

Midwest Cover Crops Council Cover Crop Decision Tool



The Midwest Cover Crop Council (MCCC) Cover Crop Decision Tool is a web-based system to assist farmers in selecting cover crops to include in row crop rotations.

The current version has been completed for Indiana, Michigan and Ohio.

Other states/provinces in the MCCC are currently developing their information. They will be added to the tool when complete. We welcome your input and comments on the Cover Crop Decision Tool. Send them to Dean Baas at baasdean@msu.edu.

[Instructions for Using the Cover Crop Decision Tool](#)

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About the MCCC

The Cover Crop Decision Tool is a project of the MCCC. The MCCC is a diverse group from academia, production agriculture, non-governmental organizations, commodity interests, private sector, and representatives from federal and state agencies. The MCCC collaborates to promote the use of cover crops to address soil, water, air, and agricultural quality concerns in the Great Lakes and Mississippi river basins. MCCC member states/provinces include Indiana, Michigan, Ohio, Manitoba, Ontario, Illinois, Wisconsin, Minnesota, Iowa, and North Dakota. Learn more about the MCCC at <http://www.mccc.msu.edu>.

About the Cover Crop Decision Tool

The Cover Crop Decision Tool is an initiative by the MCCC to consolidate cover crop information by state to help farmers make cover crop selections at the county level. Information for each state/province is developed by a team of cover crop experts including university researchers, Extension educators, NRCS personnel, agriculture department personnel, crop advisors, seed suppliers and farmers. The team reviewed and refined information from the Sustainable Agriculture Research and Education (SARE) (<http://www.sare.org>) publication *Managing Cover Crops Profitably*, 3rd edition (<http://www.sare.org/publications/covercrops/covercrops.pdf>) to refine application within their state/province. The information and ratings contained in the Cover Crop Decision Tool is the team consensus based on literature, research results, on-farm experience and practical knowledge.

Acknowledgements

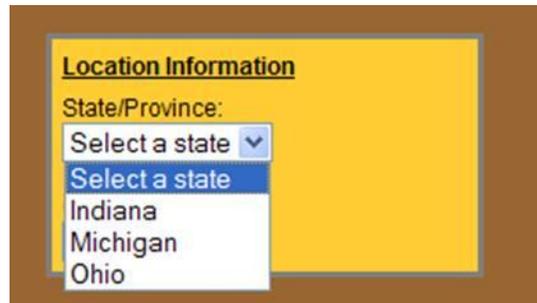
This project has been funded by: a USDA Conservation Innovation Grant in partnership with the Conservation Technology Information Center (<http://www.ctic.purdue.edu>); the Great Lakes Regional Water Program (<http://www.uwex.edu/ces/regionalwaterquality>); Michigan State University's Project GREEN (<http://www.green.msu.edu>); Michigan State University Extension/W.K. Kellogg Biological Station, Michigan State University; Purdue University; Ohio State University; University of Minnesota; Iowa State University; and the Ontario Ministry of Agriculture, Food and Rural Affairs. The MCCC would like to thank SARE and Andy Clark, SARE Outreach Communications Director and editor of *Managing Cover Crops profitably*, 3rd edition for the use of their materials.

Instructions for using the Cover Crop Decision Tool



Step 1 – Location Information

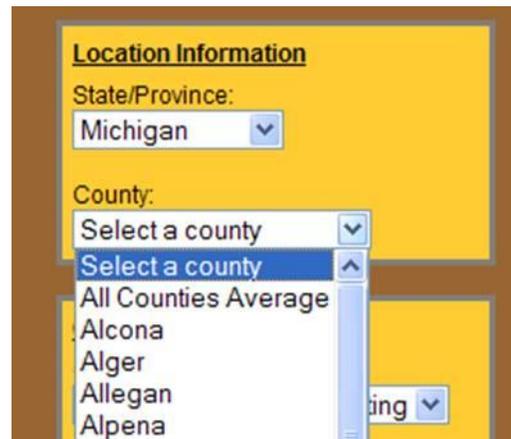
Select your state/province from the State/Province drop-down menu in the Location Information box.



