

Establishing New Lawns and Landscapes

Factsheet

I. Establishing a New Lawn¹

A. What kind of grass?

Choosing the type of grass that you should use, cool season or warm season, will largely depend on your climate: cool season grasses in the northern climates grow well in spring and fall while warm season grasses in the southern climates grow best in warmer climates. They both have advantages and disadvantages.

Cool season grasses include tall fescue, Kentucky bluegrass, fine fescue, and perennial ryegrass. They may remain green all year long. Although they may go dormant during summer droughts, they will remain green and resume active growth when adequate moisture is provided. Cool season grasses are considered to require less maintenance, though the resistance of tall fescue to a number of insect and disease pests may make up for greater mowing. The best time to establish cool season grasses is late summer or early fall, and they grow most actively during the spring and fall.

Warm season grasses include zoysiagrass and bermudagrass. They are dormant from mid-October to mid-May. After the first frost, they turn brown and do not turn green again until spring. Zoysiagrass requires less nitrogen, grows more slowly, and needs less mowing than cool season grasses, but requires periodic dethatching. Warm season grasses are established in late spring and grow most actively late-spring through early summer.

For example, the table below gives the University of Maryland Extension comparison of cultivars of turfgrass grown in Maryland. Appropriate grasses are available from the local extension service linked to the closest land-grant university.

Table 1. Comparison of Turfgrass Species

Turfgrass species	Drought tolerance	Full sun	Shade	High traffic tolerance	Insect and disease resistance
Turf-type tall fescue	Excellent	Excellent	Fair	Good	Good
Kentucky bluegrass	Good	Excellent	Fair-Poor	Excellent	Poor
Fine fescue	Good-Fair	Poor	Excellent-Good	Poor	Good
Perennial ryegrass	Poor	Excellent	Fair-Poor	Good	Poor (Fair: if seed contains endophytes*)
Zoysiagrass	Excellent	Excellent	Poor	Good	Good
Bermudagrass	Excellent	Excellent	Poor	Excellent	Good

¹ This section depends heavily on Debra Ricigliano, 2013. [Lawn Establishment, Renovation and Overseeding](#). University of Maryland Extension publication HG 102.

** Endophytes are beneficial fungi or bacteria that live within plant tissue. Perennial ryegrass and fescue turf with high endophyte levels are more drought resistant and less prone to damage from sod webworm and chinch bugs.*

A tall fescue lawn is often recommended for these reasons:

- It is adaptable to a variety of site conditions, including sun or partial shade.
- It is the least prone to disease and insect infestations.
- It is drought tolerant. In hot, dry conditions can go dormant, but then recovers when rainfall and cool temperatures return.
- It requires less fertilization than Kentucky bluegrass.
- It does not form a heavy thatch layer.
- It forms an attractive durable lawn.
- Newer cultivars are darker in color and finer in texture.
- It is the type of turfgrass best suited to Maryland’s climate.

B. Seed or Sod?

There are advantages and disadvantages to each. Here are some considerations.

Table 2. Sod vs. Seed		
Factor	Sod	Seed
Source	Typically grown with chemical-intensive practices.	Control non-hazardous inputs.
Time of establishment	Whenever the ground is not frozen or temperatures over 90°F.	Late summer to early fall.
Cost	Higher initial cost.	Lower initial cost.
Time to establish	Immediate results.	Longer time. Restricted use while it becomes established.
Choice of cultivars	Limited.	Wide range of choices.
Labor	More labor in installation.	Daily watering during initial establishment.
Weed encroachment during establishment	Less chance.	Greater chance.
Erosion	Quicker erosion control.	Heavy rain can wash away seeds.

Among the cool season grasses, tall fescue and Kentucky bluegrass can be established by either sod or seed. Perennial ryegrass is established with seed. The warm season grasses may be established using sod, sprigs, or plugs. In addition, Bermudagrass may be planted by seed.

C. Site Preparation

1. Test your soil

A baseline soil analysis for chemistry, texture, and nutrient availability is essential in establishing a new lawn. A basic soil test that gives readings for soil pH, phosphate, potassium, calcium, and magnesium levels is sufficient for most home gardeners. In addition to nutrients and pH, ask for organic content analysis, and request organic care recommendations. For soil testing labs, contact your state extension service.

When you receive your results make an assessment of what needs to be done to improve your soils. Ideal pH should read between 6.5 and 7.0, which is slightly acidic. Soil that is too acidic will need a

sprinkling of lime; sulfur can be added to soil which is not acidic enough. Organic content should be 5% or higher, if the organic content is lower you may need to adjust the soil amendments to include fertilizers or composts.

