Rapeseed for pigs

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Rapeseed cake is economically attractive to use in pig diets, and therefore continues to be relevant to investigate the quality of rapeseed products. Generally, the financially optimum inclusion is 5-10% provided the quality is good, but will depend on the market for ingredients. The nutritional value of rapeseed cake - especially protein and lysine - varies greatly. The use of rapeseed by-products in pig feed previous suffered from bad reputation, mainly due to varying glucosinolate content and presence of degradation products thereof harmful to the pigs. It is therefore essential to know the quality of the rapeseed products to be able to formulate pig diets correctly.

In recent years, Danish Pig Research Centre (PRC) has conducted multiple research activities on the use of rapeseed cake in weaner and finisher diets. Surprisingly, results show that weaners grow as efficiently when fed a diet containing 15% rapeseed cake as when fed a regular soy-based diet. The nutritional value does not improve when rapeseed cake is fermented – quite the contrary. Diets with fermented rape seed cake need to be cheaper than diets with regular rapeseed cake or soybean meal. Finisher productivity drops when fed high inclusion of rapeseed cake; a 10% inclusion requires a reduction in the feed price of approx. EURO 0,8 per 100 kg to offset reductions in productivity. German research found finishers to be more sensitive to feed including rapeseed cake in the last part of the growth period.

General improvement of rapeseed quality was the objective of a comprehensive research project supported by the Danish Innovation Act (The Danish AgriFish Agency) and with participation of the Institute of Animal Science (Aarhus University), the Faculty of Science (University of Copenhagen), Scanola A/S, den lokale andel, and PRC. Results demonstrated that weaners grew better than finishers when feed contained rapeseed products. There is no immediate explanation of this difference as several factors affect productivity:

- The quality of rapeseed cake often varies – whether pigs are able to utilize the product depends in particular on variety and thereby glucosinolate content.
- The lower the glucosinolate content, the more "production safe" the rapeseed cake.
- Heat-treatment during oil extraction affects the quality of rapeseed cake:
  a) Intense heat-treatment reduces amino acid digestibility.
  b) Intense heat-treatment increases the production of glucosinolate degradation products.

c) Too little heat-treatment will fail to deactivate myrosinase whereby other glucosinolate degradation products will form.
d) Optimum variety and oil extraction processes will deactivate myrosinase and reduce the percentage of glucosinolate degradation products.

Several years of research has confirmed that financially as well as in terms of productivity it is generally beneficial to use rapeseed cake in pig feed (for finishers, only when feed prices are lower). Rapeseed cake for weaners must have low glucosinolate content and be subjected to gentle processing, rapeseed meal gave lower productivity. To benefit from large amounts of rapeseed cake in feed for weaners, it is also essential to know the nutritional value of the product.

The use of fermented rape seed cake for weaners resulted in lower productivity among weaners, and did not improve health. Future research will establish further tests of fermented rape seed cake or meal and whether it is possible to use large amounts of rapeseed cake in finisher feed depending on whether it is used briefly in the last part of the growth period or if only varieties with low glucosinolate content are used. To ensure that only high-quality rapeseed products are used in pig feed and to ensure that the oil extraction process does not damage the rapeseed, it is advisable in the future only to grow varieties preferentially as low in glucosinolates as possible.