

Fall Lawn Care

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The change in seasons from summer to fall presents an optimal time for the renovation and establishment of cool-season turfgrasses and a period of preparation for warm-season grasses before their winter dormancy. Take advantage of the relatively mild weather of the months of September and October to get your turf ready for winter and next year's growing season.

Strategies for cool-season turfgrasses

Late-summer to mid-fall is the best time to establish cool-season turfgrass. Warm days and cool nights provide ideal conditions for seed germination and establishment of tall fescue, Kentucky bluegrass, Àne-leaf fescues, and perennial ryegrass. Sod establishment is also favored at this time of year. Understanding why renovation is necessary can help you to avoid the same pitfalls in the future. Is sparse and weedy turf the result of neglect, inappropriate mowing heights, environmental limitations caused by too much or too little rain, etc.? Is there possibly a soil problem such as a nutrient deÀciency, an improper pH, poor drainage, or compaction? Might the turfgrass species simply be a poor choice for the site, the climate, or the anticipated use of the turf?

Soil testing

The Àrst step towards correcting an existing problem lawn or establishing new turf is to test your soil. This very cost-effective diagnosis of your soil's fertility and pH status is quite often the answer to the question of "Why did my turf fail?" Many of Virginia's soils are very acid and probably require a supplemental lime application. The fall and winter months are ideal times to make lime applications since it takes weeks to months

to fully realize the beneÀt of the treatment.

The fall provides a great time to test your soil to determine nutrient levels and pH. It is a good idea to test your soil at least once every three years to determine if supplemental nutrients other than nitrogen are required. Since growing conditions are ideal at this time of year, grasses respond quickly to test-recommended applications of fertilizer and lime. For help in how to properly sample your soil, consult *Soil Sampling for the Home Gardener*, Virginia Cooperative Extension publication 452-129, at <http://pubs.ext.vt.edu/452-129/>.

Select the best turfgrass

What cool-season grass to choose? Use the "Lawns" link under the Home Gardening resources section at the Virginia Cooperative Extension Web page at <http://ext.vt.edu/resources> to Ànd links to publications and articles on how to make the best selection for a grass to Àt your needs and for instructions on soil and pre-plant preparations, seeding rates and establishment, and post-planting care. When you have decided on a recommended blend of cultivars within a species or possibly a speciÀc mix of different species, you will next need to choose the best cultivars available. The current Virginia/Maryland Turfgrass Recommended Variety list is posted at http://sudan.cses.vt.edu/html/Turf/turf/publications/publications_page.html.

This list represents the joint recommendations of the top performing cultivars in turfgrass variety trials at Virginia Tech and the University of Maryland. Don't necessarily expect to Ànd these cultivars at the garden centers of large retailers. There are exceptions, but most often you simply take what you can get at these garden centers. If you want the best varieties available, you likely will

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have to consult with the experts at a local farmer's cooperative, specialty nursery, or turf and landscape supply store to obtain these superior cultivars.

Soil preparation prior to establishment

For new plantings, tilling the soil to a 4- to 6-inch depth is desirable prior to seeding. This gives you an opportunity to put the information from a soil test to work and incorporate any recommended lime or starter fertilizer that will aid turf establishment. A starter fertilizer emphasizes phosphorus (P) levels as compared to nitrogen (N) and potassium (K) and the typical nutrient ratios of N-P-K in these sources are 1:2:1 or 1:2:2. It is equally important to provide some degree of soil preparation even for overseeding into existing turf. A few passes with a coring machine (often called an aerator) or a vertical mower (often called a dethatcher) can be used to prep the soil prior to planting to encourage seed-to-soil contact. Simply applying seed over the top of an existing turf without any soil preparation usually does nothing more than feed birds and wildlife.

Initial irrigation and mowing strategies

After planting, irrigate lightly and frequently until seed germination is complete. Avoid excessive amounts of water because this could either wash away or drown the seed. As establishment progresses, gradually cut back on the amount of water you apply in order to start promoting a deep root system. The irrigation philosophy is similar for sod establishment, but larger amounts of water can be applied less frequently because sod provides soil and root mass that hold moisture.

