

Nutritional Value of Debranned Wheat

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Summary

Removing bran from wheat produces debranned wheat. The nutritional value of debranned wheat was analyzed using grower and weaned pigs. Using grower pigs, DE content of debranned wheat was 6% higher than the parent wheat. Diets based on 35% debranned wheat, wheat, or oat groats were formulated to an equal nutritional value and fed to weaned pigs. Performance was similar among the three diets, indicating that debranned wheat does not have any adverse effects on voluntary feed intake and is a worthwhile product to include in least-cost diet formulation.

Introduction

Dehulling or debranning of cereal grains results in separation of the hull or bran from the groat. The dehulled or debranned grain or groat should have a nutritional value superior to that of the original grain, because removal of the fibrous hull or bran will reduce the fibre content of the end product. Oat groats are recognized for their palatability and high energy density. The nutritional value of debranned wheat has not been explored to date.

Experimental Procedures

Wheat, debranned wheat, and oat groats were analyzed by proximate analyses. Diets consisting of 96% test product, and vitamins, minerals, and chromic oxide as an indigestible marker were fed to grower pigs. Using estimated nutritional values, mash diets based on 35% debranned wheat, wheat, or oat groats were formulated to an equal nutritional value (3,490 kcal DE/kg; 1.3% total lysine) and then fed to 3-week-old weaned pigs for 4 weeks.

Results and Discussion

The fibre content was lower for debranned wheat than the parent wheat (NDF, 9.3 versus 12.4% DM). The DE content (as is) was 3,407 kcal/kg for debranned wheat, 3,216 kcal/kg for the parent wheat, and 3,736 for the oat groats (Figure 1), indicating that the DE content of debranned wheat

Debranned wheat can be a worthwhile alternative for weaned pigs.

may be up to 200 kcal/kg or 6% higher than wheat. Overall, feed intake was similar among diets fed to weaned pigs ($P > 0.10$; Figure 2), indicating that debranned wheat is a palatable ingredient for weaned pigs. Overall, average daily gain for pigs fed debranned wheat was slightly higher than for pigs fed oat groats, and similar to pigs fed wheat (Figure 2), indicating that the nutritional value of debranned wheat may be higher than calculated based on book values.

Implications

The DE content of debranned wheat was higher than the parent wheat, but did not reach the DE content of oat groats. Debranned wheat does not have any adverse effects on voluntary feed intake and is a worthwhile product to consider for least-cost diet formulation. The nutritional value of debranned wheat should be assessed for a range of wheat samples.

Acknowledgements

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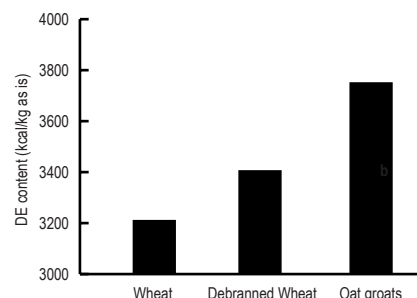


Figure 1 The DE content of wheat, debranned wheat, and oat groats as analysed in grower pigs. The wheat sample was the parent wheat for the debranned wheat.

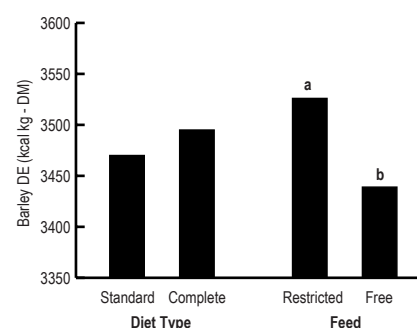


Figure 2 Average daily gain and feed intake over 4 weeks for 3-week-old weaned pigs fed diets including 35% wheat, debranned wheat, or oat groats, formulated to an equal nutritional value (differences, $P < 0.10$).

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