

By-product of biodiesel production effective in swine feed

With the rapid expansion of ethanol and biodiesel production in Iowa, there are questions about possible uses for what remains after these alternative fuels leave the plant. So far, the use of ethanol by-products in animal feed has received most of the attention.

But researchers at Iowa State University and the U.S. Department of Agriculture's Agricultural Research Services (ARS) also are studying a biodiesel by-product in swine feed.

Biodiesel often is made from soybean or vegetable oil, with crude glycerin the resulting by-product. This compound, which currently is used in such things as hand lotions, cosmetics and shampoo, is a pure energy source.

"With an increase in biodiesel production comes a surplus of crude glycerin," said Mark Honeyman, animal science professor and coordinator of Iowa State's Research Farms. "And with an increase in ethanol comes higher corn prices. Since corn is fed to pigs primarily for its energy value, we're studying the possibility of replacing corn with glycerin in swine feed."

Brian Kerr, an ARS research leader and collaborating associate professor of animal science, directed the glycerin feed trials. In a metabolism study, both nursery and finishing pigs were fed at levels of 5, 10 and 20 percent glycerin. These studies showed the glycerin is readily used by pigs and has an energy value similar to corn.

In a related growth study, 5 and 10 percent glycerin was fed to pigs from weaning to market weight. Results showed equal growth performance between the glycerin-supplemented diet and a more conventional corn-soymeal diet.

One problem identified in the swine metabolism trial is that the diet containing 20 percent glycerol would not have flowed well in a dry self-feeder so Honeyman said the 10 percent inclusion level may be the upper limit.

There also are questions about how glycerin might impact meat quality. The swine project includes carcass data collection and meat quality evaluations, with those results pending.

Another question centers on the fact that when biodiesel is produced from soybean oil, methanol is used in the process. Methanol can be toxic, so Honeyman said swine producers interested in trying glycerin as part of a feed ration would need to work with the biodiesel plant to make sure methanol levels are below the Food and Drug Administration approved level of 150 parts per million in the glycerol.

Kerr, Honeyman and other Iowa State researchers, have a series of funding proposals in the works to further examine the use of crude glycerin in diets for nursery, finishing pigs and sows