Mow turf when it needs to be clipped according to its recommended cutting height and follow the one-third mowing rule that says you never remove more than one-third of the leaf blade at any mowing event. For example, the recommended lawn height for tall fescue is 3 inches. So begin mowing as soon as your new lawn reaches a 4-inch height. Be sure the mower blade is sharp and the soil surface is firm.

Weed control options after establishment

Weed control needs vary depending on the time you seed turfgrass. As previously mentioned, fall is the best time to seed cool-season turfgrass but is not always a practical time, depending on your situation. Thus, the following weed control recommendations are split into late summer/fall and spring/early summer.

When seeding in late summer or fall, the major weed problems consist of annual bluegrass and winter annual broadleaf weeds. By promoting a rapid establishment of seeded turfgrass, you can avoid most weed pitfalls. Don't skimp on turfgrass seeding rates and irrigation during establishment. There aren't any selective chemicals that may be used soon after turfgrass seeding to selectively control emerged annual bluegrass. This weed is best combated by promoting the rapid establishment of your turfgrass stand. If you seed in late summer, a mid-fall application of a preemergence herbicide such as prodiamine, dithiopyr, etc. will help reduce annual bluegrass populations by limiting subsequent weed seed germination. These chemicals do not control emerged annual bluegrass. Broadleaf weeds can be controlled by a number of herbicides marketed for that purpose and containing any combination of the following active



ingredients: 2,4-D, dicamba, MCPP, MCPA, and quinclorac. Typically, these herbicides can't be applied until after the turfgrass has been mown at least two times. Carefully read the herbicide label to ensure a particular product is safe and determine at what timing relative to seeding the product can be applied. Seedlings are much more sensitive to chemical applications than mature plants. Consult the Virginia Cooperative Extension Pest Management Guides, publications 456-016 at <http://pubs.ext.vt.edu/456-016/>, 456-017 at <http://pubs.ext.vt.edu/456-017/>, and 456-018 at <http://pubs.ext.vt.edu/456-018/>, for help in selecting the best weed control options available. Additional information on weed identification and control can be found at Turfweeds.net at Virginia Tech at <http://www.turfweeds.net>.

Fertility

You can make supplemental nitrogen applications later in the fall after establishment if you want a boost in growth or color. Remembering the acronym "SON" (representing the months of September, October, and November) can help you make a smart decision on when to apply nitrogen to cool-season turfgrasses. This fertility program is ideal for maximizing the benefits of nitrogen fertilization. The fall presents growing conditions conducive for improving turf density through the development of new shoots and stems, increased carbohydrate storage (i.e. food for the plant), and enhanced root production. Applications of 1/2 to 1 pound of water-soluble nitrogen per 1000 square feet on 4- to 6-week intervals are very beneficial during this time, much more so than programs that emphasize heavy spring fertility. Similarly, an early to mid-September application of a controlled release nitrogen source (a material that contains ≥ 50 percent water-insoluble nitrogen) at levels of 1.5 to 2 pounds nitrogen per 1,000 square feet provides similar benefits. It is possible in many locations that a single fall application will suffice to meet the turf's needs. Consult Lawn Fertilization in Virginia, Virginia Cooperative Extension publication 430-011, at <http://pubs.ext.vt.edu/430-011/> for more information on how to distinguish between water-soluble and controlled release nitrogen sources and their recommended application rates.

In lieu of soil testing, it has long been a common practice to apply supplemental potassium to winterize the turf. Research has repeatedly shown that maintaining sufficient levels of potassium in plants is very effective in improving winter hardiness. However, if a soil test indicates potassium levels are adequate, the supplement

tal application wastes money and can result in increased nutrient loss because of high potassium leaching potential. Soil testing determines if an additional potassium application is warranted.

