



**North Carolina**

Nutrient Management Planning Software

# **User Manual**

## ***Getting Started***

*\*For questions regarding the software send an email to [SWC\\_Tech\\_Assistance@ncagr.gov](mailto:SWC_Tech_Assistance@ncagr.gov)*

# The N.C. Nutrient Management Software

Developed as a cooperative effort:

- NC Department of Agriculture & Consumer Services
- NC State University
- NC Cooperative Extension Service
- USDA Natural Resources Conservation Service
- NC Department of Environmental Quality



\* Use of this software program is not mandatory.

# The N.C. Nutrient Management Software was developed on the below guidance, standards, regulations and rules.

- USDA-NRCS 590 Nutrient Management Standard.
- NCDA “Crop Fertilization Based on N.C. Soil Tests”.
- USDA-NRCS N.C. Irrigation Guide
- NC General Statutes
- SB1217 Guidance Document
- NCAC 15A 02T
- Soil Survey
- North Carolina Nutrient Management Workgroup. 2003. Realistic yields and nitrogen application factors for North Carolina crops.  
<http://nutrients.soil.ncsu.edu/yields/>



# **What makes this Software better than the previous NC Nutrient Management Software?**

- Software is no longer installed in C:\\Program Files
- Nutrient Management & NCANAT integrated into one software tool
- Some redundancy in data entry has been eliminated
- Features and functions more intuitive by design
- All 4 plan types now have same basic design
- Soil properties based on MUSYM instead of soil series
- Soil survey updates incorporated regularly (upon availability)
- Program will check for updates at each start-up
- Plan reports have been updated and improved
- Plan reports exportable as Word and/or pdf files
- Program will be hosted by and supported by NCDA&CS

## **Support, reference and training resources:**

*Nutrient Management In N.C.*

<http://nutrients.soil.ncsu.edu/>

*SB1217 Guidance Document for Technical Specialists*

<http://www.ncagr.gov/SWC/tech/guidancedocuments.html>

*NCDA&CS Agronomic Division publications*

<http://www.ncagr.gov/agronomi/pubs.htm>

*NCSU CES Field Crop Bulletins*

<http://www.ces.ncsu.edu/publications-on-field-crops/>

*USDA-NRCS Field Office Technical Guide*

<http://efotg.sc.egov.usda.gov/>

<http://efotg.sc.egov.usda.gov/references/public/NC/590NutrientMgmtDec14UpdateReleaseVersion.pdf>

*NCDA&CS DSWC Cost Share Programs*

<http://www.ncagr.gov/SWC/costshareprograms/ACSP/BMPs.html>

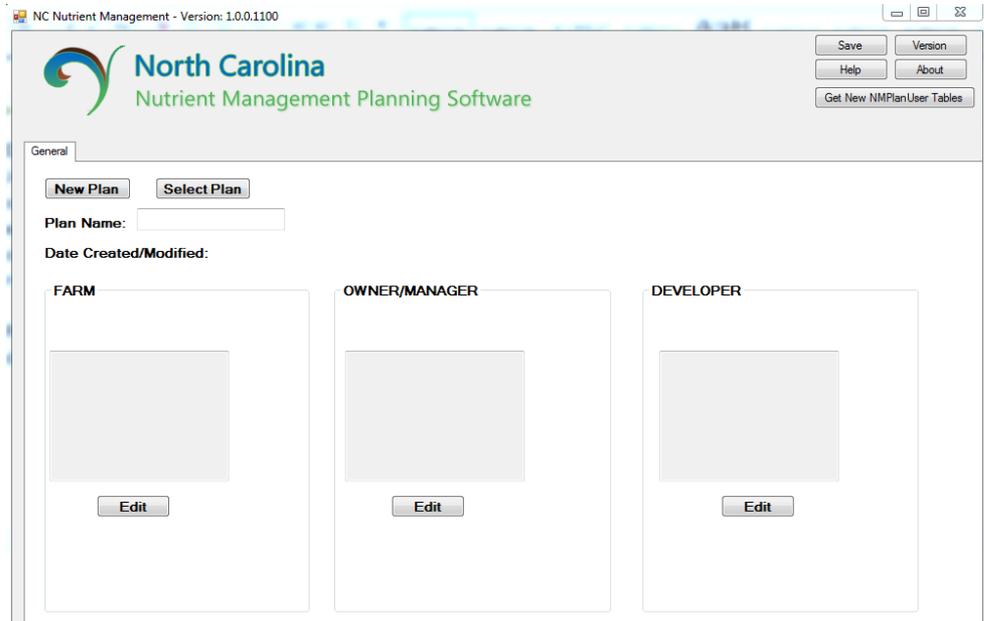
# Get Started



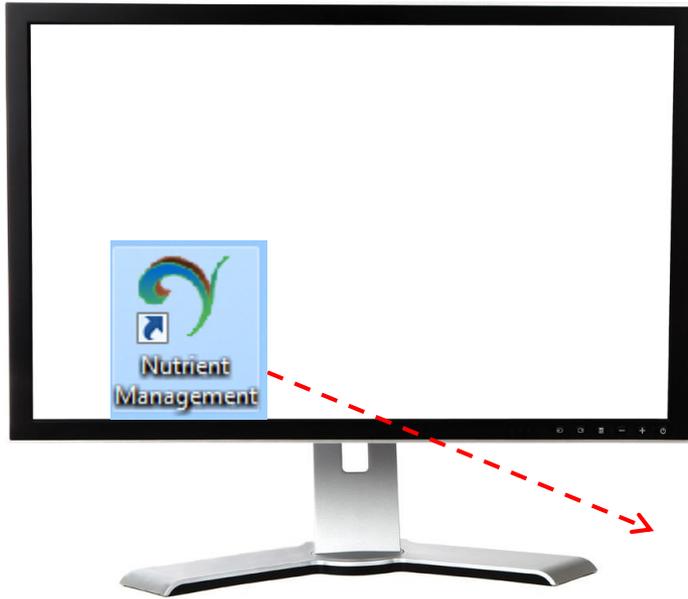
The install package will put a Nutrient Management icon on the Desktop. Double-click the **Icon** to launch the application.

Download the Nutrient Management application:  
Software instructions and link will be at:  
<http://nutrients.soil.ncsu.edu/software/>

Information, links and updates will always be at this site!



# Get Started



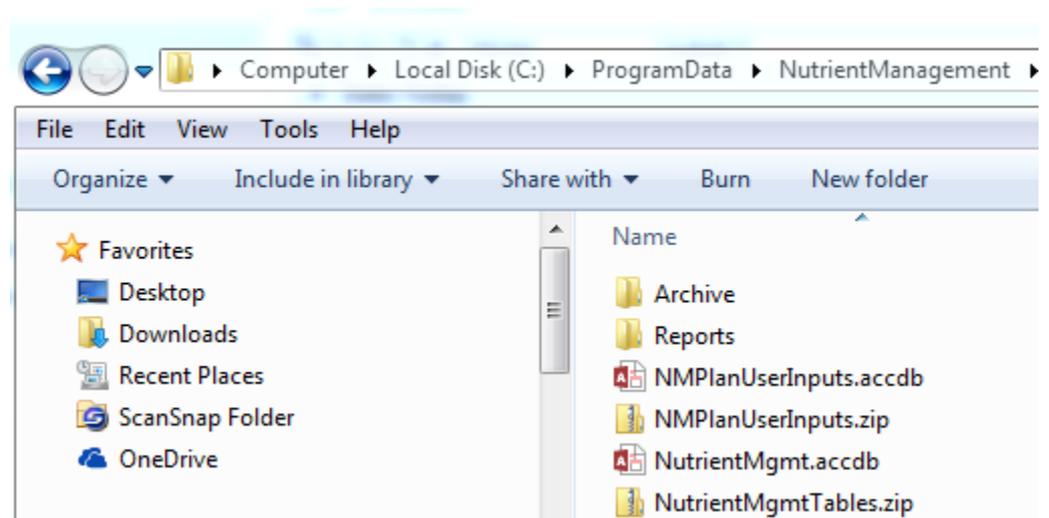
The software databases will be stored at the following location on your computer:

Local Disk(c:) > ProgramData > NutrientManagement

We have experienced some issues with the NutrientManagement folder not being created due to individual computer permissions.

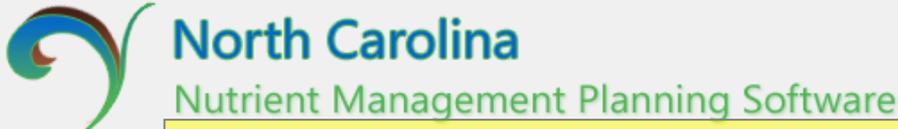
If you are experiencing issues make sure the folder was created.

If not, you can create the folder at the location with exact spelling then the program update accordingly.

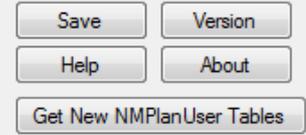


# Main Screen

NC Nutrient Management - Version: 1.0.0.1100



Each time the application is launched it will automatically check for database updates.  
Changes will be documents along with the version



The 'General' tab is the default start screen.

General

Use the 'Save' button to Save data before exiting the application.



Plan Name:

Date Created/Modified:

FARM

Edit

OWNER/MANAGER

Edit

DEVELOPER

Edit

**Begin** by selecting an existing plan or creating a new one.

If you need to download new User Tables the program will auto-archive all existing plan information.

# New Plan

NC Nutrient Management - Version: 1.0.0.1100



**North Carolina**  
Nutrient Management Planning Software

Save    Version  
Help    About  
Get New NMPlanUser Tables

General

**New Plan**

Select Plan

Select >New Plan

Plan Name:

Date Created/Modified:

In the New Plan Dialog box: Enter a Plan Name and chose 1 of the 4 plan types.

Click 'OK'

FARM

OWNER/MANAGER

DEVELOPER

New Plan Dialog

Please Enter a Plan Name:  
University Farm 2015

Please Select a Plan Type:

- Fertilizer
- Poultry Litter
- Manure
- Closure/Cleanout

OK    Cancel

# Main Nutrient Management Screen

In Manure Plan, Poultry Litter Plan and Closure/Cleanout Plan types, the 5 main tabs are General, Sources, Fields, Narrative, Reports.

Plan development typically occurs from left to right across these 5 tabs. It is important to complete the plan in this order so that no steps are missed and reports are calculated correctly.

Save Version  
Help About  
Get New NMPlanUser Tables

North Carolina  
Nutrient Management Planning Software

Manure Plan

General Sources Fields Narrative Reports

New Plan Select Plan

Plan Name: Example 2

Date Created/Modified: 7/13/2016 Start Date: End Date:

FARM

Please enter farm info

Edit

OWNER/MANAGER

Please enter owner info

Edit

DEVELOPER

Please enter developer info

Edit

# Farm (General tab)

1

2

3

4

Click 'Edit'

'Farm' and 'Type' fields appear

Select 'New' from the drop-down list next to Farm

Enter the farm name next to 'New Farm' and select the farm 'Type'.

Click 'Save'

# Owner/ Manager (General tab)

**1** OWNER/MANAGER

Click 'Edit'

Please enter owner info

Edit

**2** OWNER/MANAGER

From the drop-down list next to 'Name' select 'New'

Name New

New Owner

Address

City

State

Zip

Phone

Save Cancel

Clicking in the box next to 'New Owner' will activate a pop-up dialog box.

**3** OWNER/MANAGER

Name New

New Owner

Address

City

State

Zip

Phone

Save Cancel

Enter New Owner name and click "OK", then enter address & phone.

Click 'Save'

Enter Owner N...

First Name

Middle Name

Last Name

OK Cancel

# Developer (General tab)

1 DEVELOPER

Please enter developer info

Click 'Edit'

Edit

2 DEVELOPER

Select 'New' from the drop-down boxes next to Name and Organization and enter the appropriate information.

2 DEVELOPER

Name

New Developer

Organization

New Org.

Address

City

State

Zip

Phone

Save Cancel

3 DEVELOPER

Name

New Developer

Organization

New Org.

Address

City

State

Zip

Phone

Save Cancel

Click 'Save'



**North Carolina**

Nutrient Management Planning Software

# **User Manual**

## ***Entering Sources***

# Sources (Standard Source)

North Carolina  
Nutrient Management Planning Software

Manure Plan

General Sources Fields Narrative Reports

The 2<sup>nd</sup> of the five main tabs is 'Sources'.

Available Sources

- Standard Sources
- User Defined Sources
- Show All Sources

Add New User Source

Beef (Brood Cow) Paved Surface Scraped Manure  
Beef (Feeder) Paved Surface Scraped Manure  
Beef (Stocker) Paved Surface Scraped Manure  
Dairy (Calf) Liquid Manure Slurry  
Dairy (Calf) Solid  
Dairy (Heifer) Liquid Manure Slurry  
Dairy (Heifer) Solid  
Dairy (Milk Cow) Liquid Manure Slurry  
Dairy (Milk Cow) Solid  
Horse - Scraped  
Poultry Lagoon Liquid - Layer

Selected Sources

Selected Source Information

Source Name: Standard

Animal Numbers:

Storage Capacity (days):

Storage Empty Date (mm/dd):

Save

'Standard Sources' shows all animal waste sources for which N.C. data is available. Refer to the website: <http://nutrients.soil.ncsu.edu/manures/> for current information on volume, nutrient content and plant-availability data used by this software.



# Sources (User Defined Source)

NC Nutrient Management - Version: 1.0.0.1101

North Carolina  
Nutrient Management Planning Software

Manure Plan

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources Fields Narrative Reports

Available Sources Selected Sources

Standard Sources  
 User Defined Sources  
 Show All Sources

Add New User Source

1

'User Defined Sources' are created using on-farm data that is farm-specific. Refer to 'Appendix 1.23 Use of On-Farm Records AG-439-42 Sept 2000.pdf' from the SB1217 Interagency Guidance Documents, (available at: <http://www.ncagr.gov/SWC/tech/guidancedocuments.html>)

Selected Source Information

Source Name Standard

New/Edit User Defined Source

Source Name New

Source Name 2

Operation Type 3

Source Type By user Source Unit tons/head 4

Volume 0 5 Is Sludge? False 6

Farm Name Sycamore Farm

Lagoon Produces Sludge None 7

Nutrients (ppm) 8

DM% 0 S: 0  
N: 0 Mn: 0  
P: 0 Cu: 0  
K: 0 Zn: 0  
Ca: 0 B: 0  
Mg: 0 CCE: 0

New  
Save 9  
Help  
Delete  
Exit

- 1) Click on 'Add New User Source'
- 2) In the dialog box, enter a Source Name
- 3) Choose the Operation Type from the drop-down list
- 4) Select the Source Unit for manure volume
- 5) Enter the Volume amount per Source Unit per year
- 6) Is Sludge is 'True' only for sludge sources.
- 7) Under 'Lagoon Produces Sludge' select the Sludge type from the drop-down list only for lagoon liquid sources, otherwise select 'None'.
- 8) Enter the ppm values from the NCDA Waste Analysis Report. *These are the numbers listed under 'Nutrient and Other Measurements' at the top of the report.* If averaging multiple waste analyses, use averaged ppm values.
- 9) Click 'Save'. This Source will now appear in the Available Sources list when 'Show All Sources' is selected.



