

# Effect of Wheat Quality and Xylanase Supplementation on Weaned Pigs

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## Summary

The feed processing procedure xylanase supplementation was tested to reduce the existing variability in wheat quality. Xylanase enzyme supplementation partially reduced the variation in performance of weaned pigs caused by wheat sample.

## Introduction

Nutritional quality between wheat samples is influenced by protein and fiber content. Supplementation with a fiber-degrading enzyme may reduce the impact of wheat quality variance on pig performance.

## Experimental Procedures

Six wheat samples representing a wide range in neutral detergent fibre (20.1 to 35.7% dry matter) and narrow range in crude protein (18.8 to 21.4% dry matter) were collected. Effects of wheat samples and enzyme treatments (control; *Trichoderma xylanase*, 2625 U/kg diet) on performance were investigated in a 6 x 2 factorial arrangement in 12 diets. Diets (3.5 Mcal DE/kg and 3.4 g digestible lysine/Mcal DE) contained 65% wheat, 27% soybean meal, 2.1% canola oil, and 1.3% fishmeal as main ingredients. Diets were pelleted at 72 °C resulting in a pellet durability index ranging from 93 to 95. A 3-week growth study was conducted with 12-kg weaned pigs (PIC; 39-d-old; 4 pigs/pen, 12 pens per diet).

## Results and Discussion

For d 0 to 7, wheat affected average daily gain and feed efficiency. Enzyme improved average daily gain and feed efficiency. However, wheat and enzyme interacted, because pigs responded positively to enzyme for five wheat samples (+0.26 kg at d 7) and negatively for one wheat sample (-0.30 kg). Wheat and enzyme did not affect ADFI, see Figure 1.

For d 8 to 14, average daily gain and feed efficiency were not affected by wheat or enzyme but average daily feed intake was affected by a wheat x enzyme interaction, producing 0.36 kg heavier pigs from enzyme-supplemented diets.

For d 15 to 21, average daily gain and feed intake were not affected by wheat or enzyme and wheat sample affected feed efficiency.

Overall for d 0 to 21, average daily gain was not affected by wheat or enzyme, average daily feed intake was affected by a wheat x enzyme interaction, and feed efficiency was affected by wheat sample and improved 2% by enzyme, resulting overall in 27-kg pigs.

## Conclusion

In summary, wheat quality affects performance of weaned pigs and specific wheat samples may affect the response by pigs to enzyme supplementation. Wheat quality should be analyzed prior to diet formulation and processing to achieve a predictable performance.

## Acknowledgements

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*“Xylanase enzyme supplementation partially reduced the variation in performance of weaned pigs caused by wheat sample.”*

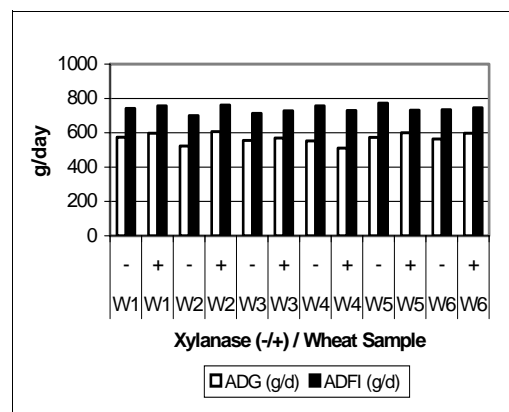


Figure 1. Effect of wheat sample and xylanase supplementation on average daily gain and feed intake for day 0 to 7

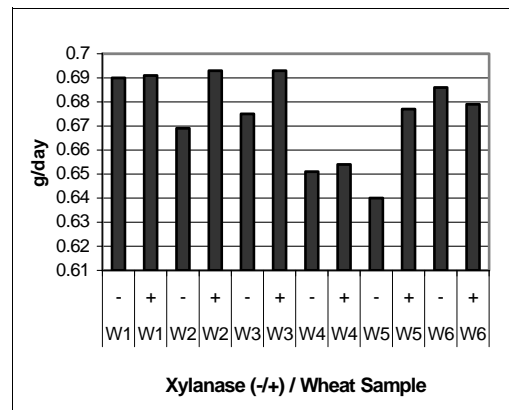


Figure 2. Effect of wheat sample and xylanase supplementation on feed efficiency (gain/feed) for day 0 to 21