Program: Reducing Dietary Phosphorus in Dairy Rations

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In Partnership With
Ontario’s Animal Feed Industry Dairy Farmers

Program Studies:
1. Long-term effects of feeding diet without mineral phosphorus supplementation on the performance and phosphorus excretion in high yielding dairy cows
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2. Economic Implications of Reducing Dietary Phosphorus in Dairy Rations

Phosphorus is a mineral fed to dairy cattle to facilitate good health. Recently, the animal feed industry has come to suspect that phosphorus is being fed at up to 30% too much in the diet. Excess dietary phosphorus is excreted by cows and can find its way into surface water causing pollution in our rivers.

Fifty-two cows and heifers at calving were tested at Kemptville Campus, half at a high P level (control; 0.42% P) and half at low P level (0.32% P). The results suggest that the current forages grown in Ontario contain adequate amounts of P to sustain milk production in mature high-yielding dairy cows without affecting animal performance. However, for growing lactating heifers some mineral P supplementation is recommended especially during early lactation for new bone growth and milk production.

The second study focused on the financial effects of reduced dietary P levels in dairy ration. Nineteen Ontario dairy farms were included in the survey. The amount of P in the dietary restrictions went from 0.503% to 0.359% P (DM basis). Given conditions in Ontario Canada, a $84 per hectare per year.

When soil P is in surplus an additional $84 per hectare (range $0 – $4.00) per year in benefits is imputed as an intangible environmental benefit. However, when soil P is not in surplus, no environmental benefit is imputed because the system is not reducing the amount of P entering the environment.

Support Appreciated from:

Ontario Ministry of Agriculture, Food and Rural Affairs

Community Benefits Include: Lower cost of production for farmers, safer ground-water, cleaner rivers and lakes