**North Carolina**

Nutrient Management Planning Software

## **User Manual**

### ***Entering Tract & Field Data***

# Fields (New Tract)

The screenshot shows the 'North Carolina Nutrient Management Planning Software' interface. The 'Manure Plan' title is visible. The 'Fields' tab is selected, showing 'Tract' and 'Field' dropdown menus, each with a 'New' button. A yellow callout box points to the 'New' button next to 'Tract' with the text: 'Begin by entering New Tract information.'

The 'New Tract' dialog box is open, containing the following fields:

- County: dropdown menu
- Tract ID: text input field
- Farm Name: text input field (containing 'JR Hog Farm')
- Ownership: dropdown menu

Buttons at the bottom of the dialog are 'OK', 'Cancel', and 'Help'. A red dashed arrow points from the 'New' button in the main window to the 'New Tract' dialog box.

A yellow callout box on the right contains the following instructions:

**New Tract:**

1. Click on the 'New' button next to Tract. A New Tract dialog box will appear.
2. Select the County from the drop-down list.
3. Enter the Tract name.
4. Select leased or owned in the 'Ownership' box and click 'OK'.

A second red dashed arrow points from the 'Ownership' dropdown in the dialog box to a zoomed-in view of the dropdown menu. The zoomed view shows the 'Ownership' dropdown with 'Leased' and 'Owned' as visible options, and 'OK', 'Cancel', and 'Help' buttons below it.

# Fields (New Field)

NC Nutrient Management - Version: 1.0.0.1100

North Carolina  
Nutrient Management Planning Software

Manure Plan

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources Fields Narrative Reports

Tract 123-Guilford New  
Field New

Copy Field Remove Field

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
123	3	Guilford	12.7	11.4	CeB2	4	Select	0	Select	Unknown	Select	Select

Once a New Tract has been entered it must be selected from the Tract drop-down list before entering new field information.

New Field

County  Tract

Field ID

Soil Type

Total Acres

Useable Acres

Slope

Leaching Index

P Assessment

Waste Irrigation Properties

Maximum Application Rate (in/hr)

Maximum Amount/Irrigation Event (in)

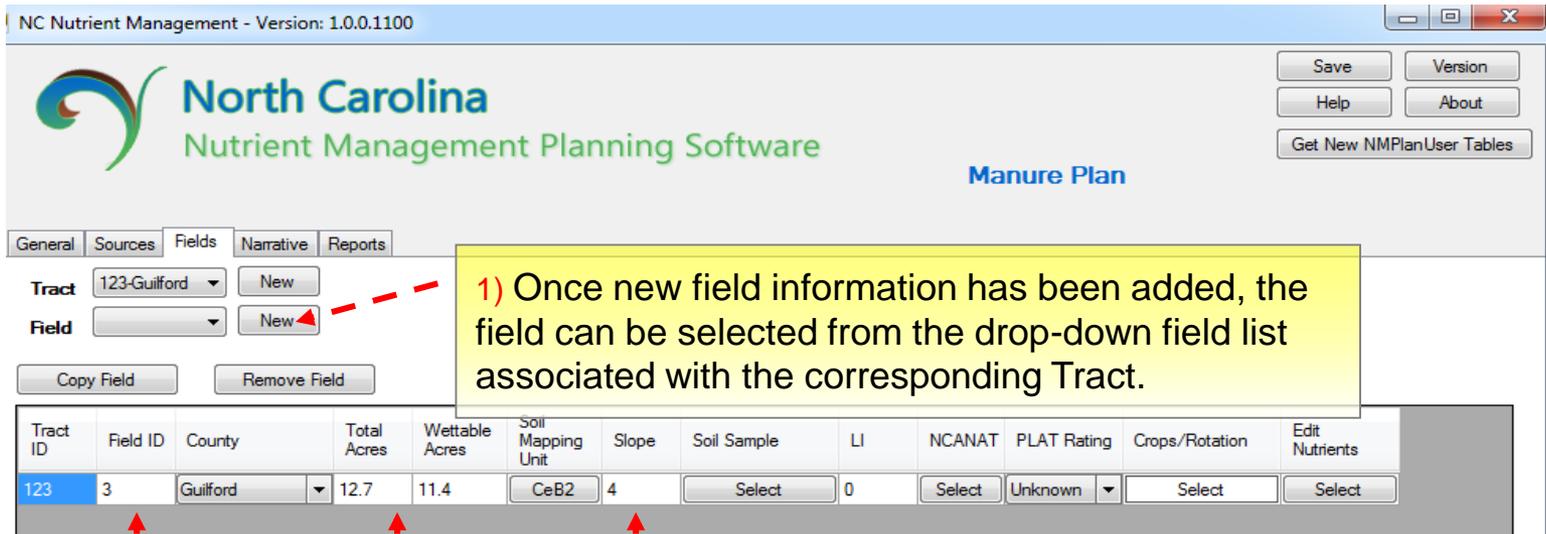
OK Cancel Help

## New Field:

- 1) Click on the drop-down arrow next to Tract and select the appropriate Tract name.
- 2) Click on the 'New' button next to Field.
- 3) In the New Field dialog box:
  - enter the field name under **Field ID**
  - select MUSYM from the **Soil Type** drop-down list
  - enter **Total Acres** and **Useable Acres**
  - enter **Slope (%)** (default value is midpoint)
  - enter **Leaching Index** value
  - select PLAT rating under **P Assessment**

Click **OK** to save.

# Fields (New Field)



NC Nutrient Management - Version: 1.0.0.1100

North Carolina  
Nutrient Management Planning Software

Manure Plan

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources Fields Narrative Reports

Tract 123-Guilford New  
Field New

Copy Field Remove Field

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops./Rotation	Edit Nutrients
123	3	Guilford	12.7	11.4	CeB2	4	Select	0	Select	Unknown	Select	Select

1) Once new field information has been added, the field can be selected from the drop-down field list associated with the corresponding Tract.

2) Field information entered in the 'New Field' dialog box now appears as a row here.

# Fields (Soil Sample)

The screenshot shows the 'NC Nutrient Management - Version: 1.0.0.1100' application window. The 'Fields' tab is active, displaying a table of field information. A red dashed arrow points from a text box to the 'Soil Sample' column's 'Select' button. Another red dashed arrow points from the 'Soil Sample' column to a 'SoilSampleDialog' box that is open in the foreground. The dialog box contains fields for 'Sample List', 'Sample ID', 'Sample Date', 'Field Info' (Farm Name, Tract ID, Field ID, Soil Class), 'Applied Lime' (Amount, Year, Month), and 'Sample Results' (CEC, BS, Acid, P-I, pH, K-I, Ca, Mg, Mn-I, Zn-I, Cu-I). Buttons for 'New', 'Import', 'Save', 'Delete', 'Help', and 'Exit' are also visible.

In the NC Nutrient Management Software soil samples are imported from the 'Fields' tab.

1) Click on the 'Select' box under the Soil Sample column.

2) A Soil Sample Dialog box will open. Notice that the Farm Name, Tract ID and Field ID information is populated.

3) Information from the soil test report can be entered directly or imported from a saved .csv file (next slide).

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
123	3	Guilford	12.7	11.4	CeB2	4	Select	0	Select	Unknown	Select	Select

SoilSampleDialog

Sample List: [Dropdown]  
Sample ID: [Text]  
Sample Date: 3/3/2015

Sample Results

CEC: 0  
BS: 0  
Acid: 0  
P-I: 0  
pH: 0  
K-I: 0  
Ca: 0  
Mg: 0  
Mn-I: 0  
Zn-I: 0  
Cu-I: 0

Field Info

Farm Name: JR Hog Fam  
Tract ID: 1234  
Field ID: 1  
Soil Class: [Dropdown]

Applied Lime

Amount (T/A): 0  
Year (yyyy): 2015  
Month: 3

New Import  
Save Delete  
Help Exit

# Fields (Import Soil Sample Information)

The screenshot displays the 'NC Nutrient Management - Version: 1.0.0.1100' application window. The main interface shows the 'North Carolina Nutrient Management Planning Software' logo and the 'Manure Plan' title. The 'Fields' tab is active, showing a table with columns for Tract ID, Field ID, County, Total Acres, Wettable Acres, Soil Mapping Unit, Slope, Soil Sample, LI, NCANAT, PLAT Rating, Crops/Rotation, and Edit Nutrients. A yellow callout box with the text '1) In the Soil Sample Dialog box, click the 'Import' button.' points to the 'Import' button in the 'SoilSampleDialog' window. The 'SoilSampleDialog' window is open, showing fields for Sample List, Sample ID, Sample Date, Sample Results (CEC, BS, Acid, P-I, pH, K-I, Ca, Mg, Mn-I, Zn-I, Cu-I), Field Info (Farm Name, Tract ID, Field ID, Soil Class), and Applied Lime (Amount (T/A), Year (yyyy), Month). A red dashed arrow points from the 'Import' button in the 'SoilSampleDialog' window to the 'Soil Sample Import Tool' window. The 'Soil Sample Import Tool' window is open, showing a dropdown menu, 'Open Sample CSV', 'Import Sample', and 'Cancel' buttons. A yellow callout box with the text '2) The Soil Sample Import Tool will open.' is positioned over the 'Soil Sample Import Tool' window. Another yellow callout box with the text '3) Click on the 'Open Sample CSV' button.' points to the 'Open Sample CSV' button in the 'Soil Sample Import Tool' window.

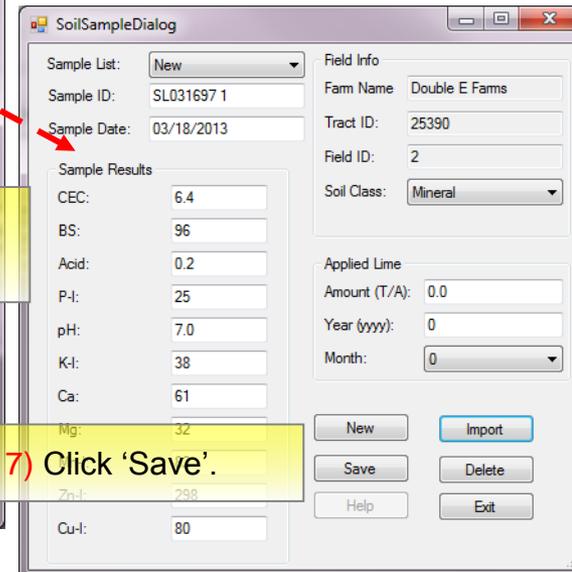
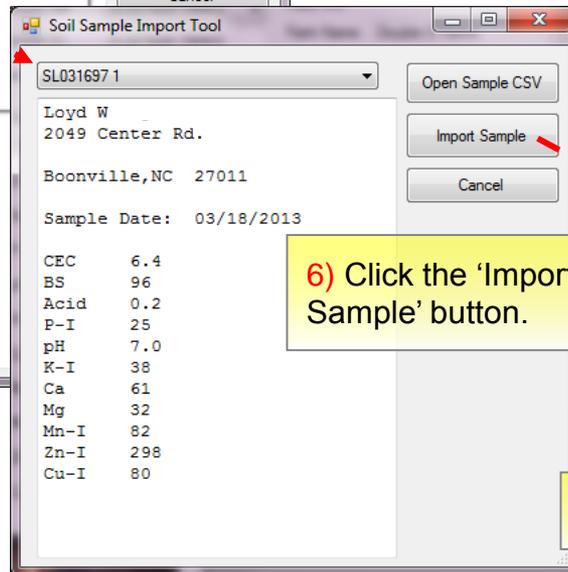
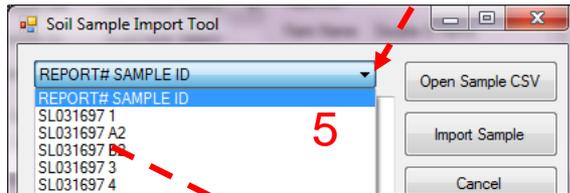
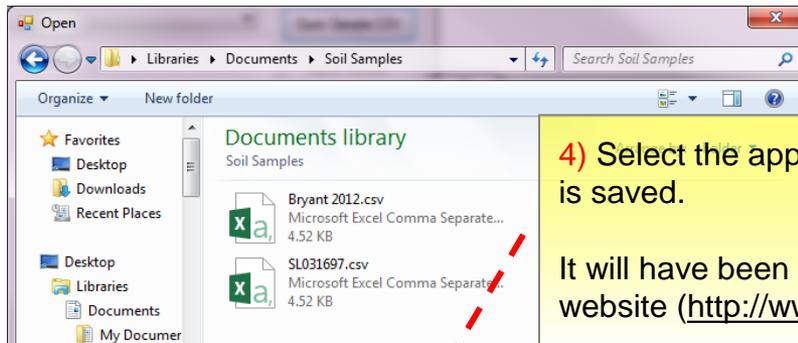
1) In the Soil Sample Dialog box, click the 'Import' button.

2) The Soil Sample Import Tool will open.

3) Click on the 'Open Sample CSV' button.

(Import Soil Samples continues on next slide)

# Fields (Import Soil Sample Information)





**North Carolina**

Nutrient Management Planning Software

## **User Manual**

***Importing Soils Data  
from NCDA&CS Agronomic  
Services Division***

Step 1

# Download Soils Report

## FROM:

NCDA&CS  
Agronomic  
Division  
Website

## TO:

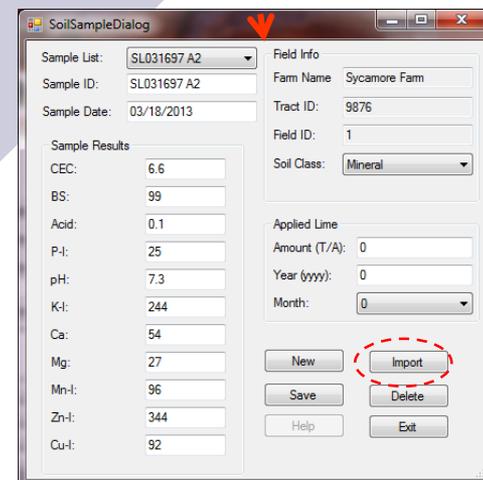
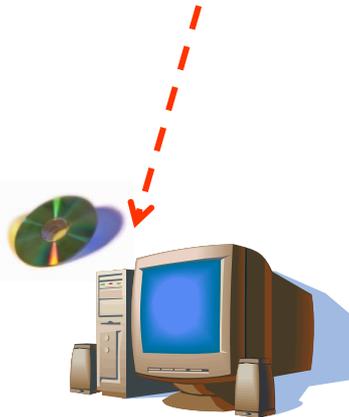
- Your C: drive
- Shared drive
- Other storage

Step 2

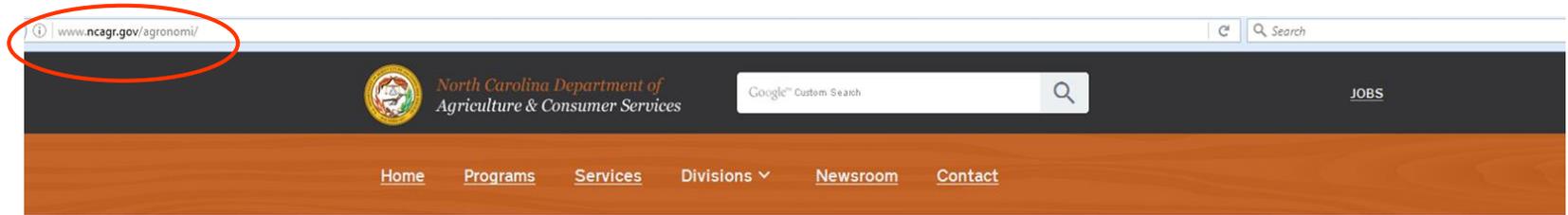
# Import Soils Data

## IN:

NC Nutrient  
Management  
Planning  
Software



# Download



**Agronomic Services Highlights**

- [Agronomic Lab Newsletter](#)
- [Strawberry Fertility Manual](#)
- [Submitting Samples for Problem Diagnosis](#)
- [Fees & Sample Forms](#)
- [Bar-code Shipping Labels](#)



## Agronomic Services



- [How to Use the Report Search Utility](#)
- [Submit Soil & Nematode Samples Online](#)
- [Manage My PALS Account](#)
- [View My Report on PALS](#)
- [Pay for My Report on PALS](#)

**Browse Division**

- [About the Division](#)
- [Find Your Report \(PALS\)](#)
- [Field Services](#)
- [Nematode Assay](#)
- [Plant Tissue Analysis](#)
- [Soil Testing](#)
- [Soilless Media Analysis](#)
- [Solution Analysis](#)
- [Waste/Compost Analysis](#)
- [Agrotips](#)
- [News Releases](#)
- [Publications](#)

1) Go to the NCDA Agronomic Division website  
<http://www.ncagr.gov/agronomi/>

2) Click on Find Your Report

# Download

Select 'Help', and then click 'PALS Tips'.

