Recommended Nutrient Application Rates

Memorial Park Soccer Fields 1 – 5

These native soil athletic fields are classified as high traffic areas for fertilizer application rates. The fields are mowed every three to four days with clippings left on the field. Underground irrigation is installed on all five of these soccer fields. NR 151 Section 1100 allows for the maximum N rates of eight pounds/1,000 sq. ft./year for these fields. Current practice is N rates applied at three pounds/1000 sq. ft./year. Higher N rates are permitted for turf establishment with up to six pounds N/1000 sq. ft possible during the year of establishment, but this is not done. The rate of any single fertilizer application may not exceed one pound N/1000 sq. ft. However, if the fertilizer is entirely organic, then it may be applied at rates up to two pounds N/1,000 sq. ft not to exceed eight pounds N/1,000 sq. ft./year.

Phosphorous is not applied to any of these fields. Soil tests from 2002 indicated all fields had optimum to high P levels that would preclude them from receiving any P applications. The use of P was discontinued in 2002 and we will continue the practice of not applying the nutrient.

Soil tests completed in 2002 indicated Potassium (K) levels to be very high. Fertilizer with K was discontinued at that time due to the very high levels. In 2009, a fertilizer blend containing K was incorporated due to an observed decrease in wear tolerance in the fields. Since K is not known to be an environmental contaminant, NPRD continues the practice of using the current blended fertilizer.

Memorial Park Ball Diamonds 1 – 3, Southview Soccer Field, Southview Ball Diamonds 1 – 4

These athletic fields are all native soil fields and are classified as high traffic areas for fertilizer application rates. These fields receive the same maintenance as the above fields with the exception that these fields do not receive supplemental irrigation. However, since these fields do not have underground irrigation, N fertility is in line with the guidelines stated in NR 151 Section 1100 for low-traffic turf areas.

Phosphorous is not applied to any of these fields. Soil tests from 2002 indicated all fields had optimum to high P levels that would preclude them from receiving any P applications. The use of P was discontinued in 2002 and we will continue the practice of not applying the nutrient.

Soil tests completed in 2002 indicated Potassium (K) levels to be very high. Fertilizer with K was discontinued at that time due to the very high levels. In 2009, a fertilizer blend containing K was incorporated due to an observed decrease in wear tolerance in the fields. Since K is not known to be an environmental contaminant, NPRD continues the practice of using the current blended fertilizer.

All fertilizer applications are documented with the sample record sheet shown in Appendix C. This sheet includes fertilizer type, rate, and date of application. All fertilizer applications are applied with a rotary spreader.

Turfgrass Species and Soil Types

The predominant grass species on all athletic fields are Kentucky bluegrass (*Poa pratensis* L.) and perennial ryegrass (*Lolium perenne* L.). The main function of the perennial ryegrass is to serve as a "nurse" or "cover" crop until the Kentucky bluegrass is able to establish. Over-seeding with solely perennial ryegrass (Medalist Gold) is done during the playing season as wear areas become apparent. One or two fields are rotated out of play in the fall each year depending on usage and wear. In the fall, fields rotated out of play are over-seeded with a mixture of Kentucky bluegrass and perennial ryegrass (Swift-n-Sure).

Memorial Park contains four soil series each with one phase. The predominant soil is KnB, Kewaunee silt loam (Fig. 1A). WnB, Winneconne silty clay loam is the next most prevalent soil followed by NhA, Neenah silty clay loam and OmB, Omro clay loam. Southview Park contains three of the same soil series (Fig. 1B) and corresponding phase with the predominant soil being OmB, followed by WnB and NhA.

All athletic fields are fairly well drained, with the exception being April to May from snow melt and heavy spring rains. Areas of heavy play will puddle after heavy rains due to soil compaction, which is a normal problem with these soils. All athletic fields are aerated at least 3 times per year just prior to fertilization. Additional aeration (core or deep tine) may be done in spring and/or fall if the fields are heavily used and show excessive wear through decreased turf coverage or increased weed populations.

Fertilizer Spill Response Plan

Any accidental spill of greater than 250 pounds (approximately 5 bags) of dry fertilizer or more than 25 gallons of liquid fertilizer must be reported immediately to the 24-hour WDNR Spills Hotline, 1-800-943-0003. The WDNR will report the spill to the WDATCP, who has specialists in fertilizer spill management. When call the Hotline, be prepared to provide the following information:

1. Individual's and the property owner's name and address and location of the spill.
2. Whether dry or liquid fertilizer, the grade and chemical composition.
3. Where the spill occurred and on what type of surface.
4. What actions have been taken.

Appropriate actions are:

1. Contain the fertilizer spill. Cover the spill if there is the potential fro spreading by rain or irrigation water. Construct a dike or moat around liquid fertilizer spills.
2. If the spill is dry fertilizer, pick it up to the fullest extent possible. It can be spread in a normal fashion on the athletic field(s).
3. If the spill is liquid fertilizer, remove all the soil to the maximum depth of penetration. The WDATCP spill specialist will advise as to proper disposal of the contaminated soil.

More details regarding fertilizer spills appear in Appendix D.

All employees are aware of these fertilizer spill requirements and response actions. A copy of the last page of Appendix D is posted in the workplace.

Nutrient Management Plan Duration

Consistent with the WDNR Technical Standards (Appendix A) under which this plan has been prepared, this plan does not require revision unless:

1. Phosphorous application becomes a standard maintenance practice OR,

2. There is a substantial change in types of vegetation or level of maintenance.

When phosphorous application is or becomes a routine practice, a new set of soil samples must be obtained every 5 years and the plan revised according to the new soil tests. This plan also needs to be revised to reflect any substantial changes in vegetation or management practices. The general recommendation is that the plan be reviewed a minimum of every 5 years to determine if changes are required or warranted.

Appendix A

INTERIM TURF NUTRIENT MANAGEMENT

(1100)

Wisconsin Department of Natural Resources Technical Standard

I. Definition

Managing the amount, method, timing, and source of nutrient applications on turf.

II. Purpose

This standard establishes the criteria and documentation requirements for a nutrient management plan that addresses the application of nutrients to establish, maintain and renovate turf areas. These criteria are intended to minimize nutrient entry into surface and groundwater resources through proper application of nutrient inputs while maintaining turf density of 70% or greater.

Note: See Section VIII.H for methods to measure density.

III. Conditions Where Practice Applies

This standard applies to parcels that have *five or more total acres*[1] of turf that receive nutrients. This includes municipally owned parcels within an incorporated municipality and non-municipally owned parcels regardless of location.

This standard does not apply to agricultural operations, sod farms, or community gardens. This standard may be beneficial for turf management on any sized parcel.

IV. Federal, State and Local Laws

Users of this standard shall be aware of potentially applicable federal, state and local laws, rules, regulations or permit requirements governing the placement of nutrients. This standard does not contain the text of federal, state, or local laws.

V. Criteria

This section establishes requirements for soils and data collection, application, and management requirements for nutrient management plan development and implementation related to the establishment, maintenance and renovation of turf. Nutrient management plans shall be prepared according to all of the Criteria, Plans and Specifications, and Operation and Maintenance sections.

A. **Turf Establishment** – When establishing turf, the steps listed below shall be followed.

Note: Further guidance is located in UWEX Publication A3434 Lawn Establishment and Renovation.

1. Soil Test – Soil samples shall be obtained, and the test results made available prior to seeding or sodding. Allow two to three months to obtain results from the lab.
   a. Identify variations in *representative areas* across the site. To provide a representative sample of the soil in each representative area, collect a minimum of ten uniformly distributed sub-samples.
   b. Collect sub-samples of soil (0.5 to 1 inch in diameter) in a uniform manner to a minimum depth of five inches and maximum depth of seven inches. Remove any turf or plant matter prior to compiling and mixing the sub-samples.
   c. Compile the sub-samples collected from each representative sampling area, mix thoroughly, and place approximately 0.5 quart of soil in a clearly labeled bag.
   d. Submit the sample to a soil testing lab for analysis to determine pH, available phosphorus (P) using Bray P1 analysis or Mehlich III for golf turf, and available potassium (K) levels in the soil. Test results shall be in parts per

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[1] Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

million (ppm) or pounds per acre (lbs/ac).

e. In the event that soil testing is not practical prior to establishment, apply no more than one lb N/1000 ft^2 using a *starter fertilizer*. In accordance with Section VII.A, document reasons why test results were not obtained and rates applied.

