

# Nutrient Management Plan

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J. Sargeant Reynolds Athletic Fields

Prepared For:

Matthew E. Thompson Sr.  
1651 E Parham Road  
Richmond, VA 23285-5622  
(804) 523-5795

Prepared By:

Christy F. Smith  
3160 Jacobia Lane  
Cape Charles, VA 23310  
(757) 678-6129

Certification Code: 297

Total Acreage: 2.23

The purpose of this Nutrient Management Plan is to ensure minimum movement of nitrogen and phosphorus from the specified area of application to surface and groundwaters where they can potentially have a detrimental effect on water quality as well as ensuring that plants have optimum soil nutrient availability for good productivity and quality. By following this soil test based plan you are helping to protect local waters and the Chesapeake Bay.

If you have questions, please contact your plan writer, local Virginia Cooperative Extension



# Nutrient Management Plan for: J. Sargeant Reynolds Athletic Fields

<b>Landowner Information</b>	
Company Name	<i>J. Sargeant Reynolds Athletic Fields</i>
Customer Name	<i>Matthew E. Thompson Sr.</i>
Mailing Address	<i>1651 E Parham Road</i>
City State Zip	<i>Richmond, VA 23285-5622</i>
Phone	<i>(804) 523-5795</i>
Email	<i>Mthompson@reynolds.edu</i>

<b>Planners Information</b>	
Planner Name	<i>Christy F. Smith</i>
Mailing Address	<i>3160 Jacobia Lane</i>
City State Zip	<i>Cape Charles, VA 23310</i>
Phone	<i>(757) 678-6129</i>
Fax	<i>(757) 331-3957</i>
Email	<a href="mailto:christy@smithagronomic.com">christy@smithagronomic.com</a>
Certification Code	<i>297</i>

<b>Location Information</b>	
Physical Address	<i>1701 East Parham Road</i>
City State Zip	<i>Richmond, VA 23228</i>
<a href="#">Coordinates</a>	<i>37.64222222</i>
Please Use NAD 83 Deg Min Sec	<i>77.48027778</i>
<a href="#">VAHU6 Watershed Code</a>	<i>JL18</i>
County	<i>Henrico</i>

<b>Square Footage</b>	
Total	<i>97,000.00</i>
Football Field	<i>33,000.00</i>
Baseball Field	<i>64,000.00</i>

Plan Start Date	<i>7/1/24</i>
Plan End Date	<i>6/30/27</i>

Planner Signature	<i>Christy F. Smith</i>
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# Narrative

J. Sargeant Reynolds Parham Campus is located in Richmond, VA just off I-95 at exit 83 toward Richmond. Merge onto E. Parham Road via exit 83B which brings you to the campus at 1701 E. Parham Road. The watershed code is JM84. The athletic fields: a baseball and a football field, are located south of the campus. There are no environmentally sensitive sites located at the fields.

The baseball field is 64,000 square feet and the football fields is 33,000 square feet. The turf type for the baseball field is Kentucky 31 and perennial rye. The football field is irrigated and planted in Bermuda grass.

One ton of lime/acre is needed on the football field at this time.

J. Sargeant Reynolds agrees to comply with all requirements set forth in the Nutrient Management Training and Certification Regulations, 4VAC5-15-10 et seq., and to follow recommendations for turf fertilization and management as described in the attached Virginia Nutrient Management Standards and Criteria, Revised July 2014. This includes implementing the Department of Conservation and Recreation's approved Nutrient Management Plan and maintaining fertilization records. This plan is effective for 3 years, expiring 6/30/2027 or until any major renovation or major changes to maintenance practices occur which effects the fertilized/lime areas.

