



Forage Fertility to Fill the Bunks

By Misty Croney mistycroney@eastlink.ca

Asking how much fertilizer to apply to forage is a simple question with a complicated answer.

The fertility plan should match the management system. Are the fields in an intensive, standard, or traditional system? For example, fields harvested to feed for milk versus heifer feed.

Intensive management fields have optimum pH and nutrient levels, produce high yield and quality, are cut 3 or more times, relied upon for milk production, and rotated often.

Standard management fields have good pH and nutrient levels, produce average yield and quality, are cut 2 to 3 times, relied upon for milk production but have a longer rotation than intensive fields.

Traditional management fields have low to good pH and nutrient levels, produce low to average yield and quality, are cut 1 to 2 times, relied upon for dry cow or heifer feed, and are rarely rotated or renovated.

The fertility plan should also match the type of forage field. Grasses require more nitrogen than legumes, but legumes require more potassium and micronutrients. A grass field has less than 50% legumes (alfalfa and/or clover). A mixed field has 50-75% legumes. A legume field has 75-100% legumes.

A traditional field cannot become an intensive field just by planting alfalfa and cutting it 3 times. It takes preparation and investment. The soil is like a bank account: fertility in = crop out. If fertility isn't added, the account will run dry. Every cut needs fertility.

The pH of the soil is vital especially to legumes. Legumes perform best at a pH closer to 7.0. Choose which fields are the intensive fields vs traditional fields based on pH. Don't plant legumes until the pH is optimum. Legumes remove more calcium than grasses, so lime will be required more often.

Once the management and type of forage has been established for each field, the fertility requirements can be determined.

Nitrogen is required before each cut. Nitrogen determines volume. In the spring, depending on the management system, grasses require 60-90 kg/ha, with 50-60 kg/ha for 2nd and 3rd cuts. Mixed fields required 50-70 kg/ha, with 50-60 kg/ha for 2nd and 3rd cuts. Legume fields require 40-60 kg/ha with 30-50 kg/ha for 2nd and 3rd cuts.

Yes, legumes need nitrogen! Especially at planting as nodules don't develop for weeks. Soil conditions impact nodulation and nitrogen fixation. Crop residue, cold wet soils, dry summers and below optimum phosphorus (P) and potassium (K) reduce fixation. Added nitrogen is not the reason the legumes die out, it is likely low pH, low K and low calcium.

P and K requirements depend on the soil test, but to maintain levels, what each cut removes needs to be replaced. Grasses remove 60 kg/ha of P₂O₅ and 150 kg/ha of K₂O per cut. Manure is a great option to provide nutrients on grass fields.

Legumes remove 65 kg/ha of P₂O₅ and 250 kg/ha of K₂O per cut. Applying only nitrogen will drain the soil bank account quickly.

In low P fields roots are smaller and N fixation may be delayed up to 16 weeks after planting. The K is responsible for growth, nodulation and yield, disease resistance, longevity and reducing risk of winter kill. After last cut is a great time to apply K to help the plant prepare for winter.

Sulfur and boron also need to be applied to mixed and legume fields each cut. Sulfate improves yields and protein, giving legumes a deep blue-green colour, and improves resistance to cold. Boron is vital for nodule formation, faster regrowth and helps retain leaves at harvest.

One fertilizer doesn't feed all. If you need help making forage fertility less complicated, contact me: mistycroney@eastlink.ca or 902-256-2636.

Next time we will talk about what to do when the weather doesn't cooperate, how to decide which fields to cut first, fall cutting and when to rotate.