



TECHNICAL REPORT

by Groupe Cérès and Nutrition Athéna



DO CORN CLASSES HAVE AN IMPACT ON NURSERY PERFORMANCE?

Trial results: Corn nutritional value at different test weights and impact on performance of nursery piglets

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The 2019 corn harvest was very difficult given the capricious weather we experienced, not allowing corn to properly ripen and dry in the fields. More often than usual, producers had to use dryers before storing the crop. Two criteria responsible for grain grading, weight (kg/hl) and percentage of cracked corn and foreign material (CCFM), were greatly affected. Corn weight is generally above 68 kg/hl and now varies between 62 and 66 kg/hl. We even saw several results below 60 kg/hl. Few studies in swine nutrition have been done to fully understand the impact of corn weight on energy value, nutrient digestibility and performance of growing pigs. Therefore, we decided to do a research project in a nursery to have reliable data on this issue.

The trial took place at our research nursery, Ferme Lise et Fran ois M ethot located in L evis, during the months of April and May.

All piglets received the same food for the first 18 days of rearing. On day 18, the piglets were weighed and allotted according to their weight in three different treatments for phase 3 feeds. The animals were then weighed weekly until they left for finishing on day 47. Daily feed intake was recorded, as well as diarrhea signs and all medical treatments administered.

For the "test" feeds, the feed formula was identical, only

the corn sources differed. The formula was made with a high percentage of corn (62%) to allow us to precisely target the impact of corn weight on pigs' performance.

For this trial, we used 3 different classes of corn to properly characterize the impact of corn quality on piglets' growth performance. Nutritional analyses were carried out for these 3 classes of corn, as well as on toxin content, all of which were found to be at levels below tolerable thresholds.

Table 1. Treatments

	Class	Origin	Corn weight	CCFM
A	#1/#2	US	72 kg/hl	2.5 %
B	#3	Local	66 kg/hl	9.1 %
C	#5	Local	60 kg/hl	4 %

Results

We observed no significant impact between the different classes of corn on the final piglet weight, the average daily gain (ADG) and the average daily intake (ADI).

Feed efficiency was also not affected by the specific weight of the corn used. The rate of dead and removed

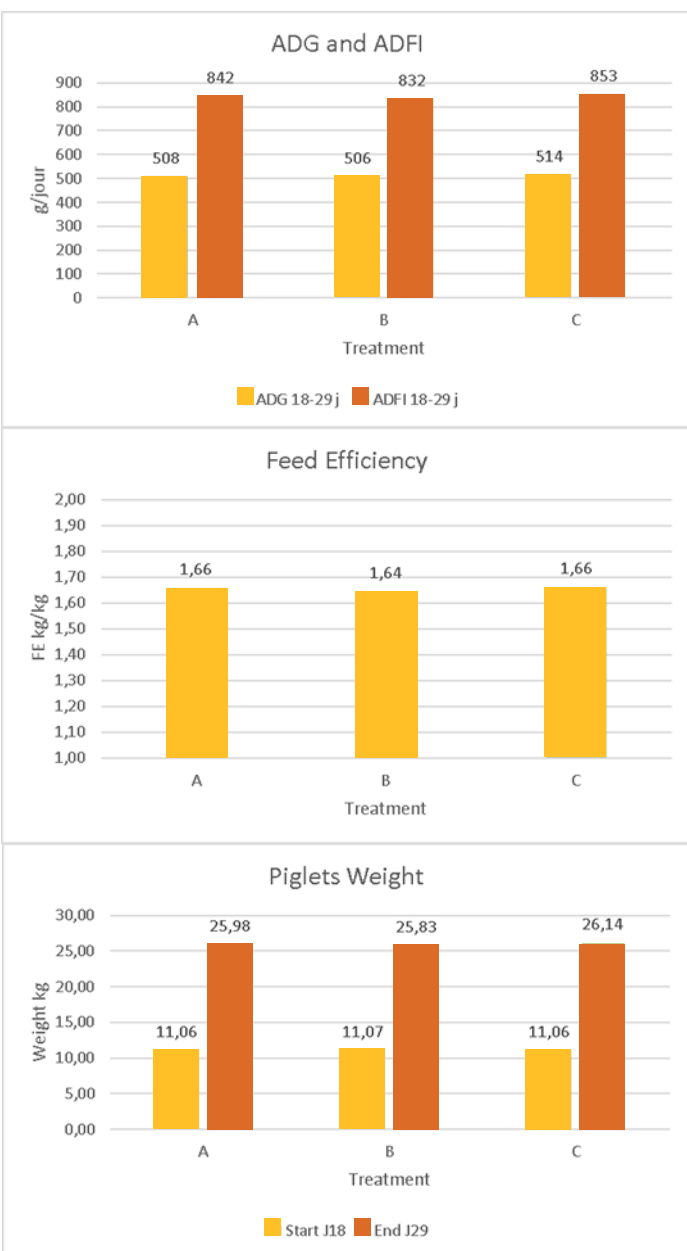
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piglets from the test was also non-significant. All piglets performed equally well depending on the food received. Therefore, the quality of the corn did not seem to affect the performance of the piglets in any way.

No sign of diarrhea was observed during the rearing period. The weight of the corn did not have an impact on this point as well.

It is important to note that this barn tested positive for influenza on March 30, prior to the start of the test at 21 days of rearing. The piglets received common water treatments of soluble Dexamethasone, Penicillin and Salicylate. However, despite the fact that the piglets' growth was affected by the influenza contamination, all animals were affected and treated simultaneously.



Therefore, the final test data or the effect of treatment with the 3 classes of corn were not influenced.

Economic Impact

The ranking of corn has a direct impact on its selling price. Formulating with grade 1 corn versus grade 4 or less will not have the same impact on the final price of the feed.

Table 2. Corn price used for this test and average price

	Class	Origin	Corn price	Average feed price
A	#1	US	\$275/t.	\$440/t.
B	#3	Local	\$255/t.	\$427/t.
C	#5	Local	\$220/t.	\$406/t.

By comparing the different feeding costs of the treatments, we find a margin of + \$0.25/piglet using local corn #3 vs US #1/#2 and a margin of + \$0.70/piglet using local corn #5 vs US #1/#2.

Conclusion

This project was carried out in partnership with the CDPQ. This trial was also conducted by three other Quebec-based swine food companies. The results obtained are very similar to ours in terms of impact on growth. There was more variation for feed efficiency, but if we combine the data from the 4 tests, the differences are minimal or almost null. Digestibility tests on the different corn used for the tests will be conducted in collaboration with Université Laval later in 2020. The results may provide a better understanding of the data obtained in the spring trials.

Therefore, we can confidently conclude that the class of corn used in your feed formula seems to have little impact on piglet performance. Using a lower class of corn could even become a tool to reduce feed costs on the farm. However, the quality criteria associated with the level of toxins and % of CCMF should be considered when purchasing lower class corn.

We bet you won't look at your Grade 5 corn the same way again!

Contact us for more information and to analyze the possibilities for your farms.