



Considerations for Spring Forage Fertilization

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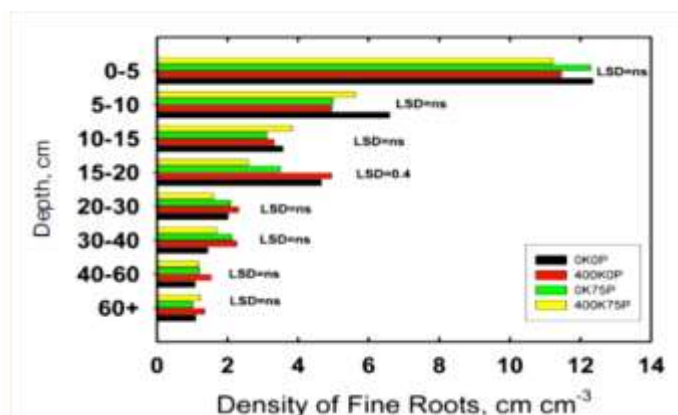
Fertilization is just as important to forage as it is for annual crops when looking to maximize productivity. An important part of livestock production is ensuring sufficient forage for both hay and pasture. However, low soil nutrient levels often limit forage production. With good soil fertility and fertilizer/nutrient management, the productivity of many hay and pasture fields can be greatly improved.

For specific recommendations, it is best to have your soil sampled.

Nitrogen fertilizer should be applied early in the spring before grass begins active growth. If more than one cut is planned, second cut nitrogen requirements should be applied immediately after the first cut is taken. If two cuts are planned, then the total nitrogen to be applied should be split. Approximately 50-60 per cent of the nitrogen fertilizer should be applied in early spring, with the remaining nitrogen applied immediately after the first cut is completed. The split-rate technique has the advantage of equalizing the production of forage with relatively higher protein content throughout the growing season. It is also useful for pasture production where rotational grazing is practised. Split application of less than 45 lb/acre N is generally not recommended.

Phosphorus and potassium applications should be considered when soils have a low P or K test. For hayfields that have hay removed, it is important to put on additional P and K fertilizer based on crop nutrient removal. Timing of P and K applications can be flexible; however, it may be more convenient to fertilize in the fall or spring along with the N fertilizer application. Broadcasting is presently the only practical method of in-crop granular P2 O5 fertilizer application and should be done in early spring or fall after the last cuttings to get maximum benefit from broadcast applications.

Broadcast applications of P and K keep most of the nutrients in the top few inches of the soil because these nutrients do not move vertically in most soils. Under good moisture conditions, grass has feeder roots near the soil surface and can take up broadcast phosphorus with reasonable efficiency. Even though alfalfa has a deep taproot, Purdue research indicates that this is not a concern because most of the fine roots active in nutrient uptake are in the top two inches of the soil. Alfalfa has feeder roots near the soil surface that can take up broadcast P with reasonable efficiency as long as the surface soil is moist. Under drought conditions, surface phosphorus may not be as available therefore, providing adequate phosphorus deeper in the soil is an important risk management strategy to consider when establishing an alfalfa field.



This graph shows the vertical distribution of fine alfalfa roots at various soil depths. Source: Volenec and Brouder, unpublished.

Fertilizing grass stands

When fertilizing in the spring, it is not recommended to apply fertilizer to frozen ground subject to run-off and to follow the [Nutrient Management Regulation](#). For 2020, nutrients cannot be applied before April 11th, 2020. The table below provides general nitrogen fertilizer recommendations for Manitoba.

Under very good moisture conditions, higher rates of nitrogen fertilizer may be economical. However, high rates should only be applied when soil test NO₃-N levels are low and moisture conditions are good. Nitrogen fertilizer rates should be reduced when spring soil moisture conditions are drier than normal.

General Recommendations

Nitrogen (N):	At time of establishment, apply 0-20 lb/acre N following fallow, 40-60 lb/acre N following stubble. Apply 90-110 lb/acre N to established stands when forage price is high and soils are moist.
Phosphate (P₂O₅)	Apply 25-40 lb/acre at time of establishment and 20-30 lb/acre for established stands.
Potassium (K₂O)	On sandy-textured or organic soils, apply 45-90 lb/acre at time of establishment or 30-60 lb/acre to established stands.
Sulphur (S)	Apply sulphate sulphur at 15 lb/acre on well-drained soils and grey luvisol (grey wooded) soils. Sulphur deficiency may occur in many soils and in any area of the province. A soil test is recommended to establish the available sulphur status of fields.

Fertilizing legumes

Annual applications of fertilizer on established legume crops may be in the fall or early spring but must follow the Nutrient Management Regulations.

General Recommendations

Nitrogen (N)	Nitrogen is not recommended. Inoculate legume seed before planting.
Phosphate (P₂O₅)	Apply 55-75 lb/acre at time of establishment and 45-55 lb/acre for established stands.
Potassium (K₂O)	On sandy textured or organic soils apply at 55-150 lb/acre at time of establishment or 40-100 lb/acre for established stands.
Sulphur (S)	Apply sulphate sulphur at 30 lb/acre on well-drained soils and grey luvisol (grey wooded) soils. Sulphur deficiency may occur in many soils and in any area of the province. A soil test is recommended to determine the available sulphur status of fields.

Fertilizing mixtures of grass and legume

For legume-grass mixed pastures or hayfields, if the stand is less than 30 per cent legume, treat as a grass pasture or hayfield. If the stand is more than 50 per cent legume, no nitrogen is recommended. Also note that for legume-grass mixed pastures or hayfields, high or frequent applications of N (particularly spring N applications) will make the grass component more competitive and limit the amount of legumes in the mixture. To encourage a greater legume presence, use modest N rates and limit application to summer or fall. Where conditions permit, it may be more profitable to re-seed mixtures containing legumes or over-seed with legumes to increase the legume percentage in the mix.

For more information:

[Fertilizing Grass for Hay and Pasture](#)

[Fertilizing Alfalfa Forage](#)

[Fertilizing Forage Stands](#)