

## Replacing plasma proteins with refined soybean protein products resulted initially in a slightly poorer growth rate and feed efficiency. But, after the first two weeks following weaning, pigs performed identically, regardless of their protein source

by SUSAN MANN

**U**niversity of Guelph researchers are looking at alternative sources of protein in newly weaned pig diets because of concerns about the use of animal protein products.

"Milk products have been used extensively, but they're rather expensive and are increasingly being used for humans," says Kees de Lange, professor of swine nutrition with the University of Guelph's Department of Animal and Poultry Science. Research technician Julia Zhu is working with de Lange on this project.

Blood plasma from pigs and beef cattle is also used extensively but, due to food safety, border and trade issues, it is also causing concerns. Pig blood plasma is preferred because of worries about BSE in cattle but, for part of last year, it was in short supply.

tically, regardless of the protein source that was fed earlier.

"That would suggest there is a temporary loss in performance, but it does not damage the pigs in the long term," he explains. "That was a little bit of a surprising outcome."

Refined soybean products are readily available for farmers, he notes, adding that the prices are coming down so that they will be more competitively available in the future.

One product used in the study, a soybean protein concentrate, is less expensive than blood plasma products. The soybean protein hydrolyzate is more expensive, but de Lange expects that, with more of this product coming on the market, prices may also come down.

The next phase of this project is to identify the beneficial properties of plasma proteins and then use microbes to produce those proteins in an inexpensive way. One example of a protein being studied is epidermal growth factor (EGF), which is present in milk and saliva. It's a bioactive protein which stimulates gut development. "That is one of the

# Refined soybean protein show promise as a

Animal products are used in starter pig diets because they provide highly digestible nutrients and protective compounds, such as antibodies.

Researchers are studying the use of refined soybean protein products, which have been further processed to remove some of the anti-nutritional factors or have been treated with enzymes to degrade some of the proteins potentially harmful to piglets.

Replacing plasma proteins with some of the refined soybean protein products resulted in a slightly poorer growth rate and feed efficiency during the first two weeks follow-

ing weaning, de Lange says. But, after the first two weeks after weaning, pigs performed identically, regardless of the protein source that was fed earlier.

Researchers have identified the gene that makes EGF and "now we are working on integrating the gene into microbes," de Lange says. "Then we can use microbes as an inexpensive means to produce those proteins."

Combining the inexpensive soybean protein concentrate with the microbes containing EGF and then feeding it to the pigs may result in performance similar to that achieved with blood plasma or milk products. It will be a couple of years before researchers know if that is the result they will get.