

NRCS says

# Good Nutrition Is Good for the Environment

by Troy Smith

*We're from the government, and we're here to help you provide better nutrition to your livestock.*

OK, it isn't a direct quote, but that was the essence of the message delivered by Natural Resources Conservation Service (NRCS) representative Glenn Carpenter. During last summer's joint meeting of the American Society of Animal Science (ASAS), American Dairy Science Association (ADSA) and Poultry Science Association (PSA), Carpenter said his agency is poised to become more involved in animal nutrition management.

Animal nutrition may not seem like a topic of concern to the NRCS. Historically, this arm of the U.S. Department of Agriculture (USDA) has busied itself with matters related to soil and water quality, as well as preservation and improvement of fish and wildlife habitat. The NRCS mission is not regulatory, like that of the Environmental Protection Agency (EPA). Rather, the NRCS provides support to private landowners who participate voluntarily in various conservation programs.

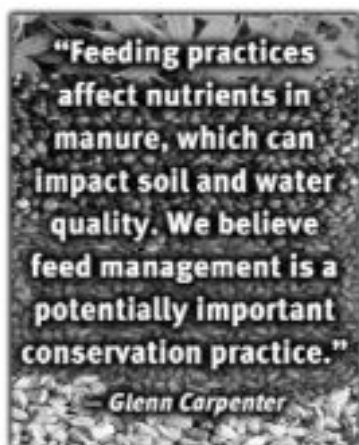
Many agricultural producers recognize the NRCS as administrator of the Environmental Quality Incentives Program (EQIP), which provides technical assistance and funding for conservation projects on agricultural lands. The NRCS also administrates the Conservation Security Program (CSP) and supports the Conservation Reserve Program (CRP). But what does any of that have to do with livestock nutrition?

## Getting back to livestock

On any livestock operation, manure happens. On large, concentrated livestock

feeding operations, it happens in great amounts. The NRCS assists producers with implementation of animal waste management practices that reduce harmful environmental effects and comply with EPA regulations. It's all about preventing the detrimental effects of excessive nutrients contained in manure.

However, since what goes into the animal affects what comes out of the animal, the



NRCS is developing a new appreciation for animal nutrition. Carpenter, who is acting director of the NRCS Animal Husbandry & Clean Water Division, says the objective is to reduce the nutrient content of manure through manipulation of animal diets.

"Feeding practices affect nutrients in manure, which can impact soil and water

quality. We believe feed management is a potentially important conservation practice," Carpenter explains. "We're interested in seeing producers adopt practices that decrease manure nutrients, and especially nitrogen and phosphorus, but without a negative impact to production and profitability."

That might require a departure from traditional thinking, he allows. Economics has been the key driver of feeding management and formulation of least-cost rations. In the future, however, animal nutrition may require more consideration for how different feed ingredients ultimately affect the nutrient content of manure.

## Reorganization

The agency's plan to become more involved in animal nutrition comes as the

NRCS is undergoing reorganization. Opened in September were three newly created national technology support centers, located in Greensboro, N.C.; Fort Worth, Texas; and Portland, Ore. Included on the staff of each center is a team of specialists that will focus on animal waste management, but also animal nutrition.

Carpenter says NRCS specialists will encourage more livestock feeders to prepare Comprehensive Nutrient Management Plans (CNMPs), which establish economic and environmental goals for their individual operations.

"A CNMP is a tool we use to help producers satisfy the EPA, and to make producers eligible for financial assistance through the NRCS. We plan to develop incentives so that producers can get paid for implementing practices that achieve specific goals," Carpenter says.

In most cases, the primary goals will be reduced levels of excreted nitrogen (N) and phosphorus (P). Both elements can be problematic for concentrated animal feeding operations (CAFOs) experiencing a whole-farm nutrient imbalance. In such cases, more nutrients are imported to the farm (through feed ingredients) than are exported or utilized (as manure) to fertilize crops.

Carpenter says the NRCS recommends formulating diets to more closely match animal requirements. In ruminant animals, such as cattle, that can include manipulation of crude protein (CP) and energy (carbohydrate and fat) content to enhance availability of amino acids for digestion and reduce excreted nitrogen. Similarly, the choice of protein source can influence nitrogen excretion. The NRCS estimates that by using optimal levels of the right type of protein source to more accurately match animal requirements, nitrogen excretion can be reduced by as much as 25%.

Because phosphorus is routinely added to commercial mineral supplements but also is contained in many feed ingredients, cattle on grain-based diets often receive phosphorus in amounts that exceed requirements. Recent research has shown that phosphorus excretion can be reduced by 20%-30% by not adding supplemental phosphorus to the diet.

The NRCS is urging more careful consideration of feed ingredients to evaluate digestibility and avoid excessive nutrient levels. Grain byproducts, for example, may come under greater scrutiny since they often are relatively high in phosphorus.

Another strategy advocated by the NRCS is phase-feeding, where animals are sorted into feeding groups that are uniform in age, size and sex. When all animals in a group

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represent a common stage of growth, their nutritional needs are the same and ration formulation can be more targeted.

Overfeeding of nutrients can be reduced and nitrogen and phosphorus excretion may be reduced by 5%-10%.

In the future, Carpenter expects to see animal diets include genetically modified grains, more extruded products, and increased utilization of enzymes and microbial cultures to affect reduction of

nutrients in manure.

The NRCS hopes to influence producer adoption of new practices through educational efforts in partnership with cooperative Extension personnel. But Carpenter believes professional nutritionists will play a major role in making feeding management a successful tool for conservation.

In today's swine industry, Carpenter says, 25 consulting nutritionists make 70% of the

feed management decisions. Six nutritionists call the shots for 60%-70% of the broiler industry. The beef industry relies on a larger, but still select, group of nutritionists.

"We're starting now to work with these key people," Carpenter states. "The NRCS wants to partner with the industry and help producers. We're trying to develop programs for producer incentives, so they can get paid for implementing good practices."



