Plant Nutrition for Cool Forages

by Tom Bruulsema, *CCA*

Declining crop prices may concern forage producers as they plan fertilizer purchases for the coming year. Recent government price surveys, however, indicate price declines for fertilizers similar to those for forages. The USDA-NASS prices paid report shows fertilizer prices down by 12% for February 2014 compared to a year ago. Prices received for hay declined by a similar amount, over the same period. In New York and Pennsylvania, hay prices actually increased.

Forages remove large amounts of nutrients

When hay, haylage or silage is analyzed to formulate feed rations, the analysis report also provides information relevant to managing crop nutrition. Removal equals yield times concentration. Replenishing removal to maintain soil tests in the recommended range is a sound principle of plant nutrition that doesn't depend on prices. Applying the right nutrient source at the right time and in the right place assures optimum quantity and quality of forage, while protecting environmental quality.

Prices may have changed, but the principles of fertilizing forages have not

A new book called "Cool Forages" explains those principles well. It comprises 50 chapters of science-based information useful to forage producers in northern temperate climates. Here is a short list of important points it underscores and explains, related to plant nutrition.

- Many economic analyses show production of alfalfa to be at least as profitable as corn. Return on fertilizer investments that correct nutrient deficiencies can be expected to be high.
- Perennial forages provide predictable nitrogen credits for following crops.
- An on-line soil-crop-nitrogen modeling tool at www.NLOS.ca can improve understanding of nitrogen cycling and adapt its management to local weather conditions.
- Perennial forages lose less nutrients in drainage water than annual crops, but a greater fraction of the phosphorus loss may be in the dissolved form.
- Understanding the methods of testing for soil phosphorus can help predict crop response to applications of phosphorus, and the potential for its loss in drainage water.
- The mysteries of variable response to applied sulfur are important for both the yield and the quality of forages.
- Whole-farm nitrogen budgets can help identify changes in diets, species selection and grass harvest frequency that improve nutrient use efficiency on dairy farms.
- Manure application timing and placement require innovative tools to optimize nutrient use.
- Stand termination method and timing needs careful management to minimize potentially substantial losses of nitrate and nitrous oxide.
- Carefully managed manure applications can effectively supply nutrients for alfalfa production.
- Mineral balances to produce a quality of timothy grass hay appropriate for the calcium nutrition of the dry cow in transition can be achieved by cutting at the right growth stage, managing soil potassium levels, and applying chloride fertilizers.

The book was edited by Shabtai Bittman and Derek Hunt, scientists with Agriculture and Agri-Food Canada in Agassiz, BC. More than 50 agronomic scientists contributed their input to individual chapters. Published by the Pacific Field Corn Association, the book can be ordered at **www.farmwest.com**.

Managing plant nutrition for forages is at least as technical as it is for corn. Using information sources like these ensures the highest level of precision in nutrient application for sustainably intensified forage production.

For copies of this article and a complete catalogue of previously published columns, check our website www.ccaontario.com under the "Agronomic Articles" tab.

Dr. Tom Bruulsema is a Certified Crop Adviser employed by the International Plant Nutrition Institute as their Northeast Director located in Guelph. Contact Tom at (519) 835-2498 or tom.bruulsema@ipni.net

There are over 500 Certified Crop Advisers (CCA) in Ontario. Each CCA has demonstrated their knowledge about Ontario crop production by passing the required exams. In addition, they have the crop advisory experience, the education, the commitment to continuing education and have signed a comprehensive code of ethics, which places the grower's interests first.

This industry driven program helps ensure that Ontario crop producers are well served by those providing their crop production advice. This article was written by one of those CCA's.