



Fall Lawn Care

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The fall season is an important transition period of turfgrass growth and development, and the management of your warm- and cool-season grasses at this time of year means a great deal in terms of anticipated success in your lawn the following spring.

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, fine-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 repeating past mistakes. Is sparse and weedy turf the result of neglect, inappropriate mowing heights, environmental limitations caused by too much or too little rain, or something else? Is there a soil problem, such as a nutrient deficiency, 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 first step toward 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 "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 because it takes weeks to months to fully realize the benefit 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 soil-test-recommended applications of fertilizer and lime. For help with how to properly sample your soil, consult "Soil Sampling for the Home Gardener," Virginia Cooperative Extension publication 452-129, available at <http://pubs.ext.vt.edu/452-129/>.

Select the Best Turfgrass

What cool-season grass should you choose? On Virginia Cooperative Extension's Publications and Educational Resources Web page, located at <http://pubs.ext.vt.edu/>, look for the Lawn & Garden resources list and choose the link for "Lawns" to find publications and articles on how to make the best selection of a grass to fit your needs. These resources also provide instructions on soil and preplant preparations, seeding rates and establishment, and postplanting care. When you have decided on a recommended blend of cultivars within a species or possibly a specific mix of different species, you will next need to choose the best cultivars available.

The current Turfgrass Variety Recommendations list can also be found on the VCE Publications and Educational Resources Web page, and 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 expect to find 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 will likely have to

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consult with the experts at a local farmers 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. Establishment situations are one time when additional P applications (up to 1 pound of P per 1000 square feet) can be justified independent of soil test recommendations. 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 plugger) or a vertical mower (often called a dethatcher) can be used to prep the soil prior to planting to encourage seed-to-soil contact. Commercial applicators might use a tool with vibrating solid tines, called an aeravator, to prepare a seed-bed. 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 and initial establishment 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. Some gentle tugs on the sod to assess its rooting can be used as a guide for when to apply additional irrigation.

Mow turf when it needs to be clipped according to its recommended cutting height and follow the one-third mowing rule that says you should never remove more than one-third of the leaf blade at any mowing event. For example, a recommended lawn height for a typical tall fescue turf during an optimal growing period is

2 inches, so begin mowing as soon as your new lawn reaches a 3-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. 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 can 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 pre-emergence herbicide, such as prodiamine, dithiopyr, or others, 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 that a particular product is safe and determine when the product can be applied relative to seeding. Seedlings are much more sensitive to chemical applications than mature plants. Consult the Virginia Cooperative Extension Pest Management Guides, specifically publication 456-018, Home Grounds and Animals, at <http://pubs.ext.vt.edu/category/pesticide-education.html> for help in selecting the best weed control options available.

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 on cool-season grasses with one exception — NEVER apply fertilizer to a frozen soil. 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 up to 0.7 pound of readily available (i.e., water-soluble) nitrogen per 1,000 square feet per four-week intervals are very beneficial during this time, much more so than programs that emphasize heavy spring fertility. Similarly, an early September application of a controlled-release nitrogen source (a material that contains ≥ 15 percent water-insoluble nitrogen) at levels up to 1 pound of nitrogen per 1,000 square feet per application provides similar benefits. This slowly available nitrogen is expected to provide for up to a six-week feeding period. In many cases, it is possible that a single fall application on well-established cool-season lawns 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.

One important change in philosophy regarding turfgrass fertilization programs in the 21st century is the importance of using soil test data for making phosphorus applications to established turf. Excessive P applications are known contributors to reduced water quality, so there is a strong focus on only applying P when indicated by a soil test. This strategy is not to minimize the importance of P fertilization because if a soil test indicates that P is needed, then it would be environmentally irresponsible NOT to apply the P.

