SnapPlus Version 3

Wisconsin's Nutrient Management Software

Contents

SnapPlus Tip: SnapPlus auto-fills checkboxes on the **NM5 590 Checklist Report** based on NMP data and your answers to questions when generating the report. It is your responsibility to review and sign the checklist. See the **NM Checklist and Tips** section on pages 36–39 for more information.

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

Sponsored by
Division of Extension
Nutrient and Pest Management Program
Department of Soil and Environmental Sciences

Quick Guide

9 Steps to Develop a Nutrient Management Plan

1. Go to v3.snapplus.wisc.edu and create an account.
2. Enter your account and contact information. Business information is used to auto-fill the NM5 590 Checklist.
3. Click **ADD FARM** and **+ CREATE FARM MANUALLY**. Enter a farm name in the pop-up and click **CREATE FARM**.
4. Import your soil tests on the overview tab of the **FIELDS** page.
5. Draw your fields and enter field data from the maps tab of the **FIELDS** page.
6. Enter your nutrient sources, storage, and all types of spreaders in the **NUTRIENTS** page.
7. Enter cropping and nutrient application information in the **MANAGEMENT** page.
8. Run the reports from the **REPORTS** page. Review and correct problems. Suggested reports include NM1, NM2, NM3, NM4, and NM5.
9. Archive the completed version of your plan from the Archives tab of the **FARM** page.

5 Steps to Update a Nutrient Management Plan with SnapPlus

1. Update last year's cropping data, fertilizer, and manure applications for each field in the **RECORDS AND UPDATES** page.
2. Add any new fields, soil tests, crops, animal numbers, nutrient sources, storage systems, or spreader metrics in the **FARM**, **FIELDS**, **NUTRIENTS**, and **MANAGEMENT** pages.
3. Update crop and nutrient application information for the current year and future year for each field.
4. Run the reports from the **REPORTS** page. Review and correct errors. Suggested reports include NM1, NM2, NM3, NM4, and NM5.

5. Archive the completed version of your plan from the Archives tab of the **FARM** page.

SnapPlus Tip: When updating your nutrient management plan, remember to plan for next fall's manure applications. This will help you anticipate problem areas and address potential compliance issues before they occur.

Creating an account in SnapPlus:

1. Go to v3.snapplus.wisc.edu.
2. Click the link to sign up.
3. Enter your email and a password.
4. After you have created your account, you will receive an email from **no-reply@snapplus.wisc.edu**. Confirm your account by clicking the **VERIFY EMAIL** button.
5. Once your account is verified, you can log in with your username and password at v3.snapplus.wisc.edu.

Importing a SnapPlus2 database into version 3

1. Go to v3.snapplus.wisc.edu and log in.
2. Click **ADD FARM** and select **IMPORT SNAPPLUS2 FARM**.
3. Navigate to the location on your computer where your database is saved. Select the database and click **OPEN**.
4. Wait for the blue progress bar to finish moving across the bottom of your screen.
5. Look at the **OPEN AN EXISTING FARM** table and select the name of the farm you just uploaded.

How-To Videos

SnapPlus V3 Video Playlist

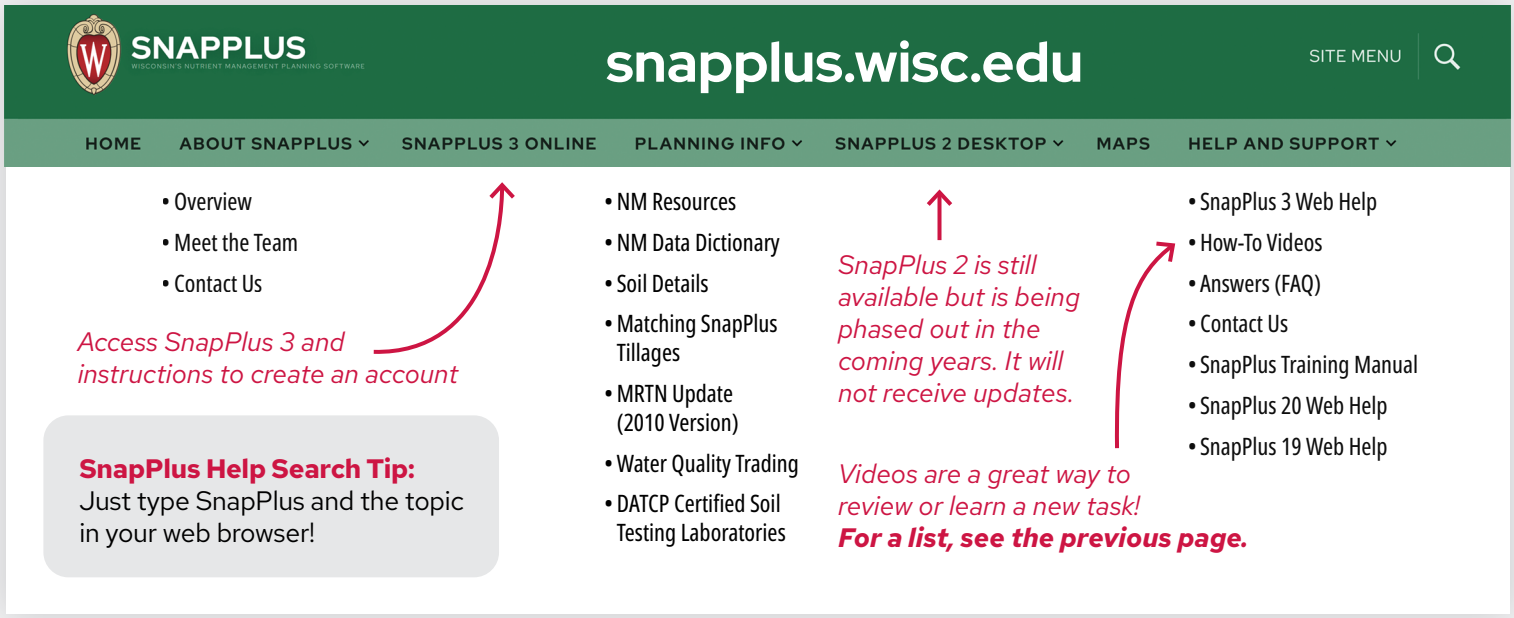
This playlist is recommended as a starting point for new users.

go.wisc.edu/74xp42

1. What is SnapPlus?
2. Sign Up and Log In
3. Import SnapPlus V2 Database to V3
4. Getting Started on the Farm Page
5. Importing Soil Test Sample Results
6. Getting Started in Maps
7. Drawing and Editing Field Boundaries
8. Importing Shapefiles
9. Adding and Editing Other Map Features
10. Creating PDF Maps
11. Field Page Basics
12. Nutrients Page Basics
13. Entering Manure and Biosolids
14. Entering Fertilizers
15. Estimating Manure Annual Quantities
16. Management Page Basics
17. Adding Crops on the Management Page
18. Planning Nutrient Applications
19. Creating and Using Nutrient Systems
20. Planning for All Fields Using the Annual View
21. Using the Template Builder
22. Entering Lime Applications and Application Records (Daily Log)
23. Efficient Annual Updates in SnapPlus V3
24. Reviewing Total Planned Manure Applications by Year and Season
25. Checking that a Completed Plan Meets Guidelines
26. User Permissions and Sharing Plans
27. Setting Up User Groups
28. How to Use Snapshots, Copy, and Archives

Website and Resources

The website is a great resource!



Want to learn more about the fundamentals of nutrient management?

Check out the self-paced, online UW Nutrient Management Farmer Curriculum at:
https://cropsandsoils.extension.wisc.edu/new-nutrient-management-farmer-education-class-available-now/

Or contact the NPM Program! For a list of regional contacts:
https://cropsandsoils.extension.wisc.edu/soils-nutrient-management-and-soil-health/

Check out DATCP's nutrient management website!

The Department of Agriculture, Trade and Consumer Protection's website is a great resource for information on cost-share, NM updates, trainings and more!

https://datcp.wi.gov/Pages/Programs_Services/NutrientManagement.aspx

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Want to attend a training?

For upcoming trainings & other offerings from DATCP, scan or click the QR code.

https://datcp.wi.gov/Pages/Programs_Services/NutrientManagementTraining.aspx

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Have a question about SnapPlus?

Contact:

support@snapplus.wisc.edu

If you encounter any bugs or problems, report them to the email address above.

Still need help?

For SnapPlus training or nutrient management issues, contact DATCP's:

Andrea Topper: 608-405-0235,
Andrea.Topper@wisconsin.gov

Cody Calkins: 608-224-4604,
Cody.Calkins@wisconsin.gov

For information on the WI Phosphorus Index, contact UW Soils SnapPlus team:

Hava Blair: 608-265-9354,
hkblair@wisc.edu

This publication is available from the Nutrient and Pest Management Program. Contact us at: npm@extension.wisc.edu.

State funding for staff resources and printing was provided by Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP).

Permissions

Permission Levels

When you give a user or group access to a farm, you must select a permission level. The permission level controls the types of things a user can do. The following table provides more information about the permission levels in the order of highest to lowest access:

Permission Level	Allowed Actions
Primary Admin	• Add and remove users at all other permission levels • Change permission level of all other users • Transfer Primary Admin status to another user • Edit farm • Copy farm • Delete farm • Generate reports and export maps, map data
Admin	• Add and remove users with Planner, Read only, and Read only – No Maps permission levels • Change permission level of users at lower permission levels • Edit farm • Generate reports and export maps, map data
Planner	• Edit farm • Generate reports and export maps, map data
Read only	• View farm • View maps • Generate reports and export maps, map data
Read only – No Maps	• View farm • Generate reports

Farm Permissions

The Farm Permissions tab in SnapPlus V3 allows you to give others access to a farm using the email address associated with their SnapPlus V3 account.

What are farm permissions?

Farm permissions are a way to give a single user access to your farm.

How do I add a user?

You must know the email address they used to sign up for the SnapPlus V3 account. To add a user on the Farm Permissions tab:

Click **+ ADD USER**.

Enter the email address and select a permission level from the dropdown menu. See above for more information about permission levels.

SnapPlus Tip: The user's email address must match the email that the person used to sign into SnapPlus V3.

After selecting a permission level for the user, the invitation status will say "pending." This means the invitation was sent, and is waiting to be accepted or declined. **Note:** Users can view, accept, and decline invitations by clicking on the envelope icon on the right side of the main menu in SnapPlus V3. No emails are sent.

Who can add users?

Only those with a permission level of Primary Admin or Admin can add a user to the farm.

Group Permissions

Group permissions are a way to invite multiple users to a farm in one step. This feature is useful for co-workers who need access to the same farm(s). After inviting a user group to access a farm, each member will have the permission level indicated in the group permissions column.

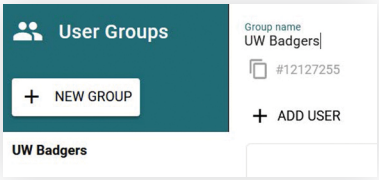
How to create a user group?

Click on the gear menu in the upper right-hand corner of the main menu.

Select **USER GROUPS**.

Click **+ NEW GROUP** and add members using their email addresses.

Note the group ID number assigned by SnapPlus underneath the group name. Share this with anyone who needs to invite your group to their farm.



How to invite a group to your farm?

Request the user group ID number from a group admin or manager (see above). Enter the group ID number on the Farm Permissions tab.

Select the permission level you would like this group to have.

Click **INVITE GROUP**.

The group will be displayed in the groups table with a pending status until a group manager or primary admin accepts the invite.

Copy Farm vs. Snapshot vs. Archive

COPY FARM: Duplicates the farm, which is then added as a new entry to your farm list on the home page. Editing a copy does not change the original (and vice versa).

SNAPSHOT: Allows you to save the farm at a specific point in time, which gives you the option to revert the farm back to that point during a session, if needed.

ARCHIVE: Storage for previously-submitted versions of the farm that can be used for reports on request.

Fields Page

Overview Tab

The Overview Tab displays information about each field. You can edit field names, indicate rented fields and landowners, and select if that field is active or inactive for a specific crop year.

If field boundaries are present, SnapPlus will calculate cropping acres and spreadable acres, accounting for relevant restrictions.

Acre information entered by hand will show a lock symbol and will not be overwritten by Maps. This may be useful if there are slight variances in acreage from mapping the field boundaries.

For a non-permitted farm, the table displays three acres columns for each field: Cropping (cropped acres = total acres - exclusions), Manure spreadable, and Winter spreadable acres.

For a permitted farm (CAFO), the table displays two versions of the Manure spreadable acres. One is for when a 25 ft no-manure area is required along waterways (allowed when manure is injected or incorporated or in long-term no-till) and the other is for when a 100 ft no-manure buffer is needed (most surface applications).

Land Attributes Tab

The Land Attributes Tab displays additional information about each field from Maps, including critical and predominant soils, slope, slope length, and distance/slope to perennial water.

Field Restrictions Tab

The Field Restrictions Tab displays nutrient application restrictions for each field. Once fields are mapped, SnapPlus will automatically select field restrictions. If there are additional restrictions that should be considered for a field, you may select them manually.

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What are critical and predominant soils?

There may be many soil map units with wide-ranging characteristics mapped in a single field. SnapPlus is designed to select the ones best suited for use in soil loss calculations and fertility recommendations.

Critical Soil: This is the soil map unit used in the soil loss calculations in SnapPlus. It is automatically selected as the most vulnerable soil (highest Erosion Sensitivity) that makes up at least 10% of a field.

Predominant Soil: This is the soil map unit that is used for making crop nutrient recommendations. It is automatically selected as the soil map unit that covers most of the field. If no map unit makes up more than 50% of the field, SnapPlus selects a map unit with a Soil Group and Yield Potential that best represents the field.

Getting Started Using Maps

The Maps tab is where you can draw and view your farm's features on a map. When you add features, such as field boundaries, to the map, information about your fields will automatically populate in other tabs, such as field acres, soil information, and field restrictions.

Map Tools

Layers Panel
Use this to turn data layers on or off, like field boundaries and restriction layers. This allows you to customize what information is visible on the map.

Edit Panel
The edit tool allows you to draw, move, and delete features relevant to your plan.

SnapPlus Tip: Map imagery slow to load? Try expanding the Base Map layers and select only the Leaf On layer. This can be helpful on slow internet connections or if you are zooming and panning quickly.

Map Legend
The legend helps you understand what different colors and symbols represent.

Measure Tools
Measure tools allow you to measure distance and area.

Shapefile Import/Export
You can bring in existing spatial data from other systems using shapefile import. You can also export your shapefiles to share or use in other systems.

PDF Export
Create a printable version of your map with all visible layers and features.

Search for a Location
Navigate to a specific field, address, county, or township-range-section using the search tool. Change search settings by clicking the gear button.

Layers Panel and Map Legend

Layers Panel

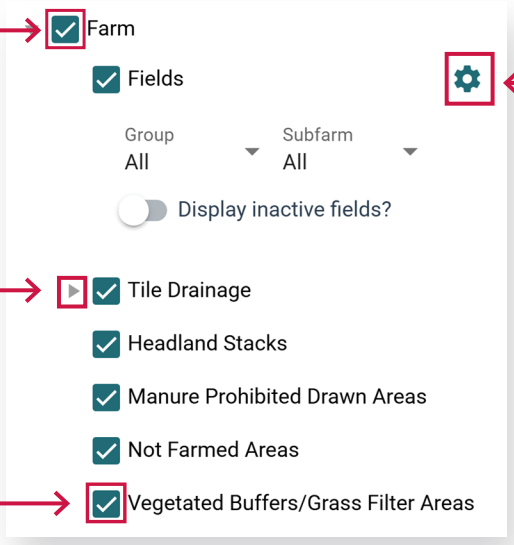
Layers on the map show information about land characteristics using colors, patterns, and symbols. Layers are organized in groups and stacked in order from top to bottom. The first active layer appears on top, with each subsequent layer drawn beneath the previous one.

Many of the layers are semi-transparent so that they can be used together. If you want to turn all the layers in a group on, check the box to the left of the group title. To turn them all off, uncheck the box.

Click the group name's checkbox to turn the group on or off.

Click the caret to expand a layer group.

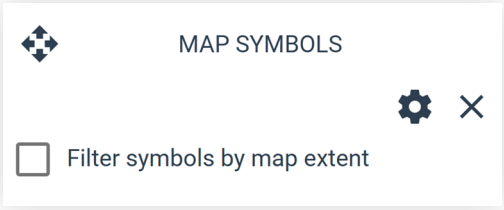
Check the box to turn a layer on or off.



Click the gear icon to access layer settings.

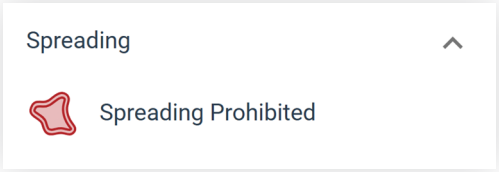
Map Legend

Open the map legend tool to view the symbols for each layer. Symbols are only included in the legend if they are currently visible on the map. To change this setting, open the legend settings and uncheck the option to filter symbols by map extent.

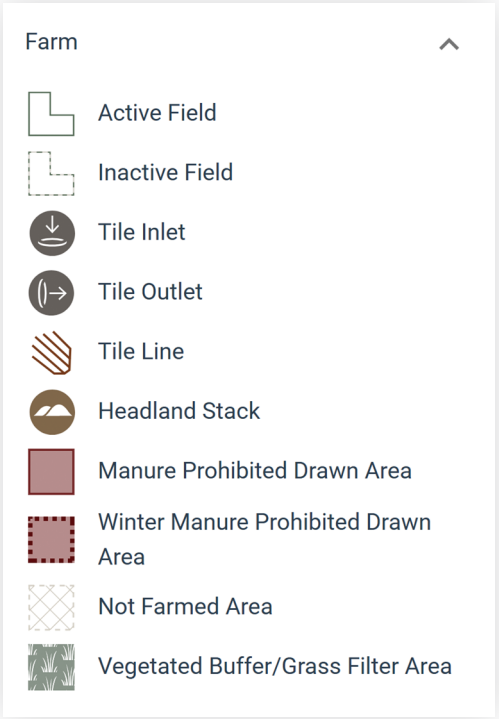


The symbols below are for the layers visible on a non-permitted farm. CAFOs will have a few extra layers with special nutrient management planning requirements.

