

Frost Seeding – A Way to Improve a Field Without Plowing it Up

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In hay or grass lands, legumes such as clover can increase the quality of the forage as well as supply nitrogen to support grass growth. Are you lacking a clover or another legume in your hay land, pastureland or your wildlife food plot? If the answer is yes, then you may want to consider frost seeding as a technic to enhance your field. Frost seeding is a popular option to incorporate a clover into a grassy field. It can improve the forage value of your grass stand for your grazing animals or wildlife that you are trying to attract.

The principle of frost seeding is to broadcast seed in the early spring when the ground freezes at night and thaws during the day. This freeze-thaw cycle helps to work the seed into the ground. The main advantage to frost seeding is the ability to establish desirable species at a low per acre cost and without the use of tillage. The success of frost seeding establishment can be increased by following the key steps outlined below.

Remove Excess Vegetation Before Seeding

Seed-to-soil contact is critical to the success of a frost seeding. The best candidate for frost seeding is the “run out” field. Areas with bare or exposed soil across a field are ideal candidates for frost seeding. Closely grazing or mowing grasslands in the fall will also help to expose the soil. Generally, fields with a thick thatch layer will not frost seed well because the seed will not easily gain contact with the soil.

Seed in the Early Spring

The best time to seed is early in the spring after the snow is gone but while the ground is still frozen. The repeated freezing and thawing will cause some of the seed to fall into soil cracks and germinate. Frost seeding can also be done over a thin layer of snow. However, be aware that rapid snow melt can cause the seed to be moved off the field. Frost seeding works best where soils have a higher clay content.

Pay Attention to the Soil Type

Clay causes the soil to shrink and swell during the freeze thaw cycle of early spring, allowing the seed to come in contact with the soil. The sandier the soils, the less successful the seeding will be.

Equipment to Use

Frost seeding are typically broadcast with seeders mounted on ATVs, or a tractor-mounted or handheld broadcast seeder. When frost seeding with a broadcast seeder, make sure to first determine the effective seeding width to avoid possible overlap of seed. Although not always necessary, cattle (through tromping), or light disturbance of the soil (disking, dragging, etc.) can improve soil-to-seed contact.

Recommended Species and Seeding Rates for Frost Seeding

Species	Seeding Rate (lbs. per acre)
Red Clover	6 to 8
White Clover	2 to 4
Perennial Ryegrass	2 to 3
Orchardgrass	2 to 4

Select Species that can Germinate when Cold

Frost seeding works best with clovers and those grasses that germinate fast and at cool temperatures. Red and white clovers are the most effective for establishment. Alfalfa and birdsfoot trefoil are less likely to be successful due to slow establishment and germination that is variable at cool temperatures. Although legumes are the most successful for this system, some grasses can also be successfully frost seeded. Of

the grasses, perennial ryegrass and orchard grass have the greatest success. If seeding both legumes and grasses, it would be best to seed separately, as the difference in seed weight and size would result in uneven seed distribution. To reduce the financial risk of frost seeding, it is generally better to seed at lower rates and repeat in successive years than to seed at higher rates in any one year. Many farmers frost seed 25% of their acreage each year so that they are spreading their risk over different years.

Reducing Competition

Reducing competition from the existing stand will help the new seedlings establish. To begin, fall grazing or mowing down to a 2-inch height will slow regrowth of the existing stand in the spring. After seeding, grazing or mowing the field when it is 6 to 8 inches tall will allow for better light penetration to the new seedlings. However, take care to avoid overgrazing which can result in young seedlings being consumed before adequate establishment.

Frost seeding can be an effective and inexpensive method to improve the quality and quantity of forage. The key steps to success include good seed-to-soil contact, early seeding at the appropriate time for your climate, proper species selection, and reducing competition. Periodic frost seeding will help maintain high quality forages.

Jim Williams is the District Conservationist for the USDA – Natural Resources Conservation Service. The USDA-NRCS works in conjunction with the Wexford Conservation District to provide technical assistance and education to area residents related to managing grazing lands as well as other natural resources – our soils, water, forests, plants, and wildlife – so that they can be wise stewards of these, their resources. You can contact the District and the USDA-NRCS by calling (231) 775-7681 ext.3, stopping by the office at 7192 E. 34 (Boon) Road in Cadillac.



Bob Eggle, Cadillac area beef producer, examining a field in December where he frost seeded red clover in the spring of 2015. Bob has had several successful frost seedings over the past couple of years.



Red clover plant established by frost seeding in the spring of 2015 at the Eggle Farm south of Cadillac.

