

Turfgrass Establishment Seeding

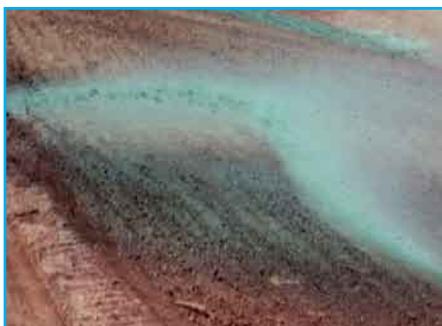
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Small areas of turf are often planted by broadcasting seed by hand or by using a crank-type, shoulder seeder or walk-behind seeder. Tractor-drawn or tractor-mounted seed drills and cultipacker seeders are commonly used to plant larger areas. As its name implies, a hydroseeder is used to deliver seeds to the seedbed in water. Hydraulic mulch (e.g., Conwed Fibers® 2500 and Terra-Mulch™ Cellulose), fertilizer, lime and a tackifier can be added with seed to produce a seed-bearing, hydromulch that resists erosion. Hydromulching is especially effective when planting slopes too steep for 'conventional' planters. Pneumatic seeders are used to topdress or "cap" the planting bed with a mixture of compost and seed.

Seeding Rate. Seed size and viability influence the recommended seeding rate for each turfgrass

species. Small-seeded species such as Kentucky bluegrass and bermudagrass require fewer pounds of seed per 1,000 square feet than species such as perennial ryegrass and tall fescue that produce relatively large seed. Planting too much seed most often results in a very dense stand of weak, poorly developed and disease-prone seedlings.

Germination Period. The amount of time required for a seed to germinate varies among the turfgrasses. Cyclic air temperatures of about 59 to 82 degrees F favor rapid germination of seeds of cool-season turfgrass species. Seeds of warm-season turfgrasses usually germinate well at air temperatures from 68 to 95 F. Bermudagrass, centipedegrass, Kentucky bluegrass and *Zoysia* seeds usually require more time to germinate than seeds of the fescues and ryegrasses.



The recommended seeding rate and the seed germination interval of several turfgrasses.

Species	Recommended Seeding Rate (Pounds Per 1,000 Square Feet)	Approximate Number of Days to Germinate
Cool-season		
Bluegrass, Kentucky	1½ to 2	14 to 21
Fescue, chewings	3 to 5	6 to 14
Fescue, red	3 to 5	6 to 14
Fescue, sheep	3 to 5	6 to 14
Fescue, tall	5 to 8	6 to 12
Ryegrass, annual	4 to 6	3 to 7
Ryegrass, perennial	4 to 6	3 to 7
Warm-season		
Bermudagrass, common - hulled ^a	½ to 1	10 to 20 ^b
Centipedegrass	½ to 3	10 to 20
<i>Zoysia japonica</i>	½ to 3	10 to 14

^a The seeding rate should be doubled when using unhulled seed.

^b Unhulled seed often requires 14 to 21 days or longer to germinate.



Mulches and Mulching.

Mulching a newly planted seedbed immediately after raking and rolling can conserve water, control erosion and protect seedlings from

extreme high and low temperatures. Weed-free straw and hay are commonly used as mulch. Straw or hay should be broadcast uniformly over the seedbed such that 50 to 75 percent of the soil surface is covered with mulch. As a general rule, one 50-pound-bale will cover about 1,000 square feet. A "binder" is often applied at the tip of a

mechanical mulch blower as straw is blown over a sloped seedbed. Aged sawdust, compost, sludge + compost mixtures, peat moss and pulp fiber are also used as mulch. Applying a 1/8- to 1/4-inch layer of organic matter after planting seeds and rolling the seedbed provides many of the benefits of mulching with straw or hay.

Biodegradable Erosion Control Blankets.

Biodegradable erosion control blankets are used to stabilize erosion-prone soils while seedlings develop. Excelsior blankets [e.g., Curlex III Iowa Blanket® (American Excelsior Company), Standard Plus Grade Excelsior Blanket (Contech Construction Products) and XCEL Temporary Erosion Control Blanket (Western Excelsior Company)] composed of photo-degradable netting and wood fibers, are rolled out and stapled after seeding. Netting secures fibers to the soil surface while

biodegradable staples hold the blanket in place. When moistened, the fibers often expand in thickness. Excelsior blankets with plastic mesh on both sides



are designed to reinforce turfgrass roots long after wood fibers have decomposed. Blankets containing straw (e.g., American Excelsior - AEC Premier Straw Single and Double Net, North American Green - S75 and S150, Greenfix America - WS05 and WS072, Robex, LLC. - RS-1 and RS-2, SI Corporation - Landlok S1 and S2, Verdylol Alabama, Inc. - Ero-Mat and Western Excelsior - SS-1 and SS-2), coconut fibers (e.g., Greenfix America - CF072RR, North American Green - C125, SI Corporation - Landlok C2 and Western Excelsior - CC-4) and a mixture of wood + synthetic fibers (e.g., Conwed® Fibers- Futerra® Erosion Control Blanket) are also available.

