

Fall Fertility Strategies for Virginia's Lawns

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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. Just the opposite holds true for warm-season grasses (bermudagrass, zoysiagrass, St. Augustinegrass, and centipedegrass). Reduce nitrogen fertilizer inputs on warm-season grasses as they prepare for winter dormancy. Ensure that soil phosphate, potash, and pH levels are optimal for both cool and warm-season grasses as winter approaches.

Fall is a great time to soil test.

Fall is an ideal time to address soil pH limitations in particular. Conduct a soil test every 3 years or so to ensure soil pH and nutrient levels are appropriate. Your local Virginia Cooperative Extension (VCE) 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 \$10 per sample.

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. Forms of slowly available N (SAN) or water insoluble N (WIN) will be described on the label. The greater the % of SAN or WIN, the more controlled the N release (i.e. less leaching potential and a slow, sustained color and growth responses). Natural organic fertilizers, while very low in nutrient analyses, might be 80-90% WIN and provide very controlled growth and color responses. Even slowly available fertilizers can negatively impact water quality if not applied appropriately. It is the applicator, not the fertilizer, that almost always creates the environmental problems.

Fertilizers are blended in a wide array of ratios of the various nutrients. However, most lawn maintenance fertilizers are now phosphate-free (e.g. 32-0-10) in direct response to improving water quality. If the lawn needs P (as determined by a soil test), then the best way to protect water quality is to apply the P; a healthy turf protects water quality by preventing soil erosion and acting as a filter. But when P levels are adequate, apply only N-based fertilizers (e.g. 46-0-0) or a 'winterizer fertilizer' such as the 32-0-10 previously described that also delivers some potash, a nutrient that improves turf winter survival and is not a water quality concern. For warm-season grasses, avoid high N analysis fertilizers; a standard winter fertilizer will likely only contain potash (e.g. 0-0-60), and additional phosphate applications should be made only on the basis of a soil test recommendation.

Recommended fertility levels and timing. Fall fertilization of cool-season grasses improves turf density, color, root growth, and food storage. Simply stated, appropriate fall fertilization leads to healthier, higher quality turf next spring. Still, to reap these benefits, there are important guidelines to follow. Apply no more than 1 lb of water soluble N/1000 sq ft every 4-6 weeks from early September through November. Totals of 2 to 3 lbs N/1000 sq ft might be applied during the fall according to the grass and end-user expectations. For instance, 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 1lb N/1000 sq ft total during the fall. Nitrogen amounts for tall fescue likely fall somewhere in between.

Calculating how much is needed. Several specialty fertilizer retailers make applications quite simple by precisely detailing what setting to choose on a particular spreader in order to deliver a precise fertilizer amount from a specific product. This is a great convenience AND is positive for water quality as the 'recipe' is quite accurate if you carefully follow the instructions. But if you don't have a specific spreader and/or product to take this approach, an accurate application can still be made with some basic measuring and math. The following strategy works really well for smaller lawns using a standard broadcast (i.e. rotary) spreader in what is sometimes referred to as an 'exercise application'.

The square footage of your lawn must be determined for this approach, so research or recall the formulas for calculating area and divide the lawn into appropriate squares, rectangles, triangles, etc. to determine lawn size. For the purposes of this example, consider the lawn to be 6,000 sq ft in total area. The goal is to deliver 1 lb N/1000 sq ft. Therefore 6 lbs N are required for 6000 sq ft. How much fertilizer is needed? That depends on the % N in the product. Consider the 32-0-10 fertilizer previously mentioned. If 1 lb of N/1000 sq ft is desired and the product is 32% N by weight, then $1 \div 0.32 = 3.1$ lbs fertilizer for every 1000 sq ft, or $6 \times 3.1 = 18.8$ lbs of fertilizer for the entire lawn of 6000 sq ft. Weigh this amount of fertilizer and put it in a rotary spreader set on a very low application setting. This is where the 'exercise' comes in for the application as the fertilizer is now applied to the lawn in multiple directions until the spreader is emptied. Throw the material from wheel track to wheel track as you go back and forth in multiple directions and you will have a very accurate distribution of fertilizer. Lawn care professionals calibrate spreaders to cover in one pass in order to save time and effort (and homeowners can, too, using the steps provided in VCE lawn publications), but the 'exercise application' works great for small lawns and 'do it yourselfers'.

Keep it on the lawn. Pay close attention to where the fertilizer is going as it is being applied. 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 where the roots can utilize it. And always take a few moments to sweep or blow any fertilizer that ends up on the hardscapes (streets, driveways, sidewalks etc.) back into the turf canopy. Any granular material on a

hardscape is often only minutes away from entering our lakes and streams by way of our storm sewers.

Virginia Cooperative Extension offers a wide variety of written publications on lawn care that can be found at pubs.ext.vt.edu/ and a host of digital podcasts at Turf and Garden Tips at www.anr.ext.vt.edu/lawnandgarden/turfandgardentips/.