Note: For further guidance, see UWEX Publication A2166 Sampling Lawn and Garden Soils for Soil Testing.

2. The amount of P from all sources shall not exceed the soil test recommendations contained in Table 1.

   a. If a soil amendment contains P as a fertilizer, the P shall be tilled into the root zone prior to establishment.

   b. Starter Fertilizer – If starter fertilizer is used, the amount of Nitrogen (N) cannot be more than one lb N/1000 ft^2. Apply starter fertilizer to the surface of the soil prior to or immediately following seeding to ensure it will be in close proximity to the seed.

   Note: There are different interpretations in Table 1 for turf establishment, whether establishment is by seeding or sodding.

3. N Fertilizer – A maximum of six lbs N/1000 ft^2 may be applied during the first 12 months of establishment. Apply no more than one lb N/1000 ft^2 per application. After establishment, N applications according to Section V.B can begin.

4. Specific criteria for establishment of turf on sand-based root zones, putting greens, and athletic fields.

   a. Nitrogen fertilization – A maximum of 10 lbs N/1000 ft^2 may be applied during the first 12 months of establishment. Apply no more than one lb N/1000 ft^2 per application.

   b. Phosphorus fertilization

      i. Non-calcareous and acidic root zones – The amounts shall not exceed the soil test recommendations contained in Table 1.

      ii. *Calcareous* sand based root zones – Apply a P fertilizer monthly until soil test P levels stabilize in the range of 38-50 ppm (i.e. three soil test P levels in this range over at least a three month period indicate stabilization).

5. Erosion Control – Appropriate erosion control methods shall be installed in accordance with Wisconsin Department of Natural Resources (WDNR) construction site erosion and sediment control technical standards to minimize transport of sediment offsite.

   Note: WDNR technical standards are available at: http://dnr.wi.gov/org/water/wm/nps/stormwater

B. Turf Maintenance – Fertilizer Recommendations for *Established Turf.*

1. Soil Test – Soil samples shall be obtained once every five years for areas receiving P. For sites requiring multiple P applications, the five year period shall start after the final P application. Follow directions for collecting samples based on the type of area being fertilized as described below.

   Note: More frequent testing may be beneficial. Guidance is located in UWEX Bulletin A2166 Sampling Lawn and Garden Soils for Soil Testing.

   a. General Turf Areas

      i. Identify variations in representative areas across the site. To provide a representative sample of the soil in each representative area, collect a minimum of ten uniformly distributed sub-samples.

      ii. Collect sub-samples of soil (up to one inch in diameter) in a uniform manner to whichever is less, a minimum depth of five inches and a maximum depth of seven inches, or to the depth of the root system. Remove any turf or plant matter prior to compiling and mixing the sub-samples.

   iii. Follow steps in Sections V.A.1.c and V.A.1.d for compiling and submitting the samples.

b. Golf course putting greens and tees

   i. Identify variations in representative areas across the site. To provide a representative sample of the soil in each representative area, collect a minimum of ten uniformly distributed sub-samples.

   ii. Collect sub-samples of soil (up to one inch in diameter) in a uniform manner to whichever is less, a minimum depth of the root system or a minimum of two inches, and a maximum depth of seven inches. Remove any turf or plant matter prior to compiling and mixing the sub-samples.

   iii. Follow the steps described in Section V.A.1.c and V.A.1.d for compiling and submitting the samples.

2. Fertilizer Recommendations for *low-traffic turf areas*.

   a. P Recommendations – The recommendations for P in Table 1 shall be used.

   b. N Recommendations – Do not apply more than one lb N /1000 ft^2 per application unless the fertilizer is entirely natural organic material (i.e. plant or animal derived substances) in which case N may be applied at rates up to two lbs N/1000 ft^2 but not to exceed four lbs N/1000 ft^2 annually.

      Specific annual N recommendations are as follows:

      i. General Areas – Do not exceed a maximum of four lbs N/1000 ft^2 annually.

      ii. Areas where clippings are returned – Do not exceed a maximum of three lbs N/1000 ft^2 annually beginning the third year after establishment.

         Note: Clippings left on the lawn typically release about one lb N/1000 ft^2 annually.

      — iii. Areas with *high permeability soils* – Use a fertilizer containing at least 50% slow release N if greater than ¼ lb N/1000 ft^2 is applied at one time.

3. Fertilizer recommendations for *high traffic areas* (e.g., athletic fields, golf courses, some parks areas).

   a. P Recommendations – The recommendations for P in Table 1 shall be used.

   b. N Recommendations – The values listed below shall be used only when other cultural practices such as regular mowing and irrigation are in place. Otherwise, the N fertility program should be the same as for low traffic turf areas.

      Do not apply more than one lb N/1000 ft^2 per application unless the fertilizer is entirely natural organic material (i.e. plant or animal derived substances) in which case it may be applied at rates up to two lbs N/1000 ft^2 not to exceed the maximums listed below.

      i. Athletic fields and tee boxes with native soil root zones – A maximum of eight lbs N/1000 ft^2 may be applied.

      ii. Athletic fields and tee boxes with sand-based root zones (≥ 70% sand) – A maximum of ten lbs N/1000 ft^2 may be applied.

iii. Fairways or putting greens with native soil root zones – A maximum of five lbs N/1000 ft^2 may be applied.

iv. Fairways or putting greens (root zone ≥ 70% sand) – A maximum of eight lbs N/1000 ft^2 may be applied.

C. Turf Renovation – One of the following methods shall be used:

1. Tilling – When renovation involves tilling, follow the turf establishment criteria located in Section V.A. The balance of fertilizer remaining from the current soil test recommendations from Table 1 shall not be exceeded.

2. *Interseeding / overseeding* – A maximum of six lbs N/1000 ft^2 may be applied during the first 12 months of establishment unless otherwise allowed under Section V.B.3. Apply no more than one lb N/1000 ft^2 per application unless a natural organic fertilizer is used, in which case N may be applied at rates up to two lbs N/1000 ft^2 but not to exceed four lbs N/1000 ft^2 annually. The balance of fertilizer remaining from the current soil test recommendations from Table 1 shall not be exceeded. After establishment, N applications according to Section V.B can begin.

D. Criteria to Minimize Entry of Nutrients to Groundwater

1. Do not apply fertilizer on *saturated soils*.

2. Do not apply nutrients to frozen soils unless the fertilizers are used to melt snow or ice on high traffic turf areas (i.e. greens and athletic fields).

3. To minimize N leaching to groundwater on high permeability soils, or soils with less than 20 inches to bedrock, or soils with less than 12 inches to *apparent water table* use the following practices:

   a. Do not use fertilizer with greater than 50% water soluble N unless applying less than or equal to a ¼ lb N/1000 ft^2 at one time.

   b. Do not apply nutrients within 100 feet upslope of a direct conduit to groundwater such as fractured bedrock at the surface.

   c. Tile inlets, drain tiles, and similar stormwater infrastructure must be covered prior to fertilizer application, unless these devices outflow to on-site irrigation ponds disconnected from surface and groundwater.

E. Criteria to minimize the Entry of Nutrients to Surface Water

1. Do not apply fertilizer on saturated soils, wetlands, surface water, or impervious surfaces (i.e. pavement, sidewalks). Do not apply nutrients to frozen soils unless the fertilizers are used to melt snow or ice on high traffic turf areas (i.e. greens and athletic fields).

2. Take action to avoid drift of fertilizer into waterbodies.

3. To minimize entry of nutrients to surface water in *surface water quality management areas* the following apply.

   a. Use products with at least 50% water soluble N on slopes steeper than 10%.

   b. Do not apply water soluble fertilizers when a runoff event is expected within 24 hours, such as an intense short duration rainfall event, unless irrigation is used shortly after the fertilizer is applied.

   c. Areas adjacent to a waterbody or waterway – Within 20 feet of a waterbody or waterway's *ordinary high watermark* only *foliar* applications of N and P are allowed. On golf course greens and surrounds within the 20 foot area drop spreaders may be used. Do not exceed two lbs N/1000 ft^2 per year.