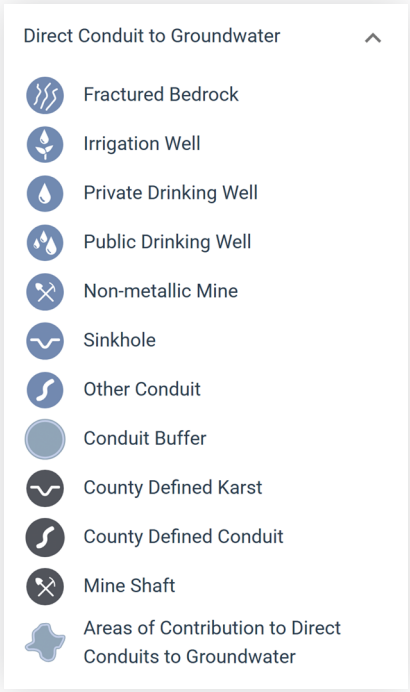
Spreading layers show locations where manure application is prohibited. You can control which season is visible in the layers panel.



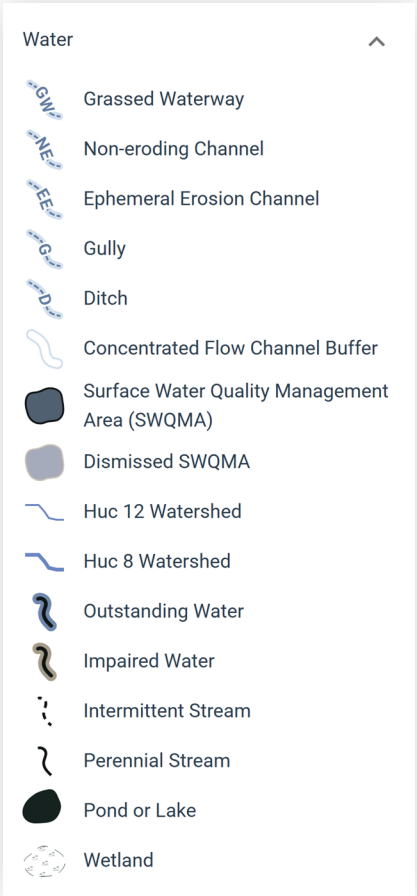
Farm layers show planner-added features that are specific to the farm.



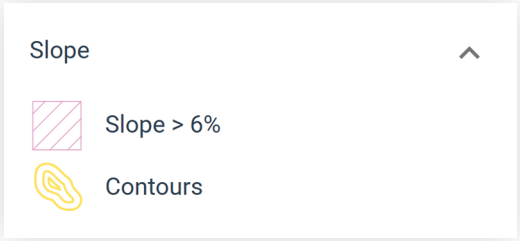
Direct Conduit to Groundwater shows conduit features, such as wells and karst features. Buffered setbacks for each conduit are also included in this group. Planner-drawn conduit features, as well as layers provided by certain counties, are also shown.



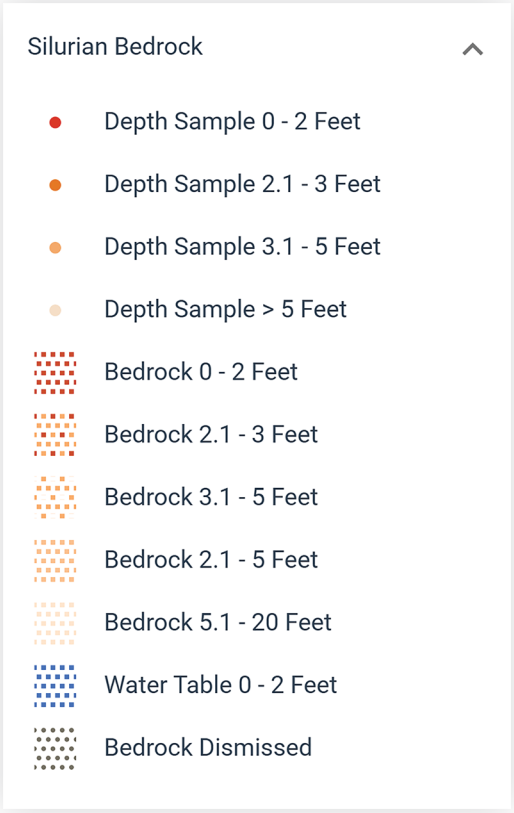
Water layers show surface waters such as lakes and streams, and water-related features such as Surface Water Quality Management Areas (SWQMA), concentrated flow channels, and wetlands.



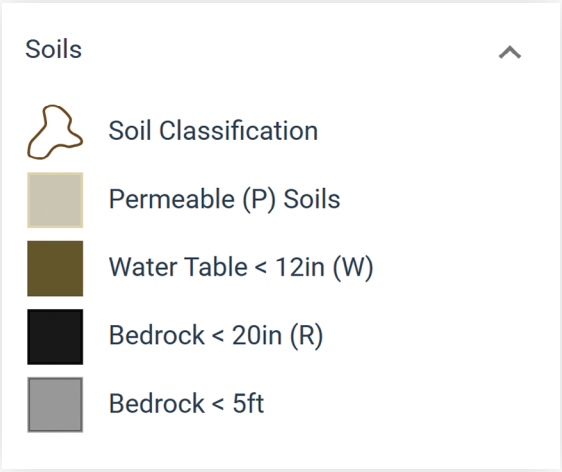
Slope layers show contours and areas where slope spreading restrictions may apply.



Silurian Bedrock layers show areas with shallow Silurian bedrock less than 20 ft from the surface. It also includes planner-added bedrock depth sample points.



Soils layers show soil classifications from soil survey maps (United States Department of Agriculture – Natural Resources Conservation Service) and restriction layers that are derived from soil properties.



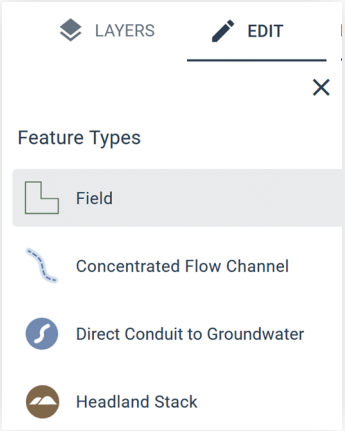
Well Compensation shows areas where wells have been contaminated from livestock manure. In these areas, liquid manure applications are prohibited in February and March.

Map Editing and Shapefiles

Map Editing

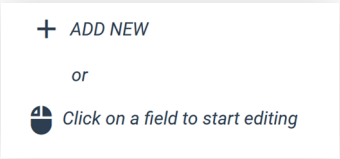
To get started, go to the Edit Panel 

and select the type of feature you want to add from the list of available features.

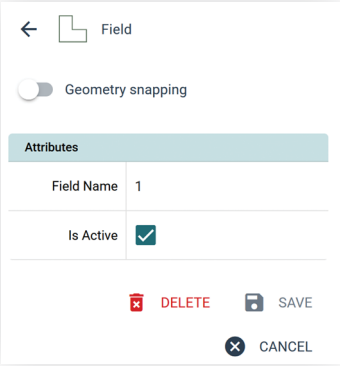


Available Features: Fields, Concentrated Flow Channels, Direct Conduits to Groundwater, Headland Stacks, Manure Prohibited Drawn Areas, Not Farmed Areas, Ponds or Lakes, Streams, Silurian Bedrock Depth Samples, Silurian Bedrock, Tile Inlets and Outlets, Tile Lines, Vegetated Buffers, and Dismissed SWQMAs.

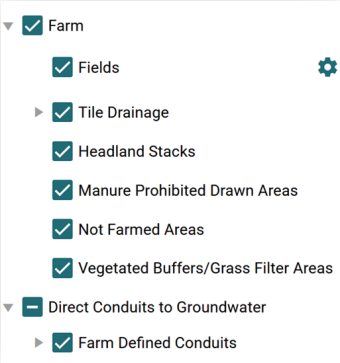
Then, either click **ADD NEW** or select an existing feature to edit or delete.



For some features, you must fill out additional attribute information before you can save it.

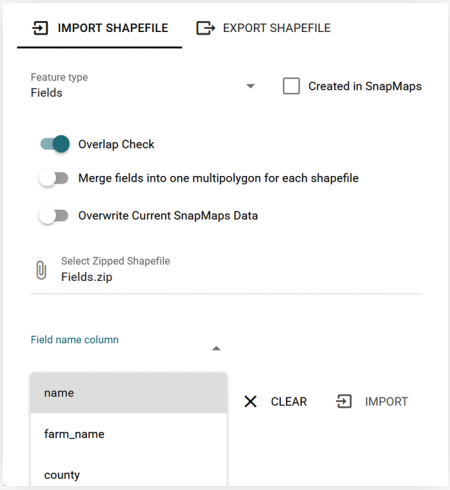


Many of the features you add will show in the Farm layer group on the Layers Panel. But some features, such as conduit points and concentrated flow channels, will be added under other group headings, such as Direct Conduits to Groundwater and Waters. User drawn features that are grouped under other headings will have the word "Farm" in front of the layer name.



Shapefile Import and Export

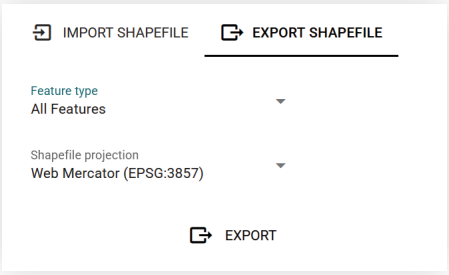
Use the shapefile import and export tool  to transfer your features to or from another mapping system.



A shapefile is a collection of files that are used together to store spatial information. To import into maps, you need to have the following three files: *.shp*, *.dbf*, and *.prj*. These three files need to be compressed into a zip file before uploading to maps.

Make sure to note which columns contain the information needed to populate the required feature attributes. For example, to import field boundaries, you will need to have a column in your shapefile that stores the name of the field. You will be prompted to choose a column after you upload your zip file.

To export a shapefile, go to the Export Shapefile tab. Select the type of feature from the list you want to export. To export all your features at once, select "All Features" from the dropdown.



Shapefiles are exported in a Web Mercator projection by default. If you need a different map projection, change it in the Shapefile projection dropdown.

SnapPlus Tip: You can delete a vertex from a shape by holding the ALT key (PC) or Option key (Mac), and clicking on the vertex you want to remove.

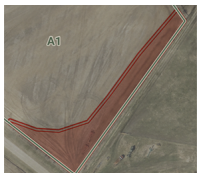
Map Layers

Map Legend: Colors and Symbols Explanations

This publication explains the symbols used in maps for nutrient management planning. Symbols for 590 farms and WPDES permitted farms (CAFOs) are included. 590 farms do not need to follow rules for CAFOs (NR 243).

Spreading Layers

Manure Prohibited
(Red fill with double outline)



Areas where manure should not be spread are shown in red on the map. These layers combine all the prohibited areas on a field into one summary layer to make it easy to see where manure can and cannot be spread.

Manure prohibited layers show either year round prohibitions or winter prohibitions.

When is winter? Winter conditions are defined as having frozen or snow-covered soils that prevent effective incorporation at the time of application.

Farm Layers

Field Boundaries
(Green outline with tan halo)

Active field (Solid line)

Inactive field (Dashed line)

Field boundaries can be either drawn in SnapPlus or imported as shapefiles.

Field Drainage

Tile lines (Brown lines)

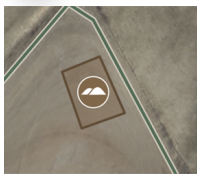
Tile inlets

Tile outlets

Tile drainage removes excess water from soil below the surface, so it is important to document where tile lines, inlets, and outlets are located. In SnapPlus, you can create multiple tile lines in one edit session. Do not forget to add the tile inlets (if known) and outlets as point features.

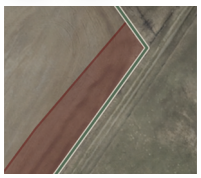
- ✓ Unincorporated liquid manure applications are limited to 12,000 gallons per acre.

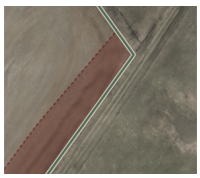
Headland Stacks



Locations where solid manure is temporarily stockpiled in a crop field on an unimproved surface in a windrow or cone-shaped pile.

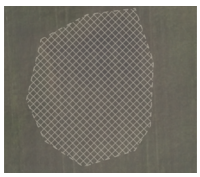
Manure Prohibited Drawn Areas

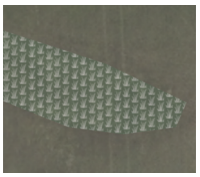




Planner identified locations where manure should not be applied. These are locations where SnapPlus has not automatically created a prohibition.

Exclusion Areas





Not farmed area

Grass filter area / Vegetated buffer

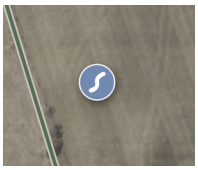
Exclusion areas are drawn by the planner on the map. They represent uncropped areas of a field that should not be included in the field acres for nutrient management planning.

- ✓ Nutrients cannot be applied in exclusion areas.

Direct Conduits to Groundwater

Conduits to groundwater may provide a direct pathway for water to carry contaminants from the surface to groundwater. Planners are responsible for drawing conduits that affect their fields. Some counties submit locations of conduits for inclusion on the map.

Farm Defined Conduits
(Various symbols with blue background)



Farm defined conduits are locations added by the planner and can be drawn as a point or an area. Once drawn, SnapPlus automatically creates the appropriate nutrient prohibition buffer (a blue circle) around all features that would provide a pathway for groundwater contamination.

- ✓ All nutrients prohibited except for corn starter within 50 ft
- ✓ No manure within 50 ft (590) or 100 ft (NR 243) year-round.
- ✓ No manure within 300 ft in winter.
- ✓ (NR 243) No manure within 600 ft in winter on slopes 6-9%.

A **private drinking well** is a private well for a household or farmstead.

A **public well** is a well that serves at least 25 people for at least 6 months per year. Also known as non-community potable water wells, examples include schools, restaurants, and churches.

An **irrigation** well is used only for irrigation, never for drinking water.

- ✓ No fertilizer application within 8 ft

Fractured bedrock is bedrock that has cracks or fractures extending to the ground's surface

A **sinkhole** is a depression in the ground that has no natural external surface drainage so that rainwater or runoff entering the sinkhole typically drains to the subsurface.

A **non-metallic mine** is typically a gravel pit or sand mine.

Other types of conduits that aren't captured in the above categories, such as other karst features or depressional groundwater recharge areas.

Conduit areas

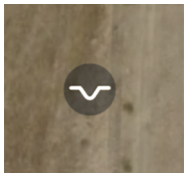
Locations that cover more area than a point feature can represent. Conduit areas are subject to the same setbacks as points. Conduit areas will be treated as an exclusion area and will be removed from cropping acres.

- ✓ Nutrients cannot be applied in conduit areas.

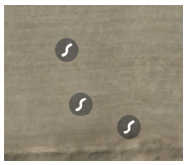
County Defined Conduits
(Various symbols with gray background)

County defined conduits are mapped by some counties, mainly in the eastern part of the state. These conduits are subject to the same rules as planner drawn conduits.

- ✓ No fertilizer (except corn starter) within 50 ft
- ✓ No manure within 100 ft year-round and within 300 ft in winter.

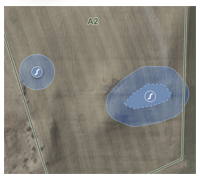


Karst features mapped by the county in Brown, Door, Kewaunee and Manitowoc counties. They are considered direct conduits to groundwater.



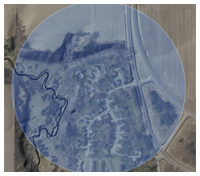
Other conduits are mapped by Door County.

Conduit Buffers



Setbacks around direct conduits to groundwater where nutrients should not be applied. These are automatically created by SnapPlus. You can view three different setback layers: fertilizer prohibited buffers, manure prohibited buffers, and winter manure prohibited buffers.

Treated manure only



A fourth type of conduit buffer is included that shows locations where spreading is prohibited unless using treated manure. These are areas around municipal wells.

- ✓ Manure and other organic amendments may not be spread within 1,000 ft unless treated to remove pathogens.
- ✓ Commercial nitrogen fertilizer is prohibited in the late summer or fall except on fall seeded crops or in blends with other fertilizers, max. application rate is 36 lb N/a.

Areas of Contribution to Direct Conduits to Groundwater

Farms in Manitowoc County may have a white outline around an area contributing runoff to a direct conduit to groundwater (Contact the county for more information).

- ✓ No manure applications

Water Layers

Concentrated Flow Channels (Blue dashed lines)

Grassed waterway, **non-eroding channel**, or **ditch**

Natural and man-made channels where field runoff comes together as it drains from the field.

- ✓ Nutrients should not be applied directly to concentrated flow channels.
- ✓ Manure cannot be applied in winter to fields with concentrated flow channels unless at least two of the following conservation practices are followed:
  - a) Contour buffer strips or strip cropping;
  - b) No residue removed and no fall tillage;
  - c) Intermittent applications on no more than half of the field;
  - d) Applications on no more than 25% of the field at a time, with 14 days between applications;
  - e) Applications limited to the lowest of 3,500 gallons or 30 lb p_2o_5 per acre;
  - f) 200 ft no-application set back from all concentrated flow channels; or
  - g) Fall tillage on contour (only applicable where slopes are less than 6%).

Ephemeral erosion channel

Can be removed by tillage but often recur in the same location year after year.

- ✓ Conservation practices must be implemented to control ephemeral erosion in fields where it is identified.

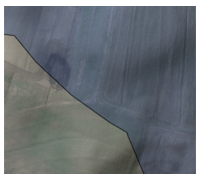
Gully An eroding channel that cannot be tilled through.

- ✓ These areas should be repaired by establishing perennial vegetation.

