

Virginia Department of Conservation and Recreation (DCR)



*“Virginia’s Voluntary Water Quality
Agreement Program to Implement
Nutrient Management on Turf”*

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Urban Nutrient Management
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Urban Nutrient Management



- ⌘ Water Quality Agreements
- ⌘ Urban Nutrient Management Plan
- ⌘ Voluntary
- ⌘ Established Sets of Criteria
- ⌘ Adds Credibility to Your Business/Program

Water Quality Agreements are Designed For:



- ⌘ Lawn Care Companies
- ⌘ Land Management Groups
- ⌘ Homeowner Associations
- ⌘ Golf Courses
- ⌘ Local Government
- ⌘ Military Bases
- ⌘ Schools/Colleges
- ⌘ Others

Nutrient Management Plans



- ⌘ Prepared by a Certified Nutrient Management Planner
- ⌘ Custom Fit to Your Business
- ⌘ Contains Site Details
- ⌘ Updated on a Regular Basis
- ⌘ Demonstrates Your Commitment to Protecting Water Quality and Virginia's Natural Resources
- ⌘ 70,000 Acres to Date

Virginia's Nutrient Management Standards and Criteria



Revised 2005

By The Virginia Department of
Conservation and Recreation

Application Rates of Nitrogen Per 1000 Square Feet



- ⌘ No more than one (1) pound of water soluble nitrogen in a 30 day period
- ⌘ 3.5 - 5.0 lbs. N/ 1000 sq. ft. per year on COOL season grass depending on how much slow release nitrogen is used.
- ⌘ 4.0 - 5.5 lbs.N/1000 sq. ft. per year on WARM season grass depending on how much slow release N is used.

Earliest Spring Application of Nitrogen Based on Frost Date



⌘ Average Spring Frost Date in Winchester, Va. is April 20

⌘ Earliest Application of Nitrogen is six weeks prior to the average frost date - for Winchester, Va. – March 9

⌘ Cool Season Grass

Latest Fall Application of Nitrogen Based on Frost Date



⌘ Average Fall Frost Date in Winchester, Va. is October 20

⌘ Nitrogen Should Not Be Applied Six Weeks After the Frost Date:

⌘ Winchester, Va. – Dec. 1

Warm Season Grass-Frost Dates



- ⌘ Nitrogen should not be applied before the last average frost date in the **Spring**.
- ⌘ Nitrogen should not be applied after one month before the average frost date in the **Fall**.

Phosphorus and Potassium for Established Turf



<u>Soil Test Level</u>	<u>P205</u>	<u>K20</u>
Low	2-3	2-3
Medium	1-2	1-2
High	.5-1	.5-1
Very High	0	0

Phosphorus & Potassium at Establishment



<u>⌘ Soil Test Level</u>	<u>P₂O₅</u>	<u>K₂O</u>
L	3-4	2-3
M	2-3	1-2
H	1-2	.5-1
VH	0	0

Nitrogen Applications



⌘ No more than 1 lb/1000 sq. ft. at planting, followed by 1-2 applications beginning 30 days after planting, not to exceed 2 lbs./1000 sq. ft. total for the establishment period.

⌘ At Establishment

Nutrient Recommendations for Golf Courses



⌘	<u>N lbs./1000</u>	<u>total N rate</u>
Greens	.75	3-6
Tees	.75	2-5
Fairways	1	1-3
Roughs	1	0-1

Other Guidelines For Golf Courses



- ⌘ Slow Release N is Encouraged
- ⌘ Soluble N rates of $\frac{1}{4}$ lb./1000 can be applied at any time with other minor elements or pesticides but must be considered in the total annual application rate
- ⌘ Higher rates for intensively used turf with lower rates used for maintenance on lesser used areas
- ⌘ When over-seeding in the fall, an additional .5-.75 lb/1000 sq. ft. of N can be applied after perennial ryegrass is well established.
- ⌘ Additional N application of .5 lb. N/1000 sq. ft. can be made in Feb.-March to over-seeded perennial ryegrass if color is needed.