Table 1. Phosphorus Soil Test Interpretations and Recommendations

<table>
<tr><th rowspan="33">Bray P1 Soil Test</th><th></th><th colspan="3">Nutrient Concentrations</th><th colspan="4">Phosphorus Recommendations [Note 1]</th></tr>
<tr><th></th><th colspan="2">Soil Test P</th><th rowspan="2">Concentration Interpretation</th><th colspan="2" rowspan="2">lb P_2O_5/1000 ft^2</th><th colspan="2" rowspan="2">lb P_2O_5/acre</th></tr>
<tr><th></th><th>ppm P</th><th>lbs/acre</th></tr>
<tr><td>Turf Establishment</td><td>0-15</td><td>0-30</td><td>Very Low</td><td colspan="2">3</td><td colspan="2">131</td></tr>
<tr><td>From Seed</td><td>16-30</td><td>31-60</td><td>Low</td><td colspan="2">2</td><td colspan="2">87</td></tr>
<tr><td></td><td>31-45</td><td>61-90</td><td>Medium</td><td colspan="2">1</td><td colspan="2">44</td></tr>
<tr><td></td><td>46-50</td><td>91-100</td><td>Optimal</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td></td><td>> 50</td><td>> 100</td><td>Very High</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td>Turf Establishment</td><td>0-10</td><td>0-20</td><td>Very Low</td><td colspan="2">3</td><td colspan="2">131</td></tr>
<tr><td>From Sod</td><td>11-20</td><td>21-40</td><td>Low</td><td colspan="2">2</td><td colspan="2">87</td></tr>
<tr><td></td><td>21-30</td><td>41-60</td><td>Medium</td><td colspan="2">1</td><td colspan="2">44</td></tr>
<tr><td></td><td>31-40</td><td>61-80</td><td>Optimal</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td></td><td>> 40</td><td>> 80</td><td>Very High</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td>Established</td><td>0-5</td><td>0-10</td><td>Very Low</td><td colspan="2">3</td><td colspan="2">131</td></tr>
<tr><td>Turf,</td><td>6-10</td><td>11-20</td><td>Low</td><td colspan="2">2</td><td colspan="2">87</td></tr>
<tr><td>Low Traffic</td><td>11-15</td><td>21-30</td><td>Medium</td><td colspan="2">1</td><td colspan="2">44</td></tr>
<tr><td>Areas</td><td>16 -20</td><td>31-40</td><td>Optimal</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td></td><td>> 20</td><td>> 40</td><td>Very High</td><td colspan="2">0</td><td colspan="2">0</td></tr>
<tr><td>Established</td><td></td><td></td><td></td><td rowspan="2">High Traffic Areas [Note 4]</td><td rowspan="2">Fairway</td><td colspan="2">Tees and Greens</td></tr>
<tr><td>Turf,</td><td></td><td></td><td></td><td>Sand [Note 5]</td><td>Push-up [Note 6]</td></tr>
<tr><td>High Traffic</td><td></td><td></td><td></td><td>lb P_2O_5/1000 ft^2</td><td>lb P_2O_5/acre</td><td colspan="2">lb P_2O_5/1000 ft^2</td></tr>
<tr><td>Areas [Note 2]</td><td>0-12</td><td>0-24</td><td>Very Low</td><td>5</td><td>200</td><td>3</td><td>5</td></tr>
<tr><td></td><td>13-25</td><td>25-50</td><td>Low</td><td>3.5</td><td>150</td><td>2</td><td>3.5</td></tr>
<tr><td></td><td>26-37</td><td>51-74</td><td>Medium</td><td>2</td><td>100</td><td>1</td><td>2</td></tr>
<tr><td></td><td>38-50</td><td>75-100</td><td>Optimal [Note 3]</td><td>1</td><td>50</td><td>0.5</td><td>1</td></tr>
<tr><td></td><td>> 50</td><td>> 100</td><td>Very High</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
</table>

Mehlich III Soil Test

	Nutrient Concentrations			Phosphorus Recommendations [Note 1]			
Established	Soil Test P		Concentration Interpretation	**Sand** [Note 5]		**Push-up** [Note 6]	
Golf Turf [Note2]	ppm P	lbs/acre					
Fairways				lb P_2O_5/1000 ft^2		lb P_2O_5/1000 ft^2	lb P_2O_5/acre
	0-12	0-25	Very Low	NA		6	260
	13-24	26-49	Low	NA		4	175
	25-37	50-75	Medium	NA		2.5	100
	38-50	76-100	Optimal [Note 3]	NA		1.5	50
	> 50	> 100	Very High	NA		0	0
Established				**Sand** [Note 5]		**Push-up** [Note 6]	
Golf Turf [Note2]				lb P_2O_5/1000 ft^2	lb P_2O_5/acre	lb P_2O_5/1000 ft^2	lb P_2O_5/acre
Tees and Greens	0-5	0-11	Very Low	3	130	5	220
	6-10	12-21	Low	2	90	3.5	150
	11-19	22-39	Medium	1	45	2	90
	20-30	40-60	Optimal [Note 3]	0.5	20	1	45
	> 30	> 60	Very High	0	0	0	0

Note 1 Recommendations provide the maximum amount of fertilizer that can be applied between soil tests. When soils require phosphorus, one of two approaches may be taken. Option one is to make what is known as a corrective application. This is a one-time application of the amount of phosphorus recommended. The second option is that of gradual buildup, and then re-testing of the soil to check if the desired level of phosphorus was achieved. Gradual buildup of phosphorus is accomplished by selecting the proper type or grade of fertilizer to apply at different times during the year. Use either the ppm or lbs/acre column for the soil test, and either the lbs/1000 ft^2 or lbs/acre column for the recommendation.

Note 2 Low maintenance turf and roughs shall follow recommendations for established turf, low traffic areas.

Note 3 The application recommendation is to maintain the level at the ppm which is considered the optimal range for turf that receives high traffic.

Note 4 Areas including but not limited to athletic fields, intensively used paths in low traffic areas, and high use park areas

Note 5 50% or more of the root zone by depth is sand.

Note 6 More P needs to be applied to pushup greens in order to increase the soil test P. This is because native soils have a greater capacity to bind P, thus making it less available than in sand based greens.

VI. Plans and Specifications

The requirements for a nutrient management plan are specified in the previous sections of this standard. The nutrient management planner shall review the plan with the landowner or designee to assure an understanding of the requirements. Include the following:

A. Narrative description (site description, land use, etc.).

B. A site map showing topography, designated uses, soil test locations, *sensitive areas* and surface water.

C. Application restrictions (Section V.D, & E).

D. Soil sample/test location and results, and type of soil test (Bray P1 or Mehlich III).

E. Recommended nutrient application rates.

F. The nutrient management planner shall be a certified sports turf manager, certified golf course superintendent, an individual with a bachelor's degree in turf and grounds management, or having equivalent experience or training in turf management.

G. Turf species and soil types present.

H. Response plan for dealing with fertilizer spills.

VII. Operation and Maintenance

A. Document the actual nutrient application including the rate, fertilizer grade, timing, and method of application. Revise the plan a minimum of every five years or as needed to reflect changes in vegetation and/or management objectives.

B. The applicator shall wear protective clothing appropriate to the material being handled.

C. The application equipment shall be calibrated to achieve the desired application rate.

D. Protect fertilizer from the weather, and from accidental leakage or spillage. See Wisconsin administrative rules and county or local ordinances concerning regulations on handling fertilizers.

E. If a spill occurs, take appropriate cleanup actions. Spills involving over 250 lbs of dry or 25 gallons of liquid fertilizer must be immediately reported to the WDNR (24-Hour Spills Hotline 1-800-943-0003). Spills of lesser amounts are exempt from the reporting requirement unless the spill has adversely impacted or threatens to adversely impact the air, lands, or waters of the state either as a single discharge or when accumulated with past discharges.

F. Take the appropriate environmental precautions when cleaning equipment after applications. If the application equipment system is flushed, use the rinse water in the following batch of nutrient mixture where possible or dispose of according to state and federal regulations. Always avoid cleaning equipment near high runoff areas, ponds, lakes, streams, and other waterbodies. Extreme care must be exercised to avoid contaminating water wells.