Channel Buffers (Blue line around concentrated flow channels)

- ✓ This 200 ft setback for winter manure applications is useful to show on the map if the setback is one of the two selected 590 winter manure strategies for fields with concentrated flow channels.
- ✓ (NR 243) No winter manure within 200 ft upslope of concentrated flow channels.

SWQMAs (Dark blue areas around streams and waterbodies)



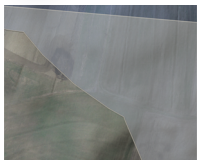
SWQMA (pronounced *swik-muh*) stands for Surface Water Quality Management Area. 590 SWQMAs are 300 ft from a perennial stream or river and 1000 ft from a lake or pond.

CAFO SWQMAs extend past 590 SWQMAs to include areas 300 ft from intermittent streams and concentrated flow channels that are conduits to navigable water.

- ✓ No nutrient applications are allowed in the winter.
- ✓ Unincorporated liquid manure application rates cannot be more than 12,000 gallons per acre at any one time.
- ✓ (590) Non-winter nutrient applications must be incorporated within 3 days or be accompanied by one of the following:
  - a) Permanent vegetated buffers.
  - b) Maintenance of more than 30% residue or vegetative cover (On long-term no-till fields with less than 30% residue or plant cover, nutrients can be applied within 7 days of planting).
  - c) Crop or cover crop establishment before or immediately after application.

- ✓ (NR 243) Requires setbacks along all waterways and flow channels that have a SWQMA. Setback widths depend on application method and field practices. The most common strategies allowed by NR 243 are:
  - ✓ Manure is injected or immediately incorporated in the rest of SWQMA, minimum width is 25 ft
  - ✓ Field is long-term no-till with at least 30% residue or plant cover and complies with rates established by DNR based on soil texture, minimum width is 25 ft
  - ✓ Manure is surface-applied, minimum width is 100 ft

SWQMA 1000 ft Dismissed (Tan-gray overlay)



Areas where the planner has turned off the SWQMA designation after determining the lake or pond shown on the map is in error.

Waterbodies
(Dark blue areas)

Lakes and ponds are considered perennial waterbodies that hold water year-round. They are Surface Water Quality Management Areas (SWQMAs) that require special care in management to avoid surface water contamination from runoff or soil erosion.

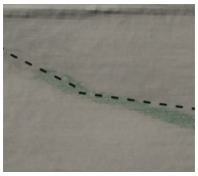
Water bodies are provided as a base layer in maps. Planners are also able to draw waterbodies that are missing from the map data.

Streams

Perennial streams (Dark blue solid lines)

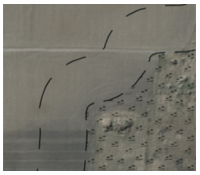
Perennial streams are indicated with a solid blue line and may or may not be named on the map. A perennial stream always has water in its channel.

Intermittent streams (Dark blue dashed lines)



Intermittent streams are a dashed blue line. An intermittent stream flows only when it receives water from rainfall runoff or from some surface source (such as melting snow).

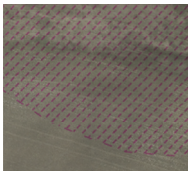
Wetlands with 200ft Buffer



A wetland is an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.

- ✓ (NR 243) No winter manure 200 ft upslope of wetlands
- ✓ (NR 243) Slopes 6-9%: No winter manure 400 ft upslope of wetlands

Slope Layers



Slope > 12%
(Pink diagonal dotted areas)

- ✓ (NR 243) No winter manure applications.

Slope > 6%
(Pink diagonal areas)

These areas are likely to have slopes greater than 6%.

For the WI standard, winter manure applications on fields with slopes greater than 6% require special management to protect against manure runoff.

- ✓ At least two of the following conservation practices must be followed:
  - a) Contour buffer strips or strip cropping;
  - b) No residue removed and no fall tillage;
  - c) Intermittent applications on no more than half of the field;
  - d) Applications on no more than 25% of the field at a time, with 14 days between applications;
  - e) Applications limited to the lowest of 3,500 gallons or 30 lb P_2O_5 per acre.
- ✓ (NR 243) Winter applications of manure with more than 20% dry matter applications can be made on slopes up to 9%, but required setbacks for SWQMAs, wetlands, concentrated flow channels, and direct conduits to groundwater shown on the map must be doubled.

Silurian Bedrock Layers

The areas designated as Silurian bedrock are likely to have less than 20 feet of soil over Silurian dolomite bedrock. This type of dolomite bedrock has numerous cracks and fractures that can allow water to flow rapidly from the soil to groundwater. To protect groundwater from contamination, various rules apply regarding manure application for each depth range.

In addition to the Silurian extents shown in SnapPlus, planners are able to draw their own bedrock depths after sampling bedrock depths in their fields.

Silurian Water Table 0 – 2 ft
(Water table within 24 inches of the soil's surface and Silurian bedrock within 20 feet of the soil's surface)

- ✓ No manure applications

Silurian Bedrock 0 – 2 ft
(Bedrock within 2 feet of the soil's surface)

- ✓ No manure applications

Silurian Bedrock 2 – 3 ft
(Bedrock within 2 to 3 feet of the soil's surface)

Solid manure requirements:

- ✓ Incorporate within 72 hours to no more than 4 inches below ground **AND**
- ✓ Implement at least one of the following:
  - a) Limit rate to 15 tons/ac or crop N need, whichever is less **OR**
  - b) Apply within 10 days of planting or on perennial or established crops **OR**
  - c) Manure is composted or treated to remove pathogens

Liquid manure requirements:

- ✓ No applications in February or March
- ✓ Complete pre-tillage **AND**
- ✓ Incorporate within 24 hours to no more than 4 inches below ground **AND**
  - ✓ Pre-tillage and incorporation are not required if the crop is long-term no till or established. Surface applied rate must be limited to 6,750 gal/ac
  - ✓ Implement at least one of the following:
    - a) Limit rate to 6,750 gal/ac on sandy or clay soils and 13,500 gal/ac on loamy soils, or to a rate that meets crop need, whichever is less **OR**
    - b) Apply within 10 days of planting or on perennial or established crops **OR**
    - c) Manure is treated to remove pathogens

Silurian Bedrock 3 – 5 ft
(Bedrock within 3 to 5 feet of the soil's surface)

Solid manure requirements:

- ✓ Incorporate within 72 hours to no more than 6 inches below ground **AND**
- ✓ Implement at least one of the following:
  - a) Limit rate to 15 tons/ac or crop need, whichever is less **OR**
  - b) Apply within 10 days of planting or on perennial or established crops **OR**
  - c) Manure is composted or treated to remove pathogens

Liquid manure requirements:

- ✓ No applications in February or March
- ✓ Complete pre-tillage **AND**
- ✓ Incorporate within 24 hours to no more than 6 inches below ground **AND**
  - ✓ Pre-tillage and incorporation are not required if the crop is long-term no till or established. Surface applied rate must be limited to 6,750 gal/ac
- ✓ Implement at least one of the following:
  - a) Limit rate to 6,750 gal/ac on sandy or clay soils and 13,500 gal/ac on loamy soils, or to a rate that meets crop need, whichever is less **OR**
  - b) Apply within 10 days of planting or on perennial or established crops **OR**
  - c) Manure is treated to remove pathogens

Silurian Bedrock 5 – 20 ft
(Bedrock within 20 feet of the soil's surface)

Liquid manure requirements:

- ✓ Complete pre-tillage **AND**
- ✓ Incorporate within 24 hours to no more than 6 inches below ground **AND**

- ✓ Pre-tillage and incorporation are not required if the crop is long-term no till or established. Surface applied rate must be limited to 10,000 gal/ac

- ✓ Implement at least one of the following
  - ✓ Limit rates as shown below or to a rate that meets crop need, whichever is less **OR**
    - 13,500 gal/ac on sandy or clay soils
    - 20,000 gal/ac on clay loam soils
    - 27,000 gal/ac on sandy loam, loam, and silt loam soils
  - ✓ Apply within 10 days of planting or on perennial or established crops **OR**
  - ✓ Manure is treated to remove pathogens

Silurian Bedrock Dismissed

Planner identified areas where bedrock depth sampling has shown that Silurian bedrock is not within the depth mapped in SnapPlus. Don't forget to add your depth sampling points to the map when you dismiss bedrock.

Soil Layers

High Leaching Fall Nitrogen (N) Restricted Soils

What are N-restricted soils? These soils are considered risky because of the strong possibility that they are direct conduits to groundwater. N Restricted soils fall into one of three categories:

1. Highly permeable,
2. Less than 20 inches to bedrock, or
3. Less than 12 inches to groundwater.

In general, these soils should have N put on as close to crop uptake as possible; in other words, **applications should be made in the spring and avoided in the fall.**

Each soil type has additional restrictions as described below:

P (High permeability)

Water moves through these soils relatively quickly.

- ✓ Make no applications of late summer/fall commercial N fertilizers unless needed to establish fall seeded crops, **OR** to meet A2809 using a blend not exceeding 36 lbs/acre of total N.
- ✓ Fertilizer N in the spring and summer shall be applied in split applications. The majority units of N, not lbs/product, must be applied post-planting, **OR** applied with a nitrification inhibitor **OR** in slow-release form.
- ✓ Limit all late summer or fall manure applied for **spring planted crops** (i.e. corn & soybean) to 90 units of N/a applied or the A2809 prescribed rate, whichever is less. Either way, soil temperatures must be lower than 50°F **OR** application timing must be on or after October 1, whichever arrives first.
- ✓ Limit all late summer or fall manure applied for **all actively growing** crops to 120 lbs N/a, or the A2809 prescribed rate, whichever is less.
  - ✓ If the manure has **4% dry matter or less** in either instance above, applications must also be surface-applied **OR** use a nitrification inhibitor.

R (Bedrock likely to be within 20 inches of the soil surface)

- ✓ Make no applications of late summer/fall commercial N fertilizers unless needed to establish fall seeded crops, **OR** to meet A2809 using a blend not exceeding 36 lbs/acre of total N.
- ✓ Limit all late summer or fall manure applied for **spring planted crops** (i.e. corn & soybean) to 90 units of N/a applied or the A2809 prescribed rate, whichever is less. Either way, soil temperatures must be lower than 50°F or the timing must be on or after October 1, whichever comes first.
- ✓ Limit all late summer or fall manure applied for **all actively growing** crops to 120 lbs N/a, or the A2809 prescribed rate, whichever is less.
  - ✓ If the manure has **4% dry matter or less** in either instance, applications must also be surface-applied **OR** use a nitrification inhibitor.

W (Water table within 12 inches of the surface)

- ✓ Make no applications of late summer/fall commercial N fertilizers unless needed to establish fall seeded crops, **OR** to meet A2809 using a blend not exceeding 36 lbs/acre of total N.
- ✓ Limit late summer and fall manure applications of **over 4% dry matter** to 120 units of N/a or the A2809 prescribed rate, whichever is less, on all crops.

- ✓ Limit late summer and fall manure applications of **4% dry matter or less** to 90 units of N/a on all crops.

OR

- ✓ The limited rate for late summer and fall manure with **4% dry matter or less** can be increased to 120 units of N/a on all crops **IF** one of the following practices are utilized:
  - a) Surface application
  - b) Nitrification inhibitor
  - c) Application to growing crop
  - d) Cover crop established within 14 days
  - e) Delay application until soil temperatures are below 50° F or October 1 arrives, whichever comes first.

NOTE: The standards above for W soils also apply to "combination soils," which include any combination of W, P, and/or R soils, as these features can overlap at times.

Bedrock depth < 5 ft (Light gray)

Areas where bedrock is within 5 ft of the surface have an increased risk of groundwater contamination.

- ✓ Commercial nitrogen fertilizer is prohibited in the late summer or fall except on fall-seeded crops or in blends with other fertilizers, maximum application rate is 36 lb N per acre.

Water Table < 24 in (Lighter brown)

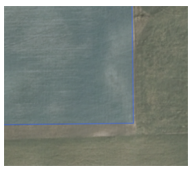
Areas that may have a water table within 24 in. of the soil surface.

- ✓ NR 243 prohibits manure applications when the water table is within 24 in. of the surface.

Bedrock < 24 in (Medium gray)

Areas that may have bedrock within 24 in of the soil surface.

- ✓ NR 243 prohibits manure applications when the bedrock is within 24 in. of the surface.



Well compensation (Blue overlay)

Areas where wells have been contaminated with livestock manure in the past.

- ✓ No liquid manure applications in February and March.

Entering Manure Information

Manure Sources

Use the **NUTRIENTS > MANURE/BIOSOLIDS** tab to enter each manure source (e.g., pit manure, bedded pack) into the Manure sources table. Use the **+ NEW MANURE SOURCE** button to add a source to the Manure Sources table.

Manure Analysis

Manure analysis data is entered on the **NUTRIENTS > MANURE/BIOSOLIDS** tab. To enter data, **select the source** in the Manure sources table to highlight it. Click **+ NEW MANURE ANALYSIS** to add a new row. Enter the analysis values in the appropriate cells. You may also **import manure analysis data as a spreadsheet**.

You may enter multiple manure analysis results as separate rows in the table. You can **create an average** from multiple rows by clicking **+ CREATE AVERAGE**, clicking on the desired rows, and clicking **SAVE AVERAGE**.

You can **choose which manure analysis is used** for your planned applications by selecting the **USE FOR PLANNING?** checkbox. You may also choose the **manure analysis for individual applications** on the Management page by clicking **MORE** for the application and selecting the analysis from the dropdown.

Manure analyses are not required for 590 farms, but are highly encouraged. SnapPlus, by default, will auto-populate nutrient sources with associated book values (when available) for nitrogen, phosphorus and potassium.

Estimating Manure Production

You can estimate quantities of each manure type by using the **NUTRIENTS > LIVESTOCK** subtab. First, select the correct crop year. Then, click **+ ADD LIVESTOCK** to add each animal type.

Tip: Click on the **ADD ALL BEEF** or **ADD ALL DAIRY** options to instantly add multiple animal types.

For each animal type, enter in:

- ✓ Number of Head
- ✓ Total Number of Days

SnapPlus Tip: Don't forget to document how application rates are calculated. In **FARM > CROP YEAR SETTINGS** look for **APPLICATION RATE CALCULATION METHODS** and select all that apply. This information will be auto-filled in the 590 checklist.

- ✓ % Collected and Spread as Solid
- ✓ % Collected and Spread as Liquid
- ✓ % Deposited Grazing/Gleaning

Once the data is entered in the table, the Farm Totals for all manure will be displayed above the Livestock Manure Production table. Note that livestock manure production data is **saved by year**. You can copy livestock from a previous year by clicking **+ COPY FROM PRIOR YEAR**.

Other tabs that can be used to estimate manure quantity for the farm are **STORAGE** and **SPREADERS**.

Manure Quantities Table

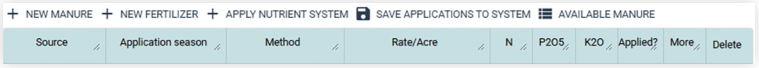
After you have estimated manure production for your farm, enter the amount for each source in the Manure Quantities table under **AVAILABLE ANNUAL QUANTITY.** Add quantities to the **AMOUNT TRANSFERRED OFF FARM** as needed. SnapPlus will calculate the **MANURE TO APPLY** for each source by subtracting the amount transferred from the available annual quantity.

Note that the **Manure Quantities table is saved by year**. Values from the previous year will be carried forward for convenience, but should be updated each year to reflect the most current information.

SnapPlus Tip: In order for SnapPlus to identify if there is adequate acreage for manure produced and/or applied on the 590 Checklist, planners must have all manure allocated for the current year in addition to one past year and one future year.

Tracking Manure Applied by Season

On the **MANAGEMENT PAGE**, you can view manure quantities applied by season, total applied, and amount remaining. Open the Nutrient Applications panel in **FIELD VIEW** or **ANNUAL VIEW** and select the **AVAILABLE MANURE** button at the top of the applications table.



This will open up a table of manure applied for the crop year based on which crop is selected. You may keep the table open as you navigate between fields. To move the table, click the top bar near the ✥ symbol and drag to the desired location.

Entering nutrient rates for biosolids, wastewater, and organic by-products

!

If you are planning to apply biosolids, there are additional rules to understand beyond the NRCS 590 Standard. Be sure to review NR 204 and NR 214. Although biosolid rules allow applications based on N content, these rates can trigger 590 compliance flags in SnapPlus for P overapplications. Learn more in the publication **"Using Biosolids in Nutrient Management Planning"**.

?

How do I enter a sewage sludge (biosolids) or organic waste analysis if the lab report does not give the units in lb/ton or lb/1000 gallons?

If you have a typical lab report for biosolids, this will not be difficult. Select the appropriate biosolids or organic waste type in the Manure Sources table on the **NUTRIENTS > MANURE/BIOSOLIDS** tab, then click **+ NEW BIOSOLID ANALYSIS** above the Manure Analysis table. A pop-up window will appear that converts data from the units in the lab report to lb/dry ton, lb/wet ton, lb/cubic yard, or lb/1000 gallon, depending on the nutrient type you chose.

You may get an analysis for an organic amendment that does not report the nutrient content in the same "% of dry matter" or "% of solids" units required in the SnapPlus biosolid analysis entry.

You will need to convert the results to these units using the reported solids content. Sometimes a wastewater-type analysis does not include any measurement of the solids content, and, in those cases, you cannot use the SnapPlus analysis entry boxes. You can still calculate the lb/1000 gallons of N, P_2O_5, and K_2O, however, if concentrations are given for these nutrients. Instructions for converting various types of lab reports can be found on the SnapPlus website under Planning Information > Converting-Analysis-of-Organic-By-Products-to- N-P2O5-K2O-Rates.pdf.

