

**INSTRUCTIONS FOR COMPLETING  
NUTRIENT MANAGEMENT PLANS  
GOLF COURSES/DRIVING RANGES**

Whenever a check box () appears, mark the appropriate box with an 'X' to indicate choice.

The plan must be signed on the certification page by the person preparing the plan, or the plan is void. Nutrient Management Plans may be completed by the operator. If a Nutrient Management Plan is prepared by a third party, it must be done by a Professional Agrologist or Certified Crop Adviser who has completed a nutrient management planning course.

As part of the Nutrient Management Plan, global positioning system (GPS) coordinates are requested, if available. GPS coordinates from either the entrance to the property or the club house may be used. These coordinates are not essential for registration, but help to ensure the golf course/driving range is accurately identified. It is recommended that GPS coordinates be provided as an amendment if not available at the time of the initial plan submission.

GPS coordinates may be obtained using a GPS unit or via Google Earth (free download for personal use). The GPS coordinates are located in the lower right hand portion of the display. If you require assistance in using Google Earth please contact Manitoba Agriculture and Resource Development.

**Section A – Operation Information**

- **GPS** - Provide GPS in decimal degrees at the entrance to the site (or club house), if available.
- **Owner** – Provide legal name if appropriate.
- **Corporation File #** - This only applies to those entities that have been incorporated. The corporation file number can be obtained by contacting the Manitoba Companies Office. Telephone: (204) 945-0514 or toll free 1-866-205-1657 or by email at: onenumber@gov.mb.ca
- **Affiliate** - If the golf course/driving range is affiliated with a larger corporation, list the larger corporation here.
- **Nutrient Management Plan required to comply with a Director's Order or a Water Protection Officer Order** - If Manitoba Agriculture and Resource Development ordered the operation to file a plan as a condition of the Order, insert Order Number.

**Section B – Fertilizer Storage**

- Indicate whether or not nutrients such as fertilizers are being stored for a period beyond a single application season by marking the appropriate box with an 'X'.
- Quantity, type or duration of fertilizer stored is not required to be reported.

**Section C – Nutrient Buffer Zones**

- Mark the appropriate box with an 'X' to indicate whether or not the setbacks are being adhered to.
- No person shall apply a substance containing nitrogen or phosphorus to land within the Nutrient Buffer Zone.

**Section D – Nutrient Application Summary**

**Complete Section D – Nutrient Application Summary using either metric or imperial units.** Areas of the Nutrient Application Summary which are not applicable to your golf course or driving range can be marked as N/A. If you have separate fertilization strategies on any of the

areas, divide the cell into the appropriate number of columns or attach a photocopy of the Section D - Nutrient Application Summary.

#### **Year**

- Specify the year referenced under the Nutrient Management Plan (the year nutrients will be applied). Golf courses and driving ranges must submit Nutrient Management Plans on an annual basis.

#### **Other ID**

- These cells may be used to provide some useful identifier for your own nutrient management planning purposes.
- For example, you may elect to have a different fertilization strategy on the front 9 holes as compared to the back 9 holes.

#### **Area**

- Indicate only the acreage on which nutrients will be applied, considering setbacks and excluding land that may not be suitable for nutrient application (*e.g.* low areas, brush, sink holes, etc.). Be sure to include units.
- Rough areas that do not receive nutrients as denoted in the Nutrient Application Summary table may be marked N/A.

#### **Predominant Grass or Turf Species**

- Indicate the predominant grass or turf species present within the given parcel.

#### **Soil Sampling Depth**

- Include the sampling depth of the soil sample taken for each area.
- Sample depth is to be 0-15 cm (0-6") on all turf except greens and tees. For greens and tees remove cores to a depth of 7.5 cm (0-3")

#### **Soil Nitrate Nitrogen Column/Residual Nitrogen**

- This information can be obtained from the soil analysis report.
- Ensure appropriate soil testing procedures have been followed.
- If there is more than one lab analysis, provide an average of the results.
- **Ensure you attach a copy of the soil analysis report to this plan.** Soil analyses must be recent and are to be provided not less than 14 days prior to nutrient application.
- Soil testing must be conducted annually on all areas receiving nitrogen.
- Soil nitrate-nitrogen to be reported in ppm.

#### **Olsen Soil Test Phosphorus Column**

- This information can be obtained from the soil analysis report.
- Ensure appropriate soil testing procedures have been followed.
- If there is more than one lab analysis, provide an average of the results.
- Extraction to be by sodium bicarbonate (Olsen procedure). Ensure that the laboratory reports the laboratory method utilized to perform analysis requested.
- Ensure you attach a copy of the soil analysis report to this plan. Soil analyses must be recent and are to be provided not less than 14 days prior to nutrient application.
- Soil testing must be conducted annually on all areas receiving phosphorus (*i.e.* the fertilizer product indicates P<sub>2</sub>O<sub>5</sub> content is greater than "0" (zero) in the listed analysis).
- Olsen soil test phosphorus to be reported in ppm.

### **Nitrogen Recommendation**

- This information can be obtained from your soil test report.
- If there is more than one lab analysis, provide an average or range of the results.

### **P<sub>2</sub>O<sub>5</sub> Recommendation**

- This information can be obtained from your soil test report.
- If there is more than one lab analysis, provide an average or range of the results.
- **If your lab does not supply recommendations for turf or does not base their phosphorus recommendation on Olsen soil test P, use the attached recommendation tables (adapted from University of Minnesota publication BU-1731, 2008). If you are unsure as to which soil phosphorus test your lab uses for its recommendations, check or use the attached table.**

### **Number of Applications per year**

- State the intended number of nutrient applications on a per year basis.
- Granular and liquid product applications are to be listed separately.
- Provide a total number of granular and liquid applications on a per year basis.

