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USING COVER CROPS IN A NORTHEAST DAIRY OPERATION SOIL HEALTH MANAGEMENT PRACTICE TEMPLATE AMERICAN FARMLAND TRUST (AFT)

How to use this template: AFT developed this template to assist farmers like you in the successful adoption and use of cover crops in a dairy operation for the Northeast region. The first five sections of this template are here to help you identify key issues with your current soil health, as well as list your current farm management. Section 6 lists simple and short technical management recommendations that you can use to successfully implement cover crops on your farm. Finally, section 7 provides an example of field activities that you can use as guidance.

This template was partially based on an AFT's Cover Crop Demonstration Case Study conducted at Cushman Farm, a Connecticut-based dairy operation. This farm trial focused on comparing three cover crop terminations: herbicide and harrowing, green chopping, and roller crimper. See the published case study report [here](#). See all the other cover crop case studies, templates, and other resources [here](#). QR codes are provided at the end of the document for all embedded links.

1. **In-Field Soil Health Assessment:** *A good place to start is to conduct an In-Field Soil Health Assessment of your farm/field. This assessment is a visual evaluation of soil functions that you can conduct on your own. See this [video guide](#) for instructions and guidance on how to conduct this assessment. For additional instructions on this assessment, see the [NRCS Technical Note](#) or contact your local NRCS office.*

Describe the results and observations from your In-Field Soil Health Assessment. This information provides insight into any resource concerns and constraints in soil function you may have. Example: evidence of soil erosion, ponding, low soil cover, etc.



2. **Resource Concerns Identified** *based on your In-Field Soil Health Assessment. Use the decision tree on page 16 of the [NRCS Technical Note](#), or in the References and Resources section below. Example: compaction, soil organic matter depletion, etc.*

3. **Soil Health Management Objectives.** *List 1-3 objectives based on your In-Field Assessment and the knowledge you have about your farm.*

4. **Farm Equipment Inventory and Considerations.** *If you will be sharing this with an agricultural service provider, they will need a list of your equipment. List your farm equipment here. This information is considered in designing an approach to adopting soil health management that maximizes the use of equipment you already have, where possible.*



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5. **Existing Soil Health and Nutrient Management Strategies.** If you will be sharing this with an agricultural service provider, they will need this information to build a workable plan for adopting soil health management on your current management. *Describe crop rotation, fertilizers, soil amendments, soil sampling (nutrient or soil health lab tests), tillage, etc.*

6. **Management Considerations while using cover crops.** *What follows is a list of technical management recommendations that can help guide you in the process of using cover crops in your region.*

Always consider what your goals are when choosing cover crop species and management approaches: There are many resources and tools that help you determine which is the best cover crop species to use, and how to manage it for your goals. See some cover crop decision tools for your region:



- [Cover Crop Selector](#) – Northeast Cover Crop Council - This tool will let you find cover crop species that fit your geographic location, current field conditions, and soil health goals.



- [Cover Crop Nitrogen Calculator](#) – Precision Sustainable Agriculture - This tool will let you estimate the amount of Nitrogen and cover crop residue left on the field after termination, and when you can expect Nitrogen to be released over time.



- [Winter Cover Crop Planting Scheduler](#) - Climate Smart Farming, Cornell University – Based on your location and estimated Growing Degree Days, this tool allows you to estimate the chances of cover crop establishment for buckwheat, mustard, and rye.



- [Managing Cover Crops Profitably](#)- Sustainable Agriculture Research and Education (SARE) - This book provides in-depth guidance on cover crop management and individual cover crop species recommendations.



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Trying out cover crops for the first time:

Planning your cover crop

- Order high-quality cover crop seed early (sometimes they run out).
- To minimize risk while learning, start in a small field, section, or bed, as applicable to your scale, and expand the cover crop area as you get more comfortable with this practice.
- Consider choosing winter wheat, triticale, or rye as your first cover crop. These winter-hardy crops will provide good soil erosion protection in the winter, while potentially providing forage in the spring.
- Non-leguminous cover crops can tie up nitrogen in advance of your cash crop. This is especially risky with crops that are planted very soon after cover crop termination. You may need to apply additional Nitrogen fertilizer when establishing your cash crop.

Sourcing and planting your cover crop

- As much as possible, seed cover crops early for their recommended planting range. Similarly, consider using shorter-season corn silage varieties so that successful cover crop planting can take place.
- Using drills and planters is the preferred option for successful seeding of an even stand. Broadcast seeding with light cultivation can also be effective. Seeding rates usually need to be higher when broadcasting or aerial seeding to achieve the same coverage.

