

Establishing and Maintaining a Seeded Lawn in Eastern Oregon

Marvin Young, *Deschutes County Extension Chairman, Oregon State University*



Most soils in eastern Oregon are satisfactory for turf grass production in their native state—without modifications. The major exceptions are the “salt-affected” soils, which occur at various locations throughout the arid and semi-arid areas of the Western United States, including eastern Oregon. Salt-affected soils are poorly suited for the growth of most plants by the presence or action of soluble salts such as calcium, magnesium, and sodium. These problem soils fall into two major categories, those where the salinity itself is the problem and these where sodium builds up.

Salinity problems

The main effect is for soluble salt concentration in the soil solution to be so high that the roots find it difficult to take up water. When a source of

low-salt-content irrigation water is available and drainage can be provided through the soil, the excess salts sometimes can be leached or washed from the soil.

Sodium problems

Sodium may accumulate in the soil for a number of reasons. It may be added by irrigation water high in sodium; it may be left behind when other salts are leached from the soil; or it may rise to the surface with water and remain when the water evaporates. Localized areas of sodium-containing (sodic) soils are often called “slick spots.” These may cause difficulty in getting water to penetrate the soil.

Special handling of these soils may be necessary for establishing turf grass. If you suspect salinity or sodium problems, you may want to take a soil sample and obtain an analysis before attempting turf establishment. Your Extension agent can assist in providing test information and containers for the testing. The soil test laboratory will suggest procedures such as leaching or additions of gypsum to aid in reclaiming these areas.

Eastern Oregon soil textures range from very light pumice soils to sandy loams to heavy clays. While additions of organic materials may improve water penetration, waterholding characteristics, and nutrient holding capabilities, turf can be grown in most cases without these modifications.

Soils vary from those fairly acid with a pH of 5.0 or below to quite alkaline with a pH of 7.5 to 8.5 or even higher. Most turf grass varieties do best at a slightly acid to neutral pH, 6.5 to 7.0. Most Eastern Oregon soils fall into this level. Acid soils may be correctable with additions of lime; alkaline soil may respond to additions of gypsum. If you suspect a problem, see your Extension agent and obtain a soil analysis if necessary.

Light, sandy soils have a low water-holding capacity and a reduced ability to accept and hold

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large applications of plant nutrients. These soils may require more frequent, lighter applications of water and fertilizer than the heavier, more finely textured soils.

Depth

As little as 2 to 4 inches (about 5 to 10 centimeters) of soil can support turf grass. A more desirable depth, however, is 8 or more inches (20 centimeters). Thin layers of soil over rocks, septic tanks, etc., will require close attention to watering and fertilizing, since the reduced amount of root zone cannot support the plant needs for more than a few days.

Topography or grade

When the soil surface needs changing to meet desired slope or when you need to fill in low places or smooth off mounds, take care not to grade the surface soil too close to subsoil or rocky layers. If good-quality surface soil (top soil) is not readily available, or if you need large amounts to fill low areas, it may be desirable to remove existing topsoil, stockpile it, and bring the area to be planted to the desired grade with fill dirt of lesser quality. Then replace the topsoil from the stockpile for the finished level. Watering may help settle deep fill areas.

There should be a slight slope away from the house to provide surface drainage.

Finishing

If the grade or slope is already satisfactory, be sure to remove any unwanted vegetation or brush. Then till to a depth of 2 to 6 inches (5 to 15 centimeters). This is best done with a rotary tiller. If you want to add organic matter or soil amendments, such as manure, compost, sawdust lime, gypsum, etc., the time to apply it is just before tilling.

Work the soil until all clods and rocks over $\frac{1}{2}$ inch (1.25 cm) are broken or removed. If the soil is dry, water lightly to soak to a depth of at least 3 to 4 inches (7.6 to 10 cm).

Rake to smooth the surface. Apply fertilizer at this step or immediately before seeding.

Firm the soil with a roller filled with water. Rake again to level low and high spots and, if necessary, roll again.

Divide the total seed for the area into two parts. Apply half the seed in one direction and the other half in the opposite direction.

Rake lightly to cover the seed and roll with an empty roller to lightly firm the seed and soil.

Planting Dates

Growing seasons vary from fewer than 90 days to more than 255 days in eastern Oregon. Planting dates should depend on expected last spring frosts and first fall frosts.

Delay turf seedings until near the date of last expected freeze in the spring. You can seed from that time until late summer, but midsummer seedings are often difficult because soil surface temperatures can be high and soil moisture loss rapid. Late summer seedings have the advantage of lower soil temperatures and cooler nights, with fewer problems with weed germination. In all cases, however, allow at least 8 to 10 weeks between late summer seeding date and expected first freeze. It can take that long for turf to become established enough to survive the winter.

Adapted Grasses

Grasses that do well in the Willamette Valley and coastal areas may not survive in eastern Oregon. The three major grasses adapted to Eastern Oregon are:

Kentucky bluegrass

Bluegrasses are perhaps the single most adapted turf grass for eastern Oregon. They are an attractive bluegreen, winter hardy, and show some drought tolerance. They do well in full sun but become thin in shaded areas. Bluegrasses are best adapted to a soil pH of 6.0 to 7.5, but show some tolerance to higher pH conditions. Merion has proved to be an excellent bluegrass for eastern Oregon. Others include Baron, Fylking, Majestic, and Victa.

Fine fescues

Fine fescues are also well adapted and fairly fast to germinate, though somewhat slow to establish. They are wear-resistant after establishment. They are grey-green in color. Growth may be slow in warm, dry periods. Fine fescues are more shade tolerant than bluegrass and are often planted as a mix with bluegrass where combinations of shade and sun prevail. Proved varieties for eastern Oregon include Fortress, Highlight, Jamestown, Penn-lawn.