**PALS**  
Agronomic Services Division

Agronomic Home PALS Home Utilities **Help** Login

- PALS Tips
- PALS Help
- How to change crop codes
- Contact Us

PALS is the Laboratory-Information-Management System that provides access to recent soil test, plant tissue, waste, solution, soilless media and nematode assay reports.

**Report Quick Search**

Search

You may enter last name(comma) first name, business name, or report number

**Show My Reports**

Estimated Processing Time for Samples Received on 3/6/2015

Lab	ProcessTime
Soil	1 to 2 Weeks
Nematode	1 week
Nematode(Problem)	3 to 5 days
Plant	2 days
Waste	7 to 10 days
Media	3 to 4 days
Solution	3 to 4 days

# Download

The screenshot shows the PALS website interface. At the top, there is a navigation bar with links for 'Agronomic Home', 'PALS Home', 'Utilities', and 'Help'. A 'Login' link is also present. Below the navigation bar, there is a search box labeled 'Report Quick Search' with a 'Search' button. A red oval highlights the search box and button. Below the search box, there is a link for 'Show My Reports'. At the bottom, there is a table titled 'Estimated Processing Time for Samples Received on 3/6/2015'.

**PALS**  
Agronomic Services Division

Agronomic Home PALS Home Utilities Help Login

PALS is the Public Access Laboratory Information Management System that provides access to recent soil test, plant, waste, and media reports.

**Report Quick Search**

You may enter last name(, comma) first name, business name, or report number

Search

[Show My Reports](#)

Estimated Processing Time for Samples Received on 3/6/2015

Lab	ProcessTime
Soil	1 to 2 Weeks
Nematode	1 week
Nematode(Problem)	3 to 5 days
Plant	2 days
Waste	7 to 10 days
Media	3 to 4 days
Solution	3 to 4 days

# Download

After several letters are typed a list of closest matching search results will appear. Select the Producer of interest from the list of names and click 'Search'.

**PALS is the Public Access Laboratory-information-management System that provides access to recent soil test, plant tissue, waste, solution, soilless media and nematode assay reports.**



Report Quick Search

bowman

X Search

You may also like:

- Bowman Dairy Inc. (6506 Bowman Dairy Rd, Julian, 27283)
- Bowman Dairy Inc. (Attn: Chris Bowman, Julian, 27283)
- Bowman Dairy, Inc. (Attn: Chris Bowman, Julian, 27283)**
- Bowman, Alexander (104 Lystra Mills Ln Unit A, Chapel Hill, 27517)
- Bowman, Ann (105 Kings Mill Ct., New Bern, 28562)
- Bowman, B Glenn (2204 Woodmoor Dr., Greenville, 27858)
- Bowman, Ben (1208 Briar Patch Ln, Raleigh, 27615)
- Bowman, Brian/Jodie/Scott (347 Green Hill Rd, Franklinton, 27525)
- Bowman, Charles (1565 14th St NE, Hickory, 28601)
- Bowman, Dan (5207 Wrightsville Ave, WILMINGTON, 28403)
- Bowman, Dan (5207 Wrightsville Ave, WILMINGTON, 28405)
- Bowman, Dan (5209 Wrightsville Ave., WILMINGTON, 28405)
- Bowman, Dan (6721 Walnut Cove Dr., Raleigh, 27603)

waste	7 to 10 days
Media	3 to 4 days
Solution	3 to 4 days

# Download

- 1) Find the appropriate report in the Search Result list that is from the Soils Lab. (Note the Soil Lab, Status Date and Number of Samples).
- 3) Click 'Download Data'

**Reports for Bowman Dairy Inc.**

You may enter last name(comma) first name, business name, or report number

From:  To: 
[Download Selected](#) [Pay Selected](#)

<input type="checkbox"/> Select All	Client	Report	Lab	Report Type	Report Status	Status Date	Farm ID	Number of Samples	PDF File	Spreadsheet
<input type="checkbox"/>		W008083	Waste	Predictive	Released	2015/06/30	41-18	2	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W005500	Waste	Predictive	Released	2015/03/25	41-18	2	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W002145	Waste	Predictive	Released	2014/10/10	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W001007	Waste	Predictive	Released	2014/08/20	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W000282	Waste	Predictive	Released	2014/07/23	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		SL003353	Soil	Predictive	Released	2014/08/28	41-18	22	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W008386	Waste	Diagnostic	Released	2014/07/10	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W006029	Waste	Predictive	Released	2014/04/07	41-18	2	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W004578	Waste	Predictive	Released	2014/02/10	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W003396	Waste	Diagnostic	Released	2013/12/05	41-18	1	<a href="#">View Report</a>	<a href="#">Download Data</a>
<input type="checkbox"/>		W001554	Waste	Diagnostic	Released	2013/09/06	418	2	<a href="#">View Report</a>	<a href="#">Download Data</a>

# Download

On this screen the default setting 'Use standard template' should be checked. This is the template we want. Click 'Export'.

## Export Soil Report SL023314 to Excel Spreadsheet (CSV file)

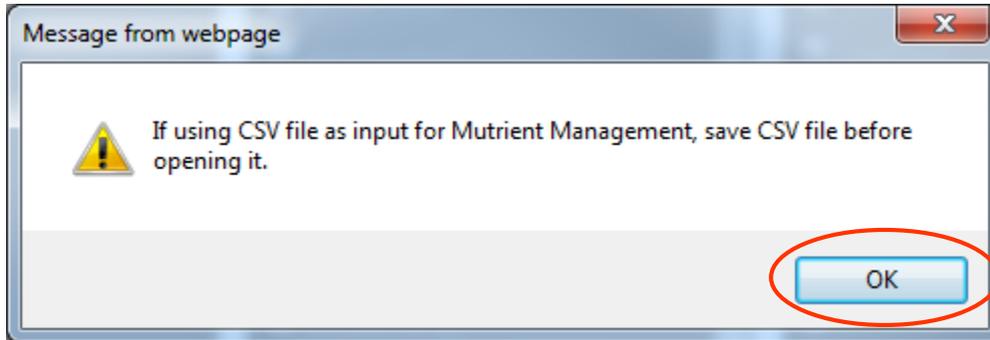
Use standard template     Customize output

Report Information	Customer Information	Sample Test Information
<input checked="" type="checkbox"/> Select All Fields	<input checked="" type="checkbox"/> Select All Fields	<input checked="" type="checkbox"/> Select All Fields
<input checked="" type="checkbox"/> FY	<input checked="" type="checkbox"/> growerName	<input checked="" type="checkbox"/> GrowerSampleID
<input checked="" type="checkbox"/> Report	<input checked="" type="checkbox"/> growerAddress	<input checked="" type="checkbox"/> LimeTone
<input checked="" type="checkbox"/> ReportTypeID	<input checked="" type="checkbox"/> growerAddress2	<input checked="" type="checkbox"/> LimeMonth
<input checked="" type="checkbox"/> County	<input checked="" type="checkbox"/> growerCity	<input checked="" type="checkbox"/> LimeYear
<input checked="" type="checkbox"/> Farm	<input checked="" type="checkbox"/> growerState	<input checked="" type="checkbox"/> FirstCrop
<input checked="" type="checkbox"/> ReceiveDate	<input checked="" type="checkbox"/> growerZip	<input checked="" type="checkbox"/> SecondCrop
<input checked="" type="checkbox"/> SamplingDate	<input checked="" type="checkbox"/> advisorName	<input checked="" type="checkbox"/> Class
<input checked="" type="checkbox"/> CompleteDate	<input checked="" type="checkbox"/> advisorAddress	<input checked="" type="checkbox"/> LimeRec1
<input checked="" type="checkbox"/> Recommendation	<input checked="" type="checkbox"/> advisorAddress2	<input checked="" type="checkbox"/> LimeRec2

**Export**

Cancel

# Download



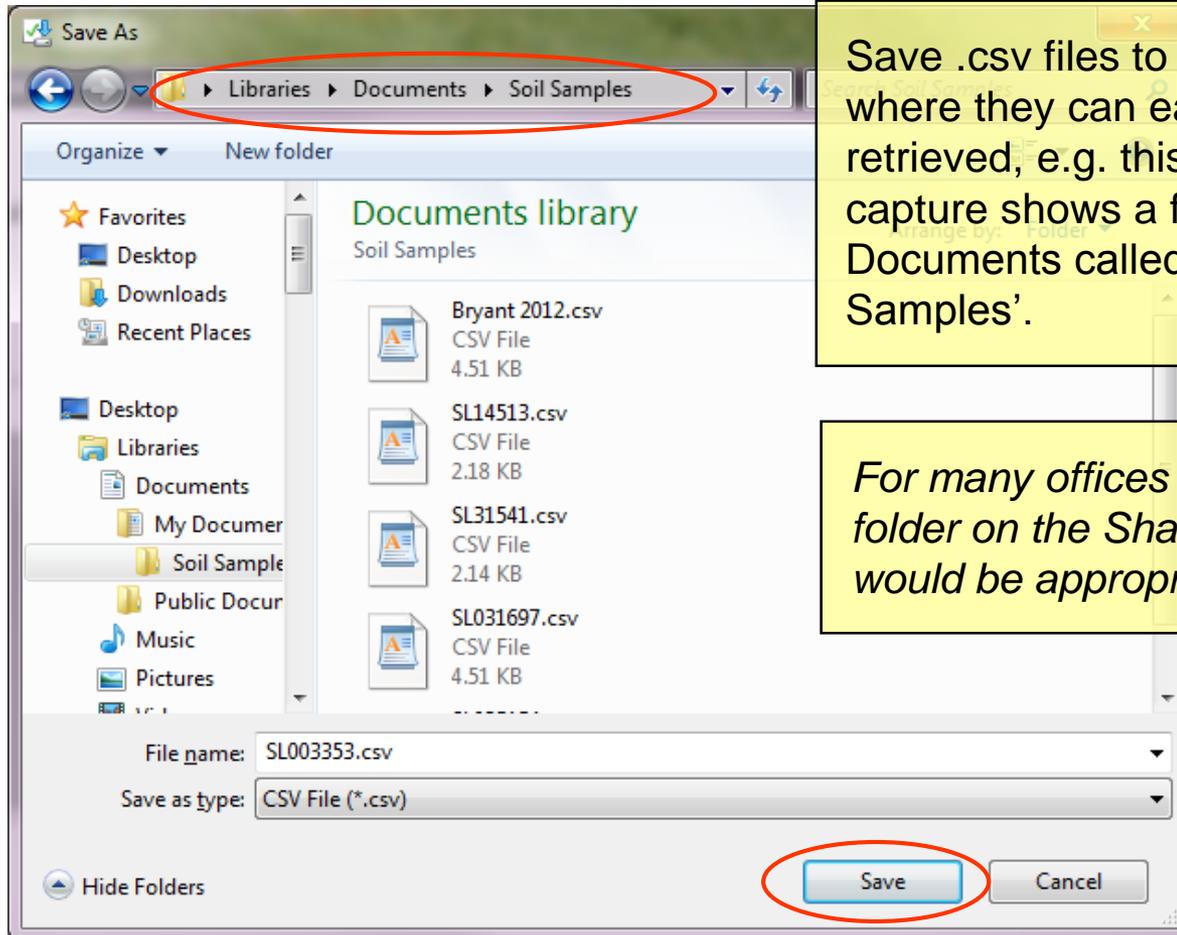
Click 'OK' to the message about saving CSV files for Nutrient Management.

\*Note: If the .csv file is opened first with Excel it will be altered and will not be recognized by the Nutrient Management Program.

On this screen do NOT open the file. Choose 'Save' instead.



# Download



Save .csv files to a location where they can easily be retrieved, e.g. this screen capture shows a folder in My Documents called 'Soil Samples'.

*For many offices saving to a folder on the Shared Drive would be appropriate.*

\*Note: In some Web browsers you can use 'Internet Options' to specify where downloaded files are saved automatically.

# Fields (Import Soil Sample Information)

The screenshot shows the 'NC Nutrient Management - Version: 1.0.0.1100' application window. The 'Fields' tab is active, displaying a table with columns: Tract ID, Field ID, County, Total Acres, Wettable Acres, Soil Mapping Unit, Slope, Soil Sample, LI, NCANAT, PLAT Rating, Crops/Rotation, and Edit Nutrients. A yellow callout box with the text '1) In the Soil Sample Dialog box, click the 'Import' button.' points to the 'Import' button in the 'SoilSampleDialog' window. The 'SoilSampleDialog' window contains fields for Sample List, Sample ID, Sample Date, Sample Results (CEC, BS, Acid, P-I, pH, K-I, Ca, Mg, Mn-I, Zn-I, Cu-I), Field Info (Farm Name, Tract ID, Field ID, Soil Class), Applied Lime (Amount (T/A), Year (yyyy), Month), and buttons for New, Import, Save, Delete, Help, and Exit. A red dashed arrow points from the 'Import' button to the 'Soil Sample Import Tool' window. The 'Soil Sample Import Tool' window has an 'Open Sample CSV' button, an 'Import Sample' button, and a 'Cancel' button. A yellow callout box with the text '2) The Soil Sample Import Tool will open.' is positioned over the tool window. Another yellow callout box with the text '3) Click on the 'Open Sample CSV' button.' points to the 'Open Sample CSV' button.

