Turfgrass Science
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# Establishing Turfgrass Areas From Seed

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Turfgrass establishment is most commonly accomplished with seed, although sod can also be used. Sod offers the advantage of an "instant lawn" whereas seed takes much longer to produce a green turf. Establishment with seed is much less expensive than with sod. Establishing a lawn with seed is not an easy task that should be taken lightly. Following proper establishment procedures can produce a healthy turf that one can be proud of for many years to come.

## Late Summer Seeding is Optimal

The best time to seed a cool-season turfgrass (Kentucky bluegrasses, perennial ryegrasses, tall fescues and fine-leaf fescues) lawn is in the late summer to early fall. Adequate soil moisture, warm soil, and limited weed pressure allow for excellent seedling growth. Between August 15 and September 15 is optimum seeding time in the northern half of Indiana and Illinois, and September 1 to September 30 is optimum in the southern half of Indiana and Illinois. It is critical to seed as early as possible within these windows. Even when seeding within these windows, waiting one week to seed may mean the stand will take 2 to 4 additional weeks to mature.

## Dormant and Spring Seeding

Seeding in spring is difficult and often unsuccessful. However, there are circumstances that warrant a spring seeding:

- Thin turf due to winter damage
- Poor turf density due to poor recovery from previous year's problems, i.e., grub damage, drought damage, etc.
- Construction of a new home or business.

If a spring seeding is necessary, consider doing it before the ground thaws from winter. This is called "dormant seeding" because the seed will lie dormant until the soil temperatures warm in April or May. Depending on your location in Indiana or Illinois, dormant seeding can be done as early as Thanksgiving and as late as March. The benefit of dormant seeding is that as the soil heaves and cracks during the winter, crevices are created for the seeds which provide ideal germination conditions. Additionally, dormant seeding is easier to schedule than spring seeding, because spring rains often make it difficult to seed after March in Indiana and Illinois. Dormant seeding is more effective in the northern-half of our states because weather remains cold enough to delay germination until spring. Occasionally, warmer periods in the southern-half of our states could allow for germination and seedling death with ensuing cold weather.

## Summer Seeding

Summer seeding should be avoided. Areas seeded in summer will succumb to heat and drought stress because of their limited root systems summer seedlings are out-competed by summer annual weeds resulting in a thin weak sward.

## Preparing the Seedbed

A soil test should be taken from the site. The test will determine fertilizer recommendations for the area. Correct any deficiencies in nutrients or pH by following the recommendations on the soil test report. Use a rotary tiller or other cultivation equipment to work the soil to a depth of 4 to 6 inches, incorporating fertilizer or other soil amendments. Do not work wet soil because clodding usually results; in addition, overtilling will destroy soil structure and is not desirable. The soil

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*Table 1. Purdue University 's 2005 phosphorus recommendations for newly planted turf and for annual fertilization of established turf.*

| Soil test values | | | | |
|---|---|---|---|---|
| range | ppm | lbs P/acre | New sod or seed (lb. $P_2O_5$/1000 $ft^2$) | Annual applications (lb. $P_2O_5$/1000 $ft^2$/yr) |
| low | 0-13 | 0-25 | 1.5 | 1.5 |
| medium | 13-25 | 26-50 | 1.0 | 1.0 |
| high | 25+ | 51+ | 1.0 | 0.0 |

should be allowed to settle after tilling or compacted slightly with the tires of a tractor or other suitable implement. Heavy rains and/or irrigation will hasten settling. Allowing time for the soil to settle will prevent undulations and difficult mowing in the future. Just prior to seeding, rake the area to finish grade.

After the area is at finish grade, apply a "starter fertilizer" to enhance seed germination and development. Starter fertilizer is high in phosphorus which is listed as the second number in the analysis on the fertilizer bag. For instance, a 16-22-8 fertilizer contains 22% $P_2O_5$ by weight. Apply the fertilizer according to the label at 1.5 lb. $P_2O_5$ /1000 $ft^2$. Refer to Table 1 for the proper amount of starter fertilizer to apply.

## Seeding

Seed should be applied using a drop spreader because rotary spreaders do not disperse the seed uniformly. However, spreaders typically do not come with calibration information about seeding turfgrasses. The easiest way to apply seed uniformly is to set the spreader adjustment very low, sow one half of the seed in one direction, and then sow the other half at right angles to the first direction of seeding. It might take three or more passes over your lawn in a single direction, but it is well worth the time to get a uniform seeding. Seeding rate recommendations are presented in Table 2.

