



Reducing Post-Weaning Diarrhea: Digesting the Results

By Geoff Geddes, for Swine Innovation Porc

For many people, diarrhea is something you just don't talk about. In the pork world, however, silence on this problem could be deadly to your bottom line. That was the impetus for the *Prebiotics and organic acid salts* project (R. Zijlstra) aimed at reducing post-weaning diarrhea without using antibiotics.

"This study came about as part of a project looking at feed additives and their usefulness in cases of diarrhea in pigs," said Dr. Ruurd Zijlstra, Professor and Chair, Agricultural Life and Environmental Sciences, Agricultural Food and Nutritional Science at the University of Alberta.

"Historically we have used low levels of antibiotics in diets to address post-weaning diarrhea. We're interested in how pigs that have subclinical intestinal negative outcomes that cause diarrhea could benefit from feed additives."

Chewing on the results

Thus a nursery feeding trial was conducted to evaluate the impact of diets supplemented with three types of prebiotics or with an organic acid salt. Pigs responded quite positively to the organic acid. In addition to improving total tract digestibility of dry matter, crude protein and gross energy, they showed increases in average daily gain, feed efficiency and body weight. Supplementing with prebiotics that included glucan



Photo: University of Guelph

and zinc also enhanced digestibility, though they didn't affect piglet growth.

"This goes hand in hand with what we expected. The organic acids created more beneficial outcomes for growth and digestibility. Because the prebiotics had less impact on digestion, their effect on growth was negligible."

As is often the case with research, this project had to ensure the results were meaning-

ful for producers by simulating real world conditions. That's a challenge at the best of times, but even more so when dealing with diarrhea.

The real dirt on diarrhea

"Sometimes studies in university settings are less relevant as the environment is much cleaner and features a lower pathogen load than commercial pig production."

To avoid a similar issue with this trial, they created a protocol at the university research facility that increased the chance of diarrhea appearing.

"We felt the environment was less favorable for pigs and contained a bit of disease challenge, which should bolster the value of our findings."

And the value to industry is significant.

Digesting the implications

"For pork production, when you are dealing with scenarios where pigs are contracting diarrhea post-weaning, you want to have solid information on feed additives and how they can help. To do that, you need to run controlled trials like this, so you can point to different additives and say 'this one worked and this one didn't', and relate that to changes in weight gain and nutrient digesti-

bility. Ultimately, you want your choices to result in less diarrhea on farm."

While they have yet to publish the results, Dr. Zijlstra said the findings fit with increasingly strong evidence that some feed additives can support proper management of piglets post-weaning. Moreover, organic acids appear to be a key part of the puzzle regarding selection of a set of feed additives to replace antibiotics as a growth hormone.

So maybe diarrhea research won't be a hot topic at your next dinner party. But for scientists and producers, it gives them much to chew on.

For more information....

For more information about the work described in this article, please contact Dr. Ruurd Zijlstra at: ruurd.zijlstra@ualberta.ca

This research was part a larger national project titled *Innovative piglet management strategies for optimum performance up to slaughter weight and profitable pork production*.

You may find additional resources related to the project by consulting our website:

www.swineinnovationporc.ca/research-animal-nutrition

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