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## More details on so-called corn diet

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### Abstract

The question of holding diets came about when the flow of market-ready animals was disrupted by the novel coronavirus earlier this year. At that time, recommendations were made on what producers could do to slow the growth of their pigs until the opportunity arose to send them to harvest. Nick Gabler, an Iowa State University Animal Science professor, quickly initiated a study to evaluate various dietary options to reduce growth rates.

### Disciplines

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### Comments

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# National Hog Farmer.



National Pork Board

## More details on so-called corn diet

### *Slow-growth diets prove effective in buying time for producers.*

By Sharon Norton, Katie Betts, Jim Jolliff, Chad Pilcher and Matt Ritter, Provimi/Cargill Inc.; Jim Erickson, Brian Ramer and Cale Parson, TDM Midwest/Hog Slat Inc.; and Nicholas Gabler and John Patience, Iowa State University Department of Animal Science and Iowa Pork Industry Center | Oct 15, 2020

The question of holding diets came about when the flow of market-ready animals was disrupted by the novel coronavirus earlier this year. At that time, recommendations were made on what producers could do to slow the growth of their pigs until the opportunity arose to send them to harvest. Nick Gabler, an Iowa State University Animal Science professor, quickly initiated a study to evaluate various dietary options to reduce growth rates.

One of the more popular and cost-effective options adopted in one form or another by the industry from this work was the so-called "corn diet."

This diet was formulated to be easy and inexpensive to adopt. It was achieved by removing all soybean meal and synthetic amino acids, and by increasing corn to 97% inclusion rate with all necessary vitamins and minerals.

Initial recommendations were not to feed the corn diet for more than three to four weeks; this was a precautionary recommendation that was not supported by any experimental data.

Consequently, a collaborative study between Provimi NA, TDM Midwest/Hog Slat and ISU set out to answer a number of questions about the corn diet.

- How would pigs perform if you feed the corn diet for more than three weeks?
- How would pigs perform if you take pigs previously on the corn diet and return them to a regular, nutritionally balanced finishing diet?
- With further evaluation of the corn diet, how would the pigs perform if given the corn diets for only three weeks?

The experiment was initiated in May at the TDM/Hog Slat Research facility in Chili, Ind. A total of 955 pigs with an average initial weight of 203 pounds were allotted (approximately 6.9 square feet per pig per pen) to one of four treatments:

- a standard finishing diet fed for 42 days prior to harvest;
- the standard finishing diet above fed for three weeks, followed by the 97% corn diet for the final three weeks prior to harvest;
- the 97% corn diet fed for three weeks before being returned to the control diet for the final three weeks prior to harvest; or
- the 97% corn diet fed for the full 42-day experimental period.

At the time of the experiment, the ingredient cost of the control diet was \$160.92 per ton, and that of the 97% corn diet was \$127.16 per ton.

## Goal accomplished

For the overall six-week experiment, average daily gain on the 97% corn diet was 55% lower than that on the control, so the diet clearly achieved its objective of slowing growth. However, the 97% corn diet did not reduce feed intake.

As expected on a diet so deficient in amino acids, the feed conversion on the 97% corn diet was much worse than on the control — in fact, it was more than double that of the control diet.

What about the pigs that switched diets at the end of Week 3? As expected, pigs that switched from the control diet to the 97% corn diet grew much more slowly and less efficiently than pigs fed the control diet throughout: ADG was 0.83 pound versus 1.82 pounds per day, and feed conversion was 6.11 vs 2.97.

Interestingly, the pigs that switched from the 97% corn diet to the control diet experienced a boost to their gain in the first week. Their ADG jumped from 0.78 pound per day in Week 3 to 2.19 pounds per day in Week 4. In weeks 5 and 6, the ADG was about the same as that of pigs fed the control diet throughout the whole experiment.

At the end of the six-week experiment, pigs fed the control diet throughout the experiment weighed 281 pounds. Pigs fed the 97% corn diet for all six weeks weighed 240 pounds.

The final weight of the pigs fed the 97% corn diet for three out of the six weeks was 261 pounds. It did not matter if they were fed the 97% corn diet for the first three weeks or the last three weeks; their final weight was the same.

## Excellent growth rates

Another way to look at it: While receiving the 97% corn diet, pigs gained about 1 pound less per day compared to pigs fed a normal diet. So, if a holding diet is applied to a barn and suddenly access to the packing plant opens up, switching pigs from the 97% corn diet to a properly balanced diet will produce excellent growth rates.

As a feeding program to slow growth, the 97% corn diet was very successful; the cost per day on this holding diet was 30.8 cents compared to 40.8 cents on the control diet.

However, as a feeding program to achieve growth, it was not very good at all; the feed cost per pound of gain was 35.8 cents compared to 22.1 cents on the control diet.

In terms of carcass composition, percent lean was reduced by 2 percentage points, and loin depth was reduced by almost 0.4 inch in the pigs fed the 97% corn diet throughout the study. This was not surprising, because these pigs weighed 40 pounds less and therefore would be expected to have thinner loins.

Backfat was a bit thicker in the pigs fed the corn diet for all six weeks, which suggests that fatter carcasses would be an issue on this diet because — once again — these pigs weighed 40 pounds less and should have had considerably less backfat at the end of the experiment, not more.

Finally, we are frequently asked about mortality and pulls in pigs fed diets so deficient in amino acids. The percent mortality and removals were not statistically different among the four treatments.

However, there were numerical differences. Pigs on the control diet experienced 1.2% mortality plus removals. This compared to 1.65% and 1.24% for the pigs receiving the 97% corn diet for the first three weeks, or the second three weeks, respectively.

Mortality and removals was 4.2% for pigs receiving the corn diet for all six weeks.

## Conclusion

The 97% corn diet was effective in reducing growth rates, and thus would help to keep the harvest weights of pigs within the packer's premium range. It did so while at the same time lowering feed cost by about 10 cents per day.

In addition, pigs having received the 97% corn diet can be switched to a properly balanced finished diet, if packer space opens up and weight gain is again desired. Indeed, some degree of compensatory gain is observed.

*For additional information, contact **Ritter** , 515-520-1808; or **Patience** , 515-509-1756.*

*Sources: Sharon Norton, Katie Betts, Jim Jolliff, Chad Pilcher, Matt Ritter, Jim Erickson, Brian Ramer, Cale Parson, Nicholas Gabler and John Patience, who are solely responsible for the information provided, and wholly own the information. Informa Business Media and all its subsidiaries are not responsible for any of the content contained in this information asset.*

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