

Fall Fertility Strategies for Virginia's Homelawns
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Timing is everything. Fall is the OPTIMAL time to aggressively fertilize cool-season turfgrasses (bluegrasses, fescues, and ryegrasses). Cooling temperatures and shorter days provide ideal conditions to maximize root growth and food storage in cool-season turfgrasses. For warm-season grasses (bermudagrass, zoysiagrass, centipedegrass, and St. Augustinegrass), fall is a time to prepare the turf for winter dormancy. Raise the cutting heights, ensure that pH and nutrient levels are appropriate as indicated by soil tests, and the grass enters dormancy later this fall as healthy as possible.

Fall is a great time to soil test.

Fall and winter months are ideal periods to address soil pH limitations in particular. Conduct a soil test at least every 3 years to insure the pH and nutrient levels are appropriate. The local Virginia Cooperative Extension office can help with materials and guidance in proper sampling methods and the test can be run through the Virginia Tech soil testing lab for \$7 per sample. Numerous private labs also offer soil testing services.

Fertilizer selection.

The three numbers separated by dashes on fertilizer labels are the fertilizer's guaranteed analysis (or grade) and represent the percentages by weight of nitrogen, phosphate, and potash. Hence, a 50 lb bag of 10-10-10 contains 5 lbs each of nitrogen, phosphate, and potash (50 lbs times 0.1 equals 5). The fertilizer label also details the percentages of any other nutrients present (iron, sulfur, etc.). And depending on the source, the label will also describe the release characteristics of the N. If any of the N is slow release it will be listed as "water insoluble nitrogen" or WIN. The greater the % WIN, the more controlled the N release (i.e. less leaching potential and slow, sustained color and growth responses). Many specialty turf fertilizers contain between 20-30% WIN, resulting in products that give a visible boost in color and growth, but yet provide some extended response as well. Natural organic fertilizers, while very low in nutrient analyses, might be 80-90% WIN and provide very controlled growth and color responses. When used properly, almost any fertilizer source can promote desirable turf responses with little if any environmental impact—it's the applicator, not the fertilizer, who almost always creates the problems.

Fertilizers are blended in a wide array of ratios of the various nutrients but those blended primarily for lawn use are typically very high in N and relatively low in phosphate and potash (e.g. 30-3-10). To maximize water quality protection, apply only what is needed by the lawn, and the only way to truly do this is to understand the turfgrass' needs and/or utilize the information from a soil test. Very often additional phosphate and potash are not required, so applying a N-only fertilizer (e.g. 46-0-0) is certainly appropriate.

Recommended fertility levels and timing. The benefits of suitable fall N applications on cool-season grasses include improved turf density, color, root growth, and food storage. Appropriate fall fertilization leads to better turf next spring. Still, to reap these benefits,

there are important guidelines to follow. No more than 1 lb of N/1000 sq ft should be applied in a single application with any source that is predominately water soluble N and the frequency of application is a minimum of 4 weeks from September through November. Totals of 2 to 3 lb N/1000 sq ft might be applied during the fall according to grass needs and end-user expectations. Kentucky bluegrass is a heavy N feeder and responds very positively to an aggressive fertility program, whereas a low maintenance turf like fine-leaf fescue requires only 1 lb N/1000 sq ft total during the fall. Nitrogen programs for tall fescue likely fall somewhere in between.

Calculating how much is needed. Without delving into the specifics of spreader calibration and application techniques (this information can be obtained through the local VCE office) let's simply focus on the big picture of just how much fertilizer is needed for the lawn. This requires knowing how many square feet of area there are to fertilize, so recall those formulas for calculating areas and divide the lawn into appropriate squares, rectangles, triangles, etc. to determine its size. For example purposes let's use 6,000 sq ft. How much N is needed? A standard recommendation of 1 lb N/1000 sq ft in a single application suits most grasses and situations, so a total of 6 lbs N is needed for the 6000 sq ft lawn. Next consider the fertilizer source selected. Let's use the 30-3-10 lawn fertilizer mentioned above. A phrase I memorized many years ago as a turf management major to aid with calculating fertilizer requirements is "what you want divided by what you got, times one hundred". In the phrase, "what you want" is the lbs of N desired, "what you got" is the corresponding number for the nutrient being considered (in this case, N) and multiplying by 100 considers that the number is a percentage. The formula says 6 divided by 30 equals 0.2; 0.2 times 100 equals 20 lbs of 30-3-10. Applying 20 lbs of 30-3-10 uniformly to the 6000 sq ft lawn delivers 6 lbs of total N, or 1 lb N/1000 sq ft. Of course, the application also delivers a total of 0.6 lbs phosphate and 2 lbs potash to the 6000 sq ft since the product contains 3% and 10% by weight of phosphate and potash, respectively. If using an organic 6-2-0, the calculation would be 6 divided by 6 equals 1; 1 times 100 equals 100 lbs of 6-2-0. Five times as much of this source is required because it is 5 times less concentrated in N than the 30-3-10.

Keep it on the lawn. Consider where the fertilizer ends up after the application. Turfgrasses are an excellent filter of chemicals, nutrients, and water, but only if products are applied to the turf. Avoid fertilizer applications if weather forecasts call for heavy rainfall, but at the same time, consider that a ¼ inch rainfall event is probably an ideal way to move fertilizer into the soil. And always take a few moments to sweep or blow any fertilizer that ends up on the street, sidewalk, or patio back into the turf canopy. Any granular material on a hardscape is often only minutes away from entering our lakes and streams during the next rainfall event.