By way of example, soils in Maryland tend to be clay-based. If you have these conditions, the University of Maryland Extension recommends the following:

“Soils high in clay (more than 50%) feel sticky, don’t drain well, and become rock hard when dry. You can’t change the texture of your soil (the percentage of clay) but you can improve soil structure (the arrangement of individual soil particles). Adding lots of organic matter such as compost, farm manure, or shredded leaves to clayey soil will allow it to drain more easily and hold the right amounts of water and air for better plant growth and increased biological activity.”

2. Rough grade

Slope the area so that it drains away from existing buildings. Avoid steep slopes through the use of retaining walls or terraces. If major changes in contours are undertaken, remove the topsoil and spread it over the graded subsoil, working a few inches into the subsoil to avoid an abrupt change in soil texture that might inhibit root growth. When importing topsoil, ask about the source and avoid any that is full of rocks and debris, is gray or white in color, has a bad odor, or a sticky, gummy texture.

3. Add soil amendments and organic matter

Till into the top two inches of soil natural fertilizers as recommended by the soil test, plus at least one to two inches of compost and other organic matter –such as leaf mold or well-rotted manure. Do not till when the soil is too wet. A soil rich in organic matter will protect against drought and excess moisture, while supporting the soil organisms that build fertility. See composting section in Further Resources.

4. Final grading

Rake the area to smooth the soil. Avoid using heavy equipment, which compacts the soil.

D. Seeding

The best time for seeding cool season turfgrass is mid-August to mid-October. Early March through April is also acceptable. Small areas may be seeded by hand, and larger areas with a drop spreader or slit seeder. Apply seed evenly, dividing the seed into two batches –one applied North to South and the other East to West. Seeding at the upper end of the recommended rates will help prevent spaces for weeds to take hold. The University of Maryland Extension recommends the rates in the following table.

Table 3. Seeding Rates for Lawn Establishment	
Turfgrass species	Seeding rate @ lbs/1000 sq. ft
Turf-type tall fescue	6 to 8 lbs.
Kentucky bluegrass	2 to 3 lbs.
Fine fescue	4 to 5 lbs.

Tamp the seed into the soil to ensure good contact, then mulch lightly with loose straw to preserve moisture and prevent erosion. Water often at first, then less frequently and more deeply as the grass begins to grow.

Purchase high quality seed, consulting your state’s extension service for recommendations on seed mixtures. Check the label to ensure low (practically zero) weed seed percentage and absence of undesirable grasses like *Lolium multiflorum* (annual ryegrass) and *Dactylis glomerata* (orchardgrass). Avoid genetically engineered varieties in the future —although there are currently no GE varieties on

the market, Scott's has created a genetically engineered grass that is resistant to glyphosate (Roundup). Genetic resistance to herbicides is unnecessary in a healthy lawn –and it may be counterproductive because it may take away from other advantageous traits. Mixtures of cultivars give more diversity to your lawn, which will enable it to respond favorably to a variety of conditions.

E. Sod

High quality sod will contain grasses adapted to the growing conditions in your state. The department of agriculture in your state certifies sod that meets standards for freedom from weeds and undesirable grasses, and that has fewer insect and disease problems. The site should be prepared as for seeding and moistened before installing the sod. Roll the sod to ensure good contact with the soil, then water sufficiently to reach the soil below.

F. Sprigs and Plugs

Warm season grasses, which spread by vegetative means, are often planted by sprigs (pieces of stolons or individual grass plants) or plugs of sod. Sprigs are planted 4-6 inches apart, and plugs are planted 6 to 12 inches apart. Water often, and prevent weeds by hoeing, weeding, or using corn gluten meal between grass plants or plugs.

G. Maintenance

Once established, the key to maintaining a healthy lawn is proper cultural practices, which include careful mowing, aeration, watering, fertilization, and overseeding, as well as setting tolerance levels for weeds. These practices build the backbone of a healthy lawn –healthy soil high in organic content and teeming with life. In a healthy, fertile, and well-maintained lawn, diseases and pest problems are manageable.

Once established, an organic lawn uses fewer resources, such as water and fertilizers, and requires less labor for mowing and maintenance. More importantly, your lawn will be safe for children, pets and your local drinking water supply. Follow these steps to start working on your organic lawn.

For more detailed information on management practices, see the maintenance practices in *Maintaining Sustainable Lawns and Landscapes*.

II. Alternatives to Lawns

Before jumping into the steps for establishing a new lawn, there are other landscapes you may want to consider. Grass may not be the appropriate plant in every situation. Alternative landscapes include the following:

A. A Meadow

A meadow is a field of grasses and forbs (nonwoody broadleaved plants) that supports a diverse array of wildlife. In her book *Urban and Suburban Meadows*, Catherine Zimmerman gives these reasons for planting a meadow rather than a lawn:

- 1. No chemical pesticides/herbicides or fertilizers.** Eliminating toxic chemicals protects beneficial soil organisms that support the ecosystem, the plants and animals that live there, and the people and pets.
- 2. Native ecosystem benefits.** Meadows require minimal disturbance to the native landscape.