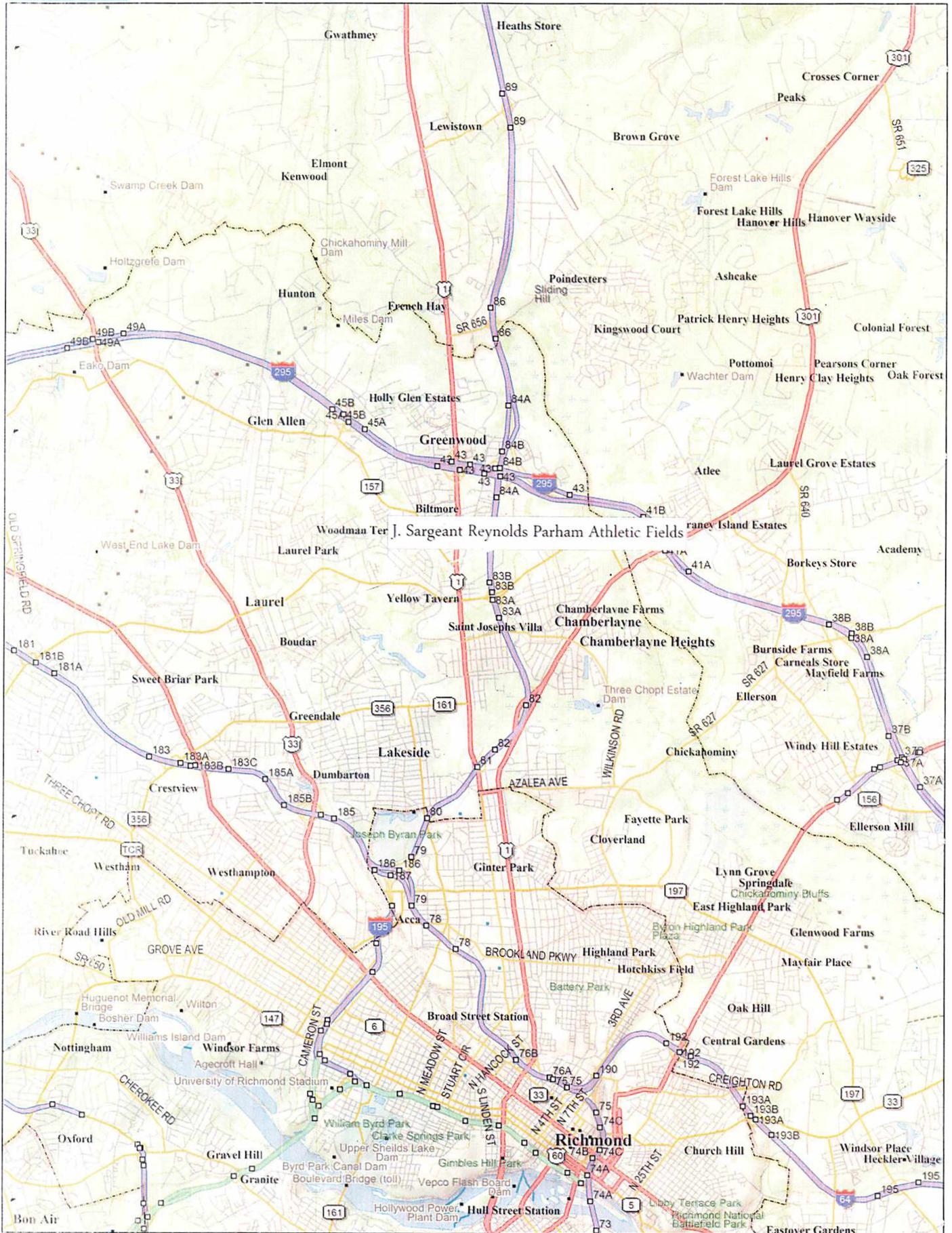
New soil's analysis required at least once every 3 years. Nutrient applications are prohibited on frozen/snow covered ground. 4VAC50-85-140.f.

# Google Maps Reynolds Community College (Parham Campus)



Imagery ©2017 Commonwealth of Virginia, DigitalGlobe, USDA Farm Service Agency, Map data ©2017 Google 500 ft

B - 64,000 sq ft.  
F 33,000 sq ft.



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 www.delorme.com

TN  
 MN (0.0°E)

Scale 1 : 100,000  
 0 1 2 3 4 mi  
 0 1 2 3 4 km  
 1" = 1.58 mi Data Zoom 11-0



## Nutrient Application Worksheet

<b>NAME:</b>		Matthew E. Thompson Sr.					<b>Management Area:</b>			Football Field				
<b>Prepared:</b>		7/1/24					<b>Area (sq ft):</b>	33000		<b>Species:</b>	Bermuda			
<b>Expires:</b>		6/30/27												
Total Nutrient Needs	Application Month/Day	Analysis lb/A	# of Apps	Application Interval	Fertilizer Type	Fertilizer Description	Rate per 1000ft <sup>2</sup>	lbs or oz	%Slow Release N	Total NPK lbs/1000ft <sup>2</sup>	Gypsum	Lime	Total Product per App. (lbs or oz)	
Nitrogen		N - P - K								N - P <sub>2</sub> O <sub>5</sub> - K <sub>2</sub> O		1 T/acre		
2.1	June 1	20 - 0 - 9	1	30 days		granular	3.50	lbs	0%	0.70 - 0.00 - 0.32			116	
Phosphorus	July 1	20 - 0 - 9	1			granular	3.50	lbs	0%	0.70 - 0.00 - 0.32			116	
0	August 1	20 - 0 - 9	1			granular	3.50	lbs	0%	0.70 - 0.00 - 0.32			116	
Potassium		- - -								0.00 - 0.00 - 0.00			0	
1		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
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		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
		- - -								0.00 - 0.00 - 0.00			0	
							<b>Total</b>		<b>0%</b>	2.10 - 0.00 - 0.95			0	
<b>Notes:</b>	<b>N Recommendation Range and Soil Test Ratings</b>									2.1	0	1		
	The field is predominantly silt/clay based. One ton of lime/acre is recommended this fall.													