VIII. Considerations

Additional recommendations relating to nutrient management planning that may enhance the use of, or avoid problems with, this practice but are not required to ensure its basic conservation functions are as follows:

A. Consult UW Publication A2303 for additional fertilization recommendations to maintain turf quality (>70% turf density).

B. Potassium (K) Recommendations – K plays an important role in the plant's ability to manage stress but is not a known environmental contaminant. The K values presented in Tables 2 and 3 are recommendations to help maintain turf density.

Table 2. Bray P1 Potassium Soil Test Interpretations and Recommendations for Golf Turf

Nutrient Concentrations			**K Recommendation**		
Soil Test Interpretation			Established Tees and Greens		Fairway
			Sand	Pushup	
ppm	lbs / acre	Concentration Interpretation	lb K_2O/1000 ft^2		lb K_2O/acre
0-50	0-100	Very Low	4.0	5.0	200
51-100	101-200	Low	3.0	4.0	150
101-150	201-300	Medium	2.0	3.0	100
151-175	301-350	Optimal	1.0	2.0	50
>175	> 350	Very High	0	0	0

Table 3. Bray P1 Potassium Soil Test Interpretations and Recommendations for General Turf Areas

Nutrient Concentrations **Soil Test Interpretation**			**K Recommendation** Established Turf	
ppm	lbs / acre	Concentration Interpretation	lb K_2O/1000 ft^2	lb K_2O/acre
0-20	0-40	Very Low	4.0	174
21-40	41-80	Low	3.0	131
41-60	81-120	Medium	2.0	87
61-80	121-160	Optimal	1.0	44
>80	> 160	Very High	0	0

C. Cultural Practices

1. Soil – A productive soil has good texture, structure (aerate if compacted), sufficient nutrients (N, P, K) and the right pH for the grass type. Loam type soils are often the preferable soil type for turf. Most soil textures may benefit from the addition of organic matter like compost or grass clippings.

2. Grass Choice – Select a grass that is best suited to the area's climate, temperature, moisture and the intended function of the area where it is planted. Also consider whether the location is sunny or shady. Grass that is well adapted to its location will be able to resist pests and diseases better. For further guidance see UWEX Publication A3434.

3. Mowing Height – The ideal height may vary somewhat with the type of grass. Frequent mowing will result in short clippings that can easily be left on the lawn. Ideally, cut no more than one-third of the height of the grass blades. Mowing blades should be kept sharp to prevent tearing. Immediately after mowing, sweep clippings off impervious surfaces.

4 Irrigation – Deep watering similar to a soaking rain is best. When irrigating, stagger the application schedule to meet the intended use of the area, and to prevent runoff.

5 Thatch Build-Up – If thatch buildup occurs that interferes with the intended use of the turf it may be necessary to remediate with core aeration. Excessive thatch build-up may be a sign of overuse of fertilizer, compaction of the soil or poor root development.

D. Utilization of Emerging Technologies – Consider maintaining flexibility in fertilizer programs to take advantage of new products and grass types.

E. Application Timing – Many methods exist to properly apply N throughout the year. The following methods are examples.
   - Method A – possible application times are April 1-15, May 15-30, July 1-5, August 1-15, September 1-15, and late October/early November.
   - Method B – 1.5 lbs N/1000 ft^2 (no more than one lb can be water soluble N) applications a couple of weeks prior to spring and fall periods of play, and three 1.0 lb N/1000 ft^2 applications every 6 weeks between spring and fall.
   - Method C – 1.0 lb N/1000 ft^2 applications per growing month.
   - Method D, Rapid recovery areas – Light and frequent water-soluble N applications of 0.1 to 0.25 lb N/1000 ft^2 at 10 to 14 day intervals may be used as well as a strictly granular fertility program.

F. Fertilizer Products Containing Pesticides – The application rate cannot exceed the allowable amount of nutrients noted in the criteria of this standard or pesticide application restrictions established by DATCP.

G. It may be necessary for planners to take precautions beyond the minimums contained within the criteria to account for such concerns as site hydrology, turf quality, and the potential for nutrients to enter waterbodies.

H. Turf Density – Density is commonly evaluated by visual estimation, grids lines, digital analysis, or the transect method as described in the WI-DATCP-UWEX Integrated Pest Management for Wisconsin Schools publication (see Section IX).

I. Watering Recommendations – It is recommended to water in fertilizers placed on slopes. Use enough water to deliver the product without causing runoff.

J. Equipment Calibration – It is recommended to calibrate equipment prior to each use. For further guidance concerning equipment calibration see UWEX publication A2306.

IX. References

Healthy Lawn, Healthy Environment Caring for Your Lawn in an Environmentally Friendly Way EPA Handout, Prevention, Pesticides and Toxic Substances (H7506C), 735-K-04-001, September 2004. http://www.epa.gov/oppfead1/Publications/lawncare.pdf

Natural Resources Conservation Service, Field Office Technical Guide, Section IV, Standard 590 Nutrient Management. http://www.wi.nrcs.usda.gov/technical/

O.J.Noer Turfgrass & Research Facility, UWEX. 3103 County Hwy M, Verona, WI 53593. Integrated Turfgrass Management.

UWEX Publications are available online at: http://cecommerce.uwex.edu and hardcopy: Cooperative Extension Publishing 45 N. Charter St., Madison, WI 53715.

UWEX Publication A2306 Calibrating and Using Lawn Fertilizer and Lime Spreaders

UWEX Publication A3434 Lawn Establishment and Renovation

UWEX Publication A2303 Lawn Fertilization

UWEX Publication A3435 Lawn Maintenance

UWEX Publication A2166 Sampling Lawn and Garden Soils for Soil Testing

Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and University of Wisconsin Extension (UWEX). Integrated Pest Management for Wisconsin Schools. Monitoring Weed Populations, p. 150 of the appendix.

Wisconsin Department of Natural Resources (WDNR) Construction Site Erosion & Sediment Control Technical Standards: http://dnr.wi.gov/org/water/wm/nps/stormwater/techstds.htm#Construction.

WDNR Spills Program: http://dnr.wi.gov/org/aw/rr/spills/

X. Definitions

Apparent water table (V.D.3) – Continuous saturated zone in the soil to a depth of at least six feet without an unsaturated zone below it.

Calcareous (V.A.4.b.ii) – An alkaline soil containing free $CaCO_3$ typically with a pH of 7 to 8.3.

Established turf (V.B) – Turf is considered established once it achieves a minimum density of 70%, the grass species is physically mature, and able to support the intended use.

Five or more total acres (III) – A parcel of land under one ownership where turf areas are receiving nutrient applications regardless of whether they are all contiguous. For example, a park may have shelters, sidewalks and parking lots that break up the pervious areas. All turf areas in the park that receive nutrients will be included in the five acre calculation.

Foliar (V.E.3.c) – Spray application of liquid nutrients to turf.

High permeability soils (V.B.2.b.iii) – Equivalent to drained hydrologic group A that meet both of the following criteria:

1. Permeability = 6 inches/hour or more in all parts of the upper 20 inches, and
2. Permeability = 0.6 inches/hour or more in all parts of the upper 40 inches.

High traffic turf area (V.B.3) – Typically an area used by ten or more people per acre per week. Examples of areas considered high traffic include but are not limited to athletic fields, golf courses, and high use park areas.

Interseeding / overseeding (V.C.2) – Application of seed to an existing turf area.

Low-traffic turf areas (V.B.2) – Typically an area used by ten or less people per acre per week.

Ordinary high-water mark (V.E.3.c) – Ordinary high-water mark is the point on the shore up to which the presence and action of the water is so continuous as to leave a distinct mark by one of the following: erosion, destruction of terrestrial vegetation, or other easily recognized characteristics.

Representative area (V.A.1.a) – Locations having similar management (i.e. all the sand based greens on a golf course), soil type, topography, and species of turf.

Saturated soils (V.D.1) – Soils where all pore spaces are occupied by water and where any additional inputs of water or liquid fertilizers cannot infiltrate into the soil.

Sensitive area (VI.B) – Areas of aquatic vegetation offering critical or unique fish and wildlife habitat, including seasonal or life stage requirements, or offering water quality or erosion control benefits to a body of water. For management purposes the area can be located above and/or below the ordinary high water mark.

