



# Nutritional Value of High-Oil Oat Groats

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## Summary

High-oil germplasm should increase the DE content of feed ingredients. The nutritional value of high oil oat groats was analyzed using grower and weaned pigs. Using grower pigs, DE content of high oil oat groats was 5% higher than regular oat groats. A subsequent performance trial with weaned pigs indicated that high oil oat groats resulted in a similar performance as regular oat groats if replaced on an equal weight basis.

**High oil groats can be a worthwhile alternative for weaned pigs.**

## Introduction

High oil is a natural variant in oats, similar to high oil corn (2000 *Annual Research Report*). Subsequent dehulling produces high oil oat groats that should have a nutritional value superior to regular oat groats, because of an assumed higher DE content. Regular oat groats are recognized for their palatability and high energy density. The nutritional value of high oil oat groats has not been explored extensively.

## Experimental Procedures

High oil and regular oat groats were analyzed by proximate analyses. Diets consisting of 96% high-oil oats or oat groats, plus vitamins, minerals, and chromic oxide as an indigestible marker were fed to grower pigs. Mash diets based on corn, wheat, or regular oat groats (50 or 100% replacement of wheat) were formulated to an equal nutritional value (phase-1, 3,540 kcal DE/kg, 1.4% total lysine; phase-2, 3,430 kcal DE/kg, 1.24% total lysine) and then fed to three-week-old weaned pigs for four weeks (2 wk phase-1, 2 wk phase-2). High oil oat groats

replaced regular oat groats on a weight basis to create a total of six dietary treatments.

## Results and Discussion

The fat content was higher for high oil oat groats than regular oat groats (10.1 vs. 7.2 % DM); however, protein content was lower (11.3 vs. 12.1 % DM). The DE content (DM) was 2,920 kcal/kg for high oil whole oats, 4,341 kcal/kg for high oil oat groats, and 4,149 for regular oat groats (Figure 1). This indicates that the DE content of high oil oat groats is 5% higher than regular oat groats. The DE content of high oil whole oats remained low. Average daily gain was higher for 100% oat groats than wheat diets fed to weaned pigs ( $P < 0.05$ ; Figure 2), indicating that oat groats are a palatable ingredient with a high nutrient density for weaned pigs. Overall, performance of pigs fed high oil oat groat was similar to pigs fed regular oat groats (Figure 2), indicating that the increase in energy intake did not result in improved performance, perhaps due to the lower than expected protein content of the high-oil oat groats.

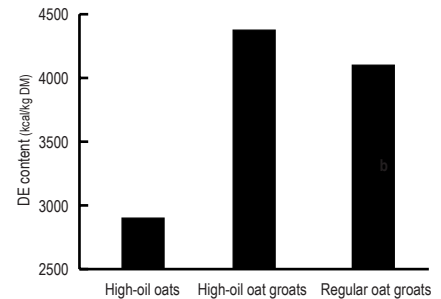
## Implications

The fat content of high-oil oat groats was

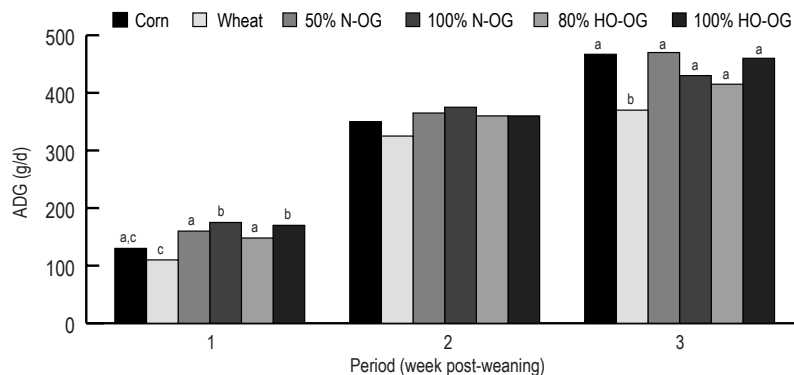
higher than regular oat groats, and did result in a 5% higher DE content. High oil oat groats did not have any adverse effects on performance and seems a worthwhile product to pursue to increase energy intake of young pigs.

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**Figure 1.** The DE content of high-oil whole oats, high-oil oat groats, and regular oat groats as analysed in grower pigs. High-oil oat groats was derived from the high-oil whole oat samples.



**Figure 2.** Average daily gain over the first 3 weeks for 3-week-old weaned pigs fed diets including corn, wheat, or 50 or 100% of the wheat replaced with normal (N) or high-oil (HO) oat groats (OG;  $P < 0.05$ ).

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