

Texas Dairy Matters

Higher Education Supporting the Industry

FEEDING TO REDUCE PHOSPHORUS

Ellen R. Jordan, Ph.D.
Extension Dairy Specialist
Department of Animal Science
Texas A&M AgriLife Extension Service
The Texas A&M University System

Texas dairy producers are well aware that phosphorus is the nutrient being scrutinized in waste management arenas today. As with farms across the country, typically there is more P entering dairy farms than can be exported in milk, meat or crops sold. Unless manure P is exported from the farm, net annual accumulation of phosphorus can occur.

Studies in the U.S. and abroad have shown that 65 to 85% of the phosphorus being imported onto dairies comes as purchased feed. Managing dairy rations to reduce the amount of phosphorus brought onto the farm can be one tool to minimize on farm accumulation of phosphorus.

Recently, a study was conducted in New York to demonstrate how reducing phosphorus intake can decrease the phosphorus in the waste stream. Two herds were identified that averaged feeding phosphorus at 153% of the requirements recommended by the National Research Council (NRC). The dietary phosphorus in these herds was high due to high forage phosphorus and the inclusion of by-product feeds (distillers' grains, wheat middlings) high in phosphorus.



Although herd A was feeding phosphorus in excess of requirements, very little phosphorus was being purchased as a mineral supplement. However, in herd B phosphorus was being purchased in the mineral mix.

The phosphorus in the rations was reduced by 25% to 111% of the NRC recommendation by decreasing the amount of high phosphorus concentrates being fed in herd A and by removing the purchased mineral phosphorus in herd B. Because the forage phosphorus was high, the rations could not be brought down to NRC recommendations economically.

After making the change to the rations, the fecal phosphorus decreased by 33%. The amount of phosphorus being brought onto the farms was reduced by 45%. Herd A had a decrease in feed costs of about \$6.00 per cow per month and Herd B's feed cost was reduced about \$0.60 per cow per month. There was no negative impact on milk production.

If you are currently feeding your herd above NRC requirements, work with your nutritionist to determine why your herd is receiving more phosphorus than it needs. If you are purchasing excess P as a mineral supplement, reducing those purchases can save you money. When the phosphorus is coming from forages grown on your farm, make sure you apply fertilizer or manure only at agronomic rates so forage phosphorus doesn't continue to increase. Do NOT apply phosphorus unless it is needed.

Finally check other feed purchases to determine which may be contributing to excess phosphorus. Some feed purchase programs are adding a "phosphorus cost factor" on the value of a feed when phosphorus levels are high. Decide whether that extra phosphorus costs you in waste disposal and adjust your purchasing criteria accordingly.