Step 2 – Location Information

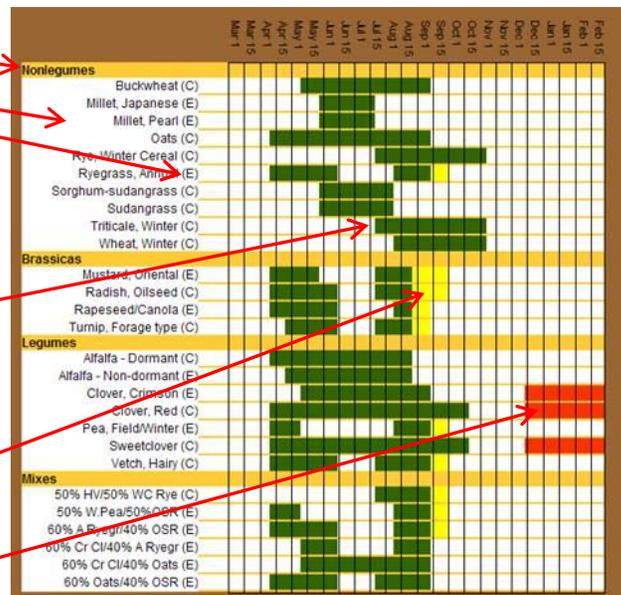
Enter your county or All Counties Average from the County drop-down menu in the Location Information box.

Note: All Counties Average displays the average seeding dates for all counties within the state or province.



After completing steps 1 & 2, the seeding chart shown here displays the following information:

- Cover Crop Categories
- Cover Crop Names
- Use within the state/province:
 - (C) Common Use: Considerable state knowledge about species/use.
 - (E) Emerging Use: Limited state knowledge about species/use.
- Seeding Dates:
 - Green Bar – Reliable Establishment**
 - Yellow Bar – Freeze Risk to Establishment**
 - Red Bar – Frost Seeding**



When conditions are right, a cover crop can be frost seeded during this period.

All other boxes are optional, the more information you include the better your cover crop options will be screened to meet your needs.

Step 3 – Cash Crop Information (optional)

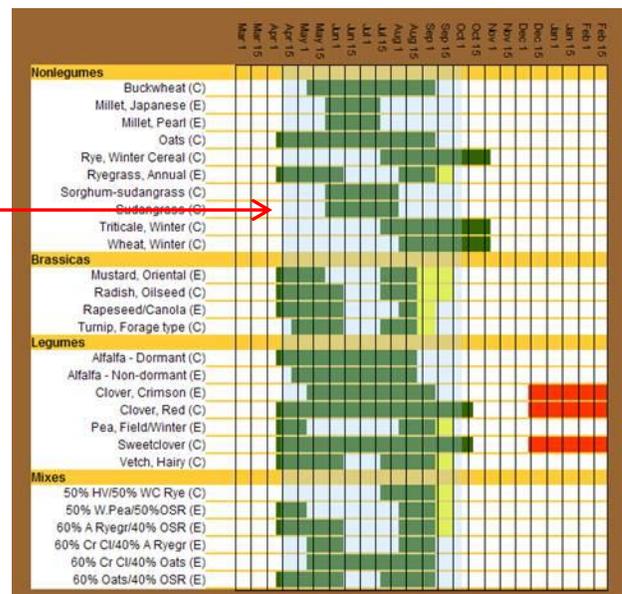
Select the cash crop from the drop-down menu.

Select the anticipated cash crop planting and harvest dates from the calendars provided.



The area shaded in blue is the cash crop growing period.

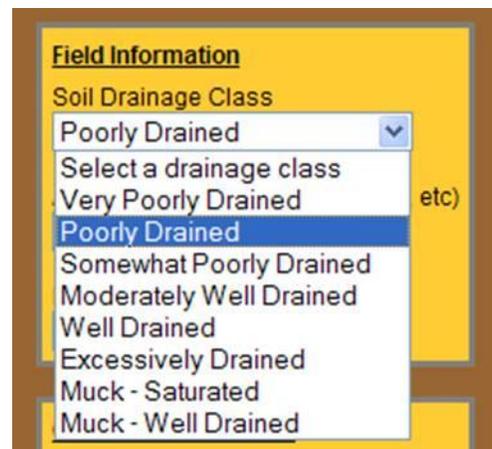
Planting a cover crop during this period will require special planting techniques such as aerial seeding or interseeding into the cash crop.