In lieu of soil testing, it has long been a common practice to apply supplemental potassium to winterize the turf. Again, it is wise to base K applications on soil test data, but since K is not a concern for water quality issues, its application does not receive the same level of scrutiny as P applications. Research has repeatedly shown that maintaining sufficient levels of potassium in plants is very effective in improving winter and summer hardiness of turfgrasses. However, if a soil test indicates that potassium levels are adequate, the supplemental application wastes money, negatively affects its balance in the soil with other nutrients, and can result in increased nutrient loss because of high potassium-leaching potential. Soil testing is always a great way to determine if an additional K 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 limits its 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 or plugging) is a standard method for improving soil aeration. Vertical mowing (often referred to as dethatching) physically removes thatch, a layer of un-decomposed 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. Once thatch layers reach 0.5 inch in depth, start to pay attention to thatch accumulation; when that layer reaches 1 inch, it 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 that is 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 and depending on location — will control annual bluegrass as well as many other winter annual weeds (henbit, chickweed, geranium, etc.). However, if you are planning a fall planting, remember that these materials will also prevent cool-season turfgrass seed germination. 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 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 will 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. A contributing factor to some fall diseases is an excessive thatch layer, especially on a grass with a lot of stems like Kentucky bluegrass. As

detailed in the last section, fall is an excellent time for vertical mowing (dethatching) if it is needed. In terms of the diseases to anticipate in cool-season turf, 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 appropriate fall nitrogen fertilizer programs suppress their occurrence; the keyword here is “appropriate.” Too much nitrogen can make these typical, nuisance diseases that occur in the fall a real concern during an abnormally warm period.

For new seedings, it is wise to use fungicide-treated seed to combat seedling damping-off. Keep newly established sites moist but not saturated. 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 often become 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 Virginia Cooperative Extension’s Pest Management Guide: Home Grounds and Animals, publication 456-018, at <http://pubs.ext.vt.edu/456/456-018/456-018.html>.

Leaf management is something specific to fall that must be considered when making any chemical application to lawns. Chemical sprays over the top of leaves are often a waste of time, effort, and money in terms of receiving the anticipated response in pest control. Granular applications will have a better chance of delivering the chemical to the soil, but not all chemicals are available in granular formulations. One thing that can be done with the leaves before any chemical application is to simply mulch them back into the lawn, a strategy fully detailed in VCE publication 430-521, “‘Leave’ Them Alone: Lawn Leaf Management,” available at <http://pubs.ext.vt.edu/430/430-521/430-521.html>.

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 area) 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 or possibly contributing to water quality issues. The last application of N for most heavy N-use grasses like bermudagrass or St. Augustinegrass lawns should be made no later than one month prior to the anticipated frost date. Grasses with minimal N requirements, such as zoysiagrass and centipedegrass, should only be fertilized during the most active growing months. As before, only apply P when needed according to soil tests for established lawns. 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, so be sure to periodically conduct soil tests to evaluate where soil K levels are prior to winter's arrival.

Pest Control

There are more pre-emergence weed-control options for dormant, non-overseeded warm-season turfgrasses than for cool-season turf because warm-season grasses should not be planted in the fall (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 pre-emergence 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. Do not apply these herbicides either too soon in the fall or during the spring transition period the following 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. A product such as metsulfuron is noted as a very inexpensive and widely available herbicide for controlling annual bluegrass in bermudagrass home lawns, and it controls a broad spectrum of other grassy and broadleaf weeds as well. There are many products being evaluated as turf weed control products, so regularly check the Virginia Cooperative Extension 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 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 early 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 when these grasses are actively growing, using the previously detailed guidelines on thatch depths requiring management.

Overseeding

A unique aspect of warm-season turfgrass management is the often-used practice of overseeding 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 competes with the warm-season grass for nutrients, water, and light, particularly during 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 seed cost as compared to perennial ryegrass is 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 typically range from 5 to 10 pounds of pure,

live seed per 1,000 square feet. Ten to 20 pounds per 1,000 square feet is 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 the competition from the ryegrass or the disruption of the turf canopy in preparation of seeding does the warm-season turf any favors in the fall as has been previously discussed.

Overseeding also alters strategies for winter weed control because most pre-emergence 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.

A practice that is slowly but surely expanding in use is the application of turf paints or colorants specifically developed for coloring dormant warm-season turf. For relatively small lawns (<10,000 square feet), it is possible to color a dormant turf in a matter of a few hours with a backpack sprayer. Taller mowed grasses make it difficult to give a recommended rate because more colorant has to be applied to achieve desirable color throughout the turf canopy, so a standard recommendation for coloring lawns is to make an application of paint/colorant, let the product dry, and then assess if a second application is warranted. For most paint/colorant sources, a single application after the onset of winter dormancy should provide desirable green color for the remainder of the winter season.



A turf colorant applied to a dormant warm-season lawn provides winter-long green color without any additional maintenance.