# Virginia Cooperative Extension

## Soil Test Report

**Questions? Contact:**  
 Henrico County Office  
 8600 Dixon Powers Drive  
 P O Box 90775  
 Richmond, VA 23273-0775  
 804-501-5160

Virginia Tech Soil Testing Laboratory  
 145 Smyth Hall (0465)  
 185 Ag Quad Ln  
 Blacksburg, VA 24061  
 www.soiltest.vt.edu

SEE NOTES:  
**1 3**  
 at [www.soiltest.vt.edu](http://www.soiltest.vt.edu) under Report Notes

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**SMITHAG AND ENVIRONMENTAL INC**  
 3160 JACOBIA LANE  
  
 CAPE CHARLES, VA 23310

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### SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
FOOTB	PARHAM									III

### LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	132	281	1744	201	7.1	11.4	0.4	62.4	0.3	
Rating	VH	H+	H	H+	SUFF	SUFF	SUFF	SUFF	SUFF	

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.8	6.26	6.4	13.1	87.0	68.3	13.0	5.6	

### FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Native or Unimproved Pasture (42)

Lime, TONS/AC	
Amount	Type
1	AG

Fertilizer, lb/A		
N	P2O5	K2O
See Comment	0	0

825. If stand contains less than 25 percent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

123. P2O5 and K2O recommendations are for single applications made every 3 to 4 years. After this time, soils should be re-tested.

991. "Explanation of Soil Tests, Note 1" and other referenced notes are viewable at [www.soiltest.vt.edu](http://www.soiltest.vt.edu) under Report Notes.

# Virginia Cooperative Extension Soil Test Report

**Questions? Contact:**  
**Henrico County Office**  
**8600 Dixon Powers Drive**  
**P O Box 90775**  
**Richmond, VA 23273-0775**  
**804-501-5160**

**Virginia Tech Soil Testing Laboratory**  
**145 Smyth Hall (0465)**  
**185 Ag Quad Ln**  
**Blacksburg, VA 24061**  
**www.soiltest.vt.edu**

**SEE NOTES:**  
**1 3**  
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**SMITHAG AND ENVIRONMENTAL INC**  
**3160 JACOBIA LANE**  
  
**CAPE CHARLES, VA 23310**

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### SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
BASEB	PARHAM									III

### LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	102	160	2488	308	7.5	8.4	0.2	20.3	0.4	
Rating	H+	M+	VH	VH	SUFF	SUFF	SUFF	SUFF	SUFF	

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	6.2	6.33	8.1	5.1	94.9	76.7	15.7	2.5	

### FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Native or Unimproved Pasture (42)

Lime, TONS/AC		Fertilizer, lb/A	
Amount	Type	N	P2O5 K2O
0		See Comment	0 40

**825. If stand contains less than 25 percent clover, apply 40-60 lbs N/A.**

**131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.**

**123. P2O5 and K2O recommendations are for single applications made every 3 to 4 years. After this time, soils should be re-tested.**

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## Standards and Criteria

### Section VI. Turfgrass Nutrient Recommendations for Home Lawns, Office Parks, Public Lands and Other Similar Residential/Commercial Grounds

#### Definitions

For the purposes of this section, the following definitions, as presented by the Association of American Plant Food Control Officials (AAPFCO), apply:

“Enhanced efficiency fertilizer” describes fertilizer products with characteristics that allow increased plant nutrient availability and reduce the potential of nutrient losses to the environment when compared to an appropriate reference product.

“Slow or controlled release fertilizer” means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference “rapidly available nutrient fertilizer” such as ammonium nitrate, urea, ammonium phosphate or potassium chloride. A slow or controlled release fertilizer must contain a minimum of 15 percent slowly available forms of nitrogen.

“Water soluble nitrogen”, “WSN” and “readily available nitrogen” means: Water soluble nitrogen in either ammonical, urea, or nitrate form that does not have a controlled release, or slow response.