Step 4 – Field Information (optional)

Select the field soil drainage class or if farming muck whether is saturated or well drained. This soil drainage class can be found in your county Soil Survey and are defined below under Soil Drainage Class Definitions.

[Jump to Soil Drainage Class Definitions](#)



Select Yes or No for Artificial Drainage (Tiles, Ditches, etc.) for soil drainage classes below Somewhat Poorly Drained.

Select No, Brief – up to 7 days or Long – 7 days + from the Flooding/Ponding menu.

Field Information

Soil Drainage Class
Somewhat Poorly Drained

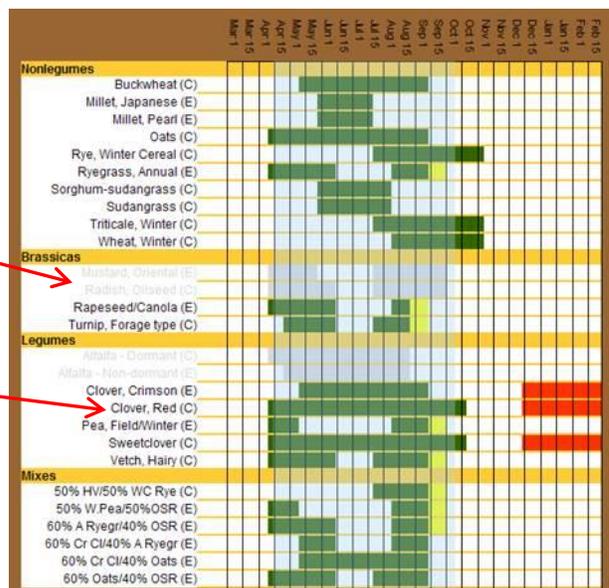
Artificial Drainage (Tiles, Ditches, etc.)
No

Flooding/Ponding
No
No
Brief - up to 7 days
Long - 7 days +

Completing Step 4 will cause the tool to screen out cover crops (faded out) that are not appropriate for your field conditions. The remaining cover crops may be considered for use.

A cover crop that **will not** perform well under these field conditions.

A cover crop that **will** perform well under these field conditions.



Step 5 – Cover Crop Attributes (optional)

Select up to three cover crop attributes (benefits you want to get from growing a cover crop) from the attribute menus. The cover crop attributes are defined below under Cover Crop Attribute Definitions.

[Jump to Cover Crop Attribute Definitions](#)

Cover Crop Attributes

#1 Select an attribute

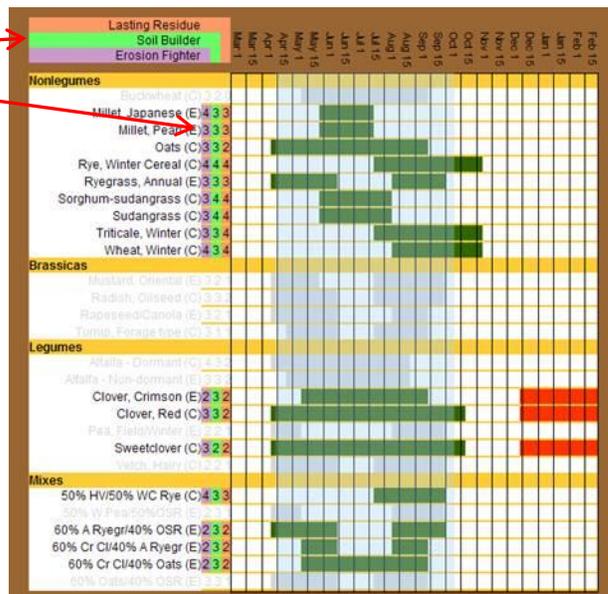
#2 Select an attribute

#3 Nitrogen Source
Nitrogen Scavenger
Soil Builder
Erosion Fighter
Weed Fighter
Good Grazing
Quick Growth
Lasting Residue
Forage Harvest Value
Grain/Seed Harvest Value
Interseed with Cash Crop

Completing Step 5 will cause the tool to screen out cover crops (faded out) that are not appropriate for the benefits you want to get from your cover crop. The remaining cover crops may be considered for use.

