



# Committee on Swine Nutrition

This project fostered swine nutrition research, enabling profitable swine production systems that provide high-quality pork to consumers worldwide.

## Who cares and why?

The U.S. is the world's third-largest producer and consumer and largest exporter of pork. Maintaining or improving the competitiveness of U.S. pork in the global market is a high priority, and pork consumption is expected to continue to increase in the U.S. However, pork production increases have varied substantially by region over the past years, largely due to changes in state environmental policies and shifts in available feedstuffs. Environmental policies are more concerned about levels of phosphorus in manure that may pollute surrounding land and water. Pork producers are also confronted with rising feed costs, which already account for 70% of the total cost of pork production. Corn and soybean meal have been the main staples of swine diets since the 1950's, but large quantities of cereal grains are now used for ethanol production, raising prices and limiting the supply available to swine farmers. While the byproducts of ethanol production can be used as feed, farmers are concerned that this feed may result in poor pork quality. Pork producers are also concerned about corn contaminated with vomitoxin and other mycotoxins, which reduce feed consumption and pig growth. In light of these challenges, swine nutrition research is needed in order to develop new technologies and practices to improve the economic and environmental sustainability of swine production across the U.S.

## What has the project done so far?

Since 1964, the Multistate Committee on Swine Nutrition has conducted timely, robust research addressing concerns about swine nutrition. Over the past five years, NCCC-42 researchers have completed studies on dietary fat sources and levels for weanling pigs, digestibility of different feedstuffs, nutrient levels in excretions, vomitoxin effects, and belly firmness and poor carcass quality due to high levels of distillers dried grains (made from the byproducts of ethanol production) in feeds. Based on this work, the committee has determined the best uses for different feedstuffs and identified processing methods that improve feed quality. In addition, research has identified a product that can eliminate negative responses to vomitoxin-contaminated corn and has demonstrated that swine diets containing up to 45% distillers dried grains do not affect swine performance. The group has also formulated diets that minimize phosphorus and calcium levels, so that less



Corn and soybean meal have been main staples of swine diets since the 1950s; however, due to limited availability and rising feed costs, farmers are exploring alternative feedstuffs. NCCC-42 is helping farmers find options that still meet the nutritional requirements of pigs throughout their lives. Photos by Dr. Marcia Shannon, University of Missouri.

is excreted into the environment. Because these studies have been coordinated across states and have pooled data from numerous animals, researchers have been able to draw valid conclusions and establish nutritional recommendations. For example, the group has established nutritional requirements for vitamins, minerals, and amino acids. Research conducted and published by the NCCC-42 committee was cited more than 20 times in 6 different chapters of the 2012 Nutrient Requirements of Swine.

## Impact Statements

**N**CCC-42 has enabled the U.S. pork industry to adapt and prosper. Specifically, the project's efforts have:

**R**educed costs for farmers and prevented pork prices from rising for consumers by recommending diets that improved pigs' rate of weight gain and feed efficiency.

**I**mproved pig health and lowered piglet mortality by recommending more nutritious diets.

**E**nhanced pork quality, helping swine farmers meet consumer demands. For example, today's pork has 16% less fat and 27% less saturated fat than in 1991.

**E**valuated different feedstuffs, providing producers with options that minimize their costs but do not reduce pork quality.

**P**revented phosphorus pollution in the environment by providing research that will reduce the concentration of phosphorus in swine manure.



NCCC-42's research has shed light on how to efficiently and nutritiously feed grow-finish pigs, so that the pigs achieve optimum weight gain and meat quality. Other NCCC-42 studies have focused on making sure that pig feeding practices are environmentally sound. Photo by Dr. Marcia Shannon, University of Missouri.

## What research is needed?

Further research is needed to continue to refine the nutrient requirements of lean, fast growing pigs. In particular, researchers need to more clearly establish the phosphorus requirements of swine during various stages of growth. Researchers must also continue to evaluate new feed ingredients that can be used in starter feeds for young pigs and in grower-finisher diets for swine and assess feeding schemes that allow large amounts of grain co-products such as distillers dried grains in diets.

## Want to know more?

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