Overfeeding Phosphorus

(Continued from Page 36)

tration, this can cause areas of fish kill. This process is known as eutrophication and is seen everywhere from farm ponds to the Chesapeake Bay."

According to Edwards, recent studies have indicated that the level of phosporus in dairy cow rations can be reduced to .35-.38 percent of the total ration. "The state average is about .45 percent, but is decreasing at a rapid rate thanks to the cooperation of feed industry and independent nutritionists," said Edwards. "However, the demonstrated sufficient level has not yet been accepted by everyone. Some think that elevated levels of phosphorus in the ration may help improve the breeding performance of dairy cows, and others feel that the requirements are underestimated in general."

Studies on the effect of phosphorus on breeding and milk production — which led to the conclusion that more was better — were conducted from the 1920s through the 1950s. But, Edwards pointed out, at that time animals were being fed diets low in phosphorus, energy, and protein due to poor forage and pasture sources.

"Dairy cows in today's industry are fed much higher-quality feeds to maintain increased levels of milk production," said Edwards. "Therefore, reviewing the studies today reveals that the response they saw with phosphorus supplementation probably was due to the basal level of phosphorus being very low, while low energy and protein content exacerbated the situation and had adverse effects on milk production and breeding performance."

More recent studies showed no benefit to increased phosphorus levels, but Edwards points out that those results were obtained using smaller numbers of animals. He notes that the current study is designed to overcome this issue by sampling private herds across the region, involving thousands of animals.

Penn State is studying 27 herds to determine what effects phosphorus level may have on milk production and reproductive performance. The study is to be conducted over a three-year period, with the first year finished this June. Four times per year, feed and manure samples are taken from each farm involved in the study. Samples are analyzed for their phosphorus content.

"By analyzing the feed and manure, we can gain an estimate of phosphorus utilization — in other words, the phosphorus going in versus the phosphorus coming out," said Edwards. "Monthly reports on each herd's milk production and reproductive performance are tracked and compiled."