- 3. Diversity.** Meadows are habitats teeming with life. Meadows are home to many more different native plant, insect and animal species than monocultures.
- 4. Fuel and labor conservation.** Only mow or burn once between November and April.
- 5. Sustainable.** Meadows thrive using their waste to build soil organic matter that nourishes life.
- 6. Year-round habitat.** Meadows provide year-round cover and food for insects and wildlife.
- 7. Erosion control.** The complexity and varying heights of meadow plants will soften rainfall and prevent water from rushing over the surface of the soil. In addition, the deep root systems hold and stabilize the soil.
- 8. Bioremediation.** Meadows provide a matrix of microorganisms, fungi, green plants or their enzymes that can restore the natural environment altered by contaminants to its original condition. This is particularly important around bodies of water.
- 9. Low maintenance.** Once established, meadows require no watering, raking, pesticides or fertilizers and minimal mowing.
- 10. Enjoyable.** The ever-changing beauty of a meadow evokes a sense of peace and calm, while the activity of its inhabitants provides endless enjoyment.

If you think you would prefer a meadow to a lawn, see *Urban and Suburban Meadows* for step-by-step guidance on planting one.

B. An Edible Forest Garden

Another alternative to a lawn, particularly attractive to a shady site, is an edible forest garden. An edible forest garden is a garden that follows the form of a forest—with trees, shrubs, and herbaceous plant layers—all selected from species that yield edible or medicinal parts. For example, the tree layer may be composed of fruit and nut trees, the shrub layer berries, and the herbaceous layer perennial vegetables and herbs. If you have a shady site that is not well suited to grass, you might consider an edible forest garden. A great source of advice for planning and planting such a garden is the two-volume book *Edible Forest Gardens* by Dave Jacke and Eric Toensmeier.

D. An Edible Ornamental Garden

A garden can be nourishing to the body as well as other senses. There is no reason that vegetables need to be hidden away. Browsing through any garden catalog will generate ideas for plants that are both edible and ornamental—kales with varicolored leaves, rainbow chard, various peppers, opal basil, rosemary, and blueberries, to name a few.

E. Alternative Groundcovers

Some sites are not suitable for lawns because they are too shady, or too steep, or too inaccessible to a mower. There are many alternatives to grass for such sites, often requiring much less maintenance. Again, browsing through a garden catalog will generate many ideas. Contact your extension service for advice about choosing and establishing appropriate groundcovers for different needs.

Further Resources

Information about Lawn Chemicals

- The [Gateway on Pesticide Hazards and Safe Pest Management](http://beyondpesticides.org/gateway/index.php) (<http://beyondpesticides.org/gateway/index.php>) on the Beyond Pesticides website gives easy access to current and historical information on pesticide hazards and safe pest management, drawing on and linking to numerous sources and organizations that include information related to pesticide science, policy and activism.

- The questions people most often ask Beyond Pesticides about chemical lawn care are in Commonly Asked Questions About Chemical Lawn Care (<http://www.beyondpesticides.org/lawn/factsheets/faq.php>).

Alternatives to Lawns

- Hints for building pollinator-friendly habitat and biodiversity in your yard can be found on the Beyond Pesticides website in BEE Protective: Managing Landscapes with Pollinators in Mind (<http://www.beyondpesticides.org/pollinators/LandscapesforPollinators.php>) and Do-it-Yourself Biodiversity (<http://beyondpesticides.org/infoservices/pesticidesandyou/documents/diy-biodiversity.pdf>).
- The Bee Protective Habitat Guide (<http://www.beyondpesticides.org/pollinators/documents/BEEProtectiveHabitatGuide.pdf>) is a guide to planting native flowers that support pollinators.
- For step-by-step information on creating a meadow, see *Urban and Suburban Meadows* by Catherine Zimmerman, published by Matrix Media Press in 2010.
- For detailed information about planning and planting an edible forest garden, see the two-volume *Edible Forest Gardens* by Dave Jacke and Eric Toensmeier, published by Chelsea Press in 2005.

Soils

- If you want to understand how the soil food web builds fertility, see fascinating pictures of the microorganisms that live in the soil, and come away with basic rules for supporting healthy soil food webs, read *Teaming with Microbes* by Jeff Lowenfels and Wayne Lewis, published by Timber Press in 2010.

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- See organic lawn care expert Chip Osborne's Simple Steps to Organic Lawn Care https://www.ipminstitute.org/Public_Agency_Commercial_Facility_IPM/organic%20lawn%20care_osborne.pdf.