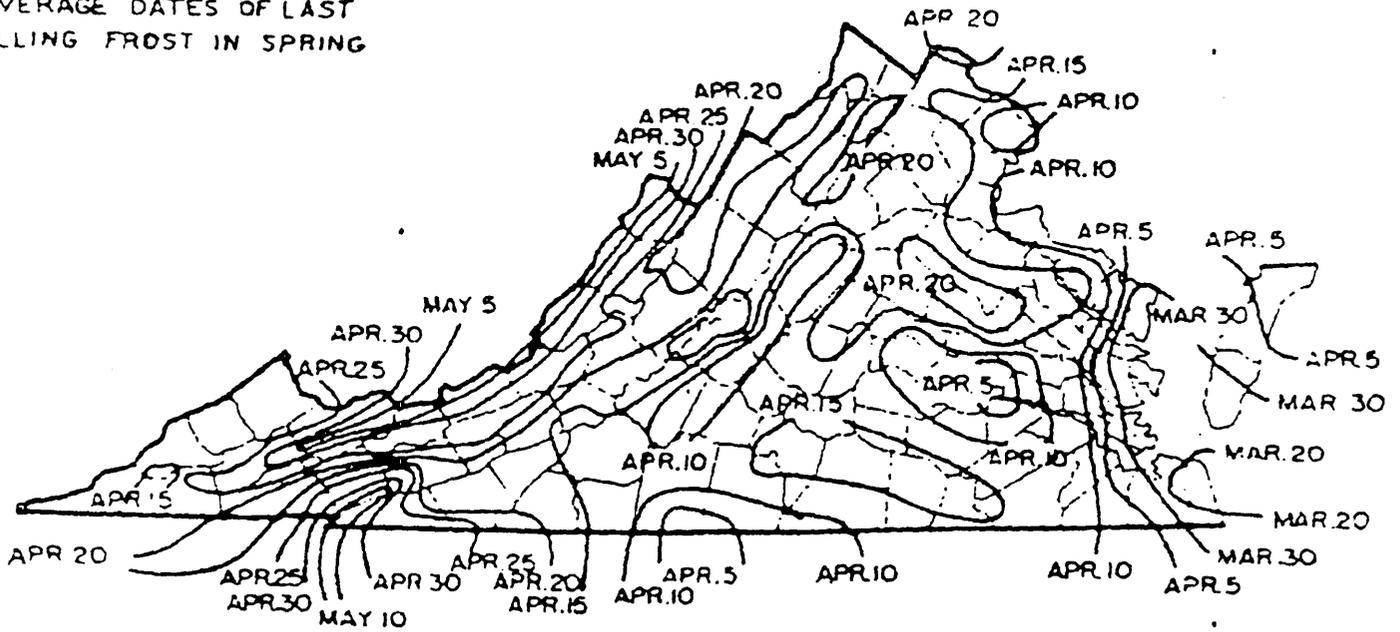
#### Recommended Season of Application For Nitrogen Fertilizers - Applies to all Turf

A nitrogen fertilization schedule weighted toward fall application is recommended and preferred for agronomic quality and persistence of cool season turfgrass; however, the acceptable window of applications is much wider than this for nutrient management. The nutrient management recommended application season for nitrogen fertilizers to cool season turfgrasses begins six weeks prior to the last spring average killing frost date and ends six weeks past the first fall average killing frost date (see Figures 6-1 & 6-2). Applications of nitrogen during the intervening late fall and winter period should be avoided due to higher potential leaching or runoff risk, but where necessary, apply no more than 0.5 pounds per 1,000 ft<sup>2</sup> of water soluble nitrogen within a 30 day period. Higher application rates may be used during this late fall and winter period by using materials containing slowly available sources of nitrogen, if the water soluble nitrogen contained in the fertilizer does not exceed the recommended maximum of 0.5 pounds per 1,000 ft<sup>2</sup> rate. Do not apply nitrogen or phosphorus fertilizers when the ground is frozen.

The acceptable nitrogen fertilizer application season for non-overseeded warm season turfgrass begins no earlier than the last spring average killing frost date and ends no later than one month prior to the first fall average killing frost date (see Figures 6-1 & 6-2).

