

Frost-seeding Legumes

The benefits of legumes in a pasture or hayfield are numerous. Grass-legume systems have a reduced need for nitrogen fertilizer, improved forage quality, better seasonal forage distribution, increased forage yields, and reduced risks to grazing animals when compared to grass monocultures. Legumes can be mixed in with grass seed when fields are first established or they can be broadcast or drilled into existing stands of grass in the spring or fall. The most common way that legumes are established is through a process known as frost-seeding.

Frost-seeding is the process of broadcasting legume seed in an established grass system when the ground is still frozen in late winter, specifically mid to late February. The occasional warm, sunny day during this time of the year will briefly thaw the surface of the soil before it is frozen again. This freezing and thawing process, along with early spring rains, works legume seed into the soil. Frost-seeding is often not as successful as seeding when using a drill. Frost-seeding does, however, result in a significant savings of time and money compared to drilling, making it a popular choice.

While there is nothing difficult about broadcasting seed, establishing a quality stand of legumes through frost-seeding does require planning. The biggest threat to a quality legume stand is competition from grass species. Legumes should be seeded into pastures with thin stands of grass or pastures where bunch-grasses such as fescue or orchardgrass are grown. If thin stands are unavailable, pastures should be heavily grazed or lightly worked the fall before seeding. Legume establishment is dependent on soil fertility as well. An adequate soil pH, as well as an adequate level of phosphorus and potassium in the soil, is needed for a successful winter seeding.

All commonly grown legumes, including birdsfoot trefoil, annual lespedeza, and red and white clovers, can be established through frost-seeding. Seeding rates should be slightly higher than when legumes are drilled or planted into a prepared seedbed. All legume seed should be inoculated with bacteria prior to frost-seeding. Control of competition from grasses or other weeds is critical during the first few months of legume establishment. This is accomplished primarily through mowing or grazing as most herbicides will kill legumes. It is important not to overgraze as this can kill young legume seedlings that are not yet established.

It seems as if pastures have been overflowing with legumes the past two years. Many producers may have had more legumes in their pastures than they actually wanted. This was due primarily to the wet, moderate weather that is ideal for legume growth. But just because legumes have seemed to crowd out the grasses in the past does not mean that they will do so this year. Legumes have a limited lifespan, about three to four years for white clovers and only two years for red clover. Producers should assess their legume stands to determine whether they need to plant more legumes. If they do, frost-seeding is a great way to do it.