



(L-R) Dr. Kees de Lange and Hector Martinez-Ramirez, Graduate Student

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by MIKE MULHERN

ter is that the flax-seed-derived omega-3 fatty acids end up largely in the back fat and other extra-muscular fat pools in the pig's body. "Most of the extra-muscular fat will be trimmed off at slaughter, so it does not necessarily end up in muscle cuts and muscle tissue," he says.

Another concern is the fishy flavour of pork from pigs which have been fed fish oil just prior to slaughter. The work being done at the University of Guelph is to investigate the rate of retention of omega-3 fatty acids in muscle tissue when flax seed is fed during the grower phase. The researchers are also looking into the natural metabolic conversion from omega-3 fatty acids derived from flax seed to more complex omega-3 fatty acids that have more extensive health benefits and are typically found in fatty fish products.

Developing those 'fish-type' fatty acids in omega-3 pork

By feeding flax seed to growing rather than finishing pigs, researchers hope that more of the right kind of fatty acids can be introduced into the intra-muscular fat

Creating the kind of omega-3 pork that will have all the health benefits of omega-3 fatty acids in flax and fish is not going to be as simple as feeding fish oil and flax seed to market hogs a few weeks before slaughter.

"The aim is to make omega-3 pork and the message to the consumer is, 'If you eat this, it will provide health benefits,'" is how Kees de Lange explained the work he and Hector Martinez-Ramirez are doing at the University of Guelph's Department of Animal and Poultry Science. The two are involved in a three-year project to find ways to incorporate the best of the omega-3s in the muscle and intra-muscular fat of growing pigs.

Is flax enough? "That is the point of the discussion," de Lange says. "There is already at least one product on the market out of Manitoba, which is derived from feeding pigs flax seed. They say it is omega-3 enriched pork and that claim has been approved by the Canadian government so it is a formal claim which they can make."

De Lange notes that one of the problems with feeding flax seed to pigs during the last three or four weeks before slaugh-

To find the answers, the researchers are feeding growing gilts, weighing between 25 and 50 kilograms, a diet based on corn-wheat-soybean-meal with 10 per cent ground flax seed for 30 days, while monitoring omega-3 fatty acid content in the pigs' bodies from 25 kilograms up to market weight.

The research showed that the efficiency of omega-3 fatty acid retention, as well as the conversion of flax seed fatty acids to "fish-type" fatty acids, in the pig's body decreases with increasing body weight. They also found that pigs are able to store more of some intermediates between flax and "fish-type" fatty acids than other species and humans. The fish-type fatty acids would also contribute to the total omega-3 fatty acid content of pork products.

By feeding the flax seed to growing rather than finishing pigs, the amount of flax seed needed per pig may be reduced, reducing the cost of generating omega-3 pork.

"If we can get it into the muscle fat by feeding it to younger pigs when their intra-muscular fat is developed," de Lange says, "we can get more of the beneficial omega-3 to the intra-muscular fat. And we hope also that, with the younger pig, this conversion to the 'fish-type' omega-3 fatty acids is possibly more efficient, so we see more of those higher-value omega-3 fatty acids inside the meat."

The final part of the project will include a formal and thorough evaluation of carcass and pork meat quality of pigs which have been fed either flax seed or fish oil between 25 and 50 kilograms body weight.

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