Synthetic Covers. In addition to protecting warm-season turfgrasses from winter-kill, synthetic, vented turf covers (e.g., Typar® Turf Blankets, SUR-LINE Turf Blankets, Evergreen™ Turf Covers and Winter Shield™ Turf Enhancement Blanket) can be installed after seeding to speed germination, conserve moisture, control erosion and extend



the turfgrass growing season. These permeable covers allow water and light to pass through while insulating the soil against high- or low-temperature extremes. Once seedlings emerge from soil and develop roots, the synthetic covers are removed.

Care After Planting

Water. The germination process begins as seeds take in water. New plantings may require light (e.g., 1/8 to 1/4 inch or from about 75 to 150 gallons per 1,000 square feet), daily irrigation for several weeks after seeding. As plants increase in size and roots reach a greater soil depth, more

water can be applied less often (e.g., 1/2 inch or about 300 gallons per 1,000 square feet every two to three days).

Mowing. For best results, mow often at an appropriate height of cut. Do not remove more than one-third of the leaf area when mowing. For example, begin mowing upright, bunch-type species such as chewings fescue, hard fescue, perennial ryegrass and tall fescue at a 2-inch cutting height when plants reach an average height of 3 inches. Begin mowing lower growing, sod-forming species including hybrid bermudagrass and *Zoysia* at a 1 1/2-inch cutting height when plants reach an average height of 2 1/4 inches.

Fertilizing. The application of 1/2 pound of N per 1,000 square feet three to five weeks after seedlings emerge from the soil will support continued plant growth. Nitrogen should not be applied if plants are stressed by high or low temperatures.

Weed Control, Pre-emergence. The herbicide siduron (e.g., Tupersan®) can be applied before seeding fine and tall fescues, Kentucky bluegrass, perennial ryegrass and *Zoysia*. Siduron will help control some species of summer annual weed grasses and broadleaf weeds.

Weed Control, Post-emergence. Several herbicides, including 2,4-D, dicamba, mecoprop (MCP) and triclopyr, are labeled for the control of emerged broadleaf weeds in established turfs. Others, including fenoxaprop (e.g., Acclaim® Extra), monosodium acid methanearsonate (MSMA) and quinclorac (e.g., Drive®), are applied to control emerged crabgrasses in mature turf. These post-emergence (after weeds emerge from the soil) herbicides are most effective when applied to young, actively growing weeds. However, the application of certain post-emergence herbicides can severely injure or kill newly seeded turfgrasses. Several weeks or months may be required before plants can withstand herbicide treatment.

Diseases and Insects. Young plants with poorly developed roots and leaves are often very susceptible to disease and insect attack.

When growth is slowed by unfavorable weather, seedlings often become susceptible to infection by several fungal pathogens. Fungi capable of injuring seedlings include species of *Bipolaris*, *Colletotrichum*, *Fusarium*, *Pythium* and *Rhizoctonia*. These diseases of young plants are commonly referred to as damping off.

Armyworm [*Pseudaletia unipuncta* (Haworth)], black [*Agrotis ipsilon* (Hufnagel)] and variegated [*Peridroma saucia* (Hubner)] cutworm, bluegrass sod webworm [*Parapediasia teterrella* (Zincken)] and fall armyworm [*Spodoptera frugiperda* (J. E. Smith)] larvae feed at the soil surface, eating leaves and stems. Common chinch bugs [*Blissus leucopterus leucopterus* (Say)] discolor leaves and stems as they withdraw sap. Hunting billbugs (*Sphenophorus venatus vestitus* Chittenden) damage plants as they burrow into stems. Green June beetle [*Cotinis nitida* (L.)] larvae tunnel through thatch and soil, often lifting plants and severing roots. White grubs, the larvae of scarab beetles (*Phyllophaga* spp.), injure or kill turfgrasses by feeding on roots and other belowground plant parts. Turf injury often occurs at or near the soil surface. If populations of white grubs are excessive, root loss can be very severe and the turf can be rolled back like a carpet.

Fungicides (e.g., azoxystrobin (Heritage®), chloroneb (Terraneb®), fenarimol (Rubigon®), flutolanil (ProStar®), fosetyl-AL (Aliette®), iprodione (Chipco®20019), mancozeb (Dithane®), metalaxyl (Subdue®), propiconazole (Banner®), thiophanate-methyl (Fungo®), triadimefon (Bayleton®) and others] and insecticides [e.g., acephate (Orthene®), carbaryl (Sevin®),

imidacloprid (Merit®), isofenphos (Oftanol®), trichlorfon (Dylox®), Proxol®) and others] can be applied as needed to protect young turfgrass plants.



Removing Fallen Leaves. It is seldom necessary to remove straw or hay mulch after seeding. If high winds or heavy rainfall causes windrows or heavy accumulations of mulch, re-broadcast the organic material as evenly as possible over bare or thinly mulched areas. Too many tree leaves lying on the turf surface can weaken plants. Routinely sweep, rake or vacuum to remove fallen leaves. A layer of leaves blocks light and may increase the temperature and relative humidity of the micro-environment underneath. Warm, moist conditions favor the development of several patch and leaf spot diseases. *Pythium* spp. can be especially destructive when young plants growing in wet soils are exposed to high temperatures.

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

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