Cultivation

Periods of active growth are ideal times to cultivate turf. Core aeration and vertical mowing are two methods of turf cultivation that can provide long-term benefits if done properly and at the right time of year. Any soil that is heavily trafficked is likely to have some degree of compaction that is limiting root development. Compaction physically restricts root penetration and reduces soil oxygen levels required for root development. Core aeration (removing plugs from the soil in a process often called "aerifying") is a standard method for improving soil aeration. Vertical mowing (often referred to as "dethatching") physically removes thatch, a layer of undecomposed stems and other living and decaying organic matter that develops between the soil and the turf canopy. Vertical mowing is not intended to relieve soil compaction or improve soil aeration. Thatch layers greater than 1/2 inch should be removed to improve turfgrass performance. Fortunately, most cool-season turfgrasses will not develop a significant thatch layer, but a creeping grass like Kentucky bluegrass grown under a moderate to high level of management is likely to develop a thatch layer over time. Check on the depth of thatch in your lawn when removing soil samples.

Obviously, each of these activities is highly disruptive to the soil surface and the turf itself. Both initially cause stress to the turf due to the physical tearing and severing of shoots, roots, and stems. Ultimately, the benefits of the cultivation treatment greatly outweigh these concerns, but it is wise to refrain from aerifying or dethatching cool-season turfgrasses until the fall when turf recovery can be optimized by fertilization and irrigation or rainfall programs.

Pest control

One of the winter weeds of greatest concern is annual bluegrass (*Poa annua* L., often referred to simply as "Poa"). There are several pre-emergent herbicides that, when applied in August or September, depending on location, will control annual bluegrass, as well as many other winter annual weeds (henbit, chickweed, geranium, etc.). However, remember that these materials will also prevent cool-season turfgrass seed germination if you are planning a fall planting. There also are

numerous postemergence broadleaf herbicides available for fall weed control. Most of the readily available compounds are two- or three-way mixtures of 2,4-D and related compounds. Many cool-season perennial broadleaf weeds (plantains, dandelion, clovers) will also have a surge of vegetative growth just like the turfgrass, and this presents a great opportunity to maximize chemical control. Controlling these weeds will improve overall turf density in the fall and result in even lower weed populations the following spring because of the thick turfgrass canopy.

Diseases and insects are typically of limited importance during the fall. You may find dollar spot, pink patch, red thread, and possibly some late-season Rhizoctonia blight (often referred to as "brown patch"). As far as potential damage is concerned, Rhizoctonia blight has the most potential for turf problems. However, due to the cooling temperatures, Rhizoctonia blight pressure should be low. The other diseases listed will typically be of minor importance because fall nitrogen fertilizer programs suppress their occurrence. For new seedings, it is wise to use fungicide-treated seed to combat seedling damping-off. The newly germinating seedlings are very susceptible to attack from several soil-borne fungi that thrive in wet environments. The few pennies paid per pound of fungicide-treated seed is often money well spent.

There is potential for early-fall applications of certain insecticides for grub control, but the ideal period for their control is between July and August. There might be some late activity from cutworms, armyworms, or sod webworms, but none of these pests typically becomes a major concern at this time of year. A complete listing of recommended pesticides and the pests they target is provided in the Virginia Cooperative Extension Pest Management Guides, publications 456-016 at <http://pubs.ext.vt.edu/456-016/>, 456-017 at <http://pubs.ext.vt.edu/456-017/>, and 456-018 at <http://pubs.ext.vt.edu/456-018/>.

Strategies for warm-season turfgrasses

Fertility

Warm-season turfgrasses (bermudagrass and zoysiagrass across much of the commonwealth, in addition to St. Augustinegrass and centipedegrass in the Tidewater) will go dormant after the first killing frost.

However, there is time to benefit from nitrogen fertility in the early fall. The cooling temperatures of fall provide warm-season grasses the opportunity to increase carbohydrate reserves and root production as leaves continue to photosynthesize, but overall shoot and leaf development rates decline. A responsible nitrogen fertility program keeps the plant active, but not to the extent of increasing its winterkill potential. Levels of 1 pound of water-soluble nitrogen per 1000 square feet in September followed by levels of 1/4 to 1/2 pound of nitrogen per 1000 square feet every 4 to 6 weeks until frost have repeatedly been shown to benefit bermudagrass turf. Research performed at Virginia Tech always has shown that extending the bermudagrass growing season later into the fall results in an overall healthier plant that performs better the following spring. A key to success is ensuring that other nutrients, particularly the winterizing nutrient potassium, are present in satisfactory quantities. The benefits of potassium in warm-season turfgrass winter survival are quite often more pronounced than those realized with cool-season turfgrasses.