Starter fertilizer (V.A.1.e) – The concept of a starter fertilizer in an agronomic context is the placement of small amounts of nutrients in close proximity to the seed, at the time of planting. For grass seed, this placement could be broadcast application of fertilizer since the seed is broadcast applied. The intent is to provide newly germinating seedlings with a supply of phosphate, until the seedlings have a better-developed root system. The starter fertilizer will have a higher P concentration than N. Given the typical make-up of a commercial starter fertilizer, applying no more than one lb N / 1000 ft^2 of a starter fertilizer will result in an application somewhere between 1.3 and 2 lbs of P_2O_5. Higher formulations of P are also acceptable, provided the nitrogen application does not exceed one lb N / 1000 ft^2.

Surface water quality management areas (V.E.3) – For the purposes of nutrient management planning surface water quality management areas are defined as follows:

1. The area within 1,000 feet from the ordinary high-water mark of navigable waters that consist of a lake, pond or flowage, except that for a navigable water that is a glacial pothole lake, "surface water quality management area" means the area within 1,000 feet from the high-water mark of the lake.
2. The area within 300 feet from the ordinary high-water mark of navigable waters that consist of a river or stream that is defined as:

- Perennial streams (continuous flow) identified on the NRCS soil survey and/or USGS 1:24,000 scale topographic map as solid lines,
- Otherwise determined through an onsite evaluation and documented in an approved plan.

Appendix B

ORGANIC NITROGEN
Milorganite
FERTILIZER

Soil Analysis Report
MMSD Central Laboratory

Memorial Soccer(No 1) 7 Blue

Samples From	*Submitted by*
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

Area Sampled	Memorial Soccer(No 1) 7 Blue
LIMS Number	2005249
Received Date	4/5/02
Printed Date	4/10/02 07:35

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 31.7 meq/100g

Test Description	Results	Soil Test Ratings				
		Very Low	Low	Medium	Optimum	Very High
SOIL PH	6.6 Stnd. Units					
SOIL PHOSPHOROUS P	600 LB/Acre	▬	▬	▬	▬	▬
SOIL POTASSIUM K	1500 LB/Acre	▬	▬	▬	▬	▬
SOIL CALCIUM Ca	9000 LB/Acre	▬	▬	▬	▬	▬
SOIL MAGNESIUM Mg	1700 LB/Acre	▬	▬	▬	▬	▬
SOIL SODIUM Na	< 0 LB/Acre					

Soil Analysis Report

MMSD Central Laboratory

Soccer field(No 2) 8 Blue

Samples From

City of Neenah
211 Walnut Street
Neenah, WI 54957

Submitted by

Horst Distributing
444 N. Madison St.
Chilton, WI 53014

Area Sampled	Soccer field(No 2) 8 Blue
LIMS Number	2005250
Received Date	4/5/02
Printed Date	4/10/02 07:36

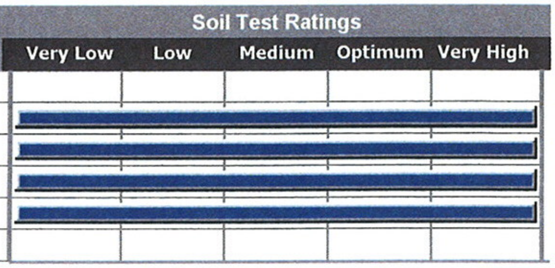
For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 22.5 meq/100g

Test Description	Results
SOIL PH	5.6 Stnd. Units
SOIL PHOSPHOROUS P	260 LB/Acre
SOIL POTASSIUM K	1200 LB/Acre
SOIL CALCIUM Ca	6200 LB/Acre
SOIL MAGNESIUM Mg	1300 LB/Acre
SOIL SODIUM Na	< 0 LB/Acre

Soil Test Ratings



Soil Analysis Report
MMSD Central Laboratory

Soccer field (No 3) 9 Blue

Samples From	*Submitted by*
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

Area Sampled	Soccer field (No 3) 9 Blue
LIMS Number	2005251
Received Date	4/5/02
Printed Date	4/10/02 07:38

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 39.7 meq/100g

Test Description	Results		Soil Test Ratings				
			Very Low	Low	Medium	Optimum	Very High
SOIL PH	6	Stnd. Units					
SOIL PHOSPHOROUS P	140	LB/Acre	▬	▬	▬	▬	▬
SOIL POTASSIUM K	1300	LB/Acre	▬	▬	▬	▬	▬
SOIL CALCIUM Ca	11000	LB/Acre	▬	▬	▬	▬	▬
SOIL MAGNESIUM Mg	2400	LB/Acre	▬	▬	▬	▬	▬
SOIL SODIUM Na	< 0	LB/Acre					

Soil Analysis Report

MMSD Central Laboratory

Soccer field (No 5) 10 Blue

Samples From

City of Neenah
211 Walnut Street
Neenah, WI 54957

Submitted by

Horst Distributing
444 N. Madison St.
Chilton, WI 53014

Area Sampled	Soccer field (No 5) 10 Blue
LIMS Number	2005252
Received Date	4/5/02
Printed Date	4/10/02 07:39

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 23.7 meq/100g

Test Description	Results	Soil Test Ratings				
		Very Low	Low	Medium	Optimum	Very High
SOIL PH	5.6 Stnd. Units					
SOIL PHOSPHOROUS P	150 LB/Acre	▬	▬	▬	▬	▬
SOIL POTASSIUM K	1000 LB/Acre	▬	▬	▬	▬	▬
SOIL CALCIUM Ca	5400 LB/Acre	▬	▬	▬	▬	▬
SOIL MAGNESIUM Mg	2200 LB/Acre	▬	▬	▬	▬	▬
SOIL SODIUM Na	300 LB/Acre					

Soil Analysis Report

MMSD Central Laboratory

Ball field (No 1) 12 Blue

Samples From	*Submitted by*
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

Area Sampled	Ball field (No 1) 12 Blue
LIMS Number	2005254
Received Date	4/5/02
Printed Date	4/10/02 07:42

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 34.1 meq/100g

Test Description	Results	Soil Test Ratings				
		Very Low	Low	Medium	Optimum	Very High
SOIL PH	6.3 Stnd. Units					
SOIL PHOSPHOROUS P	240 LB/Acre	▬	▬	▬	▬	▬
SOIL POTASSIUM K	1000 LB/Acre	▬	▬	▬	▬	▬
SOIL CALCIUM Ca	10000 LB/Acre	▬	▬	▬	▬	▬
SOIL MAGNESIUM Mg	1600 LB/Acre	▬	▬	▬	▬	▬
SOIL SODIUM Na	< 0 LB/Acre					

Soil Analysis Report

MMSD Central Laboratory

Memorial Ball field 3 Blue

Samples From	Submitted by
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

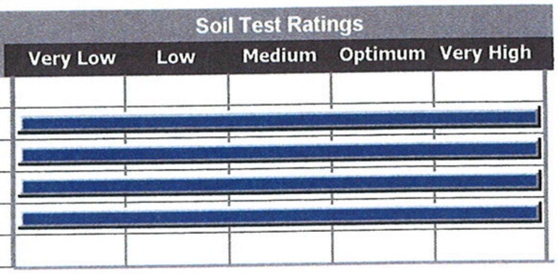
Area Sampled	Memorial Ball field 3 Blue
LIMS Number	2005245
Received Date	4/5/02
Printed Date	4/10/02 07:29

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 27.1 meq/100g

Test Description	Results
SOIL PH	6.3 Stnd. Units
SOIL PHOSPHOROUS P	190 LB/Acre
SOIL POTASSIUM K	1100 LB/Acre
SOIL CALCIUM Ca	7000 LB/Acre
SOIL MAGNESIUM Mg	1900 LB/Acre
SOIL SODIUM Na	< 0 LB/Acre



Appendix B

Soil Analysis Report
MMSD Central Laboratory

Southview Soccer 1 Blue

Samples From	Submitted by
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

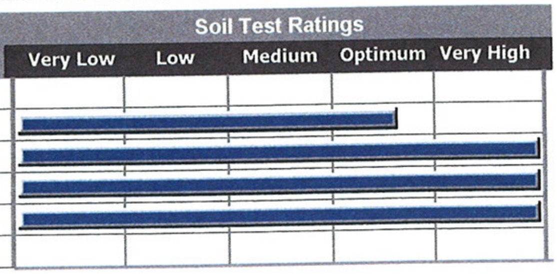
Area Sampled	Southview Soccer 1 Blue
LIMS Number	2005243
Received Date	4/5/02
Printed Date	4/10/02 07:26

