

Corn-Pea, Barley-Pea and Naked Oat-Pea Growing-Finishing Diets Supplemented With Full-Fat Canola Seed as a Source of Methionine and Energy

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General Objectives:

1. To determine pig growth and carcass performance when using full-fat canola seed as a natural occurring source of the amino acid methionine when compared to using synthetic methionine in corn-pea, barley-pea and naked oat-pea diets.
2. To document economic considerations associated with using a raw oil seed high in methionine like canola as a natural amino acid source.

Brief Description:

Field pea grain has been proven to be an excellent protein source in barley diets provided deficiencies in methionine have been compensated for (Landblom and Poland, 1997). As a stand alone protein source, field pea is an excellent source of the amino acid lysine but is relatively low in sulfur containing amino acids (methionine and cystine).

Canadian researchers has demonstrated that canola meal can replace 25% of the soybean meal (SBM) in starter diets, 50% of the SBM in grower diets, and 100% of the of the SBM in finishing diets. Canola meal is an excellent

source of the sulfur containing amino acids, methionine and cystine. The amino acid differences between field pea and canola meal have led nutritionists to evaluate feeding field pea/canola blends. Studies by Castell and Clipleaf (1993) have shown that a blend of these two protein sources results in superior pig performance compared to feeding either supplement alone.

Canola meal is not processed in southwestern North Dakota, but canola is grown as a cash crop in the region. Raw full-fat canola seed contains 40% oil, 20.7% crude protein, 1.2% lysine, .95% methionine, and 4750 kcal of digestible energy. As such, canola seed can be considered as a high energy, relatively high protein seed for hogs. The level of other ingredients are similar to those found in canola meal but modified by the oil dilution effect in the intact seed.

Rational for incorporating full-fat canola seed is two-fold. First, to utilize a readily available ingredient as a direct source of sulfur containing amino acids to enhance their short fall in field pea. And, secondly, to take advantage of canola's high energy. Addition of fat to growing pig diets results in increased growth rates and greater feed efficiency. However, adding liquid fat to diets has inherent mechanical and handling problems. Virtually all of the problems associated with handling liquid fat are eliminated when handling raw oil seeds.

The present project has been designed to evaluate the management practice of using full-fat canola seed as a source of sulfur containing amino acids and energy in corn, barley and naked oat growing-finishing diets supplemented with field pea.

Status:

Results of the project are incomplete at this writing. A full report will be available spring 1998.

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