

Frost Seeding Improves Pastures In Michigan

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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 is not new in Michigan. Many cash crop producers in the Saginaw Valley and Thumb area of Michigan 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 key to success with this method is 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 eight pounds per acre annual ryegrass was ideal for seeding the species.

Both research and producer experience in Michigan have shown red clover and birdsfoot

trefoil to be in the best choices for frost seeding legumes. Seedlings of both species 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 soil. However, red clover will only last two years since it is a short-lived perennial.

Birdsfoot trefoil is slow to establish but is one of the most long-lived pasture legumes grown in Michigan. It can adapt to a wide range of soil conditions, such as low soil pH and poor soil drainage. Additionally, it does not cause bloat in feeding animals. Red clover and birdsfoot trefoil are often seeded together, however, red clover is much more vigorous and can crowd out the birdsfoot trefoil seedlings during establishment. Therefore, one should choose one or the other rather than mix the two. Red clover should be seeded at 8-12 pounds per acre, and birdsfoot trefoil should be seeded at 6-8 pounds per acre.

Many Michigan pastures have been over grazed this past year and are excellent candidates for frost seeding as the grass is somewhat weakened in these pastures as well as grazed closely. Frost seeding into these pastures offers potential for improvement.

Steps To Successful Frost Seeding

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 loams. 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 5.5 or above. Both red clover and birdsfoot trefoil tolerate acid soils, however, they will grow better at a soil pH above 6.0. Soil test to correct for both phosphorus and potassium. Apply fertilizer by broadcasting after new seedling 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 Southern Michigan while March and early April are good in northern Michigan. 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 germina-

tion.

• **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 phosphorus 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. Birdsfoot trefoil should become more dominant during the second year after frost seeding as this crop is less competitive than red clover. Leaving red clover or birdsfoot trefoil 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 Michigan farms.

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