



Nutrient Management

Phosphorus Monitoring Tools for Certified Feed Management Planners

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Introduction

Nutrition, feed management and forage quality are the key ingredients in dairy cattle nutrient management. A National Feed Management Education Project has resulted in the development of a curriculum that addresses the integration of feed management and whole farm nutrient management. These include ration formulation for optimal supplementation of nitrogen and phosphorus, feed delivery, feed testing, and diagnostic tools to monitor results. Agricultural professionals in Pennsylvania, Virginia, and Maryland need to have an understanding of how precision feeding affects nutrient management and the implications to water and air quality. This is important for all watersheds in the Mid-Atlantic region, not solely the Chesapeake Bay watershed.

Currently nutritionists are becoming certified as feed management planners and eventually as technical service providers (TSP) with the Natural Resource Conservation Service (NRCS). To become a TSP, certified planners are required to write feed management plans. It is necessary to record and monitor information that will demonstrate that improvements are being achieved. This fact sheet is a supplement to the Excel spreadsheets on “Monitoring Phosphorus for Milk Cows” and “Monitoring Phosphorus for Dry Cows and Heifers”. The Excel spreadsheets have been developed to provide tools for monitoring progress made in reducing the importation of phosphorus to the farm over time. Implementation of the feed management plan requires that changes are documented.

Dry matter intake

The first part of the Excel spreadsheet addresses dry matter intakes. To obtain a more accurate phosphorus (P) intake, it is essential to have the actual dry matter consumed. For herds feeding a total mixed ration (TMR), it is necessary to obtain the amount of as-fed feed delivered to the cows, the number of cows fed, and the amount of refusals. The TMR analysis should be sampled on the day feed intake is recorded. The percent dry matter of the TMR will be used to calculate dry matter intake.

For component-fed herds, all forages and concentrate mixtures should be tested for dry matter and nutrient content. The amounts of each ingredient should be estimated for a cow representative of average production. The spreadsheet requires all ingredients fed, along with the respective P level, to be entered. The ration P percent will be calculated. Both spreadsheets (TMR and component feeding) have an example already entered.

Milk production

It is recommended to obtain both bulk tank milk weights (3 consecutive pick-ups) and if available, the closest DHIA test results. If the herd gets milk picked up every day enter a “1”, if it is every other day, enter a “2”. If the producer has milk component information from the milk cooperative, those

numbers should be used. Bulk tank milk weights are going to be more reflective of animal performance at the time that feed and manure sampling takes place. This is very important for an accurate assessment of P intake.

Fecal phosphorus percent

A requirement of preparing a feed management plan is to take fecal samples that are representative of the cows being sampled. The common way P is reported on

a manure analysis report is P₂O₅ lbs/ton. The spreadsheet is setup so the numbers from the manure analysis report can be entered to quickly get the fecal P percent.

Pounds P excreted

This tool provides the opportunity to evaluate over time, based on milk production, dry matter intake, P level, and

cow numbers, how the annual levels of P in pounds can be affected by nutrition and feed management.

P as a percent of requirement (milk cows)

This tool provides a comparison of the P intake as a percent of requirement (2001 NRC) on the actual ration versus the formulated ration. This is a good tool to measure how well the nutritionist is

formulating for P and how well the producer is implementing the ration. Additional information on P intake based on milk production, stage of lactation and dry matter intake is provided (2001 NRC).

P intake for dry cows and heifers

In Pennsylvania, producers have the option to include dry cows and heifers into their feed management plans. A spreadsheet has been developed to compare dry matter intakes on actual results versus the

formulated ration. The P level is calculated in grams and NRC tables are available to compare how the actual P level compares to NRC.

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