Explanations and Tips

Importing Soil Samples

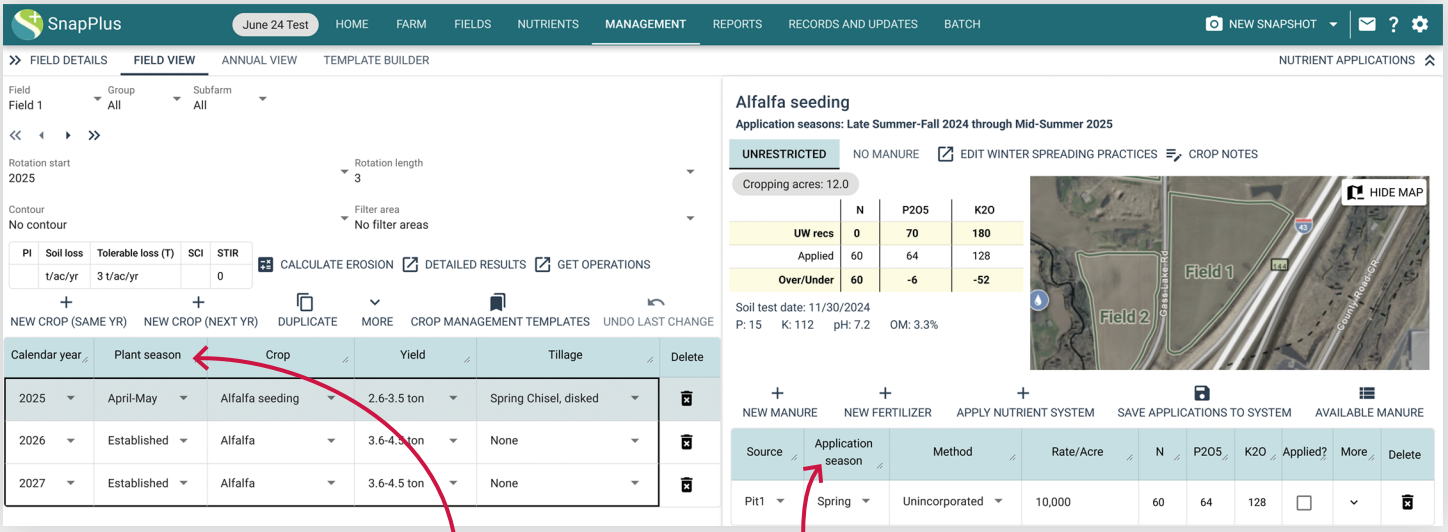
Make sure you have a .CSV or .XLSX file of your soil tests for easy import into SnapPlus. If you do not have a .CSV or .XLSX file, contact your soil lab to request one.

If you are updating soil tests in an existing plan, make sure field names in the spreadsheet match the ones in the plan. When importing, a grid will appear with a table you can edit. New fields are listed in the top left corner. If you see incorrect "new" fields, **edit field names to match existing names before importing.** Note: If soil tests are not yet available for a field, check the box labeled "use default soil test." This will populate the field with default soil test values as a placeholder.

Crop Year and Calendar Year

One of the few places you will see **calendar year** in SnapPlus V3 is on the **MANAGEMENT PAGE > FIELD VIEW**. **Calendar year** and **planting season** are used together in Field View for greater flexibility in building crop rotations, especially those with cover crops or double crops. For a field, the new **cropping year** starts after the previous crop has been harvested and goes until the next harvest (typically fall to fall).

When adding nutrients, keep in mind that **applications are tracked by crop**. The crop highlighted in the crop table is the one receiving the nutrients.



Calendar year: *The year in which the selected crop is planted. May differ from the year of harvest or nutrient application.*

Plant season: *This is the season planting will occur. Options are limited based on plant seasons already used for a given calendar year.*

Application season: *The season when the nutrients will be applied to the selected crop.*

Click this button to open/close the nutrient application panel.

Reminder: *You can tell which crop receives this application by checking which row is highlighted in the crop table to the left.*

What's the difference between groups and subfarms?

Groups can be used to organize fields by any means that might be useful. Fields may be in more than one group. Groups can also be used to reduce the number of fields displayed on the Fields and Management pages.

Subfarms can be used to identify fields that are next to each other, fields that share the same manure sources, or rented fields with the same owner. Fields may only be in one subfarm.

Example crops and applications

Example 1: If a soybean field is harvested in October and manure is applied after the harvest, highlight the crop that follows the soybeans and enter the manure as a late summer-fall application.

Example 2a: If a winter wheat field is harvested in July, manure is applied, and a forage crop is planted (a double crop), select the forage crop when entering the mid-summer manure application.

Example 2b: If a winter wheat field is harvested in July, manure is applied, and then an overwintering cover crop is planted, highlight the cover crop row and enter the manure as a late summer-fall application. The nutrients will be credited to the next crop because no nutrients are recommended for a non-harvested cover crop.

Example 3a: If manure is applied to established hay between cuttings, the application should be entered as a summer application in the ***current*** year.

Example 3b: If manure is applied to hay after the last cutting of the year, that application should be entered as a late summer-fall application to the ***following*** crop.

SnapPlus Tip: You can refer to the top of the Nutrient Application Planner, where "Application seasons:" illustrates what timeframe your applications are being placed in.

SnapPlus Tip: To record lime applications, go to the Records and Updates Page and click on **+ NEW LIME APPLICATION** to enter data. You can also upload a spreadsheet. This will remove the alert on the Management Page recommending lime for a field.

Tillage Information

SnapPlus tillage codes and explanations

For each primary tillage category, SnapPlus uses the most soil-disturbing tillage option in the RUSLE2 database. If you meet "T" with SnapPlus, then you are protecting the field from excess soil erosion. The fall and spring chisel and moldboard options include multiple tillage passes.

increasing soil disturbance value

Code	Tillage	**RUSLE2 operations** (assumptions for soil loss calculations)
NTg	No-till green	No soil disturbance except for planter using a double-disk opener and fluted coulter. Spray operation kills previous cover crop the day before planting.
NT	No-till	No soil disturbance except for planter using a double-disk opener and fluted coulter.
STg	Strip-till green	No soil disturbance except for 30% of the surface at planting with a strip-till planter. Spray operation kills previous cover crop the day before planting.
ST	Strip-till	No soil disturbance except for 30% of the surface at planting with a strip-till planter.
FR 1-pass	Fall ripper (subsoiler)	Fall pass using in-row chisel shanks or subsoiler shanks. Disturbs less than 40% of the soil surface but lifts and fractures soil to depth below plow layer.
SVT 1-pass	Spring vertical tillage	Spring pass using a seedbed conditioner with a double gang coulter caddy, rotary harrow, and rolling basket incorporator.
Cult **FFC** **SFC** 1-pass	Cultivation Fall cultivation Spring cultivation	One field cultivation in the selected season. Use for most 1-pass systems.
FVT 2-pass	Fall vertical tillage	Fall pass plus a spring pass with same seedbed conditioner: double gang coulter caddy, rotary harrow, and rolling basket incorporator.
CND **FCND** **SCND** 2-pass	Chisel, no disk Fall chisel, no disk Spring chisel, no disk	Chisel plowing (twisted shovel) in the selected season and field cultivation before planting.
CD **FCD** **SCD** 3-pass	Chisel, disked Fall chisel, disked Spring chisel, disked	Chisel plowing (twisted shovel) in the selected season, spring disking (tandem), and field cultivation before planting.
MP **FP** **SP** 3-pass	Moldboard plow Fall moldboard plow Spring moldboard plow	Moldboard plowing followed by disking (tandem) in the selected season and field cultivation before planting

Note: Not all tillage options are used for all crops in SnapPlus. Some crops are not typically grown with the full range of tillage systems.

Use DIVERSIFIED VEGETABLES for nutrient management planning for small-scale vegetable growers.

If you grow a variety of vegetables on a small acreage, use the crop selections called "Diversified vegetables – 2 crop in yr," or "Diversified vegetables – 1 crop in yr."

Use "Diversified vegetables – 2 crop in yr," when multiple crops are grown in rotation. There are three tillage options: tilled (6 passes in year), tilled with plastic mulch (3 passes), and tilled with organic mulch (3 passes).

Use "Diversified vegetables – 1 crop in yr," when only one crop is grown per year. This has 3-pass and 2-pass chisel plow tillage choices, including ones with plastic or organic mulch. Diversified vegetable crops in SnapPlus use the UW-A2809 recommendations for "Truck crops".

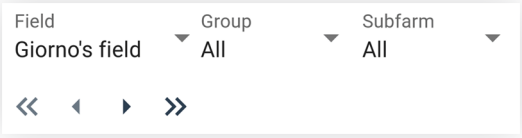
SnapPlus Tip: If the tillage you are using isn't in SnapPlus, you can select the most similar SnapPlus system by comparing the STIR values. Go to **PLANNING INFO > MATCHING SNAPPLUS TILLAGES** on snapplus.wisc.edu for more information.

Management Page: Cropping Features

The Management Page is the updated version of what was previously known as the Cropping Screen in SnapPlus V2. It includes many features for entering important data, including crops, nutrient applications, rotations, etc. There are three tabs on the Management Page: Field View, Annual View, and Template Builder.

Field View

On the **FIELD VIEW** tab, you can enter data for crops and nutrient applications for one field at a time. First, choose a field from the dropdown menu near the top of the page.



You can select a field by name from the dropdown on the left. The buttons beneath will navigate from one field to the next in the list. You can filter the list of options in the dropdown by selecting a group or subfarm.

In the Field View, crops are shown in order of **calendar year and season**. A completed crop sequence looks like this:

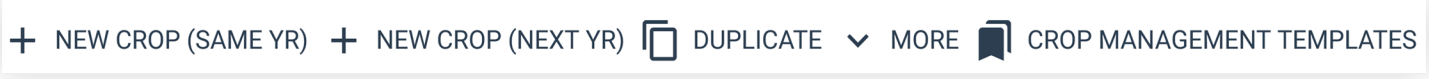
Calendar year	Plant season	Crop	Yield	Tillage	Delete
2025	April-May	Alfalfa seeding	2.6-3.5 ton	Spring Chisel, disked	
2026	Established	Alfalfa	3.6-4.5 ton	None	
2027	Established	Alfalfa	3.6-4.5 ton	None	
2028	April-May	Corn silage	30.1-35 ton	Spring Chisel, disked	
2029	April-May	Soybeans 30-36 inch row	76-85 bu	No Till	
2030	April-May	Corn silage	30.1-35 ton	Spring Chisel, disked	
2031	April-May	Alfalfa seeding	2.6-3.5 ton	Spring Chisel, disked	

Building and editing a crop sequence

If you are working in a new field (not converted from an existing V2 plan), SnapPlus will start you off with one row of empty crop data in the table:

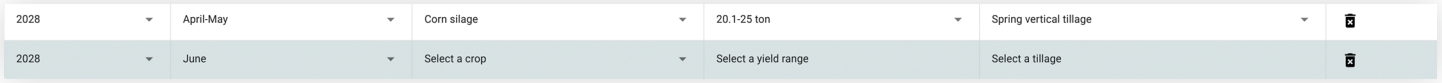
Calendar year	Plant season	Crop	Yield	Tillage	Delete
2025	Select a season	Select a crop	Select a yield range	Select a tillage	

Crop data in SnapPlus V3 must be entered in a specific order. The calendar year will be automatically assigned, but can be changed. A planting season must be selected to set the crop, and a crop must be selected to set the yield and tillage. SnapPlus V3 limits available options for crop data based on RUSLE2 requirements. Once all the data for the first row is filled out, SnapPlus will automatically save the crop to the field. Some options will become available in the toolbar above the data table:

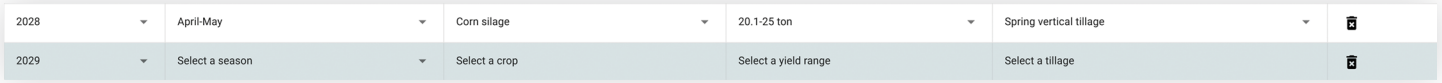


The first three buttons in the toolbar **require that a crop is highlighted**. They will not be available if no crop is highlighted.

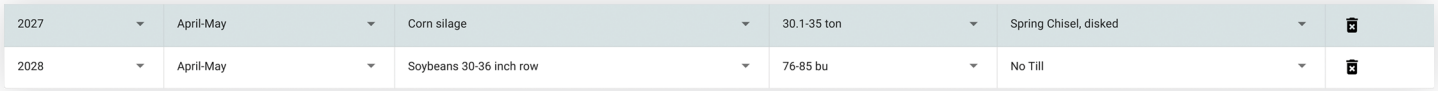
+ NEW CROP (SAME YEAR) This will insert a new row in the crop table directly below the row you have highlighted. The calendar year will match the calendar year of the highlighted crop. The season will default to the one that is after the season of the crop in the highlighted row. This button will be disabled if the highlighted blue crop is planted in Late Summer-Fall season, which is the final planting season in a calendar year.



+ NEW CROP (NEXT YEAR) This inserts a new row in the table directly below the row you have highlighted and sets the year to the next calendar year.



If there are crops in the sequence after the new crop, SnapPlus will automatically set them to be planted one year later. In the example below, the first crop selected is 2027 corn silage, which is followed by 2028 soybeans. Adding a new crop in the next year and adding a blank row in 2028 will set the calendar year of the soybeans to 2029.



DUPLICATE: This will create a copy of the selected crop and insert it at the specified position in the crop sequence (beginning, end, or directly after the selected crop). Nutrient applications will also be copied.

The remaining features can be used even when a crop is not selected.

MORE: This button allows you to insert an empty crop at the beginning or end of the sequence.

CROP MANAGEMENT TEMPLATES are covered on page 25 of the quick guide.

Warnings and Errors: When a crop's data is completed, SnapPlus will automatically check if any crops on the field will cause errors for RUSLE2 soil loss calculations. If there is an error, a pop-up will display with information about the issue and options to resolve it. SnapPlus will also check for these issues when you try to delete a crop from the sequence.

Rotation Settings: The field view of the Management page is also where you can assign rotation start, rotation length, and field practices for fields. Rotation start year and length settings are disabled if the field does not have at least three years of planned crops (if 590 plan) or five years of planned crops (if WPDES/CAFO). When you set a rotation, it is shown as a black border around the selected crops.

After you have set your rotation, click **CALCULATE EROSION** to see results for soil loss and Phosphorus Index (PI) in the upper left.

Annual View

In the **ANNUAL VIEW** tab, crop data is visible for all fields for the selected crop year.

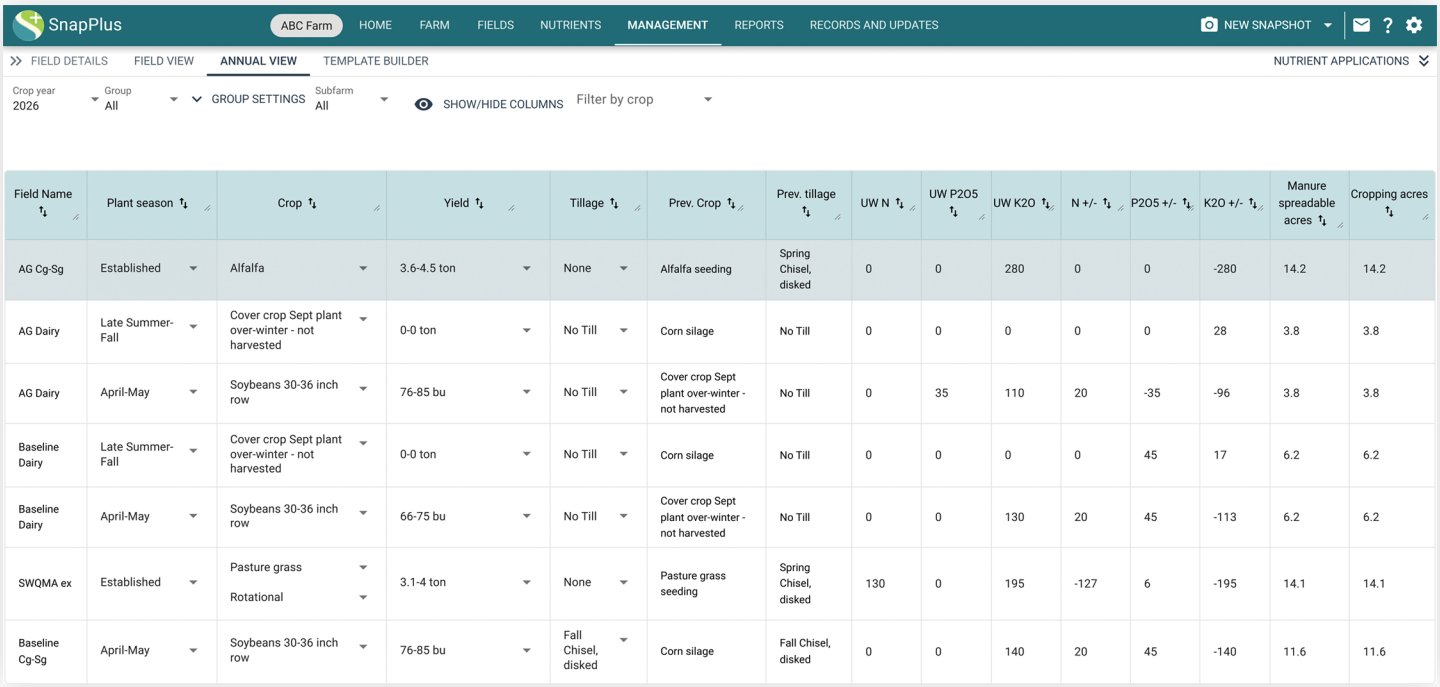
Customize the table using the **SHOW/HIDE COLUMNS** button.

Filter the table by crop, group, or subfarm.

Create or edit groups by clicking on the **GROUP SETTINGS** button.

Sort the table by clicking on column names.

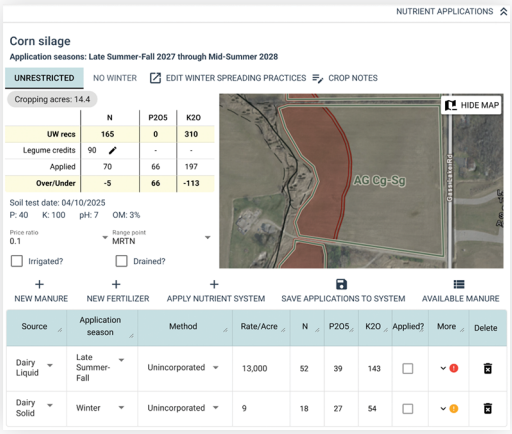
Open the Nutrient Application Planner by clicking on **NUTRIENT APPLICATIONS** in the upper right.



