ERNST SEEDS

SEEDING METHODS







DRILL SEEDING

Drill seeding is a mechanical means of creating furrows (openings) in the soil and metering seed in at a uniform rate. A drill seeder is practical for seeding multiple acres in larger areas.

Conventional drills can work in tilled and partly tilled soil. No-till drills are designed to work in soil that has not been tilled. They have heavy openers that cut through vegetation and sod to make a furrow for seed placement. With the proper adjustment, a no-till drill can work in tilled soil. It has discs that aid in loosening the soil. All drills should be equipped with a closing or packing wheel that follows seed placement.

The goal of drill seeding is to achieve uniform seed distribution over the site with seed placement at the correct depth (1/4"-1/2") and good seed-to-soil contact. Calibrating a drill or broadcast seeder depends on seed bulk density and required application rates. Manufacturers provide manuals with charts to guide seeding rate calibration. To ensure uniform application of seed, conduct a test run over a small area using the appropriate amount of seed for that area, then make any necessary adjustments.

Most traditional seed drills are designed to handle seeds with high bulk densities, such as oats and wheat. Some drills may have a small seed box able to plant small seeds, such as alfalfa, clover, and switchgrass.

Many native and naturalized species are fluffy and will not readily flow through a traditional seed drill. Examples of fluffy seed include little bluestem, big bluestem, and indiangrass. With the aid of a bulking agent, some fluffy seeds may be planted through the large seed box of a traditional drill. Bulking agents include kitty litter, dry sawdust, vermiculite, or rice hulls. Test with a small amount of seed. Native seed drills, such as Truax, have specialized seed boxes that are effective for planting fluffy seed. When seed will not readily flow through a native seed drill's fluffy seed box, a bulking agent may be needed.



HAND SEEDING

Hand seeding is the casting of seed onto the soil. Hand seeding is used on small plots or difficult terrain where seeding with machinery is not an option. The goal is to achieve an even distribution of seed over the site. This can be accomplished by spreading half of the seed in one pass and the balance in a perpendicular pass. To ensure uniform application of seed, conduct a test run over a small area using the appropriate amount of seed for that area. To know how wide to make your passes, check the width of seed distribution. If possible, a light raking to a depth of 1/4" and/or firming with a lawn or Brillion-type roller is recommended to achieve good seed-to-soil contact. Cover with straw mulch at 70 lb per 1,000 sq ft or hydromulch at 34 lb per 1,000 sq ft. When the volume of seed to be applied is small (less than 50 lb per acre), a bulking agent may be helpful to provide the volume necessary to get uniform application. Such bulking agents include kitty litter, dry sawdust, vermiculite, or rice hulls.

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BROADCAST SEEDING

A broadcast seeder consists of a hopper with an adjustable door that regulates seed flow onto a spinner. Some broadcast seeders have an agitator that aids with seed flow in the hopper. Broadcast seeders are commonly used to spread seed, fertilizer, lime, and other granular products. The goal is to achieve an even distribution of seed over the site. To ensure uniform application of seed, conduct a test run over a small area using the appropriate amount of seed for that area. To know how wide to make the passes, check the width of seed distribution from the spreader. The settings can then be adjusted as needed. To achieve better distribution, spread half of the seed in one pass and the balance in a perpendicular pass. We recommend refilling the hopper when it is 1/3 full rather than letting it empty out. Follow up by tracking or firming the seed into the soil with a lawn or Brillion-type roller to achieve good seed-to-soil contact. Do not roll or track the seed if the soil is wet. Cover with straw mulch at 70 lb per 1,000 sq ft or hydromulch at 34 lb per 1,000 sq ft. Many native seeds are fluffy and will not flow uniformly through a broadcast seeder. To enhance the flow, mix the seed with a bulking agent of similar density. Dry sawdust, vermiculite, or rice hulls are some options. An agitator in the hopper may be required in these circumstances. We recommend a minimum rate of 50 lb per acre of seed and bulking agent. A bulking agent can also be helpful if you are planting small quantities of seed. It provides the volume necessary to get uniform application. For fine seeds, kitty litter is a more appropriate bulking agent.

CULTIPACKING

A cultipacker is an excellent way of covering the seed with a minimum amount of soil to ensure proper seed-to-soil contact. It resembles a large rolling pin with evenly spaced ridges and dimples. The primary functions of a cultipacker are to break up clods, remove excess air spaces from loose soil, and smooth the soil. The heavy-duty smooth, spoke, or crowfoot rollers provide clod-breaking and smoothing capabilities. As with any tillage, it is important not to overwork the soil or work it when it is too wet.



