



Frost seeding to improve pastures in the Upper Midwest

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Frost seeding can be used to establish legumes or certain grasses into existing pastures to improve forage palatability and yield. Frost seeding legumes is not new in the Mid-west states. Many cash crop producers in this region have used the technique for seeding legumes into winter wheat in the early spring. The resultant legume seeding is then plowed down for green manure for the next cash crop in the rotation. The freezing and thawing of the soil, combined with early spring rains, help the germination of the broadcast legume seeds. The keys to success with this method are to seed at the proper time and follow up with rotational grazing or mowing to reduce grass competition.

It is also possible to seed certain grass species with this method. Recent research in Wisconsin has shown good success with frost seeding annual ryegrass into row cropland, which is being converted into pastures. Their research showed that 8 lb. /acre annual ryegrass was ideal for seeding the species.

Both research and producer experience has shown red clover to be the best choice for frost seeding legumes. Seedlings of red clover can tolerate the lower temperatures in the early spring better than alfalfa seedlings.

Red clover has good seedling vigor and is one of the easiest legumes to establish. It is also tolerant to slightly acidic and somewhat poorly drained soils. In addition, red clover is more shade tolerant than other legume species. Common red clover will only last two years since it is a short-lived perennial but improved varieties of red clover are more perennial and may last three or more years.

Red clover should be seeded at 8-12 lb. /acre.

Many Mid-western pastures have been over grazed this past year because of a dry summer and are excellent candidates for frost seeding, as the grass is somewhat weakened in these pastures were grazed closely. Frost seeding into these pastures offers potential for improvement.

There are five steps to take for successful frost seedings:

Step 1. Site selection. Select closely grazed grass pastures, which contain finer, textured soils such as clay, silt, or sandy loam's. These soils tend to create more action with the freeze thaw cycles of the spring while providing more moisture for the newly emerged seedlings.

Step 2. Soil fertility. Soil pH should be 6.0 or above. Red clover can tolerate slightly acid soils, however, it will grow better at a soil pH above 6.0. Soil test to determine how much phosphorus and potassium to apply. Apply fertilizer by broadcasting after new seedlings are established. The phosphorus will help stimulate root growth, and the potassium will increase forage growth and promote winter hardiness.

Step 3. Seeding time. Broadcast in the early spring when the ground is still frozen. Late February and March are good times in most of the Mid-west. The important thing to remember about seeding time is that one is depending upon the freezing and thawing action to help put the seed into contact with the soil for germination. The more freeze thaw cycles, the better chance of seed germination.

Step 4. Grazing management for establishment. Graze early and close in the spring to keep grass competition to a minimum. Grass suppression is necessary to allow seedling to grow and compete. Rotationally grazed pastures work best for successful frost seeding as this practice keeps grass in a vegetative stage throughout the entire grazing season.

Step 5. Management after establishment. After establishment, check soil test levels to determine if additional applications of phosphorous and potassium are needed. Reseed at least every other year with red clover. If stands are still thin after the frost-seeding year, consider reseeding the following year with additional seed. Allowing red clover to reseed every few years will enhance natural reseeding.

Frost seeding offers producers an inexpensive method of improving pastures. However, frost seeding is more risky than other methods as a dry spring will reduce the establishment potential of frost seeding. The relative low cost of this method is probably the greatest incentive for producers to utilize frost seeding. With good animal management and rotational grazing, the system has worked quite well on many Mid-western farms.