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 33.4 meq/100g

Test Description	Results	
SOIL PH	6.2	Stnd. Units
SOIL PHOSPHOROUS P	86	LB/Acre
SOIL POTASSIUM K	1100	LB/Acre
SOIL CALCIUM Ca	8200	LB/Acre
SOIL MAGNESIUM Mg	2800	LB/Acre
SOIL SODIUM Na	< 0	LB/Acre



Soil Analysis Report

MMSD Central Laboratory

Southview Ball field 5 Blue

SV-BD 1

Samples From	*Submitted by*
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

Area Sampled	Southview Ball field 5 Blue
LIMS Number	2005247
Received Date	4/5/02
Printed Date	4/10/02 07:32

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 48.0 meq/100g

Test Description	Results	Soil Test Ratings				
		Very Low	Low	Medium	Optimum	Very High
SOIL PH	6.5 Stnd. Units					
SOIL PHOSPHOROUS P	150 LB/Acre	■	■	■	■	■
SOIL POTASSIUM K	880 LB/Acre	■	■	■	■	■
SOIL CALCIUM Ca	15000 LB/Acre	■	■	■	■	■
SOIL MAGNESIUM Mg	2200 LB/Acre	■	■	■	■	■
SOIL SODIUM Na	< 0 LB/Acre					

Soil Analysis Report

MMSD Central Laboratory

Southview Ball field (No.2) 6 Blue

SV- BD 2

Samples From	Submitted by
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

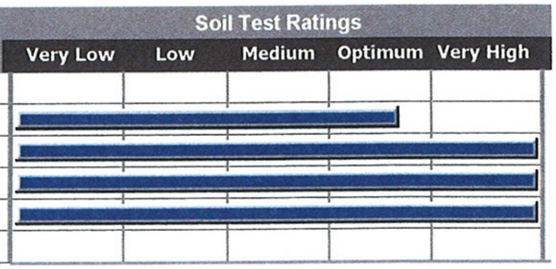
Area Sampled	Southview Ball field (No.2) 6 Blue
LIMS Number	2005248
Received Date	4/5/02
Printed Date	4/10/02 07:34

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 34.9 meq/100g

Test Description	Results
SOIL PH	6.1 Stnd. Units
SOIL PHOSPHOROUS P	88 LB/Acre
SOIL POTASSIUM K	880 LB/Acre
SOIL CALCIUM Ca	9000 LB/Acre
SOIL MAGNESIUM Mg	2800 LB/Acre
SOIL SODIUM Na	< 0 LB/Acre



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Soil Analysis Report

MMSD Central Laboratory

Southview Mueler West 4 Blue

SV - Mueller

Samples From	Submitted by
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

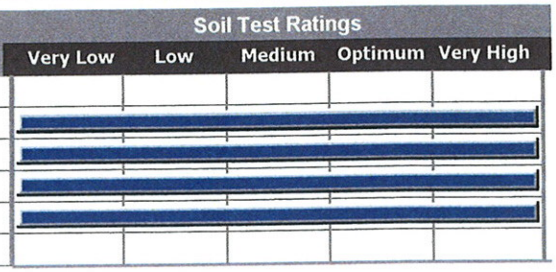
Area Sampled	Southview Mueler West 4 Blue
LIMS Number	2005246
Received Date	4/5/02
Printed Date	4/10/02 07:31

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 45.2 meq/100g

Test Description	Results	
SOIL PH	6.5	Stnd. Units
SOIL PHOSPHOROUS P	150	LB/Acre
SOIL POTASSIUM K	1000	LB/Acre
SOIL CALCIUM Ca	12000	LB/Acre
SOIL MAGNESIUM Mg	3200	LB/Acre
SOIL SODIUM Na	< 0	LB/Acre



Soil Analysis Report

MMSD Central Laboratory

Southview Pedersen 2 Blue

SV - Pedersen

Samples From	*Submitted by*
City of Neenah 211 Walnut Street Neenah, WI 54957	Horst Distributing 444 N. Madison St. Chilton, WI 53014

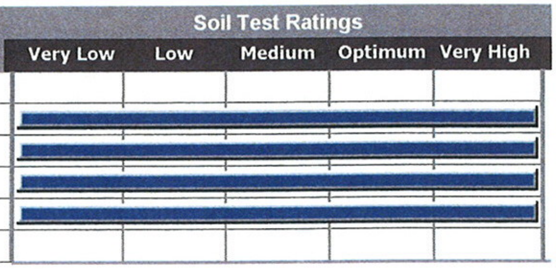
Area Sampled	Southview Pedersen 2 Blue
LIMS Number	2005244
Received Date	4/5/02
Printed Date	4/10/02 07:28

For further information please contact:

Milorganite Marketing
260 West Seeboth Street
Milwaukee, WI 53204-1446
(414) 272-5100

Calculated Cation Exchange Capacity: 46.2 meq/100g

Test Description	Results
SOIL PH	6.5 Stnd. Units
SOIL PHOSPHOROUS P	100 LB/Acre
SOIL POTASSIUM K	880 LB/Acre
SOIL CALCIUM Ca	13000 LB/Acre
SOIL MAGNESIUM Mg	3200 LB/Acre
SOIL SODIUM Na	< 0 LB/Acre



Appendix C

Memorial Park - Fertilization/Herbicide Application Log

Location	*Field Size (sq ft)*	*Fertilizer Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*	*Application #3 Date*
Soccer #1	82,800	Proscape 25-0-5	1 # N/1,000 sq ft				
Soccer #2	88,800	Proscape 25-0-5	1 # N/1,000 sq ft				
Soccer #3	76,500	Proscape 25-0-5	1 # N/1,000 sq ft				
Soccer #4	88,800	Proscape 25-0-5	1 # N/1,000 sq ft				
Soccer #5	76,500	Proscape 25-0-5	1 # N/1,000 sq ft				
Diamond #1	53,000	Proscape 25-0-5	1 # N/1,000 sq ft				
Diamond #2	60,000	Proscape 25-0-5	1 # N/1,000 sq ft				
Diamond #3	53,000	Proscape 25-0-5	1 # N/1,000 sq ft				
	579,400						

Location	*Field Size (sq ft)*	*Herbicide Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*
Soccer #1	82,800	Confront	.74 oz/1,000 sq ft	37 gal total, 61 oz. Herbicide		
Soccer #2	88,800	Confront	.74 oz/1,000 sq ft	39 gal total, 66 oz. Herbicide		
Soccer #3	76,500	Confront	.74 oz/1,000 sq ft	34 gal total, 57oz. Herbicide		
Soccer #4	88,800	Confront	.74 oz/1,000 sq ft	39 gal total, 66 oz. Herbicide		
Soccer #5	76,500	Confront	.74 oz/1,000 sq ft	34 gal total, 57oz. Herbicide		
Diamond #1	53,000	Confront	.74 oz/1,000 sq ft	23 gal total, 39 oz. Herbicide		
Diamond #2	60,000	Confront	.74 oz/1,000 sq ft	26 gal total, 44 oz. Herbicide		
Diamond #3	53,000	Confront	.74 oz/1,000 sq ft	23 gal total, 39 oz. Herbicide		

Location	*Field Size (sq ft)*	*Penetrant Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*
Soccer #1	82,800	Dispatch	.5 oz/gallon mix	37 gal total, 19 oz. Penetrant		
Soccer #2	88,800	Dispatch	.5 oz/gallon mix	39 gal total, 20 oz. Penetrant		
Soccer #3	76,500	Dispatch	.5 oz/gallon mix	34 gal total, 17 oz. Penetrant		
Soccer #4	88,800	Dispatch	.5 oz/gallon mix	39 gal total, 20 oz. Penetrant		
Soccer #5	76,500	Dispatch	.5 oz/gallon mix	34 gal total, 17 oz. Penetrant		
Diamond #1	53,000	Dispatch	.5 oz/gallon mix	23 gal total, 12 oz. Penetrant		
Diamond #2	60,000	Dispatch	.5 oz/gallon mix	26 gal total, 13 oz. Penetrant		
Diamond #3	53,000	Dispatch	.5 oz/gallon mix	23 gal total, 12 oz. Penetrant		

NOTES

Flow rate out of sprayer: 1 gallon of mixed product covers 2,263 sq ft @ 3 mph.