### **Nitrogen Applied per year**

- Indicate the total amount of nitrogen applied throughout the year.
- Granular and liquid product applications are to be listed separately.
- Provide the total amount of nitrogen applied in granular and liquid applications on a per year basis.

### **P<sub>2</sub>O<sub>5</sub> Applied per year**

- Indicate the total amount of P<sub>2</sub>O<sub>5</sub> applied throughout the year.
- Granular and liquid product applications are to be listed separately.
- Provide the total amount of P<sub>2</sub>O<sub>5</sub> applied in granular and liquid applications on a per year basis.

### **Applicator Contact Information**

- Include applicator name, address, phone number and licence # if not applied in-house.

### **Other**

Be sure to state how grass clippings are being handled. If grass clippings are being removed, indicate where they are being deposited. Clippings removal and plans for over-seeding/reseeding now have their own check boxes in Section D for each part of the course.

## **Section E – Certification of Nutrient Management Plan**

- Plans must be certified by signature of the operator. If the plan is prepared for the operator, it must be certified by a Professional Agrolgist or Certified Crop Adviser. If plan is not certified it is void.
- Indicate MIA# or CCA# in the submission. If exempt from registration from Manitoba Institute of Agrolgists as per Section 23 or M.R. 62/2008 enter '0000'.
- Indicate the year referenced (year in which the nutrients applied will be taken up) as part of the Nutrient Management Plan. This template must be completed on an annual basis.
- Incorrect/incomplete information voids this Nutrient Management Plan.

## **Soil Sampling for Golf Courses and Driving Ranges**

Soil testing is one of the best ways to determine the available nutrient status of turf and receive specific fertilizer recommendations. The best way to determine turf fertilizer needs is to do a soil test.

### **Soil Sampling**

For further information on soil sampling strategies on soil sampling strategies, refer to *Turfgrass Management Recommendations – Publication 384, Ontario Ministry of Agriculture and Food, 2005.*

### **Soil Analysis Techniques**

**Nitrogen** - Water soluble nitrate-nitrogen.

**Phosphorus** – Extractable P is to be measured using the ‘Olsen’ (sodium bicarbonate) method.

### **Depths of Soil Sampling**

Cores are to be taken to a depth of 15 cm (6”) on all turf except greens and tees.

For greens and tees remove cores to a depth of 7.5 cm (3”)

### **Duration of Nutrient Management Plans**

Nutrient Management Plans are to be registered on an annual basis for golf courses and driving ranges.

Soil test results are also required to be submitted on an annual basis.

### **Acceptable Laboratories**

As of January 1, 2009, the following laboratories (listed in alphabetical order) are approved for use in analyzing soil nitrate nitrogen or soil test phosphorus using the sodium bicarbonate (Olsen) extraction method:

- A & L Laboratories Inc.
- Agri-Food Laboratories
- AgSource Laboratories
- Agvise Laboratories
- ALS Laboratory Group
- Brookside Laboratories, Inc.
- Cantest Ltd.
- Central Testing Laboratories Ltd.
- Exova (formerly Accutest Laboratories and Bodycote Testing Group)
- Farmers Edge Laboratories
- Logan Labs LLC
- Soil and Nutrient Laboratory
- Stratford Agri Analysis

The above list is subject to change. Nutrient management planners are advised to check with Manitoba Environment and Climate Change for current listings.

Consultants or other laboratories may subcontract to these laboratories. For example: Western Ag. Laboratories and Midwest Laboratories subcontract soil nitrate analysis to one of the above laboratories, and as such they are considered acceptable so long as reporting requirements meet the expectations of Manitoba Environment and Climate Change.

## Turfgrass Nitrogen and Phosphorus Recommendations

(adapted from Soil Test Interpretations and Fertilizer Management for Lawns, Turf, Gardens, and Landscape Plants, University of Minnesota, 2008)

**Nitrogen is based mostly on soil properties (N supplying ability),  
management and grass species not soil nitrate.**

**Phosphorus on turfgrass (maximum annual  
application)**

### Imperial Units

#### Nitrogen on turfgrass annual application (lb N/1000 ft<sup>2</sup>)

	soil organic matter level <sup>z</sup>		
	low	medium to high	organic soil (peat)
irrigated			
clippings removed	4.0	3.0	2.0
clippings not removed	3.0	2.0	1.0
not irrigated			
clippings removed	2.0	1.0	0.5
clippings not removed	1.0	0.5	0.25

<sup>z</sup> low organic matter is < 3.1% ; medium to high is 3.1 to 19%; organic soil is >19%

Olsen-P (ppm)	amount of phosphate to apply lbs P <sub>2</sub> O <sub>5</sub> / 1000 sq.ft.
established turf	
0-7	1
8-18	0.5
over 18	0
new turfgrass planting (includes over seeding)	
0-7	5
8-18	2
over 18	1

### Metric Units

#### Nitrogen on turfgrass annual application (kg N/100 m<sup>2</sup>)

	soil organic matter level <sup>z</sup>		
	low	medium to high	organic soil (peat)
irrigated			
clippings removed	1.96	1.47	0.98
clippings not removed	1.47	0.98	0.49
not irrigated			
clippings removed	0.98	0.49	0.25
clippings not removed	0.49	0.25	0.12

<sup>z</sup> low organic matter is < 3.1% ; medium to high is 3.1 to 19%; organic soil is >19%

Olsen-P (ppm)	amount of phosphate to apply kg P <sub>2</sub> O <sub>5</sub> / 100 m <sup>2</sup>
established turf	
0-7	0.49
8-18	0.25
over 18	0
new turfgrass planting (includes over seeding)	
0-7	2.45
8-18	0.98
over 18	0.49