

MSU Extension offering new publications on soil nutrient management for forage crops

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Summary: Two new Montana State University Extension publications present soil nutrient management recommendations for forage production in Montana.

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BOZEMAN – Forage crops provide substantial income to many Montana farmers. They are also an integral part of livestock production systems. Improvements in forage production through good soil fertility practices have the potential to increase income for farmers and ranchers.

Montana State University Extension has recently published two bulletins, “Soil Nutrient Management for Forages: Nitrogen” and “Soil Nutrient Management for Forages: Phosphorus, Potassium, Sulfur, and Micronutrients.” These publications present soil nutrient management options for Montana forage production systems based on regional research results.

The key to nutrient management for optimal forage yield and quality is to select the right fertilizer source, rate, placement and timing for your operation, known as the 4R concept.

“These are usually interrelated. For example, the right rate, placement and timing are very dependent on the source,” said Clain Jones, co-author and Extension soil fertility specialist in the Department of Land Resources and Environmental Sciences (LRES) at Montana State University.

In addition, selecting the right crop and the best management practices to maximize legume nitrogen fixation are also critical.

“Getting it ‘right’ not only increases your bottom line, it also protects soil, water, and air resources,” said Jones.

Nitrogen is the most common nutrient that needs to be added for production of forages containing a low percentage of legumes, while phosphorus and potassium are more important for those dominated by legumes.

The correct balance of nutrients can influence stand species composition and is important for efficient fertilizer use and forage yield and quality. Fertilizer rates should be based on soil tests or plant tissue concentrations to ensure adequate amounts, yet minimize the risk of forage nutrient concentrations that are toxic to livestock.

Timing of fertilizer application depends largely on the source in order to optimize the amount of nutrient that gets taken up by the crop, rather than lost to the environment.

“Nutrient sources that slowly release their nutrients over time, such as manure, phosphate rock or elemental sulfur, can extend benefits over years, while many commercial inorganic fertilizers are more immediately available,” said Jones.

Legumes may be the most economical source of nitrogen.

“Because fertilizer can become tied up temporarily in the soil and plant material, the economic benefit of fertilization should be evaluated over several years,” said Jones.

Adequate nutrients are key to sustaining stand health and most likely are less expensive than reseeding or interseeding. If stands are largely desirable species, rejuvenating old forage stands with fertilizer is more effective than mechanical rejuvenation methods such as aeration or harrowing. “Well thought out nutrient management on forages can easily pay for itself,” said Jones.