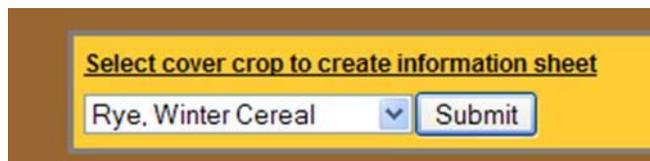
The ratings for each of your selected attributes are displayed. The ratings are:

- 0 – Poor
- 1 – Fair
- 2 – Good
- 3 – Very Good
- 4 – Excellent



Step 6 – Cover Crop Information Sheet (optional)

An information sheet may be created by selecting a remaining cover crop from the Select cover crop to create information sheet drop-down menu and clicking the submit button.



Information is given for:

- Considerations for using the cover crop in this location
- Planting
- Termination
- Performance and Roles
- Cultural Traits
- Potential Advantages
- Potential Disadvantages
- Information resources about the cover crop

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Soil Drainage Class Definitions

Excessively drained. Water is removed very rapidly. The occurrence of internal free water commonly is very rare or very deep. The soils are commonly coarse-textured and have very high hydraulic conductivity or are very shallow.

Somewhat excessively drained. Water is removed from the soil rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse-textured and have high saturated hydraulic conductivity or are very shallow.

Well drained. Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season in humid regions. Wetness does not inhibit growth of roots for significant periods during most growing seasons. The soils are mainly free of the deep to redoximorphic features that are related to wetness.

Moderately well drained. Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence commonly is moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season, but long enough that most mesophytic crops are affected. They commonly have a moderately low or lower saturated hydraulic conductivity in a layer within the upper 1 m, periodically receive high rainfall, or both.

Somewhat poorly drained. Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. The occurrence of internal free water commonly is shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops, unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydraulic conductivity, a high water table, additional water from seepage, or nearly continuous rainfall.

Poorly drained. Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. The occurrence of internal free water is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season so that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow-depth. Free water at shallow depth is usually present. This water table is commonly the result of low or very low saturated hydraulic conductivity of nearly continuous rainfall, or of a combination of these.

Very poorly drained. Water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season. The occurrence of internal free water is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. If rainfall is high or nearly continuous, slope gradients may be greater.

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Cover Crop Attribute Definitions

Nitrogen Source: Rates legume cover crops for their relative ability to supply fixed N. (Nonlegumes have not been rated for their biomass nitrogen content, so nonlegumes will not be displayed.)

Nitrogen Scavenger: Rates a cover crop's ability to take up and store excess nitrogen. Bear in mind that the sooner you plant a cover after main crop harvest—or overseed a cover into the standing crop—the more N it will be able to absorb.

Soil Builder: Rates a cover crop's ability to produce organic matter and improve soil structure. The ratings assume that you plan to use cover crops regularly in your cropping system to provide ongoing additions to soil organic matter.

Erosion Fighter: Rates how extensive and how quickly a root system develops, how well it holds soil against sheet and wind erosion and the influence the growth habit may have on fighting wind erosion.

Weed Fighter: Rates how well the cover crop out-competes weeds by any means through its life cycle, including killed residue. Note that ratings for the legumes assume they are established with a small-grain nurse crop.

Good Grazing: Rates relative production, nutritional quality and palatability of the cover as forage.

Quick Growth: Rates the speed of establishment and growth.

Lasting Residue: Rates the effectiveness of the cover crop in providing a long-lasting mulch.

Forage Value: Rates the cover crop's economic value as forage, bearing in mind the relative market value and probable yields.

Seed/Grain Value: Rates the cover crop's economic value as a seed or grain crop, bearing in mind the relative market value and probable yields.

Interseed w/Cash Crop: Rates whether the cover crop would hinder or help while serving as a companion crop.

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