After the starter fertilizer and seed have been applied, the area should receive a light raking followed by a light rolling to ensure good seed-soil contact. A roller designed to be filled with water, but left empty, is perfect for this job. It is critical to maximize the seed-soil contact for quick germination and establishment.

## Mulching

Mulching the area will prevent erosion and conserve water. Therefore, mulching is most important when it is impossible to adequately irrigate newly-seeded areas. One bale of clean (weed-free) straw per thousand square feet will give a light covering that will not have to be removed after germination. Many homeowners apply too much mulch, which can shade seedlings and require removal later. Apply the mulch very lightly so you can still see approximately 50% of the soil through the mulch layer. Some professionals use hydromulch which is a paper-based mulch blown on the soil by a specialized sprayer, which is an ideal method.

## Watering

Seedlings are susceptible to desiccation, and the seedbed should not be allowed to dry. A newly-seeded lawn will need to be irrigated two to four times daily depending on the weather. Water frequently enough to keep the top 0.5 to 1.0 inch moist, but avoid over-watering and saturating the area. Once the seedlings are two inches high, gradually reduce the frequency of irrigation and water more deeply. After the turf has been mowed two or three times, deep and infrequent irrigation is most effective. Refer to AY-7, Irrigation Practices for Homelawns, for more information.

## Mowing

Mowing a new lawn will encourage the turf to fill in quickly. Mowing should begin when the first few seedlings are tall enough to mow. You may only mow 10% of the plants in the first mowing, 20-30% of the

*Table 2. Recommended seeding rates for lawns in Indiana and Illinois.*

| Seed Blend or Mixture | Seeding rate lbs./1000 $ft^2$ | lbs./acre |
|---|---|---|
| 100% Kentucky bluegrass | 1.5-2.0 | 65-87 |
| 85-90% Kentucky bluegrass + 10-15% perennial rye | 3.0-4.0 | 130-175 |
| 50-70% Kentucky bluegrass + 30-50% fine fescue | 4.0-5.0 | 175-220 |
| 100% tall fescue | 6.0-9.0 | 261-348 |

plants in the second mowing, and so on. Most wait too long to mow a newly seeded lawn, so mow early and often. Initially mow Kentucky bluegrass, perennial rye, and fine fescue at 1.5 inches and tall fescue at 2.0 inches. After the first three to four mowings, you can adjust your mower to the permanent mowing height which is 2.0 to 3.5 inches for Kentucky bluegrass, perennial rye, and fine fescue and 2.5 to 4.0 inches for tall fescue. As always, never remove more than 1/3 of the grass blade at any one mowing.

## Fertility

New seedlings have poorly developed root systems and thus they cannot effectively absorb nutrients from the soil. Therefore, it is important to fertilize frequently after seeding to encourage establishment. Apply 0.75 to 1.0 lb N/1000 $ft^2$ four to six weeks after germination and again eight to ten weeks after germination. Assuming seeding in mid-August, these applications would be mid- to late September and again mid- to late October. For more information on fertilizing lawns, refer to AY-22, Fertilizing Established Lawns.

## Weed Control

There is little weed pressure in the fall so weed control may not be needed. Broadleaf weeds may become a problem in the fall, but these can be easily controlled with a broadleaf herbicide application in October or November, after the third or fourth mowing. Avoid using broadleaf herbicides in newly-seeded areas until seedlings have been mowed at least three times. Quinclorac and carfentrazone are the only broadleaf herbicide that are safe to use on seedling turf.

Annual grasses such as crabgrass can be easily controlled with preemergence herbicides applied in the spring. With dormant seedings or seedings made very late in fall where the lawn is not fully established by winter, avoid applying a preemergence herbicide in early spring because it may damage late-developing seedlings. In this case, consider using a postemergence crabgrass herbicide later in summer to control crabgrass. Do not use preemergence crabgrass controls (except siduron) at the same time as a spring seeding. As a general recommendation, delay use of these materials until new seedlings have been mowed four to eight times, depending on the herbicide. Check the herbicide label for exact recommendations. Siduron is the only preemergence herbicide that can be used at the time of seeding, but will only control crabgrass for only 3 or 4 weeks. Quinclorac can be used for postemergence control of summer annual grassy weeds in seedling turf with little risk to the desired seedlings. Always apply according to label instructions, and refer to AY-10, Control of Crabgrass in Homelawns and AY-9, Control of Broadleaf Weeds in Homelawns, for more

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