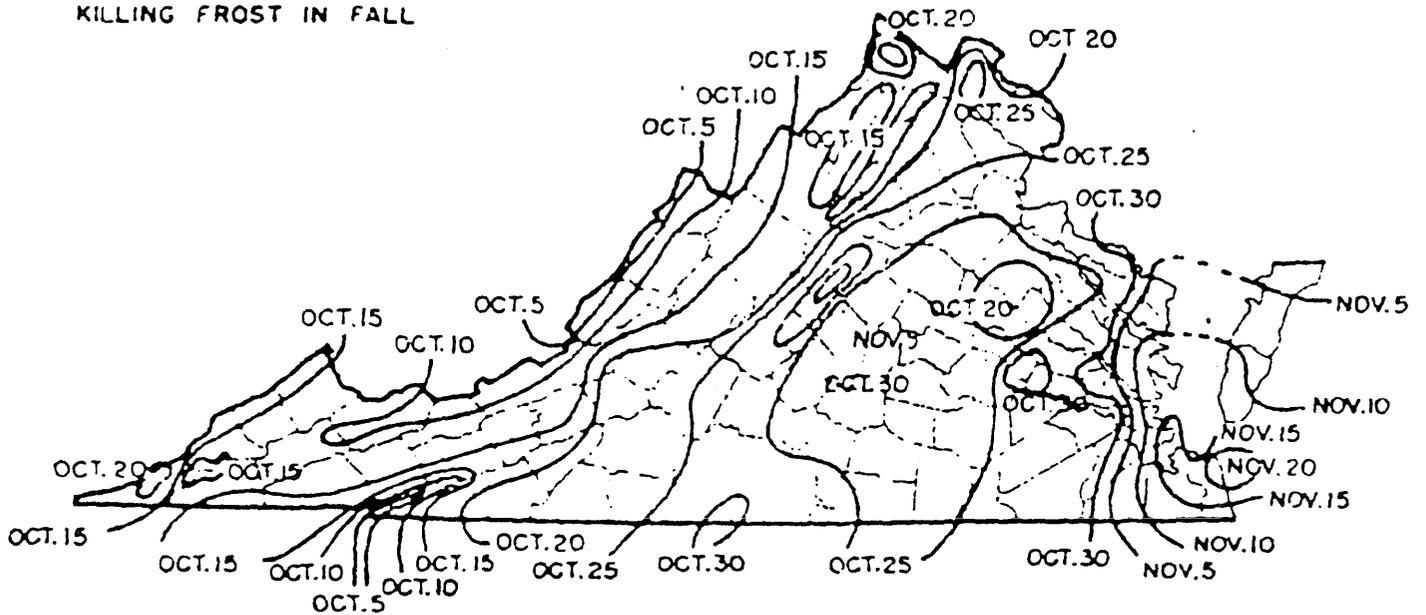
# VIRGINIA

AVERAGE DATES OF LAST  
KILLING FROST IN SPRING



# VIRGINIA

AVERAGE DATES OF FIRST  
KILLING FROST IN FALL



### Per Application Rates

Do not apply more than 0.7 pounds of water soluble nitrogen per 1,000 ft<sup>2</sup> within a 30 day period. For cool season grasses, do not apply more than 0.9 pounds of total nitrogen per 1,000 ft<sup>2</sup> within a 30 day period. For warm season grasses, do not apply more than 1.0 pounds of total nitrogen per 1,000 ft<sup>2</sup> within a 30 day period. Lower per application rates of water soluble nitrogen sources or use of slowly available nitrogen sources should be utilized on very permeable sandy soils, shallow soils over fractured bedrock, or areas near water wells.

### Annual Application Rates for Home Lawns and Commercial Turf

Up to 3.5 pounds per 1,000 ft<sup>2</sup> of nitrogen may be applied annually to cool season grass species or up to 4 pounds per 1,000 ft<sup>2</sup> may be applied annually to warm season grass species using 100 percent water soluble nitrogen sources. Lower rates of nitrogen application may be desirable on those mature stands of grasses that require less nitrogen for long-term quality. As a result, lower application rates will probably be more suited to the fine leaf fescues (hard fescue, chewings fescue, creeping red fescue, and sheep fescue) and non-overseeded zoysiagrass. Lower rates should also be used on less intensively managed areas.

### Use of Slowly Available Forms of Nitrogen

For slow or controlled release fertilizer sources, or enhanced efficiency fertilizer sources, no more than 0.9 pounds of nitrogen per 1,000 ft<sup>2</sup> may be applied to cool season grasses within a 30 day period and no more than 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup> may be applied to warm season grasses within a 30 day period. Provided the fertilizer label guarantees that the product can be used in such a way that it will not release more than 0.7 pounds of nitrogen per 1,000 ft<sup>2</sup> in a 30 day period, no more than 2.5 pounds of nitrogen per 1,000 ft<sup>2</sup> may be applied in a single application. Additionally, total annual applications shall not exceed 80 percent of the annual nitrogen rates for cool or warm season grasses.

### Phosphorus and Potassium Nutrient Needs (Established Turf)

Apply phosphorus (P<sub>2</sub>O<sub>5</sub>) and potassium (K<sub>2</sub>O) fertilizers as indicated necessary by a soil test using the following guidelines:

<u>Soil Test Level</u>	<u>Nutrient Needs (lbs /1000 ft<sup>2</sup>) *</u>	
	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

\* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range. (For example the recommendation for a P<sub>2</sub>O<sub>5</sub> soil test level of L- would be 3 pounds per 1,000 ft<sup>2</sup>.)

