

Best Management Practices (BMPs) in Turfgrass Management- Part 2

Master Gardener Volunteer Training
Michael Goatley, Jr.
Professor and Extension Turfgrass Specialist
@vaturf






Your intermission problem solving activity:
-this is a bermudagrass practice field at Christopher Newport University (Newport News, VA) during late August
-these strange looking spots suddenly appeared on a Monday morning when they were not present when the sports field manager last saw the fields on Friday; the football team was out of town over the weekend, and as far as the sports field manager was aware, the field was in 'recovery' mode following a heavy week of practice.
- What might have happened?
- Mother nature does not kill in distinctive patterns linear or geometric patterns, so I suspect this is "man-made" and not biological.
- Further inquiries around campus indicate that the CNU Spikeball club decided they would use the practice fields (without permission) for the weekend.
- And the next question the client wants to have answered is "how might I mitigate the problem?"
- Tell the Spikeball club that they must request permission for field usage in the future.
- Spot aeration of the stressed areas and a small amount of N fertilizer to boost bermuda recovery.

Establishment

Site Preparation

- Soil preparation... some type of tillage is recommended for a new establishment situation. This is the one time when you have an opportunity to modify the soil root zone (the top 4-6 inches). Take advantage of this opportunity.
- Do not "destroy" soil structure... some clods are okay. Don't make "powder"!.
- Opportunity for preplant incorporation of any needed lime and "starter" fertilizer at this time (recommend to use a 1-2-1 ratio fertilizer at the level of 1 lb of phosphate/1000 sq ft)

Seed Application



Weed control– consider how PRE herbicides will affect turf establishment.


Use soil test data to adjust pH, P, and K levels prior to planting.

Starter fertilizers (1:2:1) ratios are common, but don't apply excessive fertilizer expecting additional response.

Prepare a seedbed (some type of surface disruption is recommended to encourage soil to seed contact).

Distribute the seed uniformly in multiple directions to avoid skips.

Don't bury the seed! The smaller the seed, the shallower it must be planted. Lightly rake or drag to gain soil to seed contact.



Recommended Seeding Rates

Grass	Lbs PLS/M sq ft
Kentucky bluegrass	1-2
Tall fescue	6-8
Fine-leaf fescue	3-5
Cool-season mixtures? Dependent on % of individual species in mix.	Use recommendations on the bag. As an example, a 90/10 (% by weight) mix of tall fescue/Ky BG would be seeded at 3-4 lbs/1000 sq ft.
Bermudagrass	0.5-1
Zoysiagrass	2-3



Seed Application

Maximize rainfall or irrigation as much as you possibly can by use of:

- CLEAN small-grain straw (not hay!) at the rate of 1 bale/1000 sq ft of area.
- use a commercially available shredded paper mulch
- use seed germination fabric



If water use is restricted, DO NOT initiate irrigation if you can not continue to supplement the process. Just leave the seed for Mother Nature to eventually provide adequate moisture.





Nutrient Management

Program 1. Recommended monthly and seasonal nitrogen totals for Virginia's predominant turfgrasses when using predominantly water soluble (< 15% slowly available) nitrogen sources.

Month of Application	Levels of N per 1000 sq ft per active growing month to apply to Tall Fesc, Per Rye, or KBG ^a	Levels of N per 1000 sq ft per active growing month to apply to Fine Fescue	Levels of N per 1000 sq ft per active growing month to apply to Berm or St. Augustinegrass	Levels of N per 1000 sq ft per active growing month to apply to Zoysiagrass or Centipedegrass
Sept	0.7	0.7	0.5	
Oct	0.7		to 0.7 ^b	
Nov	0.5		0.7 ^b	
Apr	0.5	0.7	0.5	
May	to 0.7		0.7	0.7
June	0		0.7	
July	0		0.7	0.7
Aug	0		0.5	
seasonal N totals/1000 sq ft ^c	2-3.5	1-1.5	2-4	1-2

^aAreas highlighted by green shading indicate optional fertility liming and N levels. Adjust use rates to meet site-specific needs of a particular grass based on the factors affecting nutrient management that are outlined above (e.g. higher quality, recovers from traffic, etc.).

^bVirginia Tech researchers discourage winter overseeding of all warm-season turfgrasses except for bermudagrass due to poor spring recuperation potential of the warm-season turf. If bermudagrass is overseeded, additional N highlighted by the yellow shading can be applied to support the establishment and development of the overseeded grass after the bermudagrass enters winter dormancy.

^cSeasonal totals are not necessarily intended as target levels, but the upper limits represent the maximum amount of nitrogen that should be applied during the growing season. Program 1 recommended rates of WSN do not always reach the seasonal totals maximums. The rates are lower to encourage the use of slowly available nitrogen sources (as seen in Program 2) that, when properly applied, can help protect against the loss of nitrogen to the environment.

Cultural Programs

**Recommended Mowing Heights Under
Optimal Growing Conditions**

<u>Grass species</u>	<u>Cutting height (in.)*</u>
Kentucky bluegrass	1 - 2.5
Tall Fescue	2 - 3
Perennial ryegrass	1 - 2.5
Fine-leaf fescue	1 - 2.5
Bermudagrass	1 - 2.5
Zoysiagrass	1 - 2.5
Centipedegrass	1.5 - 2.5
St. Augustinegrass	2 - 3



*Mowing heights less than one inch require mowing with a reel mower.