Perennial turf-type ryegrass

The turf-type perennial ryegrasses are recently introduced lawn grasses. They are a rich, vigorous green. They germinate in 5 to 7 days as compared with 12 to 15 days for bluegrasses. The ryegrasses do well in either full sun or shaded areas. They may require a little more nitrogen fertilizer for active growth than bluegrass. Mowers must be kept

sharp to do a good job of cutting. These grasses can be planted in mixtures with bluegrass.

Proved varieties for eastern Oregon are Manhattan and Pennfine.

Name grass varieties are usually better than simply "Kentucky bluegrass" or "perennial ryegrass," etc. Other grass varieties such as bentgrass or annual ryegrass may be found in some seed mixtures. For eastern Oregon turfs avoid mixes that include bentgrass or annual ryegrass. They are not adapted for the climate.

Seeding rates

The suggested amounts of seed are:

Bluegrasses—3 to 4 lbs. per 1,000 sq. ft. (15 to 20 grams per sq. meter)

Fescues—4 to 5 lbs. per 1,000 sq. ft. (20 to 25 grams per sq. meter)

Ryegrass—5 lbs. per 1,000 sq. ft. (25 grams per sq. meter)

Fertilizers

The most common elements added to soil are nitrogen, phosphorus, potassium, and sulfur. Other trace elements usually occur in sufficient amounts in eastern Oregon soils. Potassium also occurs in many eastern Oregon soils in sufficient amounts for turfgrass.

The author recommends a fertilizer ratio of 3 parts nitrogen (N), 1 part phosphorus (P), and 2 parts potassium (K). These three nutrients are expressed in percentages of N-P-K on the fertilizer package. Fertilizers such as 15-5-10, 12-4-6, or 9-3-6 are examples of fertilizers with this ratio. However, satisfactory results can be obtained with some of the common "farm" formulations such as 16-20-0 and 21-0-0, assuming sufficient amounts of potassium and/or phosphorus are in the soil.

The health and vigor of the turf is related to the nutrient level. One or two applications of fertilizer yearly may enable the turfgrass to survive, but three or four applications should keep it in a more vigorous attractive condition, without the danger of "burn" from too much at one time.

The nitrogen content of the formulation usually determines the amount to use. Each application should be not more than 1 pound actual nitrogen per 1,000 square foot (5 grams per sq. meter).

Thus 7 pounds of 16-20-0 per 1,000 square feet (35 grams per square meter) would be acceptable.

Applications are commonly applied at least 1 month apart, with the first one being applied about the time the turf begins to grow in the spring. The last application should go on approximately 1 month before growth stops in the fall.

Sulfur will be needed on most eastern Oregon turf at the rate of 2.5 pounds per 1,000 square feet per year (12 grams per square meter).

Sulfur is an unlisted element in many fertilizer formulations and may provide the needed amount. Check with your dealer to determine the amount of sulfur contained in the fertilizer you select.

If water is in short supply, reduce fertilizer applications or delay them until water is available, but don't waste water on a starving turf.

Watering

Water new seedings as frequently as necessary to keep the top 1 to 2 inches (2.5 to 5 cm) of soil from drying. This may require water applications two to three times daily for a period of 3 weeks. As the seedlings emerge and grow, increase the depth of wetting but decrease the frequency of application.

Turf grass may use up to .25 of an inch (60 mm) of water per day. During periods of hot dry weather, sandy soils may require water applications as often as every 2 to 3 days, while fine-textured soil may require water about once per week.

Wetting the soil to 10 to 12 inches (25 to 30 cm) at each irrigation is more desirable than frequent, light applications that only wet the surface. Light, frequent irrigations encourage shallow-rooted annual weeds, and missed irrigations over weekends or vacations can be very damaging.

Excess amounts of water can be expensive, water is wasted, and fertilizer may be leached from the root zone where it is available to the grass.

Early morning applications are most efficient since evaporation is low. In urban areas water pressure is often better during early hours. The grass and neighboring shrubs have an opportunity to dry during the afternoon, thus reducing the potential for disease problems.

In periods of water shortage water-use schedules may be imposed by your city, but when possible follow the recommendations on timing and frequency.

Mowing heights

Mow new seedings as soon as the grass is high enough to cut. This will encourage the grass to become thicker more rapidly.

Turf grass should be mowed regularly, and no more than $\frac{1}{3}$ to $\frac{1}{2}$ of the leaf length should be removed at any one time.

Bluegrasses should be mowed to 1½ to 2 inches (4 to 5 cm) high.

Ryegrasses may be mowed at the same height or as low as $\frac{1}{4}$ inch (2 cm).

Fescues are not as particular, but the 1½ to 2 inch (4 to 5 cm) height is satisfactory.

Lawnmowers, especially rotary types, must be sharp to do a good job.

If weather is unusually hot or water supply limited, increase the mowing height about 1 inch (2.5 cm). This will help shade the soil surface and also encourage deeper rooting.

Pest problems

Most perennial broadleaf weeds, such as dandelion and plantain, can be controlled with applications of lawn weed chemicals that are available at garden centers. Delay any use of weed killers on

new seedings until grass has been mowed three or four times. This caution includes fertilizers with weed killers premixed into them.

Perennial weedy grasses usually can be recognized early by wider leaves and more rapid growth. They are best removed by hand during the seedling stage in the new lawn. Once established they are nearly impossible to remove.

Insects and Disease

Insects and diseases are usually minor problems in home lawns of eastern Oregon when good management practices are followed.