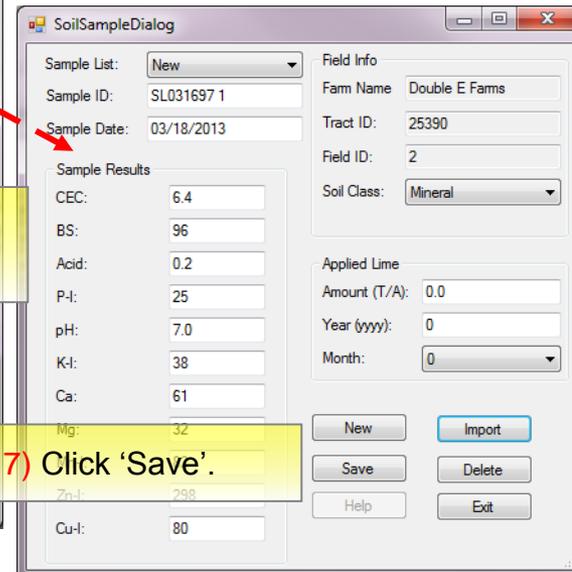
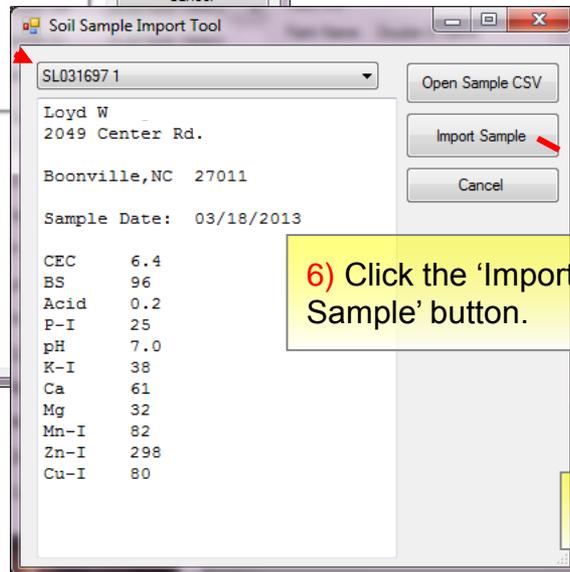
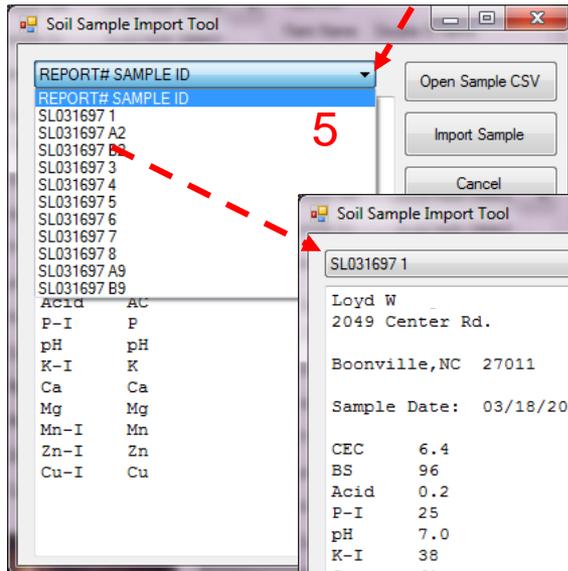
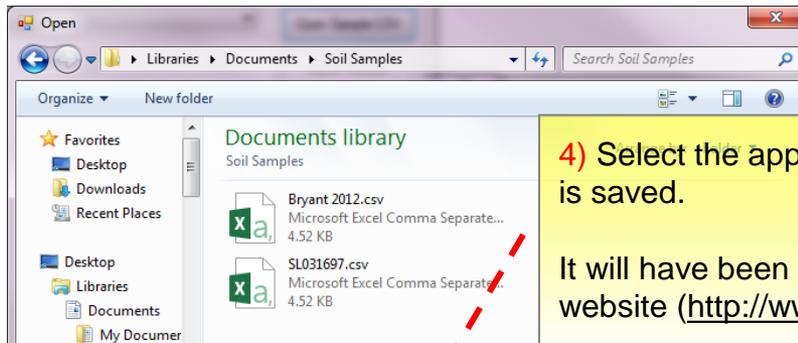
1) In the Soil Sample Dialog box, click the 'Import' button.

2) The Soil Sample Import Tool will open.

3) Click on the 'Open Sample CSV' button.

(Import Soil Samples continues on next slide)

# Fields (Import Soil Sample Information)





**North Carolina**

Nutrient Management Planning Software

# **User Manual**

## ***NCANAT***

### ***Step by Step Guidance***

*\*additional information can be found at a later section of this manual*

- At this time, NCANAT is not a stand alone program.
- Information must first be entered as if a nutrient management plan is being written up to the point of entering field data.

NC Nutrient Management - Version: 1.0.0.1100



Manure Plan

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources **Fields** Narrative Reports

Tract  New  
Field  New

Copy Field Remove Field

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
3826	1	Greene	36.33	35.1	Jo	1	SL001216 EB	0	Select	Unknown	Wheat, Grain	Select
3826	2	Greene	21.18	19.8	Jo	1	SL001216 PB	0	Select	Unknown	Com/Small Grain	Select
3826	3	Greene	24.24	22.5	Jo	1	SL001216 RH	0	Select	Unknown	mon Bermudagrass	Select
3826	4	Greene	25.53	23.5	NoA	1	SL001216 DR1	0	Select	Unknown	x, Biofuels Single H	Select

**Manure Plan**

General   Sources   **Fields**   Narrative   Reports

**Tract**    
**Field**

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
3826	1	Greene	36.33	35.1	Jo	1	SL001216 EB	0	Select	Unknown	Wheat, Grain	Select
3826	2	Greene	21.18	19.8	Jo	1	SL001216 PB	0	Select	Unknown	Com/Small Grain	Select
3826	3	Greene	24.24	22.5	Jo	1	SL001216 RH	0	Select	Unknown	mon Bermudagrass	Select
3826	4	Greene	25.53	23.5	NoA	1	SL001216 DR1	0	Select	Unknown	x, Biofuels Single Hi	Select

Click the select button under NCANAT.  
Then select either NLEW or PLAT or Both

A new screen will become available to  
calculate NLEW/PLAT results

Additional information on the development of the program and explanation can found here.

NCANAT

About NLEW and PLAT      NCANAT Versioning

Main

Location

County:  Mapping Unit:

Cropping Systems

Current Crop:  Most Erosive Crop/Waste Applied:

Field Acres:  Nutrient Scavenger Crops:  Field Slope:  BMPs:  Enter BMPs      **BMP Count = 0**

Nutrient Applications

RYE (Producer Derived) - Optional:

N Application Rate (lbs N / Acre):

P Application Source and Rate:

Nutrient Count = 0

Soil

Soil Loss:  Receiving Slope Dist. (ft):

Soil Test (P-Index, Mehlich 3P)

325      0" to 8"

     28" to 32"

Weight: Volume-W/ V (Optional)

     0" to 8"

     28" to 32"

Drainage

Artificial Drainage System, Poorly Drained Conditions, or High Water Table?

Yes       No

Identification

Tract ID: 3826      Exit

Field ID: 1      Save

NCANAT Session:       Reset

Cancel

Calculate      Compare      View/Print Results

Enter Cropping systems, BMPs, Nutrient Applications, and Soil Information for selected field.

About NLEW and PLAT

NCANAT Versioning

# Calculate Results

Main

Location

County:  Mapping Unit:

Cropping Systems

Current Crop:  Most Erosive Crop/Waste Applied:

Tillage (NLEW):  Tillage (PLAT):

Field Acres:  Nutrient Scavenger Crops:  Field Slope:  BMPs:  **BMP Count = 0**

Nutrient Applications

RYE (Producer Derived) - Optional:

N Application Rate (lbs N / Acre):

Nutrient Count = 0

Soil

Soil Loss:  Receiving Slope Dist. (ft):

Soil Test (P-Index, Mehlich 3P):

28" to 32"

Weight: Volume-W/ V (Optional):  0" - 4"

28" to 32"

Drainage

Artificial Drainage System, Poorly Drained Conditions, or High Water Table?  
 Yes  No

Hydrologic Condition

Good

Identification  
 Tract ID: 3826  
 Field ID: 1  
 NCANAT Session:

**NLEW RESULTS**  
 Total N Lost = 1,798.34 lbs  
 The amount of N added is LESS THAN t

**PLAT RATING**  
 Particulate P = 19  
 Soluble P = 38  
 Leachate P = 32  
 Source P = 0  


---

 Total P Rating = 89 (HIGH)

About NLEW and PLAT

NCANAT Versioning

Main

Location

County

Greene

Mapping Unit

Jo: Johns sandy loam

Cropping Systems

Current Crop

Com, Grain

Most Erosive Crop/Waste Applied

Com, Grain

Tillage (NLEW)

Conservation Tillage - minimum residue

Tillage (PLAT)

Conservation Tillage - minimum residue

Field Acres

36.33

Nutrient Scavenger Crops

Field Slope

1

BMPs

Enter BMPs

Nutrient Applications

RYE (Producer Derived) - Optional

N Application Rate (lbs N / Acre)

110

P Application Source and Rate

Nutrient Count = 0

Soil

Soil Loss

1

Receiving Slope Dist. (ft)

0-9

Soil Test (P-Index, Mehlich 3P)

325

0" - 4"

100

28" to 32"

Weight: Volume-W/ V (Optional)

0" - 4"

28" to 32"

Drainage

Artificial Dr  
Poorly Drained Conditions, or  
High Water Table?

Yes  No

Hydrologic Condition

Good

Source P

= 0

Total P Rating

= 89 (HIGH)

NCANAT Session Na...

Please enter a Session Name/ID

Session 07/01/2016

OK

Cancel

Exit

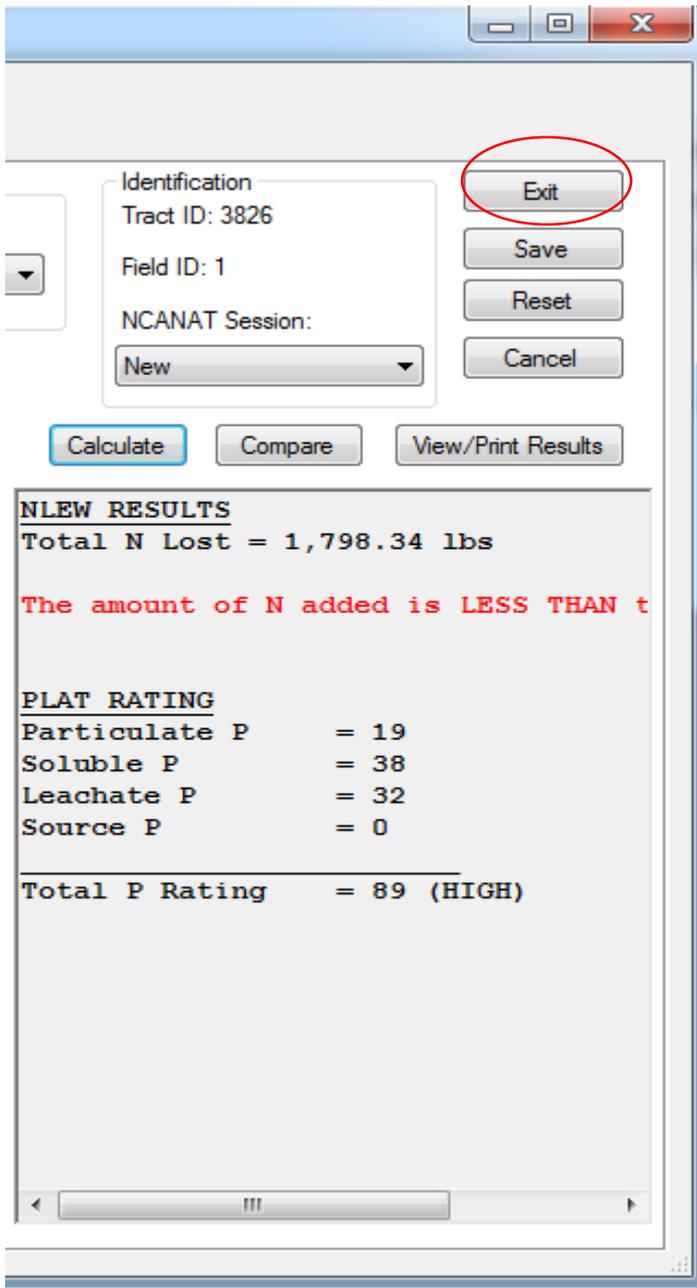
Save

Reset

Cancel

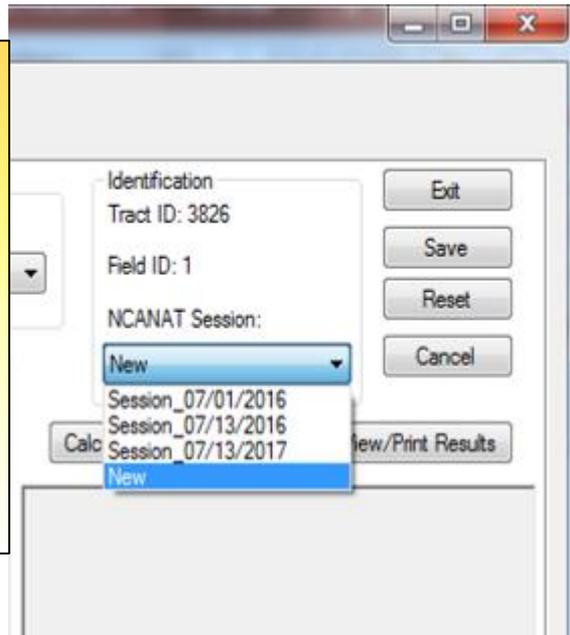
Session\_07/01/2016 has been saved in the NCANAT Session Box.  
You are now in Edit Mode for: Session\_07/01/2016  
To start a new session, please select the 'New' option in the NCANAT Session Box.

OK



Select Exit for the final P Rating to be uploaded into the Nutrient Management Software for each field.

Selecting a previously saved session, then selecting Exit will also upload the final P Rating into the Nutrient Management Software.



### Manure Plan

**Edit Nutrients**

**Select Crop**  
 Wheat, Grain

Crop Name: Wheat, Grain SMU: Jo Field ID: 1  
 Prior Crop: P Assessment: High Tract ID: 3826  
 Number Of Sources: 1 P Removal (lbs/Ac): 28 Crop Year: N/A  
 RYE By User: 55 RYE Unit: Bushels Soil Sample: SL001216 EB  
 N Factor By User: 1.93 Default N: 106

(lbs/acre)	N	P2O5	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	106	0	0	0	0	0	0	0	0.4
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	106	0	0	0	0	0	0	0	0
Source 1	106	82	488	55	18	1	3	1	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	0	82	488	55	18	1	3	1	0

Enter PLAT Ratings, Crop/Rotation then Edit Nutrients

NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
Select	High	Wheat, Grain	Select
Select	Unknown	Com/Small Grain	Select
Select	Unknown	mon Bermudagrass	Select
Select	Unknown	x, Biofuels Single Ha	Select

Editing Nutrients In Fields With High PLAT Ratings Are Based On Phosphorus Removal Rate

**Balance totals are not**

The total amount of P2O5 from source(s) cannot exceed the P removal rate for this crop.