Spray Tank Capacity: 60 gallons, 96 oz of Confront, 30 oz of Dispatch, fill to 60 gallon mark with water. Covers 3 acres or 130,500 sq ft

Fertilizer for 2012 is Proscape 20-0-5 with 1% Iron, 1 bag covers 12,500 sq. ft.

Appendix C

Southview/Washington Park - Fertilization/Herbicide Application Log

Location	*Field Size (sq ft)*	*Fertilizer Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*	*Application #3 Date*
SV Soccer	76,500	Proscape 25-0-5	1 # N/1,000 sq ft				
Southview #1	43,500	Proscape 25-0-5	1 # N/1,000 sq ft				
Southview #2	60,000	Proscape 25-0-5	1 # N/1,000 sq ft				
SV Mueller	43,500	Proscape 25-0-5	1 # N/1,000 sq ft				
SV Pederson	43,500	Proscape 25-0-5	1 # N/1,000 sq ft				
Washington	53,000	Proscape 25-0-5	1 # N/1,000 sq ft				
	320,000						

Location	*Field Size (sq ft)*	*Herbicide Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*
SV Soccer	76,500	Confront	.74 oz/1,000 sq ft	34 gal total, 57 oz. Herbicide		
Southview #1	43,500	Confront	.74 oz/1,000 sq ft	20 gal total, 32 oz. Herbicide		
Southview #2	60,000	Confront	.74 oz/1,000 sq ft	27 gal total, 44 oz. Herbicide		
SV Mueller	43,500	Confront	.74 oz/1,000 sq ft	20 gal total, 32 oz. Herbicide		
SV Pederson	43,500	Confront	.74 oz/1,000 sq ft	20 gal total, 32 oz. Herbicide		
Washington	53,000	Confront	.74 oz/1,000 sq ft	23 gal total, 39 oz. Herbicide		
Bill Miller Park	130,500	Confront	.74 oz/1,000 sq ft	60 gal total, 96 oz. Herbicide		

Location	*Field Size (sq ft)*	*Penetrant Type*	*Application Rate*	*Product Used*	*Application #1 Date*	*Application #2 Date*
SV Soccer	76,500	Dispatch	.5 oz/gallon mix	34 gal total, 17 oz. Penetrant		
Southview #1	43,500	Dispatch	.5 oz/gallon mix	20 gal total, 10 oz. Penetrant		
Southview #2	60,000	Dispatch	.5 oz/gallon mix	27 gal total, 14 oz. Penetrant		
SV Mueller	43,500	Dispatch	.5 oz/gallon mix	20 gal total, 10 oz. Penetrant		
SV Pederson	43,500	Dispatch	.5 oz/gallon mix	20 gal total, 10 oz. Penetrant		
Washington	53,000	Dispatch	.5 oz/gallon mix	23 gal total, 12 oz. Penetrant		
Bill Miller Park	130,500	Dispatch	.5 oz/gallon mix	60 gal total, 30 oz. Penetrant		

NOTES

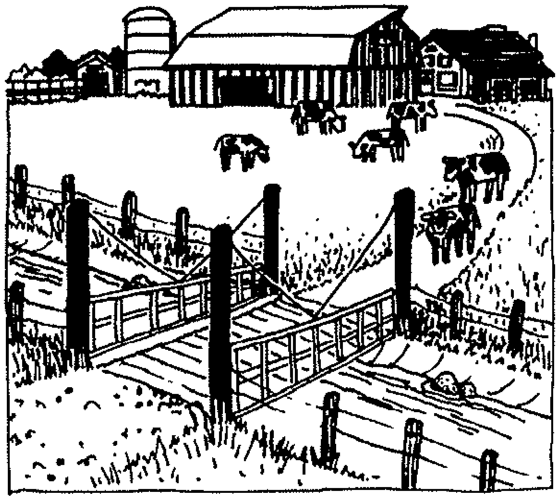
Flow rate out of sprayer: 1 gallon of mixed product covers 2,263 sq ft @ 3 mph.

Spray Tank Capacity: 60 gallons, 96 oz of Confront, 30 oz of Dispatch, fill to 60 gallon mark with water. Covers 3 acres or 130,500 sq ft

Fertilizer for 2012 is Proscape 20-0-5 with 1% Iron, 1 bag covers 12,500 sq. ft.

Appendix D

Agricultural Spills
and
How to Handle Them



A Guide from the
Wisconsin Dept. of Natural Resources
in cooperation with the
Wisconsin Dept. of Agriculture,
Trade, and Consumer Protection

Pub-RR-687
August 2002

Wisconsin Department of Natural Resources

Think about all of the activity that takes place on a farm during any given day. There are various types of hazardous substances needed to get the job done–petroleum products, pesticides, and anhydrous ammonia, to name just a few. Now think of things that you might not usually consider hazardous—like manure, commercial fertilizers, and waste milk. Should an accident occur, these can also be hazardous if they are released in large quantities or in sensitive locations. In the course of a day, a month, a year, the likelihood of some of these substances spilling onto the ground is probably very high. Depending on the nature of the spill, there are important actions that you need to be aware of to ensure your safety and to be in compliance with state and federal laws.

The **Wisconsin Department of Natural Resources** (DNR) regulates when to report spills of hazardous substances that may be used on farms, and how to clean them up.

The **Wisconsin Department of Agriculture, Trade and Consumer Protection** (DATCP) specifically regulates the cleanup of agricultural pesticides and commercial fertilizers used on a farm.

What if I need help?

Let the DNR and DATCP assist you. These state agencies want to assist you when it comes to agricultural spills. Their job is to protect the environment—they have the education and experience to deal with all kinds of spills. They want to provide you with information and advice that will make spill containment and cleanup easier and faster, and that will ultimately reduce your costs and liabilities.

Both the DNR and DATCP are resources for you to use. Both agencies share responsibilities for agricultural spills, and both work to ensure that cleanup efforts meet legal standards. Working together, the DNR and DATCP will help you respond to a spill in the quickest and most efficient way.

Let the DNR and DATCP work with you.

This document is the result of a joint effort between the Runoff Management and the Remediation and Redevelopment Programs of the Wisconsin Department of Natural Resources. This document contains information about certain state statutes and rules but does not necessarily include all of the details found in the statutes and rules. Readers should consult the actual language of the statutes and rules to answer specific questions.

This publication is available in alternative format (large print, Braille, audio tape, etc.) upon request. Please call (608) 267-7490 for more information.

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Some of the information in this guide originally appeared in the publication *Spills on Logging Operations* from the Forest Industry Safety & Training

How do I dispose of spilled materials?

The best way to safely dispose of contaminated materials will vary. Manure-related spills (from a tanker, spreader, or storage facility) can be collected and land-applied, according to the site's nutrient management plan. This is true for most soils contaminated by commercial fertilizers or pesticides as well, although you must first obtain a permit from DATCP to do so. Fully recovered dry fertilizer spills can be stored or spread as originally intended. Some asphalt plants, bio-piles, or licensed landfills will accept petroleum-contaminated soils, but you will want to check with them in advance. Small amounts of petroleum-contaminated soil may be field-spread, with *prior* DNR approval.

When transporting contaminated waste, keep it covered so none is lost en route. And for you own protection, keep a copy of any receipts you get, and take pictures of the incident and clean-up actions. These are often needed to document your actions for the DNR and DATCP. You may be required to submit written documentation regarding the spill and clean-up actions.

Is there something I should be doing to prevent spills?

The best way to protect yourself from the costs and efforts of responding to a spill is to stop it from ever occurring. Inspect lines and hoses regularly. Use safety containers to transport and store fuel and other hazardous materials. When you complete a job, make certain all valves are closed, hoses are empty, and pumps are turned off. Examine equipment for kinks, excessive wear, abrasions on hoses or any other damage that could result in a spill or leak. And document your findings. Keeping a written record of your equipment's condition could protect you if a future spill occurs.

