

# Digestible and Net Energy Content of Diets Supplemented with Full-Fat Canola Seeds in Growing Pigs and Gestating Sows

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Canola meal is not used to its full potential in swine nutrition, due to its low digestible energy (DE). Full-fat canola seeds (FFCS) could possibly be used to bring more energy into the diet. However, information on their nutritional value for swine feeding is very limited. This project aimed to measure the DE and estimate the net energy (NE) content of diets supplemented with 12.5 or 25% FFCS in growing pigs and adult sows. Three varieties were tested: Quantum, Excel and Deklab.

The seeds were processed by expelling and extrusion technology: the exterior hull of the seeds was broken and the temperature was kept below 60 °C. The FFCS contained from 353 to 364 g oil. A basal diet was composed of 96% barley and 4% minerals and vitamins (including 0.4% of Celite, as a source of acid-insoluble ash). The 6 other diets were composed of either 12.5 or 25% FFCS, at the expense of barley. Diets were fed to 70 barrows (35 kg) and 42 gestating sows (160 to 260 kg). Animals were on test for 12 days: 9 days of adaptation followed by 3 days of fecal sample collection. Diet and fecal samples were analyzed for nitrogen, ether extract, gross energy and acid-insoluble ash contents. Digestibility was based on acid-insoluble ash in diets and faeces. NE was calculated by means of prediction equations. The DE content of the basal diet was 3,430 kcal/kg DM. The DE content of the diets containing 25% FFCS ranged from 3,190 to 3,355 kcal/kg DM in growing pigs and from 3,267 to 3,384 kcal/kg DM in gestating sows. The NE content were 2,387 kcal/kg DM for the basal diet and ranged from 2,329 to 2,459 kcal/kg DM for both growing pigs and gestating sows. The lack of increase in DE and NE contents with graded levels of FFCS in the rations is probably due to the low oil digestibility of FFCS (< 50%) because the seeds were not completely crushed. The low digestibility is to be ascribed to the difficulty to crush the small canola seeds correctly.

**Implications:** Inclusion of treated FFCS in pig rations will not necessarily result in an increase in the DE and NE content. The crushing of FFCS must be properly done to make the oil available to the pig.