Error Message will continue as long as P2O5 is higher than P removal rate



**North Carolina**

Nutrient Management Planning Software

## **User Manual**

# ***NCANAT Compare Function***



North Carolina

Nutrient Management Planning Software

## *NCANAT Compare Function*

- The function of this tool is to allow the user to calculate reductions in nitrogen and phosphorus through running various scenarios with conservation tillage methods, nutrient scavenger crops and best management practices.
- This is the approved method for calculating required nutrient and sediment loss reductions for NC Agriculture Cost Share Program.

# Example Session 1 – Before Conditions

## Conventional Tillage No BMP Poor Hydrologic Condition and High Phosphorus

NCANAT

About NLEW and PLAT      NCANAT Versioning

Main

Location

County:  Mapping Unit:

Identification

Tract ID: 01010101     

Field ID: 03     

NCANAT Session:      

Cropping Systems

Current Crop:  Most Erosive Crop/Waste Applied:

Tillage (NLEW):  Tillage (PLAT):

Field Acres:  Nutrient Scavenger Crops:  Field Slope:  BMPs:  **BMP Count = 0**

Calculate      Compare      View/Print Results

**NLEW RESULTS**  
Total N Lost = 5,616.1 lbs

**PLAT RATING**  
Particulate P = 8  
Soluble P = 1  
Leachate P = 0  
Source P = 14  

---

Total P Rating = 23 (High)

Nutrient Applications

RYE (Producer Derived) - Optional:

N Application Rate (lbs N / Acre):

Nutrient Count = 1

Soil

Soil Loss:  Receiving Slope Dist. (ft):

Soil Test (P-Index, Mehlich 3P):  

Weight: Volume-W/ V (Optional):  

Drainage

Artificial Drainage System, Poorly Drained Conditions, or High Water Table?

Yes       No

Hydrologic Condition

Good

Poor

# Name and Save the Session

The screenshot displays the NCANAT software interface. A dialog box titled "NCANAT Session Na..." is open in the center, prompting the user to "Please enter a Session Name/ID". The input field contains the text "Conv Com No BMP". The dialog has "OK" and "Cancel" buttons.

In the background, the "Identification" section on the right side of the main window has a "Save" button circled in red. Other buttons in this section include "Exit", "Reset", and "Cancel". Below the identification section are buttons for "Calculate", "Compare", and "View/Print Results".

The main interface includes several input sections:

- Location:** County: ; Mapping Unit:
- Cropping Systems:** Current Crop: ; Most Erosive Crop/Waste Applied:
- Tillage:** Tillage (NLEW): ; Tillage (PLAT):
- Field Acres:**
- Nutrient Applications:** RYE (Producer Derived) - Optional: ; N Application Rate (lbs N / Acre):
- Hydrologic Condition:**  Good;  Poor

The results panel on the right shows:

**NLEW RESULTS**  
Total N Lost = 5,616.1 lbs

**PLAT RATING**

Particulate P	= 8
Soluble P	= 1
Leachate P	= 0
Source P	= 14
<b>Total P Rating</b>	<b>= 23 (High)</b>

**BMP Count = 0**

## Example Session 2 – After Conditions

Same Field Changed Tillage to Conservation Tillage and added a 30-ft BMP Buffer.

The screenshot displays the NCANAT software interface. The main window contains several sections for data entry:

- Location:** County: Davie; Mapping Unit: EnC: Enon fine sandy loam, 8 to 15 percent slopes.
- Cropping Systems:** Current Crop: Corn, Silage; Most Erosive Crop/Waste Applied: Corn, Silage.
- Tillage (NLEW):** Conservation Tillage - minimum residue.
- Tillage (PLAT):** Conservation Tillage - minimum residue.
- Field Acres:** 100; **Nutrient Scavenger Crops:** (empty dropdown); **Field Slope:** 11; **BMPs:** Enter BMPs; **BMP Count = 1**.
- Nutrient Applications:** RYE (Producer Derived) - Optional (empty text box); N Application Rate (lbs N / Acre): 166; P Application Source and Rate (empty dropdown); Nutrient Count = 1.
- Soil:** Soil Loss: 5; Receiving Slope Dist. (ft): 0-9; Soil Test (P-Index, Mehlich 3P): 35; 0" - 4" (empty text box); Weight: Volume-W/ V (Optional): (empty text box); 0" - 4" (empty text box).
- Drainage:** Artificial Drainage System, Poorly Drained Conditions, or High Water Table? (radio buttons): Yes (unselected), No (selected).
- Hydrologic Condition:** Good (radio button selected).

On the right side, there is an **Identification** panel with fields for Tract ID: 01010101, Field ID: 03, and NCANAT Session: Conv Com BMP Buffer 3. Buttons for Exit, Save, Reset, and Cancel are present. Below this are buttons for Calculate, Compare, and View/Print Results.

The **NLEW RESULTS** panel shows: Total N Lost = 5,616.1 lbs. The **PLAT RATING** panel shows: Particulate P = 4, Soluble P = 1, Leachate P = 0, Source P = 14, and Total P Rating = 19 (Low).

A dialog box titled "NCANAT Session Na..." is open, prompting the user to "Please enter a Session Name/ID". The text "Conv Com BMP Buffer 30" is entered in the input field. Buttons for OK and Cancel are at the bottom.

**Name and Save the Session**

About NLEW and PLAT    NCANAT Versioning

Main

Location

County: Davie    Mapping Unit: EnC: Enon fine sandy loam, 8 to 15 percent slopes

Identification

Tract ID: 01010101

Field ID: 03

NCANAT Session: Conv Com BMP Buffer 3

Exit    Save    Reset    Cancel

Calculate    Compare    View/Print Results

**NCANAT Compare Results Dialog**

**Session Names**  
Please select EXACTLY 2 Sessions from the list below.

**Sessions to Compare**  
The 1st selection will be the BEFORE value.  
The 2nd selection will be the AFTER value.

Conv Com BMP Buffer 30  
Conv Com No BMP

→

←

OK    Cancel

Select the Compare Button then select the Before Session First and the After BMP Session Second.

P Application Source and Rate

Nutrient Count = 1

Weight: Volume-W/ V (Optional) 0" - 4"

**NCANAT Compare Results Dialog**

**Session Names**  
Please select EXACTLY 2 Sessions from the list below.

**Sessions to Compare**  
The 1st selection will be the BEFORE value.  
The 2nd selection will be the AFTER value.

Conv Com No BMP  
Conv Com BMP Buffer 30

→

←

OK    Cancel

Identification  
Tract ID: 01010101  
Field ID: 03  
NCANAT Session:  
Conv Com No BMP

Exit  
Save  
Reset  
Cancel

Calculate Compare **View/Print Results**

**NITROGEN REDUCTIONS/ADDITIONS**  
Total N Lost (Before) = 9972.80  
Total N Lost (After) = 9972.80  
REDUCTION = 4356.7 lbs N/yr/field

**PHOSPHOROUS REDUCTIONS/ADDITIONS**  
Particulate P (Before) = 105.37  
Particulate P (After) = 15.81  
REDUCTION = 89.56 lbs P/yr/field

**SEDIMENT REDUCTIONS/ADDITIONS**  
Sediment (Before) = 1000.00  
Sediment (After) = 500.00  
REDUCTION = 500 t/yr/field

View/Print Results allows for keeping hard copy record for your file.

Comparison shows the Reductions/Additions of nitrogen, phosphorous and sediment before and after BMPs.



**North Carolina**

Nutrient Management Planning Software

## **User Manual**

# ***Adding Crops and Rotations***

# Crops/ Rotation

General Sources Fields Narrative Reports

Tract

Field

Use the 'Select' button in the Crops/Rotation column to select a cropping regime for a field.

Copy Field

Remove Field

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	LI	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
3826	1	Greene	36.33	35.1	Jo	1	SL001216 EB	0	Both	Low	Wheat, Grain	Select
3826	4	Greene	25.53	23.5	NoA	1	SL001216 DR1	0	Select	Low	on Bermudagrass P	Select

A 'Choose Crop or Rotation' dialog box will appear. Here a user can select a single crop or rotation.

Choose Crop or Rotation

Select Crop  Select Rotation

Existing Crops

# Crops/ Rotation (single crop)

North Carolina  
Nutrient Management Planning Software

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources Fields Narrative Reports

Tract [dropdown] New  
Field [dropdown] New

Copy Field Remove Field

Tract ID	Field ID	County
3826	1	Greene
3826	4	Greene

**Manure Plan**

1) For a single crop, click in the circle next to 'Select Crop'. 2) Use the down-arrow under 'Existing Crops' to select the crop from the all crops list.

Type the first letter of the crop name to move to that section of the alphabetical list of crops.

Remember that each crop that is selected must have a nutrient application regime assigned to it using the 'Edit Nutrients' function.

# Crops/ Rotation (rotation)

North Carolina  
Nutrient Management Planning Software

Manure Plan

Save Version  
Help About  
Get New NMPlanUser Tables

General Sources Fields Narrative Reports

Tract [dropdown] New  
Field [dropdown] New

Copy Field Remove Field

Tract ID	Field ID	County
3826	1	Greene
3826	4	Greene

Choose Crop or Rotation

Select Crop  Select Rotation

Existing Rotations

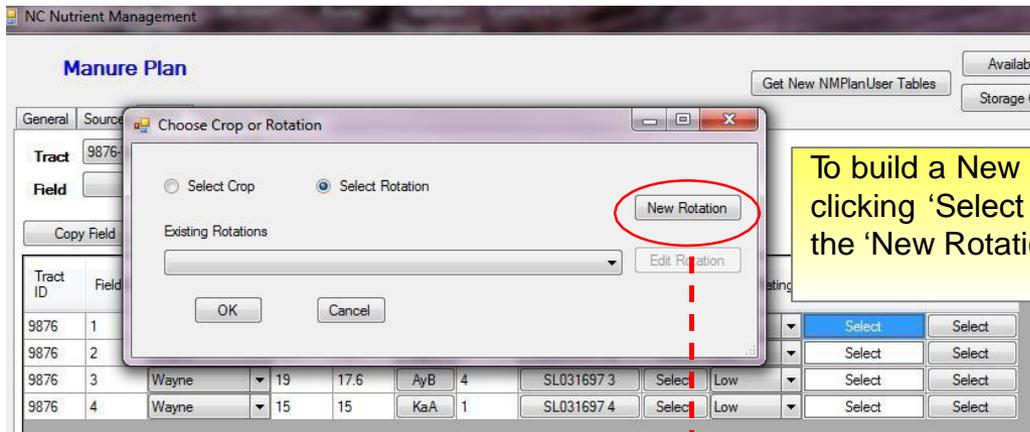
- Corn/Small Grain Silage
- Corn/Small Grain/Mixed Cool Season
- Corn/Wheat/Soybean
- CS,SGS,SB
- CS/SGS/SB
- Soybean Manure/Small Grain Cover
- Tob/Small Grain Cover

New Rotation  
Edit Rotation  
Delete Rotation

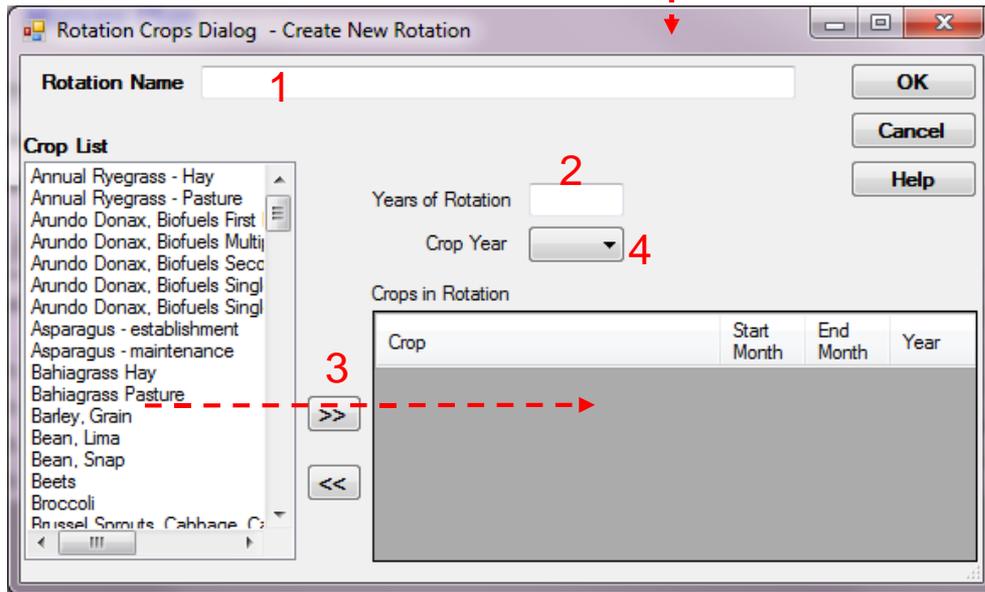
Rotation	Edit Nutrients
eat. Grain	Select
mudagrass P.	Select

1) To select a rotation, click in the circle next to 'Select Rotation'.  
2) Use the down-arrow under 'Existing Rotations' to select the appropriate rotation if a rotation has previously been created.

# Crops/ Rotation (New Rotation Builder)



To build a New Rotation: After clicking 'Select Rotation', click the 'New Rotation' button.



In the Create New Rotation dialog box:

- 1) Assign a 'Rotation Name'.
- 2) Add total Years of the Rotation.
- 3) Move crops (in order) to the Crops in Rotation box by selecting them from the Crop List and clicking on the ">>" button.
- 4) Adjust the 'Crop Year' for a crop if necessary (defaults are usually OK).

The Crop, Start Month, End Month and Year will fill-in automatically.

Start and End Month refer to the time periods when it is OK to apply waste to that crop (based on plant nutrient uptake).

Use the '<<' button to remove a crop from the list if necessary.





**North Carolina**

Nutrient Management Planning Software

**User Manual**  
***Editing Nutrients***

# Edit Nutrients (single crop scenario)

This step is the crux of the plan!

Manure Plan

General Sources Fields Narrative Reports

Tract 9876-Wayne New

Field New

Copy Field Remove Field

Use the 'Select' button in the Edit Nutrients column to attribute nutrient amounts, method and timing for each crop in each field.

Tract ID	Field ID	County	Total Acres	Useable Acres	Soil Mapping Unit	Slope	Soil Sample	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
9876	1	Wayne	21.6	19.3	Go	1	SL031697 A2	Select	Low	Hybrid Bermudagrass Hay	Select
9876	2									t/Soybean	Select
9876	3									t/Soybean	Select
9876	4									Wheat/Com	Select

**Edit Nutrients**

Select Crop: Hybrid Bermudagrass Hay

Crop Name: Hybrid Bermudagras SMU: Go Field ID: 1

Prior Crop: P Assessment: Low Tract ID: 9876

Number Of Sources: P Removal (lbs/Ac): 80 Crop Year: N/A

RYE By User: 6.5 RYE Unit: Tons Soil Sample: SL031697 A2

N Factor By User: 46 Default N: 299

Edit Sources

(lbs/acre)	N	P2O5	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	299	80	0	0	0	0	0	0	0
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	299	80	0	0	0	0	0	0	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	-299	-80	0	0	0	0	0	0	0

OK Cancel Apply

Balance totals are not final until Edit Sources function is completed.

