



Spring 2006, No. 1

EFFICIENT FERTILIZER USE ON THE DAIRY FARM

Fertilizers still play an important role on dairy farms. While a lot of progress has been made in adopting best management practices (BMPs) for manures, it's equally important to manage fertilizers well. Applying them at the right rate, at the right time, and in the right place optimizes profitability and efficiency, and minimizes impact on the environment.

Soil fertility cannot be taken for granted. While soil test phosphorus levels on New York dairy farms are trending upward, more than half of the cropland still falls below the critical level for crop needs. The same is true in many other areas. Dairy farming involves large removals of nutrients in forages, and large nutrient additions in manures. The intense nutrient cycling results in widely varying soil test levels.

The BMPs for efficient fertilizer use fall into three general categories. For each category, there are key management practices that foster the effective and responsible use of fertilizers. These are:

- 1) Determine the right rate with sound diagnostics.
 - a) Soil test each field, every 3 years.
 - b) Scout for symptoms and analyze plants for nutrient levels.
 - c) Credit nitrogen from previous crops and applied manure.
 - d) Determine yield goals from reliable information.
 - e) Calculate nutrient removal and replace where necessary.
- 2) Apply in the right place at the right time.
 - a) Time the nutrient release to match plant need.
 - b) Place below the soil surface, or incorporate where possible.
 - c) Band-apply phosphorus near the row for maximum availability to seedlings.
 - d) Manage zones to match rates to specific needs.
 - e) Maintain and calibrate applicators.
- 3) Minimize nutrient loss from the field.
 - a) Nitrogen transport – Nitrogen can be lost by several pathways as nitrate, ammonia, or atmospheric nitrogen. Some states, such as New York, have a Nitrate Leaching Index which identifies management implications for each site based on soil hydrological group and expected precipitation.
 - b) Phosphorus transport – The phosphorus index gives a relative ranking of the influence of all major source and transport factors influencing the loss of P. It can identify the BMPs that best protect water quality. Specific indexes, with software to facilitate calculation, are available for most states and provinces.

Put the needs of the crop first. Managing nutrients on the dairy farm demands balanced attention to both fertilizers and manures. The BMPs that ensure efficient use of both will best sustain the crops that nourish dairy cattle.

Selecting the right BMPs for your farm is a site-specific choice. A Certified Crop Adviser or other technical professionals can help you make the right choices.

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