Nitrogen Management on Athletic Fields – Cool Season



<u>⌘ When to Apply</u>	<u>Lbs./1000 Sq.Ft. N</u>
Aug.	1
Sept.-Oct.	1
Nov.	1
May 20-June	0-.5

Nitrogen Management Athletic Fields - Bermuda



<u>⌘ When to Apply</u>	<u>Lbs./1000 Sq. Ft. N</u>
April	1
May 15- June	1
July-Mid Aug.	.5-1
Mid Aug. – Sept.	.5-1
If Over-seeded, Oct.- Nov.	.5-.75

Athletic Field Notes



- ⌘ Total Annual N rate for cool season not exceed 3.5 lbs., and for warm season, 4.0 lbs./1000 sq. ft. No more than 1 lb./1000 may be applied from soluble N sources
- ⌘ Encourage the use of slow release N
- ⌘ Soluble N rates of $\frac{1}{4}$ lb./1000 is ok but must be part of total N. (with pesticide or minor element applications)
- ⌘ For warm season grass, an additional .5-.75 lb./1000 sq. ft. can be applied after perennial ryegrass seeding is well established. Additional application of .5 lb. N/1000 can made in Feb.-March if turf an color indicate need.

Best Management Practices



- ⌘ **Soil Test - Every 3-4 years to determine lime, phosphorus and potassium needs**
- ⌘ **Do not apply/spill fertilizer on hard surfaces such as driveways and sidewalks - sweep or blow fertilize back in yard.**
- ⌘ **Do not use urea as a de-icer**
- ⌘ **Use Iron for Green Up**
- ⌘ **Keep mower blades sharp**
- ⌘ **Return grass clippings**
- ⌘ **Remove no more than 1/3 of the top of the leaf blade**
- ⌘ **Mow when dry**
- ⌘ **Use Slow Release Nitrogen (WIN)**

Recommended Mowing Heights



⌘ Ky Bluegrass	1.5-2.5 inches
⌘ Tall Fescue	2.0-3.0
⌘ Perennial Ryegrass	1.5-2.5
⌘ Bermudagrass	.5-1.0
⌘ Zoysia	.5-1.0

Good Example – Cool Season

Mon.	Anal.	Rate	% Slow N	WIN	WS	Total N
Mar.	30-3-10	1.6	50	.25	.25	.5
May	30-3-10	1.4	50	.25	.25	.5
Sept.	28-5-10	1.8	40	.48	.32	.8
Oct.	28-5-10	2.8	40	.48	.32	.8
Nov.	30-5-10	3.3	50	.5	.5	1.0
Total				1.96	1.64	3.6

Bad Example

Cool Season Lawns



Month	Anal.	Rate	% Slow Rel. N	WIN	WS	Total N
Mar.	10-10-10	5.0	0	0	.5	.5
May	10-10-10	5.0	0	0	.5	.5
Sept.	10-10-10	10	0	0	1.0	1.0
Oct.	10-10-10	10	0	0	1.0	1.0
Nov.	10-10-10	10	0	0	1.0	1.0
Total				0	4.0	4.0

Water Quality Agreements



- ⌘ Voluntary
- ⌘ Good for Three Years - Can Be Renewed
- ⌘ Can be Canceled by Either Party at any Time in Writing
- ⌘ Agreement can be Used in Promotion/Advertising by the Company
- ⌘ Annual Report on Acres Under Nutrient Management
- ⌘ Certificate of Agreement Framed for Display
- ⌘ Currently Have 68 Companies/Localities with Agreements

Develop a Nutrient Management Plan



- ⌘ Site Specific for Fairways, Tees, Greens and Roughs
- ⌘ Map Areas to Be Treated
- ⌘ ID Soil Characteristics
- ⌘ Soil Test
- ⌘ Environmentally Sensitive Areas

Recycle Clippings



- ⌘ Clippings contain 2%-5% Nitrogen = up to 80 # of Nitrogen per acre or 2 # of Nitrogen/1000 sq. ft. per year
- ⌘ Returning clippings can reduce fertilizer needs by 30% or more annually
- ⌘ Leave them where they are cut.

Recycle Nutrients from Irrigation Water



- ⌘ Test irrigation water for nutrient levels, particularly nitrogen
- ⌘ 1 ppm of N = 2.7 lbs. Nitrogen per acre foot of irrigation water
- ⌘ Test well water for Nitrate-Nitrogen

Sound Fertilizer Use



- ⌘ Rate and Timing are Important
- ⌘ 1 # of water soluble nitrogen per 1000 sq. ft. within a 30 period
- ⌘ No more than .75# of nitrogen per 1000 sq. ft. on sand amended tees and greens

Maintain Water Quality Buffers



- ⌘ Buffers are vegetated strips of land located between water bodies and playing areas
- ⌘ Leave a minimum of a heavy rough next to stream
- ⌘ Unfertilized rough mowed no lower than 3 inches high, should be maintained around surface areas where woody vegetation is not practical



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