Field Name	Plant season	Crop	Yield	Tillage	Prev. Crop	Prev. tillage	UW N	UW P2O5	UW K2O	N +/-	P2O5 +/-	K2O +/-	Manure spreadable acres	Cropping acres
AG Cg-Sg	Established	Alfalfa	3.6-4.5 ton	None	Alfalfa seeding	Spring Chisel, disked	0	0	280	0	0	-280	14.2	14.2
AG Dairy	Late Summer-Fall	Cover crop Sept plant over-winter - not harvested	0-0 ton	No Till	Corn silage	No Till	0	0	0	0	0	28	3.8	3.8
AG Dairy	April-May	Soybeans 30-36 inch row	76-85 bu	No Till	Cover crop Sept plant over-winter - not harvested	No Till	0	35	110	20	-35	-96	3.8	3.8
Baseline Dairy	Late Summer-Fall	Cover crop Sept plant over-winter - not harvested	0-0 ton	No Till	Corn silage	No Till	0	0	0	0	45	17	6.2	6.2
Baseline Dairy	April-May	Soybeans 30-36 inch row	66-75 bu	No Till	Cover crop Sept plant over-winter - not harvested	No Till	0	0	130	20	45	-113	6.2	6.2
SWQMA ex	Established	Pasture grass Rotational	3.1-4 ton	None	Pasture grass seeding	Spring Chisel, disked	130	0	195	-127	6	-195	14.1	14.1
Baseline Cg-Sg	April-May	Soybeans 30-36 inch row	76-85 bu	Fall Chisel, disked	Corn silage	Fall Chisel, disked	0	0	140	20	45	-140	11.6	11.6

Nutrient Application Planner (NAP)

Select a crop on the Management page in Field View or Annual View to access the Nutrient Application Planner. Then, click the **NUTRIENT APPLICATIONS** button in the top right corner.



Spreading restrictions and the NAP

If your field has areas where manure applications are prohibited (no manure) or where winter manure applications are prohibited (no winter), you can plan make-up applications in those areas by selecting the appropriate tab at the top of the NAP.

If you need to select **winter spreading practices**, you can edit these on a field-by-field basis in the NAP. You can set these practices for the entire farm on the **FARM SETTINGS** page.

Nutrient accounting

The nutrient accounting table is at the top of the NAP. It contains the following rows:

UW recs: UW–Madison Extension's recommendations for the amount of N, P_2O_5, and K_2O to apply to the crop in pounds per acre.

Applied: Pounds per acre of N, P_2O_5, and K_2O applied to the crop. These values are based on manure analysis, fertilizer source, soil test, and crop data.

Over/Under: The amount of nutrients that must be applied (or removed) to satisfy UW–Madison Extension's recommendations for major nutrient applications.

Depending on the situation, you may also see values for P_2O_5 or K_2O that have carried over from the previous crop's applications, or values from manure and legume N credits.

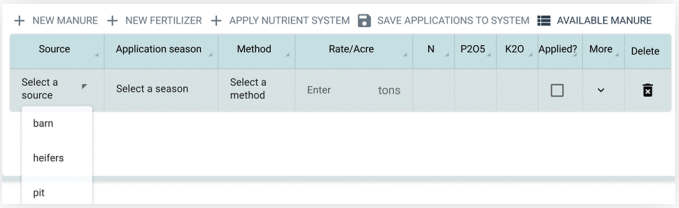
Adding nutrient applications to your plan

Select the crop receiving nutrients.

Select **+ NEW MANURE**, **+ NEW FERTILIZER**, or **+APPLY NUTRIENT SYSTEM** to add application(s).

Add or edit information about source, season, application method, and rate.

Application data will automatically save once the dropdown menus and application rate are filled out. When the application has been saved, SnapPlus will update the nutrient accounting table and compliance checks. To reuse application information on another field, click **SAVE APPLICATIONS TO SYSTEM**, and enter a name.

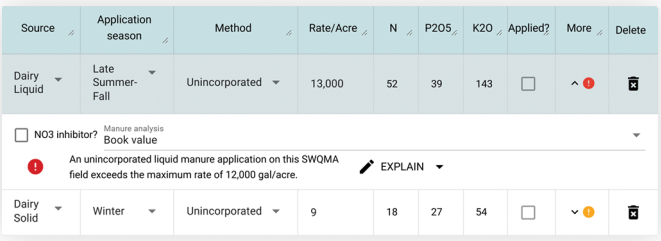


Checking the **APPLIED?** box will mark your application as applied. When an application has been marked applied, **it cannot be edited unless the box is unchecked**. This property can also be set from the **UPDATE APPLICATIONS** tab on the **RECORDS AND UPDATES** page. Applications that come from an import of **application records/daily logs** will be marked as applied. In those cases, application data can only be modified from the **APPLICATION RECORDS/DAILY LOG** tab.

Compliance issues

SnapPlus automatically looks for potential compliance issues with planned applications. Click the icons in the **MORE** column for information about flagged applications.

Compliance issues show up with different icons. **Red symbols** are for compliance issues that must be addressed or explained using the editor tool available by clicking the **EXPLAIN** button. **Gold symbols** are guidance messages with further steps that must be taken to meet the 590 standard at the time of application.



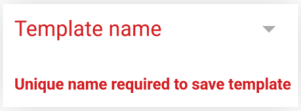
The Template Builder

The Template Builder is a tool in SnapPlus that can help you save time by entering data for multiple years, crops, and applications. Once you have created a template, you can apply it to multiple fields at once.

When applying a template to multiple fields, there will be chances to preview changes. Creating a snapshot can help prevent larger scale mistakes.

1. **Getting started**
   Navigate to the **TEMPLATE BUILDER** tab in the **MANAGEMENT** page. From this page, you can create, edit and apply templates.

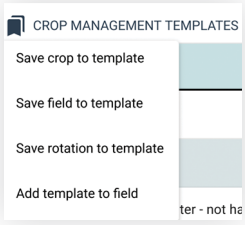
2. **Create a new template**
   Enter a name for your template. SnapPlus will automatically save it.



   Two templates can't have the same name. One approach to naming is crop abbreviations, e.g. Csl-Csl-As-A-A.

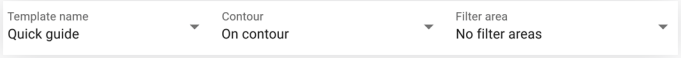
3. **Add data to the new template**
   Add crops and applications to your template using the crop sequence table and Nutrient Application Planner as described in the Management Page section on pages 21–24.

4. **Create templates with plan data (optional)**
   You can create management templates from data that has already been entered for a field. This option is available on the Field View tab.



   SAVE CROP TO TEMPLATE will save the selected crop (highlighted row) and applications to a template. **SAVE FIELD TO TEMPLATE** will save all the crops and applications on the field to a template. **SAVE ROTATION TO TEMPLATE** is only available if the field has rotation settings, and will only save the crops and applications in rotation to the template. **ADD TEMPLATE TO FIELD** will prompt you to select a template and a year for the template crops to begin on the field.

5. **Add field practices to template (optional)**
   In addition to crop and application data, templates can include saved field practices:



There is also an option to use the template as a rotation, if the template crops satisfy SnapPlus rotation setting requirements. This will apply the template and applications as a rotation on the field.

6. **Change the start year of the template**
   Use the **CYCLE TEMPLATE** button on the top of the page to start the template on a different year of the rotation.

   This will start the template at the current second year of the sequence. Do this as many times as needed to get your rotation in the right order. Example:

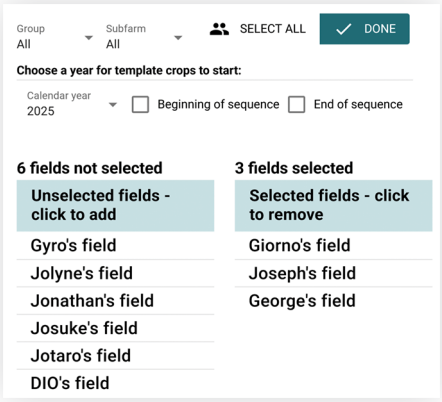
Calendar year	Plant season	Crop	Yield	Tillage	Delete
1	April-May	Corn grain	191-210 bu	No Till	
2	April-May	Soybeans 7-10 inch row	66-75 bu	No Till	
3	April-May	Corn grain - baled stalks	151-170 bu 2.1-3 ton	No Till	

The template sequence before cycling once.

Calendar year	Plant season	Crop	Yield	Tillage	Delete
1	April-May	Soybeans 7-10 inch row	66-75 bu	No Till	
2	April-May	Corn grain - baled stalks	151-170 bu 2.1-3 ton	No Till	
3	April-May	Corn grain	191-210 bu	No Till	

The sequence has been cycled, and now starts on soybeans instead of corn grain.

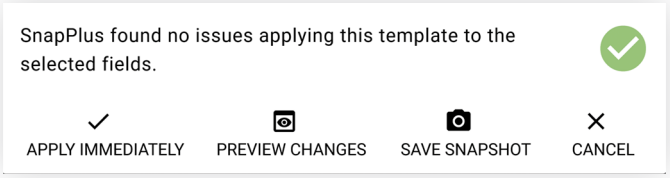
7. **Apply template to fields**
   Once your template sequence is complete, it is ready to be applied to fields. The **USE TEMPLATE** button will bring up a popup window with two scrollable lists. Select fields that will receive template crops:



   The template will be applied to the fields listed on the right hand side. You can filter the list of options by group or subfarm. **SELECT ALL** will select all the fields in the group or subfarm. A dropdown menu is available to select which year on the selected fields the template crops will start.

8. Confirm your action

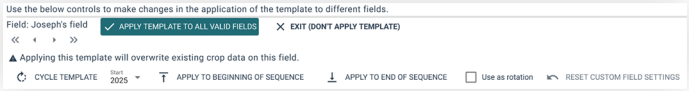
Before your template is applied to any fields, SnapPlus will display another popup window:



If SnapPlus found no problems with the management template on the selected fields, you will have the option to skip the preview step.

9. Preview changes

The preview screen shows what the data on your fields will look like after the template is applied. You also have the ability to modify the data in the template for particular fields. Tables for crop data and application data, as seen on the Management Page, are below this toolbar.



Let's review the options.

- The dropdown and buttons on the left will change the displayed data to match the field name shown.
- **Apply the template** will send template data to selected fields and **Exit** will cancel the process.
- **Cycle the template on the field.** You can change the order of template crops as explained in (6).
- **Apply to beginning/end of sequence.** These buttons adjust template crops to **end before the first year** or **begin after the last year** of crops on the field. For example:

  Starting with this field:

Calendar year	Plant season	Crop	Yield	Tillage
2023	April-May	Soybeans 7-10 inch row	36-45 bu	No Till
2024	April-May	Corn silage	20.1-25 ton	No Till
2024	Late Summer-Fall	Wheat winter grain and straw	61-80 bu	No Till
2025	Mid-Summer	Small grain silage annual	2-3.5 ton	No Till

  and this template:

Calendar year	Plant season	Crop	Yield	Tillage
1	June	Snap Beans	3.6-4.5 ton	Cultivation
2	Mid-Summer	Small grain silage annual	2-3.5 ton	Moldboard Plow
3	April-May	Corn grain	131-150 bu	No Till

  Applying the template starting at 2023 overwrites all data on the field with template data:

Calendar year	Plant season	Crop	Yield	Tillage
2023	June	Snap Beans	3.6-4.5 ton	Cultivation
2024	Mid-Summer	Small grain silage annual	2-3.5 ton	Moldboard Plow
2025	April-May	Corn grain	131-150 bu	No Till

  Applying the template at the end of the sequence puts the template crops after any previously planned crops:

Calendar year	Plant season	Crop	Yield	Tillage
2023	April-May	Soybeans 7-10 inch row	36-45 bu	No Till
2024	April-May	Corn silage	20.1-25 ton	No Till
2024	Late Summer-Fall	Wheat winter grain and straw	61-80 bu	No Till
2025	Mid-Summer	Small grain silage annual	2-3.5 ton	No Till
2026	June	Snap Beans	3.6-4.5 ton	Cultivation
2027	Mid-Summer	Small grain silage annual	2-3.5 ton	Moldboard Plow
2028	April-May	Corn grain	131-150 bu	No Till

  Data that has already been added to your plan cannot be modified during this step, as indicated by the lock icons in the corner of the cells in the table. You can modify these crops on the Management page.

  - Two things to note when making field-specific changes to a template when in preview mode:
    - **Changes made to data on the preview screen will not permanently save to the template.** Edits made on the preview screen will be wiped after the template is applied, or the process is canceled.
    - You can always revert the template on a field to its original state with the reset custom field settings button.

10. Correct errors if necessary

If SnapPlus identifies an issue with the data in your plan when applying the template, you must fix it in the preview screen or cancel the process. If there are errors, you will see one of two messages:

- **Template cannot be applied to any fields.** In this situation, it is impossible to use the template as constructed. You must either resolve the issues for at least one field or exit the process.
- **Template cannot be applied to some fields.** If this is the case, you can still apply the template to some fields without making any changes. SnapPlus will automatically skip applying the template to problematic fields.

11. Apply template from the preview screen

Once your data looks how you want, apply your template to valid fields. You should see the changes to crops, applications, rotation settings and field practices when you navigate back to the **MANAGEMENT PAGE > FIELD VIEW** tab.

Excess N Application Info

Maximum allowable nitrogen application for corn

The maximum allowable N rate for corn is set at the high end of the range for the 0.05 Corn: N price ratio. These are the highest N rates in the University of Wisconsin–Madison Division of Extension guidelines and are recommended where manure and legume credits provide all the corn crop's nitrogen needs.

Soil group: Yield Potential Previous crop	**Maximum N rate (lb/a)**[1]
Loamy: High yield potential soils Corn, forage legumes, legume vegetable, or green manures	**210**
Soybean or small grains	**160**
Loamy: Medium yield potential soils Corn, forage legumes, legume vegetable, or green manures	**160**
Soybean or small grains	**150**
Sands/loamy sands All crops-irrigated	**230**
All crops—not irrigated	**150**

[1] Includes Legume credits, Manure credits, This year's manure and This year's fertilizer.

Note: If the entire amount shown here is supplied through organic sources, some starter N fertilizer (up to 20 lb N per acre) can be applied before the SnapPlus warning notices are given.

Maximum allowable nitrogen application for wheat

Soil group Previous crop	**Maximum N rate (lb/a)**[1]	
	Winter wheat	Spring wheat
Loamy: Corn, forage legumes, legume vegetable, or green manures	**85**	**75**
Soybean or small grains	**65**	**55**
Sandy (sands/loamy sands)—All crops	**115**	**105**
Organic—All crops	**0**	**0**

[2] Soils in the loamy group that have less than 2% organic matter (OM) use the sandy group maximum allowable N rate. Loamy soils with greater than 10% OM have maximum allowable N rates that are 30 lb N per acre lower than those shown in the table.

Maximum allowable nitrogen application for crops other than MRTN or legume crops

	Maximum N rate (lb/a)[1]
All N from manure/legume credits	**1.2x UW recs**
Commercial N	**UW recs**

Maximum allowable 1st year manure Nitrogen application rates for legume & (legume + companion) crops[3]

	Yield range	**Manure N allowed (lb/a)**[1]
Alfalfa; alfalfa/brome; red clover; or trefoil, birdsfoot, seeding or established	**<1.5 ton/a**	**50**
	1.5 – 2.5 ton	**100**
	2.6 – 3.5 ton	**155**
	3.6 – 4.5 ton	**205**
Barley for grain underseeded with alfalfa, alfalfa/brome, or red clover seeding	**All yield levels, bu/a**	**150**
Dry beans	**10-20 cwt**	**75**
	21-30 cwt	**125**
	31-40 cwt	**175**
Oats for grain underseeded with alfalfa, alfalfa/brome, or red clover seeding	**All yield levels, bu/a**	**140**
All pastures that include legumes	**0.5 – 1.9 ton**	**55**
	2 – 3 ton	**115**
	3.1 – 4.0 ton	**160**
	4.1 – 5.0 ton	**205**
Small grain silage underseeded with alfalfa	**2 – 3.5 ton**	**170**
Small grain and legume silage	**2 – 3.5 ton**	**70**
Small grain and legume silage underseeded with alfalfa	**2 – 3.5 ton**	**170**
Soybean forage	**2-3.5 ton**	**170**
Soybean, grain, and grain + straw	**15-25 bu**	**75**
	26-35 bu	**115**
	36-45 bu	**155**
	46 bu or greater	**195**

[3] Some SnapPlus legume crops such as peas and snap beans are not included in this table because N removal in the harvested portions of the crop is similar to their N fertilizer recommendation.

SnapPlus Tip: Note: The 590 Standard does not allow commercial fertilizer N applications where there is no N recommendation, as is the case with most legume crops. However, due to the difficulty that sometimes occurs in obtaining N-free P_2O_5 or S fertilizers, SnapPlus does not give an excess N warning if up to 70 lb of the legume N allowance is applied as commercial fertilizer if that fertilizer includes required nutrients.

Restriction Flags

On the Management page, SnapPlus will flag compliance issues at the field, crop, and application levels. Red exclamation points (!) indicate a compliance message. Yellow exclamation points (!) indicate an implementation message.

Field messages

Red flag: Soil loss for this rotation exceeds the tolerable level of _ t/acre/year. Change management practices to reduce soil loss.

590 Standard: Nutrients shall not be spread on fields exceeding tolerable soil loss (T). Erosion controls shall be implemented so that tolerable soil loss (T) over the crop rotation will not be exceeded on fields that receive nutrients.

How to fix the problem: Implement best management practices to reduce soil loss.

Red flag: P index for this rotation is greater than 6. Reduce P applications or use best management practices to reduce P Index.

590 Standard: The planned average PI values for up to an 8-year rotation in each field shall be 6 or lower. P applications on fields with an average PI greater than 6 may be made only if additional P is needed and according to UW–Madison Extension Pub. A2809.

How to fix the problem: Reduce P applications or use best management practices to reduce P Index.

Crop messages

Red flag: 590 N over: More N has been applied than is allowed. The maximum amount of total N allowed with all organic sources for this crop is _.