STRAW MULCHING

A straw-mulch blower distributes mulch over a seeded area. It has a slide (or chute) in which to feed the mulch, chopper blades to break up the mulch, and a blower to spread the mulch over large areas. Straw mulch may be spread by hand in smaller areas. It is important to use weed-free straw from small grains, such as oats or grain rye, to minimize potential weed issues.





HYDROSEEDING

A hydroseeder combines water, seed, fertilizer and, sometimes, hydromulch into a mix that is pumped through a nozzle and sprayed uniformly over the area to be seeded. Hydroseeders can distribute this mix at 150' or more, allowing for the ability to seed terrain that may not be accessible with other seeding methods, such as steep slopes, roadside cuts, or sites that are too wet. Using hydromulch aids in seed placement and reduces erosion on slopes. Depending on site conditions, use of erosion control blankets or straw mulch may be needed to cover the seed. Many native seeds should be broadcast with 500 lb per acre of mulch as a marker. Do not exceed this amount as native seeds may die if suspended in the mulch with little or no seed-to-soil contact. The balance of the hydromulch, often 1,000 lb per acre, may be applied on top in a secondary application.

ERNST SEEDS

TOOLS FOR PREPARATION



MINIMUM-TILL EQUIPMENT

Minimum-till equipment incorporates a portion of the surface vegetation into the soil and levels uneven surfaces. One of the most common tools is a disc which cuts through vegetation, sod, or hard soil and partially turns or tills it into the soil. Similar equipment that turns part of the vegetative residue into the soil is known as Aerway® or Turbo® Till.



CHISEL PLOW

A chisel plow is primarily used to break up hardpan soil or loosen compacted soil while leaving a high percentage of debris on top. It is a minimum-till plow because it does not dislodge or turn over the entire soil profile the way a moldboard plow does. A chisel plow may be adjusted to till shallow or deep and typically has C-shaped shanks mounted on dual coil springs. The frame, shanks, and springs are of sufficient weight, size, and strength to provide a cutting depth of 8"-12". To make the soil smooth enough for planting after the use of a chisel plow, use a disc harrow, tandem disc harrow, or offset disc harrow of sufficient weight and size to provide a cutting depth of 6"-8".



ROTOTILLER

A rototiller pulverizes the soil with rotating blades and incorporates soil amendments and surface vegetation. Most units till up to 6" deep.



TRACKING

Tracking is the use of a crawler or rubber-tired tractor to make depressions and firm loose soil after construction or tilling. Tracks should be oriented perpendicular to the slope of a site. Tracking depressions aid in reducing erosion and retaining seed and moisture. The firm, but not compacted, seedbed will not dry out as quickly as loose soil.

ERNST SEEDS

TOOLS FOR MAINTENANCE



ROTARY MOWER

A heavy-duty rotary mower can be utilized as a brush hog to tame heavy grass and light brush, such as multiflora rose, honeysuckle, and small tree seedlings, on under-utilized fields difficult to mow with a discbine or sickle bar mower.



DISCBINE MOWER

A discbine mower is a hay-harvesting machine with high-speed rotary discs for mowing and baling biomass and assembling the material into a windrow.

WHEN TO MOW

Following the establishment year, typically, mowing during the growing season should not be necessary unless it is in lieu of herbicides to control weeds. Mowing height should be no lower than 8".

To prevent succession of woody species in an established meadow, an important aspect of a maintenance program is an early spring mowing close to the ground (2"). Mowing should occur every one to three years in late winter or early spring and shortly before spring nesting season. Spring mowing will leave food and cover for wildlife through the winter without disrupting nesting of grassland birds.



SPRAYER

Sprayers come in various sizes and styles, including common hand-held units like the one shown here. They are often preferred for carefully targeted spraying of unwanted or invasive vegetation. Larger areas may be sprayed effectively using tractor or ATV-drawn tank units.

The use of herbicides for controlling undesirable vegetation can be an important part of an integrated pest management (IPM) program when applied according to the manufacturer's label. Prior to using any herbicide, read the label for safe handling and application information. Many herbicides are only available to licensed applicators. In these cases, a licensed professional should be employed.