Pest control

There are more preemergence weed-control options for dormant, non-overseeded warm-season turfgrasses than for cool-season turf because warm-season grasses should not be planted now (unless one is installing sod in early to mid-fall). The dormant warm-season grass provides little to no competition to cool-season weeds, thus weed control is often necessary. Most turf preemergence herbicides labeled for use in warm-season turf can control annual bluegrass, and timing is crucial to get superior control. In most parts of the state, germination begins in early September. As mentioned previously, many of these chemicals also have excellent activity on many broadleaf weeds. Another option for controlling weeds in dormant warm-season turf is the use of nonselective herbicides later in the fall/winter. Herbicides such as glyphosate and glufosinate can be applied over the top of a dormant warm-season grass without turf injury. The key word is dormant! Do not apply these herbicides either too soon in the fall or during the spring transition period the next year. There are also more selective postemergence herbicides available for warm-season turfgrass compared to cool-season turfgrass, but many of these products are not currently available through lawn and garden centers and/or they must be applied by a licensed professional turfgrass manager. Atrazine and simazine are restricted-use pesticides that do an excellent job on a broad spectrum of grassy and broadleaf weeds in bermudagrass, but they can only be used in the coastal plain of Virginia by certified applicators. Recent products like foramsulfuron and metsulfuron can be used to control annual bluegrass in bermudagrass home lawns, but these products are only available to professional applicators at this time. There are many products being evaluated as turf weed-control products, so regularly check the Pest Management Guides to stay abreast of the most recent releases in superior herbicides.

Insect and disease pressure for a grass preparing for dormancy are minimal. If a bermudagrass turf has a history of spring dead spot, consider a preventive application of a labeled fungicide in early to mid fall before the turf goes dormant. This is the only time to chemically control this disease because spring treatments are not effective. Infrequently, a form of *Rhizoctonia* blight, called large brown patch or cool weather brown patch, has been observed on warm-season turfgrasses as they emerge from winter dormancy. If the turf has a history of this disease, it should also be treated chemically in the fall to maximize control.

Cultivation

Fall is too late in the growing season to safely aerify or vertical mow warm-season turfgrasses. Do this in late spring or early summer.

Overseeding

A unique aspect of warm-season turfgrass management is the often used practice of the overseeding of ryegrass (*Lolium* spp.) to provide winter color and an actively growing playing surface for sporting venues. Perennial ryegrass and annual ryegrass are the major cool-season grasses used for this form of "overseeding." In general, bermudagrass tolerates winter overseeding to a greater degree than zoysiagrass, centipedegrass, or St. Augustinegrass. While overseeding does provide desirable color as compared to dormant turf, the practice does not come without its consequences. The cool-season grass is a tremendous competitor for nutrients, water, and light with the warm-season grass, particularly the following spring when the warm-season turf is breaking winter dormancy. Eventually, the overseeded grass will die, which will result in a very poor quality warm-season turf for a period of weeks.

What ryegrass should be used? Annual ryegrass is significantly cheaper per pound of seed and will germinate and establish quicker than any other turfgrass. The initial savings in annual ryegrass cost as compared to perennial ryegrass are usually more than compensated for by the increased mowing requirement for annual ryegrass. Perennial ryegrass is preferable for the highest quality turf. Overseeding rates for lawn turf should range from five to ten pounds of pure live seed per 1000 square feet. Ten to 20 pounds per 1000 square feet are recommended for golf and sports turf applications. Some surface preparation (scalping or light vertical mowing) of the warm-season turf will enhance overseeding establishment by promoting seed-to-soil contact. Of course, neither of these practices does the warm-season turf any favors at this time of year as has been previously discussed.

Overseeding also alters strategies for winter weed control because most preemergence herbicides will also control the overseeded grass. Timing of the applications and/or choice of the appropriate material are critical for success. Carefully review chemical labels to determine the effectiveness and anticipated performance of the product on both the ryegrass and the dormant turf.