Do not use high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

### Recommendations for Establishment of Turf

These recommendations are for timely planted turfgrass, that is, the seed or vegetative material (sod, plugs, and /or sprigs), are planted at a time of the year when temperatures and moisture are adequate to maximize turfgrass establishment. These recommended establishment periods would be late summer to early fall for cool-season turfgrasses and late spring through mid-summer for warm-season turfgrasses.

### Nitrogen Applications

At the time of establishment, apply no more than 0.9 pounds per 1,000 ft<sup>2</sup> of total nitrogen for cool season grasses or 1.0 pounds per 1,000 ft<sup>2</sup> of total nitrogen for warm season grasses, using a material containing slowly available forms of nitrogen, followed by one or two applications beginning 30 days after planting, not to exceed a total of 1.8 pounds per 1,000 ft<sup>2</sup> total for cool season grasses and 2.0 pounds per 1,000 ft<sup>2</sup> for warm season grasses for the establishment period. Applications of WSN cannot exceed more than 0.7 pounds per 1,000 ft<sup>2</sup> within a 30 day period.

### Phosphorus and Potassium Recommendations for Establishment

<u>Soil Test Level</u>	<u>Nutrient Needs (lbs /1000 ft<sup>2</sup>) *</u>	
	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
L	3-4	2-3
M	2-3	1-2
H	2-1	0.5-1
VH	0	0

\* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.

### Nitrogen Management on Athletic Fields - Cool Season Grasses

\* This program is intended for those fields which are under heavy use.

\* Nitrogen recommendations are based on the assumption that there is adequate soil moisture to promote good turf growth at the time of application. If no rainfall has occurred since the last application, further applications should be delayed until significant soil moisture is available.

Cool Season Grasses	Maintenance Program <sup>a</sup>	
	Normal	Intensive
When to Apply <sup>b</sup>	Pounds per 1,000 ft <sup>2</sup> Nitrogen	
After August 15	-----	0.5
September	0.7	0.7 <sup>(c)</sup>
October	0.7 <sup>(c)</sup>	0.7 <sup>(c)</sup>
November	0.5	0.7 <sup>(c)</sup>
April 15 - May 15	0.5	0.5
June 1 - June 15	----	0.5

#### Notes:

\* Soluble nitrogen rates of 0.25 pounds per 1,000 ft<sup>2</sup> or less which may be a component of a pesticide or minor element application may be applied any time the turf is actively growing, but must be considered with the total annual N application rate.

\* WSN = water soluble nitrogen; WIN = water insoluble nitrogen

(a) Intensive managed areas must be irrigated.

(b) The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the preceding Season of Application for Nitrogen section, using Figures 6-1 and 6-2.

(c) Rates up to 0.9 pounds per 1,000 ft<sup>2</sup> of total nitrogen can be applied using a material containing slowly available forms of nitrogen, with a minimum of 30 days between applications.

(d) Make this application only if turf use warrants additional N for sustaining desirable growth and /or color.

### Nitrogen Management on Athletic Fields - Warm Season Grasses

The following comments apply to both Naturally Occurring or Modified Sand based Fields and Predominantly Silt/Clay Soil Fields:

- \* Annual nitrogen rates for warm season grasses shall not exceed **4 pounds** in areas which have the average first killing frost on or before October 20, and shall not exceed **5 pounds** in areas which have the average first killing frost after October 20 as shown in Figure 6-1. Nitrogen rates and timings for overseeding warm season grasses are not included in these rates.
- \* April 15 - May 15 applications should not be made until after complete green-up of turf.
- \* Nitrogen applications June through August should be coordinated with anticipated rainfall if irrigation is not available.
- \* Use the lower end of the ranges for non-irrigated fields and the higher end of the ranges should be used on fields with irrigation.
- \* Nitrogen rates towards the higher end of the ranges may be applied on heavily used fields to accelerate recovery, however per application and annual rates cannot be exceeded.

Bermudagrass - Predominantly Silt/Clay Soil Fields <sup>a</sup>		
When to Apply <sup>b</sup>	Pounds per 1,000 ft <sup>2</sup> Nitrogen	First Fall Killing Frost Date <sup>b</sup>
April 15 - May 15	0.5 - 0.7 <sup>(c)</sup>	Before Oct. 20
June	0.7	
July	0.5 - 0.7 <sup>(d)</sup>	
August	0.5 - 0.7 <sup>(d)</sup>	
Sept 1 - Sept 15	0.5 - 0.7 <sup>(c)</sup>	After Oct. 20
If overseeded with perennial ryegrass		
Oct - Nov	0.5 <sup>(e)</sup>	
Feb-Mar	0.5 <sup>(e)</sup>	