Follow the “1/3rd rule”

- Don't clip more than 1/3rd of the leaf blade at any mowing event.
- Scalping the turf (as pictured here) increases turf stress and makes it more susceptible to pests and/or environmental extremes.



Regularly sharpen and balance the blade.

At least 2x per year is required for most rotary mowers used by ‘weekend warriors’ One of the best ways to improve turf health is to clip it with a sharp blade.



Clipping recycling

- Consider a mulching mower
- Returned clippings are 'free' fertilizer (30% of seasonal fertility requirement) AND it is environmentally responsible.
- Remember– DON'T BAG IT!



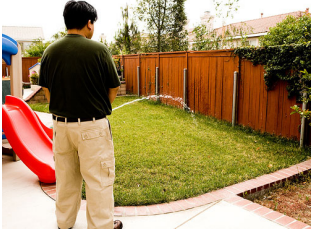
How do you know if a lawn needs aerating?





It is ideal to pair core aeration with fall fertilization, lime, or compost (up to ¼ inch depths 1-2x per year) applications to cool-season grasses in order to move materials into the root zone. Warm-season grasses? Core aerate in late spring to early summer.

Lawn Irrigation Principles



Water is clearly our most valuable resource... much too valuable to waste on improperly irrigated lawns, so let's be sure to apply it properly.



Irrigation Amounts

- oThink "deep and infrequent" – give a thorough soaking of the rootzone to a 4-6" depth to promote the deepest root system.
- oGive both the grass and soil only what it needs and can accept.



Irrigation Timing

Early morning is always preferable:

- minimizes the duration of leaf wetness = less disease pressure
- less likely to be affected by wind = better distribution.



Irrigation audits and observations

If you have an irrigation system, periodically conduct an irrigation audit to determine system performance, and water distribution patterns.



Lawn management during a drought

What do you do if you DON'T have irrigation?



oWhat if you do?

July 28 → 0.5" rain on July 29 → August 5



Pest Management

Weed Control

Always remember that a dense, healthy lawn kills far more weeds than any chemical application.

Winter weed control



What about perennial broadleaf weeds?



Standards in PRE Weed Control

Standard PRE herbicides used in commercial Weed and Feed products:

**prodiamine
pendimethalin
dithiopyr
oxadiazon**

} These (particularly the top 2) are the standard herbicide components in most weed and feed products.

**benefin, benefin + trifluralin,
benefin + oryzalin
bensulide**

} These are often available as stand-alone herbicides.

Most prevalent lawn disease in Virginia is usually Rhizoctonia blight (brown patch) on tall fescue



Virginia Tech



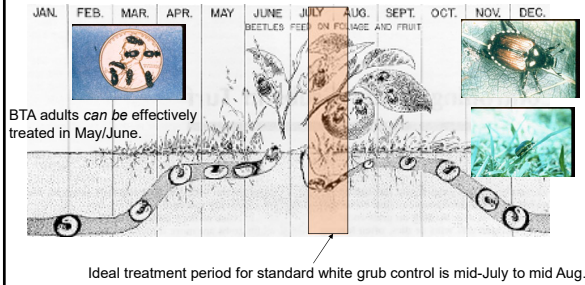
Dr. David McCall's 'recipe' guaranteed to produce disease...

- **Improperly timed and/or excessive N fertilization (we have detailed this... the recipe for Rhizoctonia blight on cool-season turf is heavy spring fertilization)**
- **Improper mowing heights (usually too low) during periods of environmental stress**
- **Improper irrigation timing/amount**



Have you seen anything that looks like this appearing overnight in your lawn in late summer/early fall? Can happen on warm-season, but typically cool-season lawns.

Year in, year out most persistent lawn pest is the white grub (the immature stage of many forms of adult beetles)



Are you looking for more extensive training in turfgrass ecology and management?

-The VT Turf Team offers an annual virtual School of Turfgrass Ecology and Management that begins the first week of November and runs through mid February (13 weeks of training; pre- and post-training quizzes for each week's material, and students hear from industry professionals from all segments of turfgrass management). It offers both asynchronous and synchronous training, and the students are instructed by all members of the VT Turf Team, meet with them by Zoom from 7-9 p.m. every Wednesday evening, and successful students qualify to sit for the Va Certified Turfgrass Professional Exams when the School ends in February.

-The cost is \$515 per student; we offer discounts to anyone formally affiliated with Va Cooperative Extension (there are some MGVs in this year's class, and it has been a pleasure to have them participate).

-Let me know if you would like more information: Goatley@vt.edu

And finally...

Please help us spread the word about our new set of VCE homeowner training videos in the "Calling Dr. Turf" series. We think these fit well with your efforts in educating the general public about responsible turfgrass management strategies. Now, whether or not you find them humorous remains to be seen, but we tried!



Our titles include PPE and Me, Don't Waste Water, Let the Clips Fall Where they May (proper mowing strategies), Application without Calibration, Fungus Among Us (turf disease management), Don't Guess, Do the Test (soil testing), and Lost in the Weeds (weed control) parts 1 and 2.

You can find these on the VCE YouTube Channel and on the VCE Website.



Thank you for being Master Gardener Volunteers. Let me know how I can assist you with turfgrass questions:
Goatley@vt.edu
