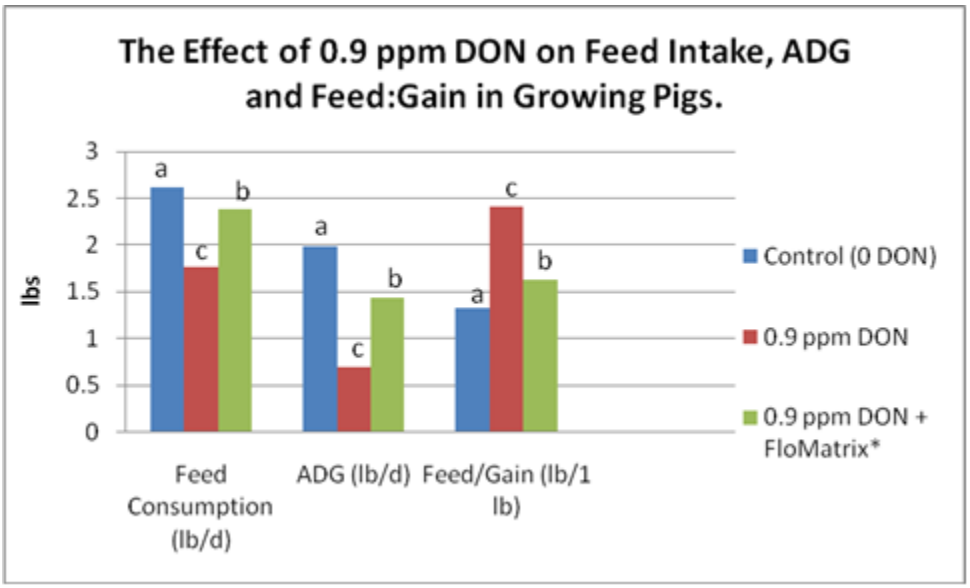
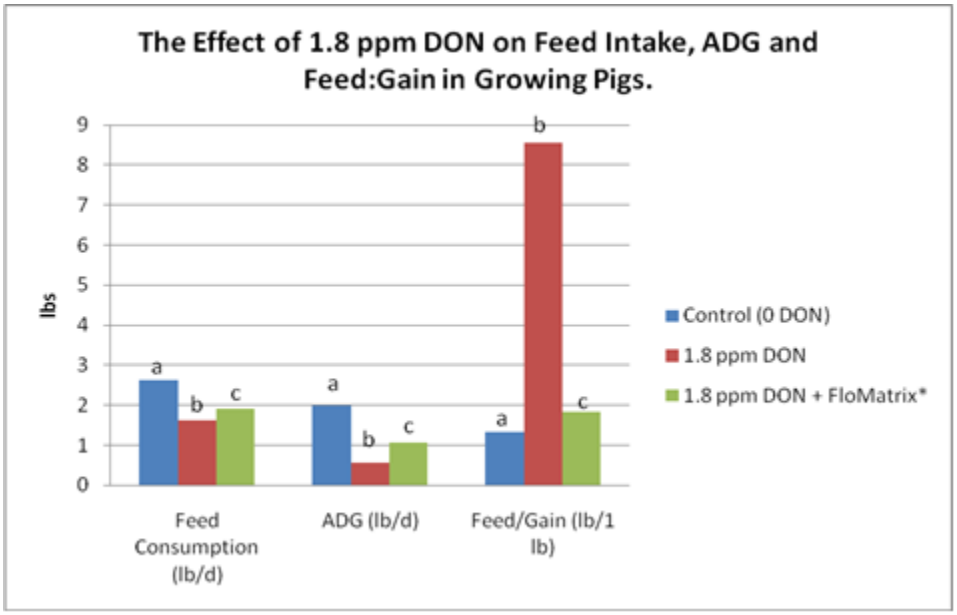


Pigs fed 1.8 ppm DON alone consumed significantly ($p \leq 0.05$) less feed, gained less weight and had poorer feed:gain than the control or the FloMatrix® FT (5 lb/ton) treatments.



Conclusion:

DON at either 0.9 or 1.8 ppm in the diet reduces feed consumption, weight gain and feed:gain in growing pigs. The addition of FloMatrix® FT at 5 lb per ton feed significantly improved performance versus the negative control, but did not restore performance to that of the positive control. FloMatrix® FT may provide an effective tool for mitigating the impact of DON in growing pigs.

FloM3

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