1) Click 'Select' in the Edit Nutrients column. 2) The 'Edit Nutrients' dialog box will appear.

(continued on next slide)

# Edit Nutrients (single crop scenario)

1 Crop Name: Hybrid Bermudagrass SMU: Go Field ID: 1

2 Prior Crop: P Assessment: Low Tract ID: 9876

3 Number Of Sources: 1 P Removal (lbs/Ac): 80 Crop Year: N/A

RYE By User: 0 RYE Unit: Tons Soil Sample: SL031697 A2

N Factor By User: 46 Default N: 299

(lbs/acre)	N	P205	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	299	80	0	0	0	0	0	0	0
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	299	80	0	0	0	0	0	0	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	-299	-80	0	0	0	0	0	0	0

Note the crop and field information that is populated in the top half of the Edit Nutrients screen.

- 1) 'Crop Name' here is single crop (Hybrid Bermudagrass Hay).
- 2) The Prior Crop selection is only applicable when the preceding crop has a residual N credit (e.g. Soybean, SG overseed)
- 3) Select the 'Number of Sources' (that will be applied to this crop/field) from the drop-down list (in this example – 1)

4) All of the recommended N is assigned to Source 1 (default). If applicable, less than the recommended N can come from Source 1. The program assumes the N balance will be met with Fertilizer.

5) Assign all nutrient sources (Starter, Residual, Source 1 & Fertilizer), but ignore 'Balance' for now.

6) Next, click the 'Edit Sources' button.

Balance totals are not final until Edit Sources function is completed.

(lbs/acre)	N	P205	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	299	80	0	0	0	0	0	0	0
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	299	80	0	0	0	0	0	0	0
Source 1	299	0	0	0	0	0	0	0	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	-299	-80	0	0	0	0	0	0	0

4) All of the recommended N is assigned to Source 1 (default). If applicable, less than the recommended N can come from Source 1. The program assumes the N balance will be met with Fertilizer.

5) Assign all nutrient sources (Starter, Residual, Source 1 & Fertilizer), but ignore 'Balance' for now.

6) Next, click the 'Edit Sources' button.

# Edit Nutrients (single crop scenario)

Field ID: 1 Crop: Hybrid Bemudagrass Hay

Available Sources

Swine Lagoon Liquid - Feeder-Finish

Selected Sources

Selected Source Information

Source Name

Application Method

Amount of Source:

7) Select the Source from the 'Available Sources' list and use the arrow to move it to the 'Selected Sources' list.

Note: If more than one source is available one or both can be attributed to a field. Use the left and right arrows to toggle to the appropriate 'Selected Source Information'.

Field ID: 1 Crop: Hybrid Bemudagrass Hay

Available Sources

Selected Sources

Swine Lagoon Liquid - Feeder-Finish

Selected Source Information

Swine Lagoon Liquid - Feeder-Finish Manure

Application Method

Application Period

Start Date 3/1 End Date 9/30

Application Percentage

January	0	May	0	September	0
February	0	June	0	October	0
March	0	July	0	November	0
April	0	August	0	December	0

Apply Total:

8) Choose an 'Application Method' from the drop-down list.

## Edit Nutrients (single crop scenario)

Field ID: 1 Crop: Hybrid Bermudagrass Hay

Available Sources Selected Sources

Swine Lagoon Liquid - Feeder-Finish

Selected Source Information

Swine Lagoon Liquid - Feeder-Finish Manure

Application Method: Irigated

Amount of Source: 299

Nutrients From Source/Acre: 299  
Waste Application Unit : gals  
Application Rate/Acre : 165879  
Application Rate/Field : 3201464  
Application Inches/Acre : 6.109

Application Period

Start Date: 3/1 End Date: 9/30

Application Percentage

January	0	May	0	September	0
February	0	June	0	October	0
March	0	July	0	November	0
April	0	August	0	December	0

Apply Total:

9) Notice the nutrient and application rate information that fills-in when 'Application Method' is selected.

10) Assign the percentage of the source applied by month. Only months within the crop application period can be edited. The total must equal 100%. Use the 'Apply' button to totalize.

11) When information is complete, click 'OK'.

### Helpful hints:

- Nutrient application is ideally timed for maximum plant uptake.
- Anticipated waste accumulation, i.e. waste storage structure levels, must also be factored when selecting timing of waste application on crops.
- Refer to existing published information on agronomic considerations for specific crops in N.C. if you are not familiar with them (e.g. NCSU, CES, NRCS, NCDA, etc.)

# Edit Nutrients (single crop scenario)

**Edit Nutrients**

Select Crop: Hybrid Bemudagrass Hay

Saving Crop Source info for: Hybrid Bemudagrass Hay

Crop Name: Hybrid Bemudagrass SMU: Go Field ID: 1

Prior Crop: Tract ID: 9876

Number Of Sources: 1 P Assessment: Low P Removal (lbs/Ac): 80 Crop Year: N/A

RYE By User: 6.5 RYE Unit: Tons Soil Sample: SL031697 A2

N Factor By User: 46 Default N: 299

**Edit Sources**

(lbs/acre)	N	P2O5	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	299	80	0	0	0	0	0	0	0
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	299	80	0	0	0	0	0	0	0
Source 1	299	231	1377	155	51	2	9	2	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	12	151	1377	155	51	2	9	2	0

**13** OK Cancel Apply

Balance totals are not final until Edit Sources function is completed.

12) The 'Balance' should now equal zero. Adjust N column numbers if necessary. Use 'Apply' to total.

This row indicates nutrient recommendations (RYE database for N, soil test report for others).

This row indicates nutrients supplied by manure source(s).

This row indicates expected nutrient balance following annual manure application cycle.

13) Final Step: Click 'OK'.

# Edit Nutrients (rotation scenario)

This step is the crux of the plan!

NC Nutrient Management

**Manure Plan**

General Sources Fields Narrative Reports

Tract: [Dropdown] New

Field: [Dropdown] New

Copy Field Remove Field

Get New NMPlanUser Tables Available PAN Save Storage Capacity About

In a single field/multiple crop scenario you will need to attribute nutrient amounts and timing for all members of the rotation.

Tract ID	Field ID	County	Total Acres	Useable Acres	Soil Mapping Unit	Slope	Soil Sample	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
9876	1	Wayne	21.6	19.3	Go	1	SL031697 A2	Select	Low	Hybrid Bermudagrass Hay	Select
9876	2	Wayne	13.7	13.7	NoA	1	SL031697 B2	Select	Low	Corn/Wheat/Soybean	Select
9876	3	Wayne	19	17.6	AyB	4	SL031697 3	Select	Low	Corn/Wheat/Soybean	Select
9876	4	Wayne	15	15	KaA	1	SL031697 4	Select	Low	Soybeans/Wheat/Corn	Select

Edit Nutrients

Select Crop

Crop 1 of 3

Com, Grain

Com, Grain

Wheat, Grain

Soybeans, Manured, Double Crop

Prior Crop: [Dropdown] P Assessment: Low

SMU: NoA Field ID: 2

Tract ID: 9876

Number Of Sources: [Dropdown] P Removal (lbs/Ac): 61

Crop Year: 1

Soil Sample: SL031697 B2

RYE By User: 138 RYE Unit: Bushels

N Factor By User: 0.95 Default N: 131

Edit Sources

(lbs/acre)	N	P205	K2O	Ca	Mg	Mn	Zn	Cu	Lime
Recommended	131	60	0	0	0	0	0	0	0
Starter	0	0	0	0	0	0	0	0	0
Residual	0	0	0	0	0	0	0	0	0
Required	131	60	0	0	0	0	0	0	0
Fertilizer	0	0	0	0	0	0	0	0	0
Balance	-131	-60	0	0	0	0	0	0	0

OK Cancel Apply

Balance totals are not final until Edit Sources function is completed.

- 1) Click 'Select' in the Edit Nutrients column next to the rotation.
- 2) The 'Edit Nutrients' dialog box will appear.
- 3) Use the drop-down list under 'Select Crop' to select members of the rotation individually.

Proceed with the same Edit Nutrients steps as a single crop for each individual crop in the rotation (in this e.g. Corn, Wheat and Soybeans).



**North Carolina**

Nutrient Management Planning Software

# **User Manual**

## ***Narratives and Reports***

# Narrative

The screenshot displays the 'NC Nutrient Management - Version: 1.0.0.1101' application window. The title bar includes standard window controls. The main header features the North Carolina Nutrient Management Planning Software logo and the text 'Manure Plan'. On the right side of the header, there are buttons for 'Save', 'Version', 'Help', 'About', and 'Get New NMPlanUser Tables'. Below the header is a tabbed interface with 'General', 'Sources', 'Fields', 'Narrative', and 'Reports' tabs. The 'Narrative' tab is selected, showing a 'Plan Narrative' section with a large text area containing the following text:

The Narrative Tab offers a screen to write or copy a narrative to be included with the plan.

The narrative will appear in the Reports List on the Reports tab.

Concise and informative narratives can be very helpful users of the plan.

At the bottom of the text area is a 'Save' button.

# Narrative

NC Nutrient Management - Version: 1.0.0.1101



Save

Version

Help

About

Get New NMPlanUser Tables

Manure Plan

General Sources Fields Narrative Reports

Plan Narrative :

Use the Narrative to address some or all of the following:

- describe operation and location
- describe waste storage structures and equipment.
- describe watershed and actions taken to address water quality criteria for feedlot, production area and waste application fields
- explain or clarify information contained in tables
- show all relevant calculations
- provide additional information needed by the operator and/or inspector to understand N (and P) budgets
- describe how to use the nutrient management plan
- outline operation & maintenance requirement (NRCS Standard 590)
- summarize tracts, fields, ownership, soil sample codes, etc.

Save

# Reports



## Report List

- Cover Sheet
- Sources in Plan
- Planned Crops Summary
- Waste Utilization
- Narrative
- Required Soil Test Values
- Lagoon Sludge Nitrogen Utilization
- Available Storage Capacity
- Required Specifications
- NRCS 590 Job Sheet
- Crop Notes

## PDF List

- Emergency Action Plan
- Insect Control
- Mortality Management
- Odor Control - Cattle
- Odor Control - Horse
- Odor Control - Poultry
- Odor Control - Swine

Reports are generated from the information provided by the user.

If all required data is not entered within the software, a report will not be created.

Specific Reports will be available dependent upon plan type.

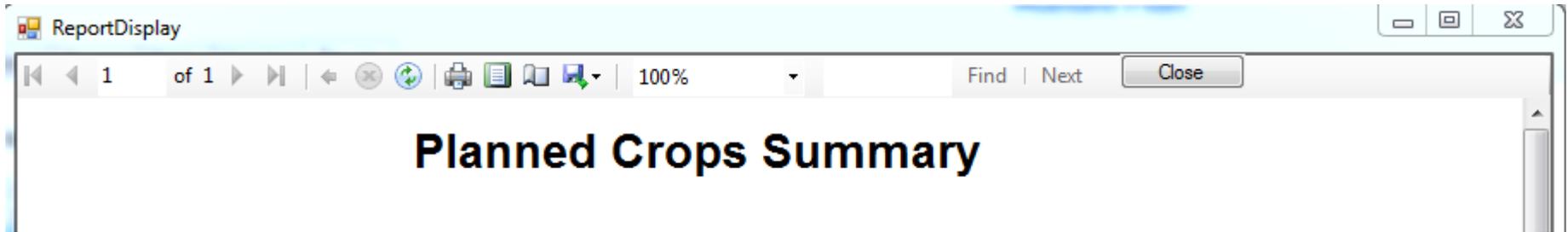
View Report

View Selected PDF

Select a report and then use 'View Report' to view, print or export directly from that report.

All of the Reports that are available to be printed or exported will be in the Reports list.

# Reports



Each Report will have a toolbar across the top that will allow for the following:

- Scroll to each page or jump to end/beginning of document
- Refresh the report - These reports will automatically change as information is changed by the user.
- Print – Report will print to a local printer.
- Page Layout - User can see a preview of report layout prior to printing.
- Page Setup - User can reset margins and page orientation.
- Save – Users will have three options formats to save each report. (excel, .pdf and word). Due to the ability for these reports to change as new information is entered, it is highly recommended that users set up a system to save final .pdf versions as a reference document should older copies be needed.
- Size – User can resize the view of the report
- Search – User is able to search for a specific word or phrase.

# Reports



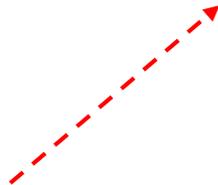
General Sources Fields Narrative Reports

### Report List

Cover Sheet  
Sources in Plan  
Planned Crops Summary  
Waste Utilization  
Narrative  
Required Soil Test Values  
Lagoon Sludge Nitrogen Utilization  
Available Storage Capacity  
Required Specifications  
NRCS 590 Job Sheet  
Crop Notes

### PDF List

Emergency Action Plan  
Insect Control  
Mortality Management  
Odor Control - Cattle  
Odor Control - Horse  
Odor Control - Poultry  
Odor Control - Swine



PDF List are additional reference materials that are required to be included in a certified nutrient management plan. These are static reports and are not generated from the information provided by the user.

View Report

Select a report and then use 'View Report PDF' to view, print or export directly from that report.

View Selected PDF

All of the PDFs that are available can be printed or saved.



**North Carolina**

Nutrient Management Planning Software

## **User Manual**

# ***Closures and Cleanouts***

# 1. Be sure the waste samples and volume estimates reflect the method of sludge removal!

Different Methods of Sludge Removal & Land Application:

- Agitate and combine liquid and sludge layers, apply as a 'slurry' on sludge application fields.
- Irrigate most of the liquids on existing spray-fields, retain just enough liquid to use for agitating the sludge. Tank haul the sludge mix to sludge application fields.
- Dredge the sludge and tank haul to sludge application fields.
- Irrigate most of the liquids on existing spray-fields, dredge sludge and remaining liquid, and tank haul to sludge application fields.

- **The method of removal will have a significant impact on volume and nutrient concentration of material removed.** For example, agitation and pumping will result in a high volume of slurry (sludge and liquid), versus dredging which results in a lesser volume (sludge and some liquid). **Volume estimates and waste sampling should appropriately reflect the material (solid vs. liquid) that will be applied.**
- **Sludge should be applied only to fields not used for continual animal waste application** to prevent prohibitive phosphorus and persistent metal build-up. If the sludge is to be applied on spray fields already listed in the CAWMP, the overall PAN balance must include the additional PAN from the sludge and still remain in a PAN deficit for the animal operation.
- Provisions must be taken to **prevent damage** to lagoon dikes and liner.

- If sludge is applied on **conventionally tilled bare soil**, the waste shall be **soil-incorporated within 2 days** after application or before the next rainfall event, whichever is first.
- Permittee is to document sludge applications to all fields (owned/leased) in the sludge plan and balance priority nutrients using a current waste analysis (within 60 days), on SLUR-1/SLUR-2 forms, or other DWR-approved forms.
- For sludge transfers, the Permittee must document the name and address of the recipient, and volume of sludge removed from the farm. The third party receiver is to be provided with a current sludge/liquid waste analyses and information for proper land application as required by the farm's permit.