590 Standard: Available N from all sources shall not exceed the annual N requirement of non-legume crops consistent with UW–Madison Extension Pub. A2809.

How to fix the problem: User must reduce rate of N applications.

Red flag: The soil test for this field is more than 4 years old. A default soil test P of 101 ppm is now being used for planning.

590 Standard: Soils shall be tested a minimum of once every four years by a DATCP-certified laboratory for pH, phosphorus (P), potassium (K), and organic matter.

How to fix the problem: Users must enter or import a spreadsheet with soil tests taken within 4 years of the current year. This can be done from the **SOIL TESTS** tab of the **FIELDS** page.

Application messages

Red flag: Spring or summer N fertilizer applications on this field do not meet the requirements for highly permeable soils. Use one of these: split applications, a nitrification inhibitor with ammonium forms of N, or a slow-release N fertilizer.

590 Standard: On P soils, when commercial N is applied for full season crops in the spring and summer, do not exceed the UW–Madison Extension Pub. A2809 crop N rate guidelines and apply one of the following strategies:

- A split or delayed N application to apply a majority of crop N requirement after crop establishment.
- Use a nitrification inhibitor with ammonium forms of N.
- Use slow and controlled release fertilizers for a majority of the crop N requirement applied near the time of planting.

How to fix the problem: Planners can split nitrogen applications by documenting the season applied or specify if the fertilizer source is slow release or if a fertilizer application uses a nitrification inhibitor.

Yellow flag: This field has an area with nutrient prohibitions around a well or direct conduit to groundwater. Check spreading map before applications.

590 Standard: Nutrients shall not be spread on a potable well or direct conduits to groundwater and within 50 feet of these features, unless directly deposited by gleaning or pasturing animals or applied as starter fertilizer to corn.

What to do: At time of spreading follow the recommended implementation message by checking the spreading map and avoiding any manure prohibited areas.

Pastures

Soil testing and pastures

For fields or pastures with mechanical nutrient applications, determine field nutrient levels from soil samples collected within the last four years, according to the 590 Standard and UW–Extension Publication A2809, *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin*, typically collecting one sample consisting of 10 cores per five acres.

!

Soil tests are not required on pastures that do not receive mechanical applications of nutrients if either of the following applies:

1. The pasture average stocking rate is one animal unit per acre (one AU = 1,000 lbs of animal) or less at all times during the grazing season.
2. The pasture is winter grazed or stocked at an average stocking rate of more than one animal unit per acre during the grazing season, and a nutrient management plan for the pasture complies with the 590 standard using an assumed soil test phosphorus level of 150 ppm and organic matter content of 6%.

Selecting pasture crops

In SnapPlus, pastures are identified by the pasture plant mix, grazing management strategy (rotational or continuous), and whether there is hay cut in addition to grazing.

Grazing management strategy:

- ✓ **Rotational**: Ruminant livestock grazing events are not to exceed 7 days, allowing for a rest period for adequate regrowth.
- ✓ **Continuous**: Ruminant livestock have extended access to the same area.

Pasture crops

- ✓ Pasture grass
- ✓ Pasture grass-legume
- ✓ Pasture grass-legume more than 30%
- ✓ Pasture unimproved

All of the pasture crops above include options with and without hay cuts. You may select spring seeding (April–May plant season), or fall seeding (Late Summer–Fall plant season) when adding pasture crops on the Management page.

What about animal density?

SnapPlus calculates animal density (animal units per acre) based on the information entered in the grazing schedule and the associated pastures. This information is displayed on the **GRAZING** tab and in the **NUTRIENT APPLICATION PLANNER** on the Management page. Animal density is also used to select the appropriate settings for soil loss calculations on pastures.

Definitions

Feedlot: A barnyard, exercise area, or other outdoor area where livestock are concentrated for feeding or other purposes, and self-sustaining vegetative cover is not maintained. Feedlot does not include a winter grazing area, or a bare soil area such as a cattle lane or a supplemental feeding area located within a pasture, provided that the bare soil area is not a significant source of pollution to waters of the state. Note that **grazed woodlands** are considered feedlots.

Grazing season: Includes the months when pasture vegetation is actively growing (May – October).

Non-Grazing Season: Includes the months when pasture vegetation is not actively growing (November – April).

Pasture: Land that livestock graze, or seek feed in a manner that maintains the vegetative cover over the grazing area. Pasture may include limited areas of bare soil, such as cattle lanes and supplemental feeding areas, provided the bare soil areas are not significant sources of pollution to waters of the state.

5 steps for adding pastures

Step 1:

Select pasture crops. On the **FARM** page, select the **CROP SELECTION** tab. Type "pasture" in the search box to filter the list to pasture crops. Click on all relevant crops to add them to your list.

Step 2:

Add soil tests and pasture boundaries. If you have soil test results, go to the **FIELDS** page and click on the **SOIL TESTS** tab. You can import a spreadsheet of soil tests using the **IMPORT SOIL TESTS** button, or add them by hand using the **+ NEW SOIL TEST** button. If you

do not have soil tests, you can check the box next to **USE DEFAULT SOIL TEST**. See the previous page for situations when soil tests are **not** required on pastures.

Then, go to the **MAPS** tab to draw the pasture boundaries (see page 6 for getting started with MAPS).

Step 3:

Add pasture crops. Go to the **MANAGEMENT** page and select the field you are planning to use as a pasture. Add pasture crops following the instructions on pages 21–22 for building and editing a crop sequence. Remember to select a grazing management strategy (continuous or rotational) for pasture crops with Late Summer-Fall and Established plant seasons.

Step 4:

Build a grazing schedule. Go to the **GRAZING** tab. Here, you will plan out your grazing schedule for the year. Click on the **NEW GRAZING SCHEDULE** button to create a schedule. Give the schedule a name and select the crop year the schedule will be used. Then, click on the **ADD ANIMALS** button to add animals to the schedule. This will bring up tools to select the month(s) the animals are on the pasture, the type of animal(s) grazing on the pasture, the number of animals, and the percent time spent on the pasture. This will automatically populate the months you have selected.

Step 5:

Apply a grazing schedule. In the **GRAZING** tab, click on the **APPLY GRAZING SCHEDULE** to assign this schedule to the pastures in your plan. This will let you select which pastures are associated with the schedule. If the pasture is not listed on the selection tool, then go to step 3 to add the pasture crops, first. Click done, and the schedule will be added to the pasture(s) crediting the manure applications. You can view the manure applications on the **MANAGEMENT** page by clicking **NUTRIENT APPLICATIONS** in the upper right. You may plan additional fertilizer applications or add more crops to the rotation.

Outwintering and bale grazing

If you are bale grazing or outwintering (feeding of stored feeds), you can use the same process as setting up a grazing system for in-season grazing.

1. Start by following steps 1-3 above.
2. In the **NUTRIENTS** page on the **GRAZING** tab, create a separate grazing schedule for your bale grazing or outwintering. It might be helpful to give this system a descriptive name such as “bale grazing” or “outwinter.”
3. When selecting the months, remember that the crop year begins in November and ends in October of the following year. You might have to change the grazing system from one year to the next year to account for the nutrients applied through grazing in November and December in the correct application season.
4. Click apply **GRAZING SCHEDULE** and follow the steps as you would to assign the schedule during the growing season.
5. Once assigned, this application will be listed as “Non-Grazing” season in the Nutrient Application Planner.

Finalize pastures and compliance check

When you are finished adding pastures and applying your grazing schedules in SnapPlus, adjust Rotation Settings on the Management page for each pasture to cover the correct span of years, then click on **CALCULATE EROSION**.

If nothing flags red, run the NM2 Compliance Check Report.

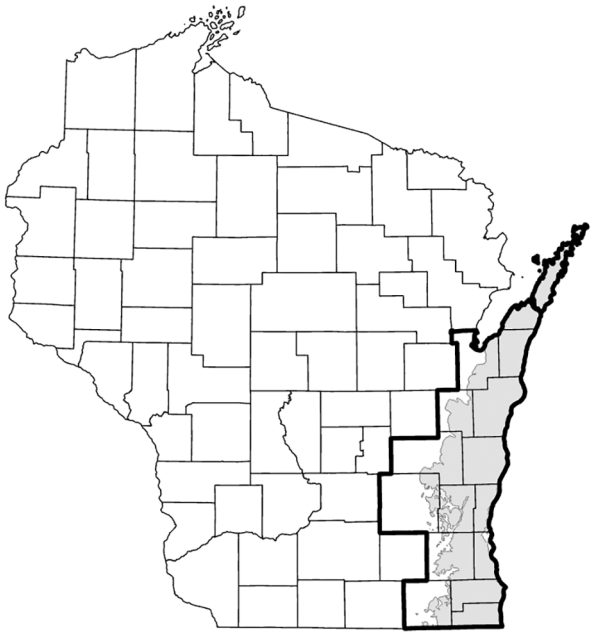
If you have any flags, they will need to be corrected. You may need to adjust your herd size in the grazing schedule (less animals, shorter time on pasture), improve your pasture (more/better cover), get an actual slope reading (defaults may be high for your slope and slope length), or if you used the default setting, take an actual soil test (your actual ppm P may be lower than the assumed 150 ppm).

Remember, if you add or reduce animal numbers in the future, you will have to go back to your plan and modify your animal numbers.

About NR151 Silurian Standard

Planning manure applications in the Silurian bedrock area

Is your farm located in any of the 16 counties shown below? If you answered yes and also spread manure, keep reading to learn about additional requirements and restrictions for nutrient management planning.



Sixteen counties in eastern Wisconsin have an increased risk of water contamination from manure application due to the presence of Silurian dolomite bedrock near the soil surface. To address this vulnerability, the Wisconsin Department of Natural Resources (DNR) adopted a targeted performance standard in 2018 under NR 151.075. This standard restricts or prohibits the land application of manure in areas with shallow soils over Silurian bedrock. There are approximately 1.6 million acres of cropland over Silurian bedrock in Wisconsin. Manure application restrictions vary based on depth to Silurian bedrock. As the soil depth increases, restrictions decrease.

Due to its unique geology, the Silurian bedrock area features many direct conduits to groundwater such as sinkholes, caves, fractures, springs, stream sinks, and areas of groundwater seepage (see Glossary page 34).

Spreading manure near these features increases the risk of water contamination for two key reasons: first, in these areas, groundwater can move extremely quickly, ranging from ten to hundreds of feet per day. Second, this type of bedrock does little to filter or remove contaminants as water passes through.

Silurian Bedrock Performance Standards in SnapPlus V3

SnapPlus V3 has features to help plan writers meet the requirements of the Silurian Bedrock Performance Standard. This guide summarizes key points. Please see NR 151.075 for full details.

Does your field have shallow Silurian bedrock?

- NR 151.075 requires the use of Silurian bedrock map information, in-field verification, or to locate Silurian bedrock at depths less than 5 ft before manure is applied.
- **Updated Silurian bedrock layers** have been included in SnapPlus V3 Maps (see pages 14–15).
- Users who are performing in-field verification may add bedrock depth verification points manually, or with a shapefile upload using the **Silurian bedrock depth sample** feature type.

Areas where mechanical manure application is prohibited

SnapPlus V3 Maps has features to help you identify where manure applications are prohibited in the Silurian bedrock area. These areas include:

- Where the depth to bedrock is less than 2 ft
- Where depth to apparent water table is less than 2 ft
- Within 250 ft of a private well
- Within 1000 ft of a community well
- Within 300 ft upslope or 100 ft downslope of a direct conduit to groundwater
- Within 100 ft of a concentrated flow channel that leads to a water system (private, community, or non-community) or to a direct conduit to groundwater

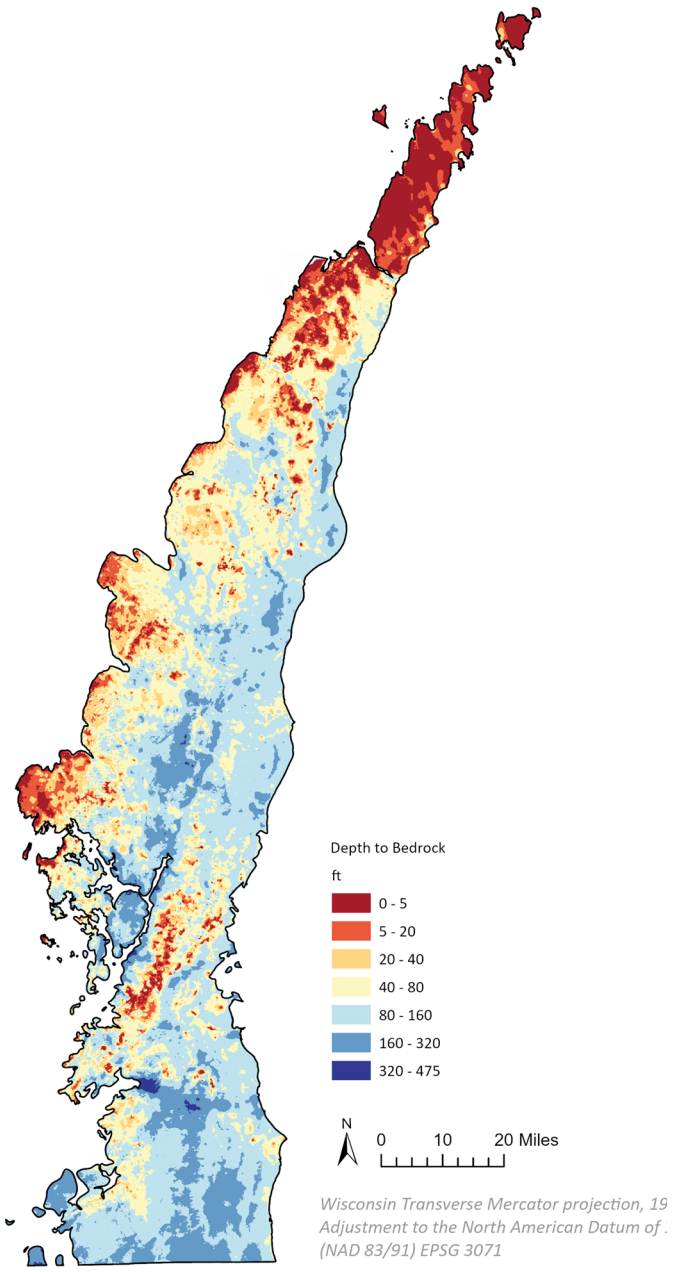
Manure applications in the Silurian bedrock area

When you add manure applications to a field in the Silurian bedrock area, SnapPlus V3 checks each application based on depth(s) to Silurian bedrock mapped in the field. Compliance messages will appear in the Nutrient Application Planner (see page 24) if any issues are found.

For liquid manure applications, **pre-tillage** is required unless the field meets criteria for **long-term no-till** status or has a perennial or established crop. **Pre-tillage** is defined as using mechanical equipment to reduce soil preferential flow paths, wormholes, root holes, and cracks by turning and mixing the soil before and at least 2 inches below the depth of manure application.

SnapPlus V3 provides the options "pre-tillage + incorporated" and "pre-tillage + injected" for application methods in the Nutrient Application Planner for fields with Silurian bedrock within 20 feet of the surface.

Note that **low disturbance manure injection** is consistent with long-term no till **if no more than one LDMI application is planned per year**.



Supplemental report on depth to Silurian bedrock in eastern Wisconsin. (2025) Wisconsin Geological and Natural History Survey Data Series 004.

Wisconsin Transverse Mercator projection, 19 Adjustment to the North American Datum of . (NAD 83/91) EPSG 3071

Depth to Silurian bedrock	Solid Manure	Liquid Manure
Less than 2 ft	No applications	No applications
2-3 ft, 3-5 ft	No winter applications, rate restrictions rest of year	No winter applications, rate and method restrictions rest of year
5-20 ft	No restrictions	Rate and method restrictions, no winter applications except in long-term no-till or to established crop

Records and Updates

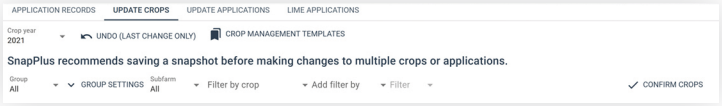
Annual Updates

SnapPlus V3 offers new timesaving ways to make annual updates to your nutrient management plan by modifying more than one field's data at a time. These features can be accessed by selecting the **RECORDS AND UPDATES** *page.*

The annual updates process always starts with the **UPDATE CROPS** tab. Once crops have been confirmed, you can proceed to the **UPDATE APPLICATIONS** tab.

These tabs have two main features:

Toolbar: At the top of the page, beneath the tab selection, there is a toolbar with some controls, options, and information.



Data: Beneath the toolbar, all crops or applications planned in the specified crop year are visible and can be modified.

SnapPlus Tip: Saving a snapshot is a good precaution to take before making changes across multiple fields. It can be difficult to track exactly what has changed when several updates have been applied.

Update Crops

Crops can be sorted by any of the columns in the table. Season, crop, yield, and tillage can be modified for individual crops with the dropdown menus.

Use the **filters** in the toolbar and the **CROP MANAGEMENT TEMPLATES** button to modify multiple rows at once:

Make or select a template with the updated crop data. You can do this from the **UPDATE CROPS** tab by updating one row with your changes, selecting it, and clicking **CROP MANAGEMENT TEMPLATES > SAVE CROP TO TEMPLATE**. For example, you may need to update the tillage for all corn grain crops in a given year.

Filter the table to include only rows you need to update. A filter on crop name is available by default, but custom filters can be selected in the **ADD FILTER BY** menu. In our example, you could filter by crop to include only corn grain.

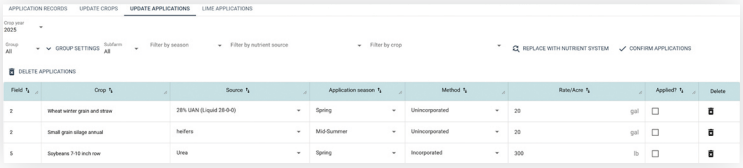
Click on **CROP MANAGEMENT TEMPLATES** and select the correct template. Selecting a template will display a pop-up that shows how data on your fields will change after applying it. SnapPlus will identify any potential issues with the use of template data in your plan and provide instructions to fix bad data.