The bottom line:
Never intentionally dump any hazardous materials.
Call the DNR immediately if you have a spill.
And be sure spills are cleaned up before they have
a chance to become a larger problem.

What spills are regulated and need to be reported?

Spills of *hazardous substances* require immediate notification and cleanup. Hazardous substances are ones that could potentially pose a hazard to human health or the environment. A spill may be considered hazardous due to the substance's quantity, concentration, or physical, chemical or infectious characteristics, or the location it occurs in. Examples of hazardous substances found on a farm include petroleum products, pesticides, herbicides, cleaning solutions and manure.

If you have a spill and are not sure whether it needs to be reported, the safest course of action is to call the spill reporting hotline at (800) 943-0003 to be certain that you have complied with regulations and to obtain information about cleanup options.

There may be federal reporting requirements that apply to your spill, as well. If you have a livestock or poultry operation with a Wisconsin Pollutant Discharge Elimination System (WPDES) permit, you should also refer to your WPDES permit for any additional reporting requirements.

Are certain spills exempt from reporting requirements?

There are some exemptions to reporting spills to the DNR, if the spill does not cause or threaten to cause adverse impacts to human health, safety or the environment*. ***Remember, however, that all spills need to be cleaned up regardless of whether they need to be reported to the DNR.***

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* The DNR has a fact sheet titled "Wisconsin Spill Reporting Requirements", Publication No. RR-558, which explains these exemptions in detail (available on the DNR Web site at http://dnr.wi.gov/org/aw/rr).

Specific exemptions of products that may not need to be immediately reported to the DNR include discharges of:

- Gasoline or other petroleum products if the spill is completely contained on an impervious surface (one that is not penetrable to water, like pavement).
- Less than one gallon of gasoline or 5 gallons of other petroleum products if the spill is onto a surface that is not impervious or runs off an impervious surface.
- Dry fertilizer if the amount is less than 250 pounds.
- Liquid fertilizer if the amount is less than 25 gallons.
- Pesticides registered for use in Wisconsin if the amount discharged when diluted as indicated on the pesticide label would cover less than one acre of land if applied according to label instructions.

When in doubt, the safest course of action is to call the 24-hour toll-free reporting hotline: (800) 943-0003.

Why should I report a spill?

Reporting a spill is always in your best interest! Reporting spills can minimize potential legal consequences. Accurate information protects you from future false accusations, establishes a record on your follow up activities cleaning up the spill, and documents that your responses are in compliance with DNR and/or DATCP regulations. Reporting a spill doesn't mean you're a bad operator or have done something wrong. Not reporting spills is where problems start.

Even if you have already contained and cleaned up the spill, you should still report it. If the DNR receives any calls on a particular spill, documentation of clean-up efforts will help to resolve problems that might arise.

How do I clean up a spill?

For some spills of particularly hazardous substances, your best solution is to hire a specialist to contain and clean, as well as document these efforts. To save time and money, it is in your best interest to contain and clean up a spill as soon as possible. You can always contact DNR and DATCP field staff for technical advice on cleaning up your spill. Keeping the following items at your site could save you time, effort, and expense in the long run:

- Clamps and plugs that fit your equipment's hoses and pipes.
- Oil Dry® (or other broadcast absorbent).
- Drums, barrels, or buckets.
- Tarp(s) and shovel(s).
- Excavation equipment or the name of a contractor in your area.

In general, actions to address the spill include:

- ✓Stopping it from getting bigger. Clamp the hose, plug the leak, and place a bucket under the leak.
- ✓Stopping the spill from spreading. Build a dike around the spill area, or use absorbent materials like Oil Dry® or Kitty Litter®. (These work well on hard or frozen areas.)
- ✓Isolating the contaminated soil. Dig up the contaminated soil, and place it in a container or on a tarp.
- ✓Protecting the contaminated area. Cover the area with a tarp and/or divert runoff from that area.

Never put yourself into a dangerous situation that exposes you to unhealthy levels of hazardous substances or in situations that you can't get out of.

Call for help if a spill is too big to handle with existing equipment or personnel.

DATCP has a specific fund, the Agricultural Chemical Cleanup Program (ACCP), to help you pay for the cleanup costs associated with agricultural pesticides and commercial fertilizers. This fund is from fees that you pay when you purchase pesticides and fertilizers. For more information on this fund, check out the DATCP web site at: http://datcp.state.wi.us. For other substances, you may have private insurance that can pay for the response action costs.

What information will I have to provide to authorities when reporting a spill?

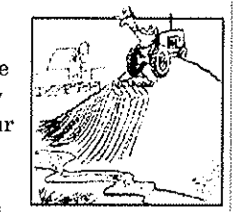
When you report a spill, you will need to provide the following information.

- Your name and address and the location of the spill, along with the property owner's name.
- The physical state, quantity, and chemical characteristics of the discharged substances.
- Where the substance was spilled, and where the spill ended up.
- Actions that you took to stop the release and/or minimize the impact to the environment.
- The actual or potential impacts to human health and the environment.

An accidental spill is not illegal. Failure to report is.

Am I responsible when a spill occurs?

Whoever causes a spill to occur is responsible for that spill. In addition, whoever possesses or controls the hazardous substance that is spilled also shares legal responsibility for the spill. Under the spill law (s. 292.11, Wis. Stats.), these parties are responsible for taking actions to clean up the spill and restore the environment.



For example, if Joe is working for Company X and a spill occurs during his job, both Joe and Company X are responsible for cleaning up the spill. Or if Company X causes a spill of your materials on your property, both you and Company X are responsible – you as the property owner who possesses or controls the hazardous substance, and Company X as the one who caused the spill to occur.

Failure to clean up a spill can lead to high costs to you and/or your company or operation. The DNR can impose penalties for failure to take appropriate actions. Typically cleanup costs increase dramatically as the spilled substance spreads through the environment. Spills that are not quickly responded to can leak into the groundwater resulting in expensive investigations and cleanups. If the DNR has to clean up the spill, you will be billed for those costs as well as the costs for DNR staff time. The DNR cleanup requirements are contained in chapter NR 700–726, Wis. Adm. Code.

The Toll-Free Hotline for Reporting Agricultural Spills
(800) 943-0003

24 hours a day 7 days a week

DNR Regional Spill Coordinators

Northeast Region: Green Bay
(920) 662-5492

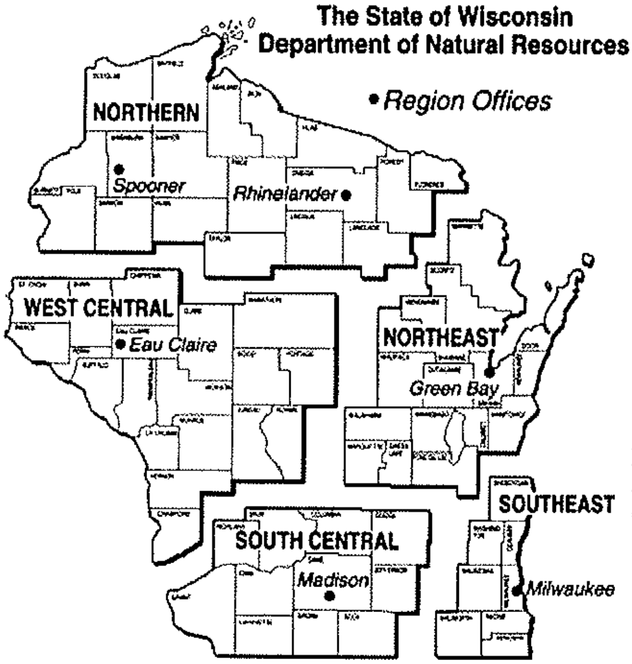
Southeast Region: Milwaukee
(414) 263-8685

West-Central Region: Eau Claire
(715) 839-1604

Northern Region: Rhinelander
(715) 365-8963

South-Central Region: Fitchburg
(608) 275-3332

Statewide Coordinator: Green Bay
(920) 662-5488



When you report your spill to the DNR, DNR staff will contact DATCP. DATCP's environmental enforcement specialists are based throughout the state. These field investigators are assigned to long-term clean-up projects, landspreading contaminated soil, and responding to acute pesticide and commercial fertilizer spills.

For questions about DATCP's regulations and procedures, call (608) 224-4500.