## 2. Create New Plan:

The screenshot displays the 'NC Nutrient Management - Version: 1.0.0.1100' application window. The main interface features the North Carolina Nutrient Management Planning Software logo and the title 'Manure Plan'. A navigation bar includes tabs for 'General', 'Sources', 'Fields', 'Narrative', and 'Reports'. The 'General' tab is active, showing a 'New Plan' button and a 'Select Plan' button. Below these are input fields for 'Plan Name' and 'Date Created/Modified:'. The main area contains three plan categories: 'FARM', 'DEVELOPER', and 'DEVELOPER', each with a large empty box and an 'Edit' button. A 'New Plan Dialog' window is open in the center, prompting the user to 'Please Enter a Plan Name:' with the text 'Lagoon Cleanout Ex' entered. Below this, it asks to 'Please Select a Plan Type:' with four radio button options: 'Fertilizer', 'Poultry Litter', 'Manure', and 'Closure/Cleanout' (which is selected). 'OK' and 'Cancel' buttons are at the bottom of the dialog. In the top right corner, there are buttons for 'Save', 'Version', 'Help', 'About', and 'Get New NMPlanUser Tables'. At the bottom of the window, a footer section reads: 'Contributions towards the development of the NC Nutrient Management Planning Software were made by: NCSU Soil Science Department, NC Interagency Nutrient Management Committee DEQ - 319 Grant Program, and NC Foundation of Soil & Water Conversation NC Environmental Enhancement Grant Program'.

### 3. Farm, Owner, Developer:

Select Farm Owner/Manager and Developer information from prior plans or enter as a new entry.

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Nutrient Management Planning Software

Save Version  
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Closure/CleanOut Plan

General CCSources Fields Narrative Reports

New Plan Select Plan

Plan Name: Lagoon Cleanout Ex

Date Created/Modified: 7/1/2016

FARM	OWNER/MANAGER	DEVELOPER
Please enter farm info	Please enter owner info	Please enter developer info
Edit	Edit	Edit

Contributions towards the development of the NC Nutrient Management Planning Software were made by:

NCD&CS NCSU Soil Science Department	NC Interagency Nutrient Management Committee DEQ - 319 Grant Program	NC Foundation of Soil & Water Conservation NC Environmental Enhancement Grant Program
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# 4. Sources:

NC Nutrient Management - Version: 1.0.0.1100

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Closure/CleanOut Plan

General CCSources Fields Narrative Reports

**Waste Structure**

Farm: Bought The Farm

Structure Name:  New/Edit

**Dimensions**

	Length(ft)	Width(ft)	Side Slopes
Top	<input type="text"/>	<input type="text"/>	<input type="text"/> : <input type="text"/>
Bottom	<input type="text"/>	<input type="text"/>	<input type="text"/> : <input type="text"/>

**Waste Analysis Report**

Sample Id/Name List:  New/Edit

Report No:  Report Date:  Sample Type:

Date Measured:  Waste Depth(ft):  Volume(gals):

Source:  Show Results(ppm)...

**Available Closure/Cleanout Sources:**

Save Delete

Source	Volume (gals)	Structure Name	Liquid Sample	Liquid Volume	Sludge Sample	Sludge Volume	Slurry Sample	Slurry Volume

First click new/edit to create a new waste storage structure and enter the dimensions of the waste structure

# 4. Sources:

Next Enter Waste Analysis Report Information

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Closure/CleanOut Plan

General CCSources Fields Narrative Reports

**Waste Structure**

Farm: Bought The Farm

Structure Name: Lagoon 1

**Dimensions**

	Length(ft)	Width(ft)	Side Slopes
Top	500	100	2 : 1
Bottom	450	75	

**Waste Analysis Report**

Sample Id/Name List:

Report No:  Report Date:  Sample Type:

Date Measured:  Waste Depth(ft):  Volume(gals):

Source:  

**Available Closure/Cleanout Sources:**

Source	Volume (gals)	Structure Name	Liquid Sample	Liquid Volume	Sludge Sample	Sludge Volume	Slurry Sample	Slurry Volume
--------	---------------	----------------	---------------	---------------	---------------	---------------	---------------	---------------

# 4. Sources:

Next click on New/Edit for the Waste Analysis Report. Here you will enter information from the waste analysis and sludge survey

The screenshot displays the 'North Carolina Nutrient Management Planning Software' interface. The main window is titled 'Closure/CleanOut Plan' and has tabs for 'General', 'CCSources', 'Fields', 'Narrative', and 'Reports'. The 'Waste Structure' section includes fields for 'Farm' (Bought The Farm), 'Structure Name' (Lagoon 1), and 'Dimensions' (Length, Width, Side Slopes). The 'Waste Analysis Report' section includes 'Sample Id/Name List', 'Report No.', 'Report Date', 'Sample Type', 'Date Measured', 'Waste Depth(ft)', 'Volume(gals)', and 'Source'. A 'New/Edit' button is visible in the 'Waste Analysis Report' section.

An overlaid modal dialog titled 'frmWasteAnalysisSample' contains the following fields:

- Waste Structure Name: Lagoon 1
- Farm Name: Bought The Farm
- Sample Id/Name List: New
- Report No.: [empty]
- Report Date: 7/ 1/2016
- Sample Id/Name: [empty]
- Date Measured: 7/ 1/2016
- Sample Type: [empty]
- Waste Depth(ft): [empty]
- Volume(gals): [empty]
- Results (ppm) table with columns: N, p, K, Ca, Mg, S, Mn, Zn, Cu, B, CCE
- Source List: [empty]
- Source Name: [empty]
- Operation Type: [empty]

A red arrow points to the 'How to create Sources...' button in the modal dialog.

At the bottom of the modal dialog are 'New', 'Save', and 'Delete' buttons.

Tutorial how to create sources

# 4. Sources:

Enter all Waste Analysis Information and click Save

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North Carolina  
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Closure/CleanOut Plan

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General CCSources Fields Narrative Reports

**Waste Structure**  
Farm: Bought The Farm  
Structure Name: Lagoon 1  
Dimensions:  
Top Length(ft) 500 Width(ft) 100 Side Slopes 2 : 1  
Bottom Length(ft) 450 Width(ft) 75

**Waste Analysis Report**  
Sample Id/Name List: New  
Report No: Report Date: Sample Type:  
Date Measured: Waste Depth(ft): Volume(gals):  
Source: Show Results(ppm)...

Available Closure/Cleanout Sources:

Source	Volume (gals)

**frmWasteAnalysisSample**

Waste Structure Name: Lagoon 1 Farm Name: Bought The Farm  
Sample Id/Name List: New Report No: Report Date: 7/ 1/2016  
Sample Id/Name: Closure Ex Date Measured: 7/ 1/2016  
Sample Type: Sludge Waste Depth(ft): 4 Volume(gals): 620493

Results (ppm)

N	P	K	Ca	Mg	S	Mn	Zn	Cu	B	CCE
18600	3540	706	3680	2410	1620	132	734	432	7.08	0

Source List: Lagoon 1 Fall Closure  
Source Name: Lagoon 1 Fall Closure  
Operation Type: Swine Lagoon Sludge - Feeder-Finish

New Save Delete Exit

# 4. Sources:

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Nutrient Management Planning Software

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General CCSources Fields Narrative Reports

**Waste Structure**  
Farm: Test Farm  
Structure Name: test 8.10.16 New/Edit  
Dimensions  
Top Length(ft) 124 Width(ft) 124 Side Slopes 2 : 1  
Bottom Length(ft) 110 Width(ft) 110 Side Slopes

**Waste Analysis Report**  
Sample Id/Name List: Test8.10.16 New/Edit  
Report No: W0001 Report Date: 8/10/2016 Sample Type: Liquid  
Date Measured: 8/9/2016 12:00 Waste Depth(ft): 5 Volume(gals): 400000  
Source: Show Results(ppm)...

Available Closure/Cleanout Sources:  
Save Delete

Source	Volume (gals)	Structure Name	Liquid Sample	Liquid Volume	Sludge Sample	Sludge Volume	Slurry Sample	Slurry Volume
Test8.10.16	400000	test 8.10.16	0	0	0	0	Test8.10.16	400000

Select your Available Closure Source from your Waste Report

# 5. Fields:

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Nutrient Management Planning Software

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Closure/CleanOut Plan

General CCSources **Fields** Narrative Reports

Tract 123-Guilford New  
Field New

Copy Field Remove Field

Tract ID	Field ID	County	Total Acres	Wettable Acres	Soil Mapping Unit	Slope	Soil Sample	NCANAT	PLAT Rating	Crops/Rotation	Edit Nutrients
123	01	Guilford	21.3	19.7	ApB	4	SL027429 JB1	Select	Low	om/Wheat/Soybea	Select
123	02	Guilford	24.3	24	ChA	1	SL027429 BM2	Select	Medium	Fescue Hay	Select

- Enter Field information including soil samples, PLAT ratings, and crops
- Sludge should be applied to fields not used for continual animal waste application to prevent prohibitive phosphorus and persistent metal build-up. If the sludge is to be applied on spray fields already listed in the CAWMP, the overall PAN balance must include the additional PAN from the sludge and still remain in a PAN deficit for the animal operation.

# 5. Fields - Edit Sources

Field ID: 01      Crop: Corn, Silage

Available Sources: [Empty]

Selected Sources: Test8.10.16

Selected Source Information: Test8.10.16

Application Method: Broadcast

Amount of Source: 194

Application Period: Start Date 2/15, End Date 6/30

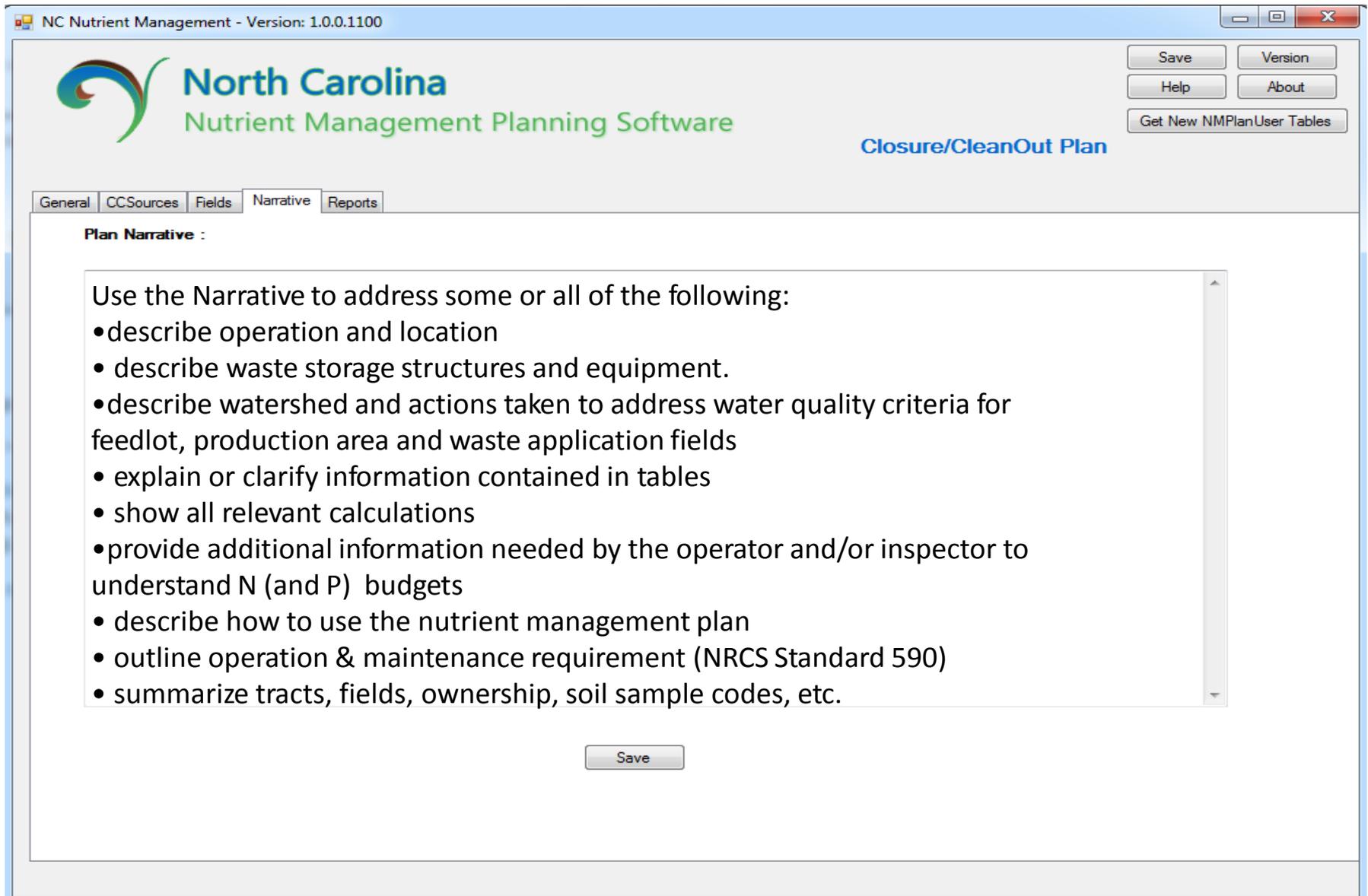
Application Percentage:

January	0	May	0	September	0
February	0	June	0	October	0
March	100	July	0	November	0
April	0	August	0	December	0

Application Rate/Field: 73661.17  
Application Inches/Acre: 0.027

Verify Application Rate/Field and Inches/Acre.

## 6. Narrative:



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 **North Carolina**  
Nutrient Management Planning Software

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Closure/CleanOut Plan

General CCSources Fields **Narrative** Reports

**Plan Narrative :**

Use the Narrative to address some or all of the following:

- describe operation and location
- describe waste storage structures and equipment.
- describe watershed and actions taken to address water quality criteria for feedlot, production area and waste application fields
- explain or clarify information contained in tables
- show all relevant calculations
- provide additional information needed by the operator and/or inspector to understand N (and P) budgets
- describe how to use the nutrient management plan
- outline operation & maintenance requirement (NRCS Standard 590)
- summarize tracts, fields, ownership, soil sample codes, etc.

Save

# 7. Reports:

The screenshot displays the 'NC Nutrient Management - Version: 1.0.0.1101' application window. The title bar includes standard window controls. The main header features the North Carolina logo and the text 'North Carolina Nutrient Management Planning Software'. On the right side of the header, there are buttons for 'Save', 'Version', 'Help', 'About', and 'Get New NMPlanUser Tables'. Below the header, the 'Closure/CleanOut Plan' section is active, with a tabbed interface showing 'General', 'CCSources', 'Fields', 'Narrative', and 'Reports'. The 'Reports' tab is selected, displaying two columns: 'Report List' and 'PDF List'. The 'Report List' contains the following items: Cover Sheet, Sources in Plan, Source Description, Planned Crops Summary, Waste Utilization, Narrative, Land Application Table, Soil Metal Indices, Required Soil Test Values, Required Specifications, and NRCS 590 Job Sheet. The 'PDF List' contains: Emergency Action Plan, Insect Control, Mortality Management, Odor Control - Cattle, Odor Control - Horse, Odor Control - Poultry, and Odor Control - Swine. Below these lists are buttons for 'View Report' and 'View Selected PDF'. A yellow callout box at the bottom of the window contains the text: 'Select The Appropriate Closure Report From The Report List Then Select View Report'.