Crops that are **confirmed** can no longer be edited unless the **CONFIRMED** box is again unchecked. By confirming a crop, you are verifying that the data in your plan matches what happened on the farm.

Update Applications

Application data on multiple fields can also be modified simultaneously using the **UPDATE APPLICATIONS** tab. Application data will only display for crops that have been confirmed on the **UPDATE CROPS** tab.

As with the crop tab, there is a toolbar at the top of the page with controls to make the update process easier. Notice there are a few additional features when working with applications.



Planned nutrient applications can be deleted from the annual update page. Nutrient application data can be quickly updated for multiple applications at once by clicking the **REPLACE WITH SYSTEM** button and selecting a nutrient system.

Grazing applications are also visible on the annual update page, but they must be modified or deleted from **NUTRIENTS > GRAZING**.

Glossary

590 restrictions: Nutrient application restrictions from the 590 standard, which include winter spreading, surface water quality management area (SWQMA), fall nitrogen application, set-backs from conduits to groundwater, and other restrictions.

CAFO: Concentrated animal feeding operation, an acronym used to refer to operations with Wisconsin Pollutant Discharge Elimination System (WPDES) permits regulated under NR 243.

CAFO manure restriction (R) or (W): Soils that are typically less than 24 inches to bedrock (R) or apparent water table (W).

Calendar year: The year that a crop, or crops will be planted in.

Concentrated flow channel: Areas within a field or on field edges where water flow channelizes and can erode soil or carry runoff.

Direct conduits to groundwater: Wells (excluding irrigation wells), sinkholes, swallets, fractured bedrock at the surface, mineshafts, non-metallic mines, tile inlets discharging to groundwater, quarries, or depressional groundwater recharge areas over shallow fractured bedrock. These features can provide a direct connection for water to flow from the soil surface to the groundwater, carrying soil and nutrients with it.

Crop year: For a field, the new crop year starts after the previous crop has been harvested and spans the time to the next harvest (typically fall to fall).

Drained: Indicates the field is artificially drained with drainage ditches or sub-surface tiles. Checking this will remove the limitation on crop production for poorly drained and very poorly drained silt loam soils. If a soil has no other limitations, checking drained will change a soil from medium to high yield potential for corn N recommendations.

Ephemeral channel: A shallow channel caused by the convergence of overland sheet flow and rill erosion. It will recur in the same place after the field is tilled.

Field "T": Tolerable soil loss, or the maximum rate of soil erosion established for each soil type that will permit crop productivity to be sustained economically and indefinitely.

Filter areas: A grass strip, often referred to as contour buffer strip, prairie strip, or filter strip. Filter areas can be within a field or on the edge of a field and are designed to capture sediment in runoff. These selections in SnapPlus assume there are no concentrated flow channels through the grass filters.

Gully: An erosion channel that cannot be crossed with ordinary farming equipment.

Long-term no-till: No-till that has been implemented a minimum of three consecutive years. SnapPlus checks that the previous three years were no-till, and the current year is planned as no-till.

Low disturbance manure injection (LDMI): Liquid manure application method with equipment used to inject manure to a depth between four and six inches, and disturbing no more than 30% of the soil surface. After application, no additional tillage passes are needed. LDMI assumes an estimated Soil Tillage Intensity Rating (STIR) of no more than 15. For more information, see **Guidance document** https://efotg.sc.egov.usda.gov/api/CPSFile/43027/590_WI_GD_Nutrient_Management_Low-Disturbance-Manure-Injection_2023_pdf

Maximum return to nitrogen (MRTN): An approach to developing N rate guidelines designed to maximize economic return to the grower. In Wisconsin, corn and wheat crops receive N recommendations based on MRTN.

Municipal well: A public water system identified by the Wisconsin Department of Natural Resources (WI DNR) as a ***community*** potable well. It can be owned by a municipality or by an entity such as a mobile home park or subdivision. These points are already included in maps.

N restricted soil: Soils that have the potential for nitrate leaching to groundwater. Definition of symbols:

(P) High permeability soils
(R) Less than 20 inches to bedrock
(W) Less than 12 inches to apparent water table

(+) This map unit may have any of the N restrictive features, however, an on-site investigation is needed to identify which restrictions are present.

On-contour: Aligning ridges, furrows, and roughness formed by tillage, planting, and other operations at a grade near the contour to alter the velocity or the direction of water flow.

P Index (PI): The Wisconsin Phosphorus Index, a planning tool used to rank fields by runoff P loss potential. Annual total PI is calculated by estimating the average annual runoff P delivery from a field to surface water. **Particulate PI** is an estimate of P delivered with eroded sediment, and **Soluble PI** is an estimate of dissolved P delivered from soil and nutrient applications.

Plant season: The season a crop is planted. Plant season is selected when adding crops to a field in SnapPlus V3.

Public well: A well that serves at least 25 of the same people over six months of the year. These wells are identified as ***non-community*** potable wells by the WI DNR and include schools, restaurants, and churches. Planners need to add these as points to their maps.

Spread method: Unincorporated (broadcast on surface with more than 72 hours before tillage); Incorporated (surface-applied and incorporated into soil by tillage or infiltration); Injected-manure (injected below soil surface or incorporated by tillage within one hour); Subsurface-fertilizer (applied below the soil surface); Grazing-manure (deposited directly from the animal).

Soil Conditioning Index (SCI): A tool that helps you understand whether your farming practices are building up or breaking down soil organic matter over time. If the SCI number is positive, it means your soil is likely gaining organic matter. If the number is negative, it means your soil is likely losing organic matter.

Strip crop: Contour strips of alternating row and hay crops. Assumes at least two strips are on the field slope length. This is more restrictive and helps reduce calculated erosion more than on-contour.

Tiled: Indicates subsurface drainage is present in the field, and liquid manure rates are limited to 12,000 gallons per acre, per application. When the checkbox for tile lines is checked in **FIELDS > FIELD RESTRICTIONS** in SnapPlus V3, the field will automatically be marked as Drained (see previous page). This may change a soil from medium to high yield potential for corn N recommendations.

Surface Water Quality Management (SWQMA): An SWQMA is an area within 300 ft of a perennial stream or river, or 1,000 ft of a lake or pond.

Winter strategies: Winter strategies are conservation practices listed in the 590 standard that are applicable when winter manure applications are planned on fields with slopes greater than 6% and/or concentrated flow channels present in or on the field boundary. A minimum of two winter strategies must be in place for these fields.

Wisconsin's **Chapter NR 151 Runoff Management** is available at https://docs.legis.wisconsin.gov/code/admin_code/nr/100/151.

The **Wisconsin NRCS 590 Standard for Nutrient Management** is currently under revision; for the current version see section "590 Standard and Related Documents" at https://datcp.wi.gov/Pages/Programs_Services/NutrientManagement.aspx.

NM Checklist and Tips

SnapPlus Tip: SnapPlus V3 has updated report numbers. In addition to submitting the 590 NM Checklist (now NM5), we suggest submitting NM1-NM4 as a good starting point for 590 (non-CAFO) plans.

ARM-LWR-480.docx (REV, 06/22/17)

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
Bureau of Land and Water Resources
PO Box 8911, Madison WI 53708-8911, Phone: 608-224-4605

Use this form to check nutrient management (NM) plans for compliance with the WI NRCS 2015-590 Standard.

Nutrient Management Checklist

Wis. Stat. §92.05(3) (k), Wis. Admin. Code §ATCP50.04(3) and Ch. 51

COUNTY	DATE PLAN SUBMITTED	GROWING SEASON YEAR PLAN IS WRITTEN FOR (from harvest to harvest)	
TOWNSHIP: (T. N.) RANGE: (R. E., W).		CHECK ONE: ☐ Initial Plan or ☐ Updated Plan	
NAME OF FARM OPERATOR RECEIVING NM PLAN First Name LastName	FARM NAME (OPTIONAL)		BUSINESS PHONE ( ) -
STREET ADDRESS	CITY	STATE	ZIP
REASON THE PLAN WAS DEVELOPED: Click and choose. (Ordinance, NR 243 WPDES or NOD, DATCP-FP or cost share (cs), DNR-cs, USDA-cs, Other)			CROPLAND ACRES (OWNED & RENTED)
RENTED FARM(S) LANDOWNER NAME(S) AND ACREAGE: add sheet(s) if needed			
WAS THE PLAN WRITTEN IN SNAPPLUS? ☐ YES ☐ NO		If yes, which software version, if known?	
CHECK PLANNER'S QUALIFICATION: Click and choose. (1. NAICC-CPCC, 2. ASA-CCA, 3. SSSA-Soil Scientist, 4. DATCP approved training course, 5. Other approved by DATCP)			
NAME OF QUALIFIED NUTRIENT MANAGEMENT PLANNER First Name Last Name			BUSINESS PHONE ( ) -
STREET ADDRESS	CITY	STATE	ZIP

Use header sections to add comments. Mark NA in the shaded sections if no manure is applied.

1. Does the plan include the following nutrient application requirements to protect surface and groundwater?

This section applies to fields and pastures. If no manure is applied, check NA for 1.c., 1.h., 1.i., 1.n., 1.o., 1.q., 1.s.	Yes	No	NA
a. Determine field nutrient levels from soil samples analyzed by a DATCP **certified laboratory**.	☐	☐	☐
b. For fields or pastures with mechanical nutrient applications, determine field nutrient levels from **soil samples** collected within the last **4 years** according to 590 Standard (590) and UWEX Pub. A2809, *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin* (A2809) typically collecting **1 sample per 5 acres** of 10 cores. Soil tests are not required on **pastures** that do not receive mechanical applications of nutrients if either of the following applies: 1. The pasture average stocking rate is one animal unit per acre or less at all times during the grazing season. 2. The pasture is winter grazed or stocked at an average stocking rate of more than one animal unit per acre during the grazing season, and a nutrient management plan for the pasture complies with 590 using an assumed soil test phosphorus level of 150 PPM and organic matter content of 6%.	☐	☐	☐
c. For **livestock siting permit approval**, collect and analyze soil samples meeting the requirements above in 1. b., excluding pastures, within 12 months of approval and revise the nutrient management plan accordingly. Until then, either option below maybe used: 1. Assume soil test phosphorus levels are greater than 100 ppm soil test P, OR 2. Use preliminary estimates analyzed by a certified DATCP laboratory with soil samples representing > 5 ac/sample.	☐	☐	☐
d. **Identify all fields'** name, boundary, acres, and location.	☐	☐	☐
e. Use the field's previous year's legume credit and/or applications, predominant soil series, and realistic yield goals to determine the crop's nutrient **application rates consistent with A2809 for ALL forms of N, P, and K**.	☐	☐	☐
f. Make no **winter applications of N and P** fertilizer, except on grass pastures and winter grains.	☐	☐	☐
g. Document method used to determine **application rates**. Nutrients shall not runoff during or immediately after application.	☐	☐	☐
h. Identify in the plan that **adequate acreage** is available for manure produced and/or applied.	☐	☐	☐
i. Apply a single phosphorus (P) assessment using either the **P Index** or **soil test P** management strategy to all fields within a tract when fields receive manure or organic by-products during the crop rotation.	☐	☐	☐
j. Use **complete crop rotations** and the field's **critical soil** series to determine that sheet and rill erosion estimates will not exceed **tolerable soil loss** (T) rates on fields that receive nutrients.	☐	☐	☐
k. Use contours; reduce tillage; adjust the crop rotation; or implement other practices to **prevent ephemeral erosion**; and maintain perennial vegetative cover to **prevent reoccurring gullies** in areas of concentrated flow.	☐	☐	☐
l. Make no nutrient applications within 8' of **irrigation** wells or where **vegetation is not removed**.	☐	☐	☐
m. Make no nutrient applications within **50' of all direct conduits to groundwater**, unless directly deposited by gleaning/pasturing animals or applied as starter fertilizer to corn.	☐	☐	☐

SnapPlus 590 NM Checklist Report

Answers for the plan year are automatically entered in the report setup. Be sure to check all answers and fill in any blanks. Use the header sections to add comments.

NA ☒ SnapPlus will check NA for all shaded areas if **no manure or organic wastes** are applied in plan (1 c, h, i, n, q, s, and 2 a-g).

ARM-LWR-480.docx (REV, 06/22/17)

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
Bureau of Land and Water Resources
PO Box 8911, Madison WI 53708-8911, Phone: 608-224-4605

Use this form to check nutrient management (NM) plans for compliance with the WI NRCS 2015-590 Standard.

Nutrient Management Checklist

Wis. Stat. §92.05(3) (k), Wis. Admin. Code §ATCP50.04(3) and Ch. 51

COUNTY | DATE PLAN SUBMITTED | GROWING SEASON YEAR PLAN IS WRITTEN FOR (from harvest to harvest)

TOWNSHIP: (T. N.) RANGE: (R. E., W). | CHECK ONE: ☐ Initial Plan or ☐ Updated Plan

NAME OF FARM OPERATOR RECEIVING NM PLAN	FARM NAME (OPTIONAL)	BUSINESS PHONE
First Name LastName		( ) -

STREET ADDRESS	CITY	STATE	ZIP

REASON THE PLAN WAS DEVELOPED: Click and choose. (Ordinance, NR 243 WPDES or NOD, DATCP-FP or cost share (cs), DNR-cs, USDA-cs, Other)	CROPLAND ACRES (OWNED & RENTED)

RENTED FARM(S) LANDOWNER NAME(S) AND ACREAGE: add sheet(s) if needed

WAS THE PLAN WRITTEN IN SNAPPLUS? ☐ YES ☐ NO — If yes, which software version, if known?

CHECK PLANNER'S QUALIFICATION: Click and choose.
(1. NAICC-CPCC, 2. ASA-CCA, 3. SSSA-Soil Scientist, 4. DATCP approved training course, 5. Other approved by DATCP)

NAME OF QUALIFIED NUTRIENT MANAGEMENT PLANNER	BUSINESS PHONE
First Name Last Name	( ) -

STREET ADDRESS	STATE	ZIP

SnapPlus auto-fills farmer and consultant contact names.

Use header sections to add comments. Mark NA in the shaded sections if no manure is applied.

Add comments and explanations for the plan in this section.

1. Does the plan include the following nutrient application requirements to protect surface and groundwater?	Yes	No	NA
a. Determine field nutrient levels from soil samples analyzed by a DATCP **certified lab**, check NA for 1.c., 1.h., 1.i., 1.n., 1.o., 1	☒	☐	☐
b. For fields or pastures with mechanical nutrient applications, determine field nutri within the last **4 years** according to 590 Standard (590) and UWEX Pub. A2809, *Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin* (A2809) typically collecting **1 sample per 5 acres** of 10 cores. Soil tests are not required on **pastures** that do n 1. The pasture average stockin 2. The pasture is winter graze e stocking rate of more than one animal unit per acre during the grazing season, and a nutrient pasture complies with 590 using an assumed soil test phosphorus level of 150 PPM a nt of 6%.	☒	☐	☐
c. For **livestock siting permit approval**, collect and analyze soil samples meeting the requirements above in 1. b., excluding pastures, within 12 months of approval and revise th either option below maybe used: 1. Assume soil test phosphorus levels are greater than 100 ppm soil test P; OR 2. Use preliminary estimates analyzed by a certified DATCP laboratory with soil samples representing > 5 ac/sample	☐	☐	☒
d. **Identify all fields'** name, b	☒	☐	☐
e. Use the field's previous yea determine the crop's nutri	☒	☐	☐
f. Make no **winter applicatio** er, e	☒	☐	☐
g. Document method used to ion rate application.	☒	☐	☐
h. Identify in the plan that **ad** vailable for manure produced and/or applied.	☒	☐	☐
i. Apply a single phosphorus (either the **P Index** or **soil test P** management strategy to all fields within a tract when fields receive manure or organic by-products during the crop rotation.	☒	☐	☐
j. Use **complete crop rotations** and the field's **critica** exceed **tolerable soil loss** (T) rates on fields that r	☒	☐	☐
lement other practices to **prevent ephemeral erosion**; and **gullies** in areas of concentrated flow.	☐	☐	☐
where **vegetation is not removed**.	☐	☐	☐
its to groundwater, unless directly deposited by corn.	☐	☐	☐

SnapPlus checks yes if soil test results are present for **every** active field.

SnapPlus checks yes if **all** fields comply with soil test requirements in the plan year (not too few or too old).

SnapPlus does not check for pasture exceptions.

SnapPlus will always check NA; manually correct if it is a siting plan.

SnapPlus checks yes if field borders are present in SnapPlus for all active fields listed. If not, it will be checked no.

SnapPlus checks yes if there are no N or P_2O_5 over-application problems for any field in the current plan year.

SnapPlus checks yes because SnapPlus does not allow winter fertilizer applications.

SnapPlus checks yes if any calibration method is selected on the Farm screen.

N and P_2O_5 applied as corn starter fertilizer need to be **at planting** and **placed subsurface**.

SnapPlus checks yes if Avg. Soil Loss is less than "T" for all fields in the planning year.

SnapPlus checks yes if there are no compliance messages for the chosen P assessment strategy. These strategies do not apply to fields that only receive P_2O_5 fertilizer with no manure or organic by-products during the rotation.

SnapPlus checks yes if the "Remaining volume" for every nutrient source is less than or equal to 10% of the "Available Annual Volume" produced in the prior, current plan, and following year. It will be left blank if any of the three years is missing the annual volume or planned applications.

Mark yes, no, or NA.

For 1.l. and 1.m., mark yes if features are mapped.

For 1.k., if any field has unrepaired gully/ephemeral erosion in Field Problems, SnapPlus checks no.