Bermudagrass - Naturally Occurring or Modified Sand based Fields <sup>a</sup>		
When to Apply <sup>b</sup>	Lbs/1,000 ft <sup>2</sup> Nitrogen <sup>c</sup>	First Fall Killing Frost Date <sup>b</sup>
April 15 - May 15	0.5 - 0.7 <sup>(c)</sup>	Before Oct. 20
June	0.7 <sup>(c)</sup>	
July	0.7 <sup>(c)</sup>	
August	0.7 <sup>(c)</sup>	
Sept 1 - Sept 15	0.7 <sup>(c)</sup>	After Oct. 20
If overseeded with perennial ryegrass		
Oct - Nov	0.5 <sup>(e)</sup>	
Feb - Mar	0.5 <sup>(e)</sup>	

The following notes apply to both of the Bermudagrass tables above:

- (a) In the Piedmont and the Ridge and Valley areas of Virginia, the existing native soil will normally be comprised predominantly of clay and/or silt and these soils have inherently

## Standards and Criteria

lower water infiltration and percolation rates and greater nutrient holding capacity. However, most areas of the Coastal Plain have existing native soils that are predominantly sandy textured soils and other facilities throughout the state may choose to install modified soil root zones that are predominantly sand (>50%) in order to maximize drainage and reduce compaction tendency. If subsurface drain tile surrounded by sand and/or gravel has been installed under the playing surface of any of these fields, their nitrogen programs should be managed as predominantly sand-based systems to minimize nutrient leaching.

- (b) The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the Season of Application for Nitrogen section, Figures 6-1 and 6-2.
- (c) WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft<sup>2</sup> each with a minimum of 15 days between applications. Alternatively, using a material that contains slowly available nitrogen sources, split applications of 0.5 pounds per 1,000 ft<sup>2</sup> may be applied with a minimum of 15 days between applications.
- (d) If a material containing slowly available forms of nitrogen is used, rates up to 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup> may be applied in a single application with a minimum of 30 days between applications.
- (e) For overseeded warm season grasses, an additional 0.7 pounds per 1,000ft<sup>2</sup> of WSN may be applied in the Fall after the perennial ryegrass overseeding is well established. The WSN must be applied as two applications not to exceed 0.35 pounds per 1,000 ft<sup>2</sup> of nitrogen each, with a minimum of 15 days between applications. Additional WSN application of 0.5 pounds per 1,000 ft<sup>2</sup> may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Alternatively, split applications of 0.5 pounds of nitrogen per 1,000 ft<sup>2</sup> each with a minimum of 15 days between applications may be applied using a material containing slowly available nitrogen sources.

### Phosphorus and Potassium Recommendations Athletic Fields

Apply phosphorus (P<sub>2</sub>O<sub>5</sub>)  $\pm$  Soil Test Level Nutrient Needs (lbs /1000 ft<sup>2</sup>) \*  $\pm$ st using the following guidelines:

	<u>Nutrient Needs (lbs /1000 ft<sup>2</sup>)</u>	
	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

- \* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.
- \* For irrigated turf grown on Naturally Occurring and Modified Sand Based soils only, up to 0.5 pounds of P<sub>2</sub>O<sub>5</sub> per 1,000 ft<sup>2</sup> may be applied, if needed, to aid in recovery of damaged turf during times of extreme use. No phosphorus applications shall be made when the soil phosphorus test level is above 65% saturation, based on the soil test phosphorus values and region as listed in Table 4-1 of Section IV.
- \* Avoid the general use of high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests

## **Establishment/Grow-In Recommendations for Golf Courses, Athletic Fields, and Sod Production**

(These rates replace normal maintenance fertilizer applications that would have occurred during these time periods.)

### **Warm Season Grasses:**

#### **Predominantly Silt/Clay Soils**

- \* Plant Date - late May - June for sprigs, plugs, sod, or seeding.
- \* Apply  $P_2O_5$  and  $K_2O$  as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- \* At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup> using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts applied at regular intervals, through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup>.
- \* Four weeks after planting - 0.25 pounds of WSN per 1,000 ft<sup>2</sup> per week for the next 4 weeks.

#### **Naturally Occurring or Modified Sand Based Soils**

- \* Plant Date - late May - June for sprigs, plugs, sod, or seeding.
- \* Apply  $P_2O_5$  and  $K_2O$  as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- \* At Planting - Up to 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup> using a material containing slowly available forms of nitrogen may be applied as one application or lesser amounts applied at regular intervals, through the first 4 weeks, not to exceed a total of 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup>.
- \* Four weeks after planting - 0.25 pounds per 1,000 ft<sup>2</sup> using a material containing slowly available forms of nitrogen per week for the next 4 weeks.