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Save Version  
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Closure/CleanOut Plan

General CCSources Fields Narrative Reports

**Report List**

- Cover Sheet
- Sources in Plan
- Source Description
- Planned Crops Summary
- Waste Utilization
- Narrative
- Land Application Table
- Soil Metal Indices
- Required Soil Test Values
- Required Specifications
- NRCS 590 Job Sheet

**PDF List**

- Emergency Action Plan
- Insect Control
- Mortality Management
- Odor Control - Cattle
- Odor Control - Horse
- Odor Control - Poultry
- Odor Control - Swine

View Report View Selected PDF

Select The Appropriate Closure Report From The Report List Then Select View Report



**North Carolina**

Nutrient Management Planning Software

# **User Manual**

***NCANAT***

# **NC Agricultural Nutrient Assessment Tool (NCANAT) -User Manual**

## **Introduction**

North Carolina Nutrient Assessment Tool, Version 2.0 contains two field-scale assessment tools: Nitrogen Loss Estimation Worksheet (NLEW) and Phosphorus Loss Assessment Tool (PLAT) and this tool has been integrated into the NC Nutrient Management Software.

NLEW was developed in response to the Neuse Rules. In August of 1998, the Neuse Rules became law. These rules represented a series of regulations that control point and nonpoint source discharges of nitrogen into the Neuse. As a result of the Local Option that was added to the agricultural best management practice (BMP) rules, producers can join a local strategy rather than implementing mandatory BMPs. The local strategy allows a county to determine where the approved BMPs can be installed to obtain the 30% nitrogen reduction. In addition, the local option provides a few more alternatives to the list of BMPs, such as unfertilized cereal cover crops and no-till corn in the Piedmont, than the standard BMPs. In exchange for this flexibility, however, the rules mandated accountability. The accounting and tracking tool that has been developed to meet the requirements of the Neuse Rules is the Nitrogen Loss Estimation Worksheet (NLEW). In addition, NLEW was adopted by the NC Division of Soil and Water Conservation in 1996 as the method to estimate BMP effects on relative nutrient dynamics for projects funded with Agriculture Cost- Share Program funds. It is also being used in the Tar-Pamlico River Basin.

PLAT was developed in response to the new USDA-Natural Resource Conservation Service (NRCS) nutrient management standard (590). The charge was given that each state must assess phosphorus (P) status during nutrient management planning if animal waste is involved or the field is within an impaired watershed. Three selection strategies were allowed (soil test, environmental test and P index). The North Carolina Phosphorus Loss Assessment Committee chose to use a modified P index assessment method; a unique P assessment method was designed for North Carolina conditions. This P assessment is known as the NC Phosphorus Loss Assessment Tool or PLAT.

## **How to Use NCANAT**

The program allows users to run NLEW alone, PLAT alone or both NLEW and PLAT simultaneously. In the Nutrient Management Software – Fields tab, you may select the following options:

1. NLEW
2. PLAT, and
3. NLEW And PLAT

Simply click the button that corresponds to the program(s) you want to run and the necessary input boxes will be displayed.

## Identification

### *Calendar Year*

- The current calendar year will automatically display in the calendar year box. Should you want another year, use the pull-down menu to enter the calendar year. For crops that span two calendar years, such as wheat, count the crop in the calendar year during which it is harvest. For example, if your wheat crop is planted during the fall of 1999 but harvested the spring of 2000, you would count your wheat crop for the 2000 calendar year.

### **Tract number**

- Populated based on input data from Nutrient Management Software.

### **Producer ID**

- User can be identified numerically or alphabetically.

### **Field number**

- Populated based on input data from Nutrient Management Software.

## Location

### **County**

- Populated based on input data from Nutrient Management Software.

### **Soil mapping unit**

- Populated based on input data from Nutrient Management Software.

## Cropping System

### **Current Crop (NLEW only)**

- Use the pull-down menu to enter the crop for the current year.

### **Most Erosive Crop (PLAT only)**

- Use the pull-down menu to enter the crop in the rotation that is the most erosive.

### **Field Slope (NLEW only)**

- Populated with the average slope for soil type selected in the Nutrient Management Software.

### **Field Acres (NLEW only)**

- Populated based on input data from Nutrient Management Software.

### **Nutrient Scavenger Crop (NLEW only)**

- Select the cover crop type that was used. (Cover crop must be seeded by November 30 and killed no sooner than April 1 in the Coastal Plain and April 10 in the Piedmont to receive credit as a cover crop.)

### **BMP**

- Select the BMP and then click the arrow pointing to the right. If the BMP is a buffer, a new input box will popup. Use the pull-down menu to select the minimum buffer width (in increments of 5 feet). When NLEW is being used you will also be asked for the number of acres affected by the buffer. Please enter this number. Continue to add as many BMPs as appropriate. Press “OK” when all the appropriate information has been added.

## **Nutrient Application**

### **RYE (Producer Derived – NLEW only)**

If the producer knows the crop RYE (average best 3 out of 5 years) for the soil series of the soil mapping unit, enter the value in units/acre.

### **Phosphorus Application Source and Rate (for PLAT)**

- Select Source
- Enter the amount of the material that you are applying into the “Yearly\_App\_Amount” column, unless you are applying a fertilizer and you know the actual amount of P205 that you are applying. The application units of the material are in the next column (Application\_units).
- The amount of P205 is listed in the column “lb\_P205”. If the material is animal waste, this column represents the pounds of P205 per unit applied. The column to the right, “Content\_Unit”, lists the units of the material. If you have your own waste analysis, change the value in the “lb\_P205” to reflect your value. If you are working with fertilizers, you have two choices: 1) if you know the amount of P205 that you are applying, simply enter this value in the column that reads “lb\_P205”. 2) Otherwise enter the amount of fertilizer that you are apply in the “Yearly\_App\_Amount” column and then enter the phosphorus analysis of the fertilizer in the “%\_P205” column.
- Double click on the line “AppMethod”. Then use the pull down menu to select the application method of the nutrients.

### **Nitrogen Application Rate (for NLEW)**

- Enter the amount of material you are applying in units lbs N/acre

## **Soil (PLAT only)**

### **Soil Loss (t/ac/yr)**

- Enter the amount of erosion in tons/acre/year, calculated from RUSLE.

### **Receiving Slope Distance (feet)**

- Enter the receiving slope distance. The receiving slope is the concave slope extending from the base of the RUSLE slope to the field edge or to a source of concentrated runoff flow in a defined channel.

### **Soil Test (P-I)**

- If soil tests were uploaded for the specific field within the Nutrient Management Software, then this information will be populated.
- If you did not, then enter your agronomic soil test value.

### **Weight:Volume (W/V) Ratio**

- If soil tests were uploaded for the specific field within the Nutrient Management Software, then this information will be populated.
- If you did not, then enter your weight:volume ratio value.
- A second soil test box may be visible for the 28-32" depth. If the box is visible, you will need to take a deep soil sample at the 28-32" depth. Enter the weight:volume ratio value for this sample.

## **Drainage (PLAT only)**

### **Artificial Drainage**

- This box will only be viewable if the soil is a poorly drained soil, otherwise this box will not be viewable, but you will have the option to enter information in the Hydrologic Condition box. If the field is drained, even if the drainage is irregular, this should be considered a drained soil. Click "yes" to denote a drained field.
- For regularly spaced drainage ditches or tile drainage, simply enter the required spacing and depth information. To compute the drainage spacing for irregularly drained soils, calculate the area drained and divide by the total length of the drainage (which may include streams, ditches, or tilled drainage). Enter this number as your drain spacing. Determine the average depth of the drainage devices and enter this as your drain depth.
- If the field is not drained, and you click "NO", then proceed to Hydrologic Condition.

### **Hydrologic Condition (PLAT only)**

- If there is artificial drainage, the drainage input box is not viewable.

- If there is only one hydrologic condition, that condition will already be checked. If there is more than one hydrologic condition, you will need to check the appropriate condition. Hydrologic condition is based on factors that affect infiltration and runoff, including density and percent canopy of vegetation, amount of year round cover, amount of grass or close seeded legumes in rotation, percent of surface residue cover, and surface roughness.
- Cropland choices are Good or Poor. A poor condition is a finely prepared seedbed, not drilled, with a low plant population, and not in rotation with a sod. A good condition is rough seedbed, high plant population, and in rotation with sod, high residue-producing crop, or conservation tillage.
- Pasture choices are Good, Fair, or Poor. A poor condition is over-stocked, under fertilized, low year-round plant population and poor plant condition. A good condition is properly stocked, adequate nutrient management, and a full plant population (nearly 100% cover). A fair condition is represented by factors less than “Good” and better than “Poor”, and is determined at the planner ’s discretion.

## Calculate

- Press the "Calculate" button at the top right of the screen. The output will be calculated and the value will be displayed under the calculate button.
- If PLAT has been run, each P loss pathway is expressed in terms of an index and the total assessment is stated both verbally (low, medium, high, or very high) and numerically.
- If NLEW is run, the total N loss is stated.

## View/Print Results

- Press the "Print Results" button to look at a detail of the inputs and outputs. Inputs for the current run can be viewed on this page as well as the outputs. For a listing of the inputs and outputs see Appendix 1.
- Click "Print" to obtain a printed copy or click "Print to file" in order to save the output as a text file.
- Comments can be appended to the output by pressing the “Add Comments” button.

## Record Buttons

### Save Button

- Press the "Save Record" button to save the file. You will need to name the file. All files will be saved consecutively. The files are saved under the name you gave the file and are saved in the following path: Program Files/USI/NCANAT/UserTables/UserInputs.DBF. Once you have saved the record, it can then be imported into data bases or spreadsheets.

### Importing Save Records into Access

- Open Access. A box will come up for you to choose: Blank Database, Database Wizard, or Open an Existing Database. Choose 'Blank Database' and click OK.

- Once you click OK another box will come up titled, 'File New Database'. In the 'File name' box at the bottom will be a file called 'db1.mdb.' This is the default file that you can change to any name you want (the extension still has to be .mdb though). Once you are satisfied with the name click the 'Create' Button to the right.
- A window will come up with multi-tabs on it. The first tab is 'Tables' which is what you want. Click the 'New' button to the right.
- In the next window that appears, choose 'Import Table' and click 'OK'.
- In the next window that appears, go to 'Files of type' on the bottom and choose 'dBase IV (\*.dbf)'. There are many different dbase tables so make sure you select the right one.
- Then browse through your directories and select whatever DBF File you want to view and click the 'Import' button.
- Any table or tables that you selected will be put into the .mdb file that you named earlier.

### **Importing Save Records into Excel of Dbase**

- To import the contents of the table into a data base or spreadsheet program, such as Excel or DBase, start the pr2.
- Open the program you want to use. Then use "open a file" option and find the following path: Program Files\USI\NCANAT\UserTables\UserInputs.DBF. When you get to user tables, select "all files". (Selecting "all files" will allow all the data base files to be visible.) This brings all stored records into your data base.

### **New Record Button**

- Click the "New Record" button to start a new run. All records will clear.

### **Find Record Button**

- To find a record, click "Find Record" button. You will be asked for the name under which the record is save. Type in the name of the record information will appear in the input boxes.

### **Record View**

- This table allows you to see each input you have made to a record. To move through the records, either use the scroll bar on the far right-hand side or the scroll bar on the bottom. You can select a record by clicking on the gray box on the far left-hand side next to the record you are interested in.
- Once you have clicked on a record, the information for the record you have indicated will be in the input boxes when you return to the input table.

## **Symbols at the Top**

### **Reset**

- This button will reset all field entry not associated with the Nutrient Management Software inputs.

## Exit

- This button will exit the program. The record details will not be saved; however, the PLAT rating results will be populated within the Nutrient Management Software.

## INPUTS and OUTPUTS for NCANAT

### Inputs for NLEW consist of

- Tract Number
- Field Number
- County
- Mapping Unit (Soil Series)
- Crop (Current Crop) & Tillage
- Field Slope
- Field Acres
- Nutrient Scavenger Crop
- Crop NUE (nitrogen use efficiency which is pulled from a data table)
- RYE (either producer supplied or determined from the data base table using the appropriate RYE based on soil mapping unit, field slope and crop)
- NFactor (N factor taken from the data base and used to determine total N needs)
- N Application Rate. This information is derived from the Application Source And Rate table. In NLEW, this is the amount of N fertilizer supplied to the crop.
- Recommended N Application Rate. This nitrogen recommendation is based on the RYE and N factor.
- BMPs (best management practices that reduce N losses)
- BMP Acres Affected (the number of acres that are affected by the BMP)

### The outputs for NLEW are as defined below:

1. N\_Applied = the amount of N applied by the producer.
2. N\_Needed = the appropriate N fertilization rate as determined by RYEs and N factors.
3. Excess\_N (Field acres) = if the total amount of nitrogen applied to a field is greater than the recommended application amount, then there will be excess N.
4. Excess\_N\_Surface = of the excess nitrogen that is applied, this is the amount that is lost through surface processes.
5. Excess\_N\_Subsurface = of the excess nitrogen that is applied, this is the amount that is lost through subsurface processes.
6. N\_Needed\_Field = amount of N recommended on a field-basis. This amount is determined either from the user-supplied RYE or the database supplied RYE and multiplied by the size of the field.
7. Utilized\_N\_Crop = the amount of nitrogen used by the crop. This is determined by the recommended N amount multiplied by the nitrogen use efficiency factor (NUE).
8. N\_Lost After Crop = the amount of nitrogen not used by the crop. It is the N\_Needed – Utilized\_N\_Crop.

9. N\_Lost Before BMPs = the amount of nitrogen not absorbed by the crop + the excess N in the subsurface due to excess N application. This N can be lost to the shallow ground water. To obtain N\_Lost Before BMPs, N\_Lost After Crop and Excess\_N\_Subsurface are added.
10. N\_Lost\_After\_Cover\_Crops = the amount of nitrogen remaining in the soil that can be lost to the shallow ground water after a cover crop has been utilized.
11. N\_Lost\_After\_BMP = the amount of nitrogen remaining in the soil that can be lost to the shallow ground water after a BMP has been utilized.
12. Total\_N\_Lost = both the N lost through surface and subsurface processes.

Some of the inputs for PLAT are identical to NLEW:

- Tract Number
- Field Number
- County
- Soil Mapping Unit
- Crop and Tillage
- BMPs.

Some of the inputs, however, are different. These unique inputs may include:

- Soil Loss
- Receiving Slope Distance
- Soil Test (agronomic depth)
- Soil Test (at the 28" - 32" depth), if it is used
- Weight:Volume (optional)
- Hydrologic Condition or Drainage Spacing and Depth.
- Phosphorus Application Source and Rate

The outputs for PLAT are simply the indexed ratings for each of the four loss pathways and the total rating.

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