	Yes	No	NA
n. Make no **untreated manure applications** to areas within 1000' of a **community potable water well** or within 100' of a **non-community potable water well** (ex. church, school, restaurant) unless manure is treated to substantially eliminate pathogens.	☐	☐	☐
o. Make no manure applications to areas **locally delineated** by the Land Conservation Committee or in a conservation plan as areas contributing runoff to direct conduits to groundwater unless manure is substantially buried within 24 hours of application.	☐	☐	☐
p. Make no applications of **late summer or fall commercial N fertilizer** to the following areas UNLESS needed for establishment of fall seeded crops OR to meet A2809 with a blended commercial fertilizer. Commercial fertilizer N applications shall not exceed 36 lbs. N/acre on: • Sites vulnerable to N leaching **PRW Soils** (P=high permeability, R= bedrock < 20 inches, or W= wet < 12 inches to apparent water table); • Soils with depths of 5 feet or less to bedrock; • Area within 1,000 feet of a community potable water well. On **P soils, when commercial N is applied** for full season crops in **spring and summer**, follow A2809 and apply one of the following: 1. A split or delayed N application to apply a majority of crop N requirement after crop establishment. 2. Use a nitrification inhibitor with ammonium forms of N. 3. Use slow and controlled release fertilizers for a majority of the crop N requirement applied near the time of planting.	☐	☐	☐
q. Limit manure applications in late summer or fall using the lesser of A2809 or the following 590 rates on **PRW Soils.** Use ≤ 120 lbs. available N/acre on: **P and R soils** on *all crops, except annual crops*. Additionally, manure with ≤ 4% dry matter (DM) wait until after soil temp. < 50°F or Oct. 1, and use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days. **W soils or combo. W soils** on *all crops.* Additionally, manure with ≤ 4% DM on *all crops* use at least one of the following: **1**. Use a nitrification inhibitor; **2**. Apply on an established cover crop, an overwintering annual, or perennial crop; **3**. Establish a cover crop within 14 days of application; **4**. Surface apply & don't incorporate for at least 3 days; **5**. Wait until after soil temp. < 50°F or Oct. 1. Use ≤ 90 lbs. available N/acre on: **P and R soils** on *annual crops* wait until after soil temp. < 50°F or Oct. 1. Additionally, manure with ≤ 4% DM use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days. **W soils or combination W soils** receiving manure with ≤ 4% DM on *all crops*.	☐	☐	☐
r. Use at least one of the following practices on **non-frozen soils for all nutrient applications** within Surface Water Quality Management Area **(SWQMA)** = 1000' of lakes/ponds or 300' of rivers: **1**. Maintain > 30% cover after nutrient application; **2**. Effective incorporation within 72 hours of application; **3**. Establish crops prior to, at, or promptly following application; **4**. Install/maintain vegetative buffers or filter strips; **5**. Have at least 3 consecutive years no-till for applications to fields with < 30% residue (silage) and apply nutrients within 7 days of planting.	☐	☐	☐
s. Limit mechanical applications to **12,000 gals/acre of unincorporated liquid manure or organic by-products** with 11% or less dry matter where **subsurface drainage** is present OR within **SWQMA**. Wait a minimum of 7 days between sequential applications AND use one or more of the practice options on non-frozen soils listed in 1.r.1. through 1.r.5.	☐	☐	☐

2. When frozen or snow-covered soils prevent effective incorporation, does the plan follow these requirements for winter applications of all mechanically applied manure or organic by-products? *This section doesn't apply to winter gleaning/pasturing meeting 590 N and P requirements.*

If no manure is applied, check NA for 2.a. through 2.g..	Yes	No	NA
a. Identify **manure quantities planned to be spread during the winter**, or the amount of manure generated in 14 days, whichever is greater. *For daily haul systems, assume 1/3 of the manure produced annually will need to be winter applied.*	☐	☐	☐
b. Identify **manure storage capacity** for each type applied and stacking capacity for manure ≥ 16% DM if permanent storage does not exist.	☐	☐	☐
c. Show on map and make no applications within the **SWQMA**.	☐	☐	☐
d. Show on map and make no surface applications of liquid manure during **February and March** where **Silurian dolomite** is within 60 inches of the soils surface OR where **DNR Well Compensation** funds provided replacement water supplies for wells contaminated with livestock manure.	☐	☐	☐
e. Show on map and make no applications of manure within **300 feet** of **direct conduits to groundwater**.	☐	☐	☐
f. Do not exceed the P removal of the following growing season's crop when applying manure. Liquid manure applications are limited to **7,000 g/acre**. All winter manure applications are not to exceed **60 lbs. of P2O5/acre**.	☐	☐	☐
g. Make no applications of manure to fields with **concentrated flow channels** unless using two of the following: **1.** Contour buffer strips or contour strip cropping; **2.** Leave all crop residue and no fall tillage; **3.** Apply manure in intermittent strips on no more than 50% of field; **4.** Apply manure on no more than 25% of the field waiting a minimum of 14 days between applications; **5.** Reduce manure app. rate to 3,500 gal. or 30 lbs. P2O5, whichever is less; **6.** No manure application within 200 feet of all concentrated flow channels; **7.** Fall tillage is on the contour and slopes are lower than 6%. Make no applications to **slopes greater than 6%** (soil map units with C, D, E, and F slopes) unless the plan documents that no other accessible fields are available for winter spreading AND two of the options 2.g.1. through 2.g.5. are used.	☐	☐	☐

I certify that the plan represented by the answers on this checklist complies with Wisconsin's NRCS 2015-590 NM Standard or is otherwise noted.

Qualified NM planner signature NAICC-*Certified Professional Crop Consultant*, ASA-*Certified Crop Adviser*, or SSSA-*Soil Scientist*	Date
Qualified NM farmer-planner or Authorized farm operator signature receiving and understanding the plan	Date
Signature if reviewed for quality assurance	Date

	Yes	No	NA
n. Make no **untreated manure applications** to areas w … **non-community potable water well** (ex. church, school, re… pathogens.	☐	☐	☐
o. Make no manure applications … plan as areas contributing runo… hours of application.	☐	☐	☒
p. Make no applications of **late s… establishment of fall seeded crops OR to meet A2809 with a blended commercial fertilizer. Commercial fertilizer N applications shall not exceed 36 lbs. N/acre on: • Sites vulnerable to N leaching **PRW Soils** (P=high permeability, R= bedrock < 20 inches, or W= wet < 12 inches to apparent water table); • Soils with depths of 5 feet or less to bedrock; • Area within 1,000 feet of a community potable wate… On **P soils, when commercial N is applied** for full seas… the following: 1. A split or delayed N application to apply a majority of crop N requirement after crop establishment. 2. Use a nitrification inhibitor with ammonium forms of N. 3. Use slow and controlled release fertilizers for a majority of the crop N requirement applied near the time of planting.	☒	☐	☐
q. Limit manure applications in late summer or fall using the lesser of A2809 or the following 590 rates on **PRW Soils.** Use ≤ 120 lbs. available N/acre on: **P and R soils** on *all crops, except annual crops*. Additionally, manure with ≤ 4% dry matter (DM) wait until after soil temp. < 50°F or Oct. 1, and use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days. **W soils or combo. W soils** on *all crops.* Additionally, manu… **1**. Use a nitrification inhibitor; **2**. Apply on an establishe… **3**. Establish a cover crop within 14 days of application; **4**… **5**. Wait until after soil temp. < 50°F or Oct. 1. Use ≤ 90 lbs. available N/acre on: **P and R soils** on *annual crops* wait until after soil temp. < 50°F or Oct. 1. Additionally, manure with ≤ 4% DM use either a nitrification inhibitor OR surface apply and do not incorporate for at least 3 days. **W soils or combination W soils** receiving manure with ≤ 4% DM on *all crops*.	☒	☐	☐
r. Use at least one of the following practices on **non-frozen soils for all nutrient applications** within Surface Water Quality Management Area **(SWQMA)** = 1000' of lakes/ponds or 300' of rivers: **1**. Maintain > … **2**. Effective incorporation within 72 hours of application; **3**. Establish crops p… application; **4**. Install/maintain vegetative buffers or filter strips; **5**. Have at l… applications to fields with < 30% residue (silage) and apply nutrients within 7 days of planting.	☒	☐	☐
s. Limit mechanical applications to **12,000 gals/a**… less dry matter where **subsurface drainage** is … sequential applications AND use one or more …	☒	☐	☐

2. When frozen or snow-covered soils prevent effective incorporation, does the plan follow these requirements for winter applications … *apply to winter gleaning/pasturing meeting 590 N and P requirements.*

Add comments and explanations for the plan in this section. If necessary, attach a separate page.

If no manure is applied, check NA for 2.a. through 2.g..

	Yes	No	NA
a. Identify **manure quantities planned to be spread during the winter**, or the amount of manure generated in 14 days, whichever is greater. *For daily haul systems, assume 1/3 of the manure produced annually will need t…*	☐	☐	☐
b. Identify **manure storage capacity** for each type applied and stacking capacity for manure ≥ 16% D… storage does not exist.	☐	☐	☐
c. Show on map and make no applications…	☒	☐	☐
d. Show on map and make n… surface … is within 60 inches of the s… for wells contaminated with livestock manure.	☒	☐	☐
e. Show on map and make no applications of manure within **300 feet** of **direct conduits to groundwater**.	☐	☐	☐
f. Do not exceed the P removal of the foll… applications are limited to **7,000 g/acre** …	☒	☐	☐
g. Make no applications of manure to fields with **concentrated flow channels** unless using two of the following: **1.** Contour buffer strips or contour strip cropping; **2.** Leave all crop residue and no fall tillage; **3.** Apply manure in intermittent strips on no… than 50% of field; **4.** Apply manure on … than 25% of the field within a minimum of 14 days between applications; **5.** Apply manure … of all concentrated flow channels; **7.** Fall tillage is on the contour and slopes are lower than 6%. Make no applications to **slopes greater than 6%** (soil map units with C, D, E, and F slopes) unless the plan documents that no other accessible fields are available for winter spreading AND two of the options 2.g.1. through 2.g.5. are used.	☒	☐	☐

Mark yes, no, or NA. Answer yes if all public wells are mapped; buffer areas for community (municipal) and non-community (public) wells are taken out of manure spreadable acres; treated manure sources can be applied.

SnapPlus checks NA if all field borders are in counties with no locally delineated layers (most users). SnapPlus leaves this blank if field borders intersect or are in locally delineated county layers; answer yes or no.

SnapPlus checks yes if all fields comply with listed commercial fertilizer nitrogen application requirements on areas vulnerable to N leaching to groundwater.

SnapPlus checks yes if all fields comply with listed manure application nitrogen requirements on areas vulnerable to N leaching to groundwater.

SnapPlus checks yes if all fields with SWQMAs comply with at least 1 of the 5 listed practices.

SnapPlus checks yes if surface applications of liquid manure do not exceed 12,000 gallons per acre per application where fields have tile drainage or intersect SWQMA boundaries.

Mark yes, no, or NA.

SnapPlus checks yes if field borders are present; all winter manure applications can only be planned in the winter spreadable area of the field and not in the winter prohibited spreading area.

SnapPlus checks NA; unless areas intersect any field, then SnapPlus checks yes and provides appropriate guidance.

Mark yes or no.

SnapPlus checks yes if winter manure applications occur and are in compliance with the standard.

SnapPlus checks yes if two practices are planned for all winter applications for fields with concentrated flow channels or slopes > 6%.

If the farm has **no manure** and/or **no winter spreading**, SnapPlus will check NA.

I certify that the plan represented by the answers on this checklist complies with Wisconsin's NRCS 2015-590 NM Standard or is otherwise noted.

Qualified NM planner signature — NAICC-*Certified Professional Crop Consultant*, ASA-*Certified Crop Adviser*, or SSSA-*Soil Scientist* — Date

Qualified NM farmer-planner or Authorized farm operator signature receiving and understanding the plan — Date — Signature if reviewed for quality assurance — Date

Yes, electronic signatures can be used for the 2015-590 NM Checklist! The intention of the signature block is to ensure the farmer understands the 2015-590 Standard; some requirements are new. As noted in Wisconsin Statute, an electronic signature satisfies the signature requirement of the 2015-590 Checklist. s. 137.15, (3) and (4), Wis. Stats. 137.15(3).

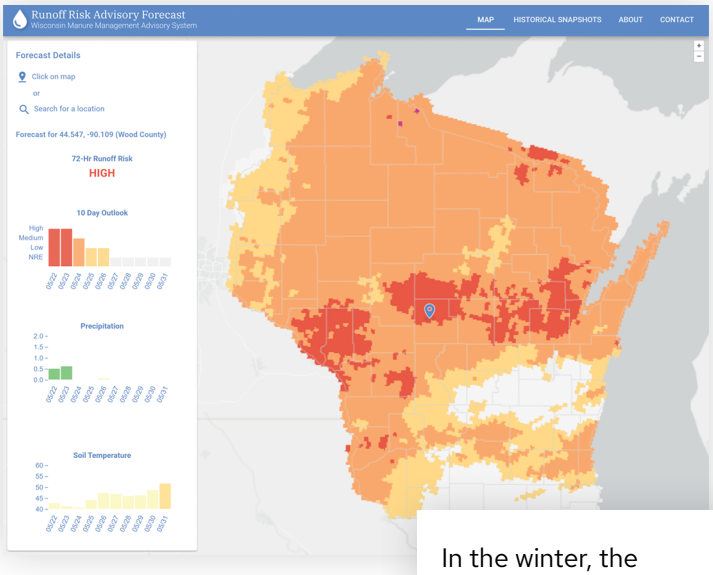
Runoff Risk Advisory Forecast

If it's RED,
do not SPREAD.

!

The Runoff Risk Advisory Forecast: a tool to predict manure runoff potential

The Runoff Risk Advisory Forecast (RRAF) is a tool built by the National Weather Service and UW–Madison to predict manure runoff potential and present it in a user-friendly map.



In the winter, the model looks out up to 10 days using the temperature forecast to predict snowmelt.

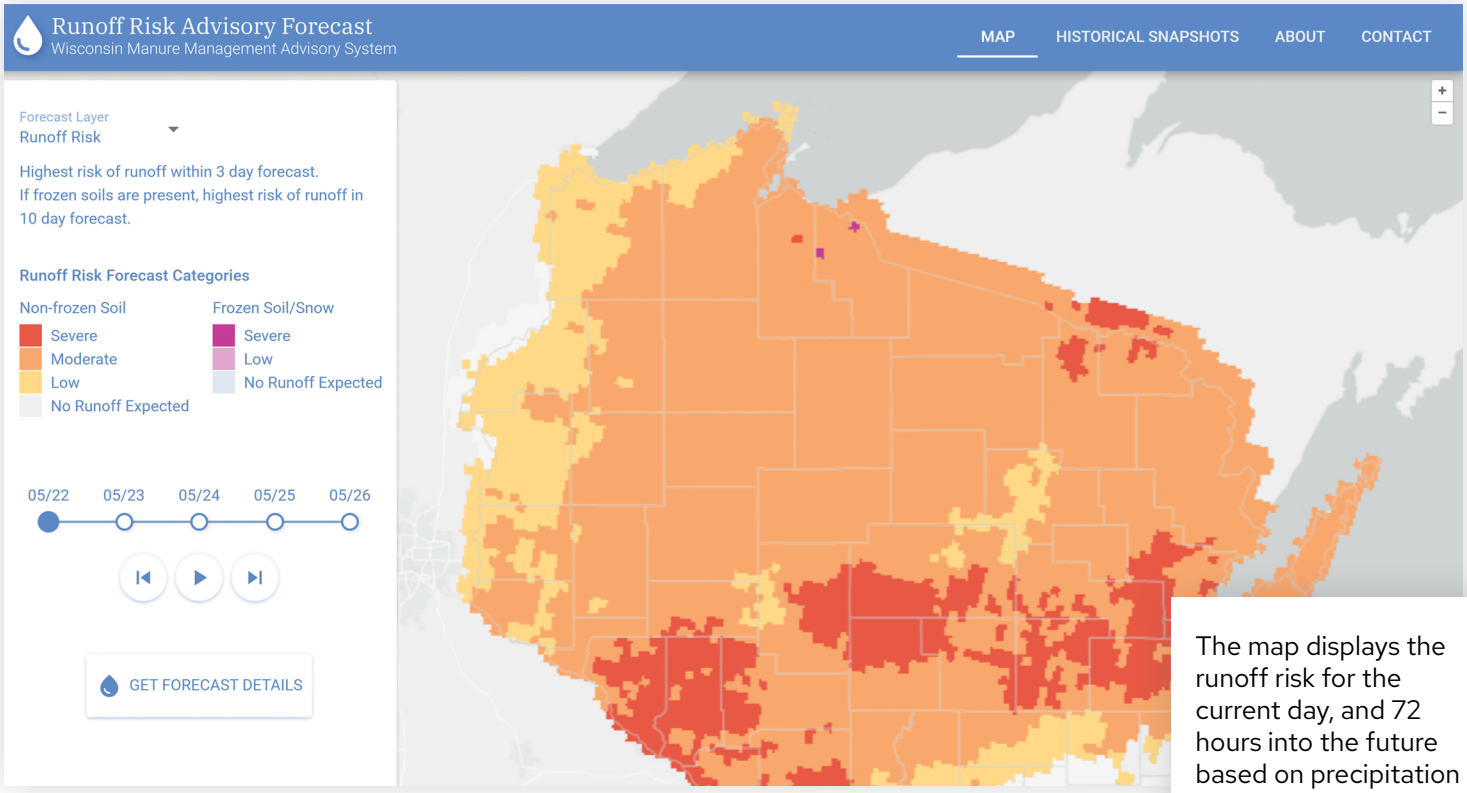
The runoff forecast maps show short-term runoff risk for daily planning, accounting for factors including soil moisture, weather forecast, crop cover, snow cover, and slope. The National Weather Service updates it four times a day. The data is shown using four-kilometer grids (1.5 square mile), allowing users to look at conditions at a very local level.

The RRAF is not a regulatory tool and is intended to help farms avoid manure runoff problems by assessing the runoff risk before they apply. The map displays the runoff risk for the current day, and 72 hours into the future based on precipitation model forecasts. In the winter, the model looks up to 10 days ahead using the temperature forecast to predict snowmelt. This 'look ahead' allows better short-term planning of manure and other nutrient applications.

Other helpful information on the Runoff Risk Advisory Forecast website includes:

- ✓ Prediction maps for precipitation, soil temperature, and soil moisture.
- ✓ Snapshots of past RRAF maps by date and time of day.
- ✓ Guidance on what to do if you must spread when the RRAF indicates a high risk of runoff.

http://www.manureadvisorysystem.wi.gov/runoffrisk/index



The map displays the runoff risk for the current day, and 72 hours into the future based on precipitation model forecasts.