

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

NMAN3: A Science-Based Tool for Nutrient Management Planning in Ontario

June 14, 2013

Dave Bray, Environmental Specialist
Ontario Ministry of Agriculture and Food
Ontario Ministry of Rural Affairs

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

Nutrient Management: The Basic Equation



Nutrients Available in:
Soil/Crop Residue

+



Nutrients Available in:
ASM/NASM

+



Nutrients Available in:
Commercial Fertilizer

=



Nutrients Available for Crop Growth

+



Excess, what we are trying to prevent

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

<http://apps.omafra.gov.on.ca/NMAN/NMAN3.html>

NMAN3 Software Application

Start Page

New Open Open Last Save

User Settings

En English

Imp Imperial

Normal Text

Modify User Settings

Support & Maintenance

Display NMAN3 Help File

About NMAN3

Import NMAN2 File

- Released Dec 2011
- On-line or desktop
- English or French

- Interchangeable - Metric - Imperial or US measures
- Updated township yield averages and CHU ratings
- Built-in Ontario recommendations
- BMP flags
- Nitrogen Calculator
- Whole Rotation Nutrient Balance
- Economics component
- Manure Nutrient Calculator
- Soil Erosion Prediction

General Information

Farm Unit

Kirkton Farm

Valley Field

Materials

Field Information

Field Name:

Description:

Comment:

Farm:

Location

Properties

Soil Test

Field Inputs

County of Perth, Township of Perth South

Geotownship: BLANSHARD

Heat Units: 3067 chu (geotownship default)

Override default heat units

Location Information – used in N recommendations and for township rainfall and yield averages



NMAN3 Software Application

Start Page

File Information

File Description:

Comment:



Preparer Contact Information



Add Field Management Plan



Add MStOR Calculation



Add NASM Plan



Add NM Strategy & Plan

Field Management Plan -
No regulations, Ontario agronomy

NonAgSourceMaterials
includes the
regulations components

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA

Location Properties Soil Test Field Inputs

Soil Samples for this Field

Add Another Soil Sample

January 1, 2008

Sample Description:

Sample Date:

January 1, 2008

15

Soil Test Values:

Add Soil Test

Use Default Values

Soil Test	Value	Units	Flag
Phosphorus (Sodium Bicarbonate)	21	ppm	
Potassium (Ammonium Acetate)	200	ppm	
pH	7.1		
Organic Matter	3.3	%	
Magnesium (Mg)	130	ppm	X

Add Livestock

Add Other

Milking C

Yard / Roof Runoff

Silo Seepage

Additional Water

Additional Straw (non-bedding)

Manure

Other On-Farm Source

Off-Farm Source

Energy Crop

Horticultural Material

Horticultural Material (Other)

100% utilization

Estimated Barn Area: 11000 ft²

Solid: 403774 ft³, 21.2% DM *

Add Washwater

le

id) *

frame, Tie Stall

)

Nutrient sources input from –

- soil test values
- agricultural or non-agricultural sources
- commercial fertilizer
- credits from previous years' crop

Default values from Ontario databases can be used, or the user can input their own test values

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

Manure Application Options

- User inputs the type, timing, rate and method of application
- NMAN determines the available nutrients from the application information

Material Application

Description:

Material App 1

Application Date:

September 1, 2011

15

Late Summer

Cropping Year:

Fall 2011 - Fall 2012

Plant Date:

May 1, 2012

Material Type:

Liquid Hog

Application Method:

Tanker

Incorporation Details:

Incorporated 1 day

Application Rate:

5000

gal/ac

Available N:

23%

Available Nutrients

N	9.7 lb/1000gal
P2O5 (40%)	11.9 lb/1000gal
P2O5 (80%)	23.9 lb/1000gal
K2O	19.5 lb/1000gal

Nitrogen Loss (N-Index): 126 lb/ac (60%)

Nutrients Applied

N	48 lb/ac
P2O5	60 lb/ac
K2O	97 lb/ac

Cropping Information

Crop:
Yield: bu/ac (@ 15.5% moisture)
(Geotownship Average: 146 bu/ac)

Cropping Year:
Approximate Planting Date (if applicable): 15
Approximate Harvest Date (or dormancy): 15

Tillage Method: Tillage occurs in fall
Cropping/Tillage Practice:
Estimated Soil Erosion: 5.1 ton/ac

Previous Crop N Credit:

Corn N Recommendation Inputs

Manure or NASM supplies nitrogen for this crop

Price of Corn: \$/bu

Cost of N: \$/lb

N Fertilizer Timing:

Soil Sample Information

January 1, 2008
P 101 ppm
K 251 ppm

Production Recommendations

N 100 lb/ac
P2O5 0 lb/ac
K2O 0 lb/ac

Nutrient Removal

N 124 lb/ac
P2O5 63 lb/ac
K2O 44 lb/ac























AGRONOMY GUIDE FOR FIELD CROPS

Publication 811

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

 Add Crop or Cropping Year
  Add Grazing
  Add Material Application
  Add Fertilizer Application
 

Field Input Description	Agronomic (lb/ac)			Crop Removal (lb/ac)			
	N	P2O5	K2O	N	P2O5	K2O	
 Nutrient Balance October 1, 2013 - July 31, 2014	0	0	0	-78	-63	-147	
 Material App 3 April 30, 2015 System A: Solid @ 4 ton/ac Total Applied: 136 ton Spreader, Incorporated 1 day BMP Surface Water Setback: 10 ft	79	103	129	79	206	129	 
 Corn, grain @ 160 bu/ac Planted: May 1, 2015 Harvested: October 25, 2015	-135	-18	0	-132	-67	-46	 
 Fert App 9 May 1, 2015 28-0-0 @ 32 gal/ac Total Applied: 1088.8 gal	115	0	0	115	0	0	 
 Nutrient Balance August 1, 2014 - October 24, 2015	59 	85 	129 	62	139 	83	



Legislative
Additional Information
Economic



Director's Approval
Missing Information



BMP
Caution

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

NMAN Reporting

Print NMAN3 Report



Report Type:

Nutrient Management Strategy for Approval

Nutrient Management Plan

Nutrient Management Farm Registration Form

Field Summary

Field Nutrient Balance

Field Record Keeper

Storage System Summary

Submission Type:

New Submission

Response to Information Request

Amendment

Print Preview

Print (PDF)

Cancel

SHARING AGRICULTURAL SCIENCE, TECHNOLOGY & DATA TO IMPROVE GREAT LAKES WATER QUALITY

A BI-NATIONAL WORKSHOP

Summary

NMAN3 software is a tool

- Data out is only as good as data in
- Useful for planning and record keeping
- Continuous improvement (Ontario)

<http://apps.omafra.gov.on.ca/NMAN/NMAN3.html>

www.ontario.ca/nma