### **Cool Season Grasses:**

#### **Predominantly Silt/Clay Soils**

- \* Plant Date - August - September (preferred)
- \* Apply  $P_2O_5$  and  $K_2O$  as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- \* At Planting - up to 0.9 pounds of nitrogen per 1,000 ft<sup>2</sup> using a material containing slowly available forms of nitrogen may be applied; 30 days after planting, apply up to 0.5 pounds of nitrogen per 1,000 ft<sup>2</sup> every week for the next 4 weeks.

#### **Naturally Occurring or Modified Sand Based Soils**

- \* Plant Date - August - September (preferred)
- \* Apply  $P_2O_5$  and  $K_2O$  as needed based on soil test recommendations, incorporate into the top 2 inches if possible.
- \* At Planting - up to 0.9 lbs pounds of nitrogen per 1,000 ft<sup>2</sup> using a using a material containing slowly available forms of nitrogen may be applied.
- \* Apply up to 0.25 pounds of nitrogen per 1,000 ft<sup>2</sup> per week after germination is complete, for the next 8 weeks. If using a material containing slowly available forms of nitrogen, up to 0.5 pounds of nitrogen per 1,000 ft<sup>2</sup> every two weeks may be applied after germination is complete for the next 8 weeks.

## Sod Installations:

Site preparation should include a soil test, which can be done several months before the project begins in order to have time to get test results back. Phosphorus, potassium and lime applications should be based on soil test analysis to increase the likelihood of a successful installation. Shallow incorporation of material into the top 2 inches of the soil is preferred prior to sod installation, especially if lime is required.

No more than 0.7 pounds of nitrogen per 1,000 ft<sup>2</sup> of WSN may be applied before sod is installed. Alternatively, using a material with slowly available forms of nitrogen, 0.9 pounds of nitrogen per 1,000 ft<sup>2</sup> for cool season grasses or 1.0 pounds of nitrogen per 1,000 ft<sup>2</sup> for warm season grasses may be applied before sod is installed.

After installation apply adequate amounts of water to maintain sufficient soil moisture (i.e. to prevent visible wilt symptoms). Excessive water will limit initial root development. After roots begin to establish (as verified by lightly tugging on the sod pieces), shift irrigation strategy to a deep and infrequent program in order to encourage deep root growth. Apply approximately 1 inch of water per week (either by rainfall or irrigation), making sure that the water is being accepted by the soil profile without running off. This will insure thorough wetting of the soil profile.

After sod has completed rooting and is well established, initiate the normal nitrogen management program as described for the appropriate use shall be recommended.

## Phosphorus and Potassium Recommendations for Establishment/Grow-In/Installation

<u>Soil Test Level</u>	<u>Nutrient Needs (lbs /1000 ft<sup>2</sup>) *</u>	
	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
L	3-4	2-3
M	2-3	1-2
H	2-1	0.5-1
VH	0	0

\* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.

## **Other Turf Management Considerations for Golf Courses, Athletic fields, and Home Lawns**

### **Lime Recommendations**

Lime should be recommended based on a soil test to maintain soil pH within an agronomic range for turfgrass.

For new seedings where lime is recommended, incorporate the lime into the topsoil for best results.

### **Returning Grass Clippings**

Recycling of clippings on turf should be encouraged as an effective means of recycling nitrogen, phosphorus, and potassium. Proper mowing practices that ensure no more than 1/3 of the leaf blade is removed in any cutting event will enhance turf appearance and performance when clippings are returned. Return all leaf clippings from mowing events to the turf rather than discharging them onto sidewalks or streets. Rotary mulching mowers can further enhance clipping recycling by reducing the size of clippings being returned to the turfgrass canopy.

### **Management of Collected Clippings**

If clippings are collected they should be disposed of properly. They may be composted or spread uniformly as a thin layer over other turf areas or areas where the nutrient content of the clippings can be recycled through actively growing plants. They should not be blown onto impervious surfaces or surface waters, dumped down stormwater drains, or piled outside where rainwater will leach out the nutrients creating the potential for nutrient loss to the environment.

### **Use of Iron**

Iron applications (particularly foliar applications) may periodically be used for enhanced greening as an alternative to nitrogen. These applications are most beneficial if applied in late spring through summer for cool season grasses and in late summer/fall applications for warm-season grasses.

### **Impervious Surfaces**

Do not apply fertilizers containing nitrogen or phosphorus to impervious surfaces (sidewalks, streets, etc.). Remove any granular materials that land on impervious surfaces by sweeping and collecting, and either put the collected material back in the bag, or spread it onto the turf and /or using a leaf blower etc. to return the fertilizer back to the turfgrass canopy.

