

Efficacy of Soybean Meal in Reducing the Effect of a PRRS Challenge in Finishing Pigs



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Introduction

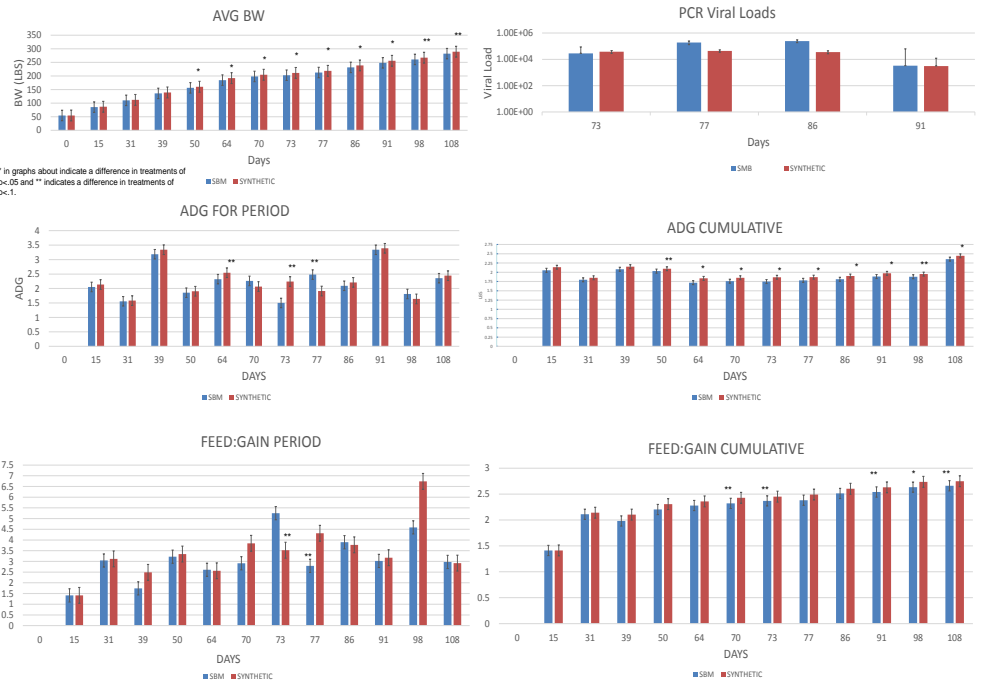
- Porcine Reproductive and Respiratory Syndrome costs the swine industry approximately \$1.8 million per day. It is the #1 swine disease in the world, even worse than the recent PEDv.
- In 2013 PRRSv cost \$664 million to the swine industry which is a 18.6% increase from 2012.
- There is vaccination and biosecurity protocols to help manage outbreaks and spread of PRRSv but the virus mutates rapidly and is very infectious at low doses. Therefore it is still a major issue to the swine industry and will be for the foreseeable future.
- In recent years the industry has turned to synthetic amino acids as a cheaper source of protein for pigs due to the high input cost of soybean meal.
- The substitution has been proven to not affect growth performance or carcass values.
- In previous trials it has been shown that diets high in synthetic amino acid and low in soybean meal did worse in both efficiency and daily gain. They also had a higher mortality and morbidity levels.
- This is the first trial to be conducted in a controlled research setting to fully understand the benefits of soybean meal in pigs undergoing a PRRSv outbreak.

Objective

- To determine the efficacy of SBM in reducing the effects of PRRSv challenge in finishing pigs by looking at both growth performance and immunological processes.

Material & Methods

- 100 gilts were allotted to 20 pens of 5 pigs/pen with average body weights of 54.67.
- All 20 pens were on a common diet for the first 39 days of the trial. At that point the pens were randomly assigned to treatments of either a higher concentration Soybean Meal diet or high Synthetic Amino Acid diet.
- On Day 63 one pig from every pen was pulled and moved to a different confinement barn to act as the controls for the trial.
- On Day 70 all control pigs were inoculated with medium while the remaining 80 test pigs were inoculated with PRRSv strain MN-184. All animals were also bled prior to bleeding to obtain a baseline of cytokines.
- The pigs were then bled on Day 3, 7, 16, and 27 and blood analyzed for real-time PCR and Serum Elissa.



Results & Discussion

- The synthetic amino acid diet pigs average weight was different from the Soybean Meal diet pigs from day 50 until the end of the trial indicated in graphs.
- The soybean meal diet pigs were more efficient towards the end of the trial by .1 lbs.
- The Immunological testing is still underway but PCR viral load data was completed and is above.
- The biosecurity protocol used in the experiment was successful keeping our control pigs PRRSv negative when both barns were located on the same farm site.
- Some possible reasons we did not get the response we wanted was due to no secondary disease effecting the pigs and because they were heavier when challenged and showed less of a response.
- We also believe that there may have been some disease resistance in the genetics of the pigs because there was one pig challenged and housed with PRRSv positive pigs never became infected.

Conclusions & Implications

- The Preliminary data indicates that the pigs fed high synthetic amino acids and low soybean meal did better through the trial for average body weight.
- I believe that the trial did not go as planned because of the weight of the pigs when inoculated and due to the excellent health of the pigs not allowing any secondary disease responses.
- We plan to rerun the trial in the summer of 2015 with younger pigs and different genetics of pigs.

Acknowledgments

Special thanks to all the graduate and undergraduate students for helping to collect samples and data during the trial. Funding was provided by South Dakota, North Dakota, and Minnesota Soybean Research and Promotion Council