Terminating your cover crop

- Have a plan to terminate your cover crop, if not winter-killed, 10-14 days before planting silage corn.
- Glyphosate is recommended for most herbicide terminations. If using this herbicide, apply it in the middle of the day when plant photosynthesis is taking place.
- Consider using a roller crimper even if using herbicide for termination. This provides better weed suppression and less shade for your cash crop.

After a few years of trying cover crops:

- Scout for insect pests as well as their predators that are getting established as a result of your cover crop. Before applying any pesticide, make sure you have hit the economic threshold to do so, and that you are minimizing negative effects on beneficial insects and other organisms.

Using cover crop mixes

- As always, select your cover crop species based on your cover crop goals. For example, use tillage radishes to address compaction, use a legume winter crop for nitrogen fixation, etc.



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- Start your mix in a small area to experiment and expand as you feel more comfortable.
- A good cover crop mix to start with is the combination of cereal rye with crimson clover.
- Generally, cover crop seed cost increases for legume species such as clovers or radishes. But these species in your mix can provide soil health benefits that more affordable species like rye or oats can't.
- Research the best application method for your selected seed mix, as smaller seeds can settle to the bottom of a spreader or planter during application, causing an uneven seed distribution.

Green Chopping

- Consider using your cover crop as a double crop, by harvesting as green chop in the spring. This will likely compensate for any yield gap from early-season silage varieties.
- Some farmers have reported that triticale is one of the best crops used for green chopping as it has a higher nutritional value than other crops.

Using a roller crimper

- Consider using a roller crimper to terminate your cover crop. This practice can be effective at killing your cover crop and creating a thick mat of residues that will suppress weeds, while keeping your soil undisturbed. As with anything in farming, timing the roller crimper termination is key. The best time to terminate cover crops is usually at the flowering stage or when the stems are hard but break easily.



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7. **Field Operations Template.** *What follows is an example of field operations at Cushman Farm with cover crops terminated with herbicide vs. green chopping. Use the last column to start planning field operations at your farm.*

Field Operation	Herbicide termination	Green Chopping	Your farm
Cover Crop Planting Method	Broadcast seeding	No-till drill	
Cover Crop Species	Crimson clover (2.5%), Annual ryegrass (95%), and Oilseed Radish (2.5%)		
Cover Crop Planting Date	September 26		
Nutrient application	October 28 – manure slurry application		
Cover Crop Termination Date and Method	June 10 – herbicide, self-propelled sprayer, after cash crop planting	May 10 – Forage harvester	
Cash Crop Planting Date	June 3 – no-till planter		
Cash Crop Harvest	October 3	October 10	



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References and Resources:

- Northeast Cover Crops Council [Welcome to the NECCC - Northeast Cover Crops Council](#)
- Strategies for Effective Cover Cropping on Dairy Farms. University of Massachusetts Amherst. Sam Corcoran and Masoud Hashemi. [Strategies for Effective Cover Cropping on Dairy Farms: Crops, Dairy, Livestock and Equine : Center for Agriculture, Food, and the Environment \(CAFE\) at UMass Amherst](#)
- Making cover crop work in the Northeast: Termination strategies for success. The Manager ProDairy. (February 2023). Workman et al. [Making cover crops work in the Northeast](#)
- [Building Soils for Better Crops Sustainable Soil Management 4th 4E – TUNED IN, LLC](#)

QR Codes:



- Published case study report



- Other cover crop case studies and resources



- In-Field Soil Health Assessment video guide



- In-Field Soil Health Assessment Technical Note

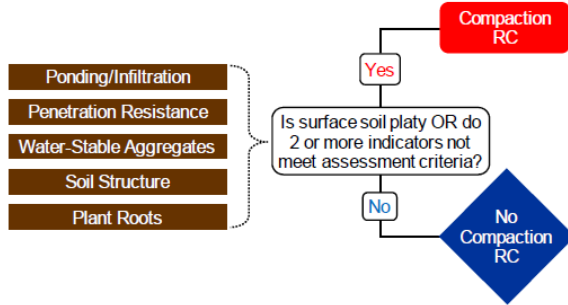


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Cropland In-Field Soil Health Assessment Resource Indicator Decision Trees

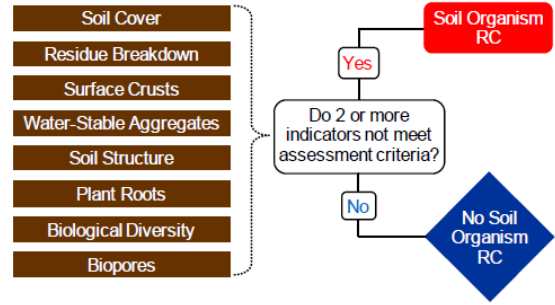
Compaction

Circle the indicators that do not meet assessment criteria during the evaluation and follow decision tree below to determine if the given resource concern (RC) is present. Document on worksheet.



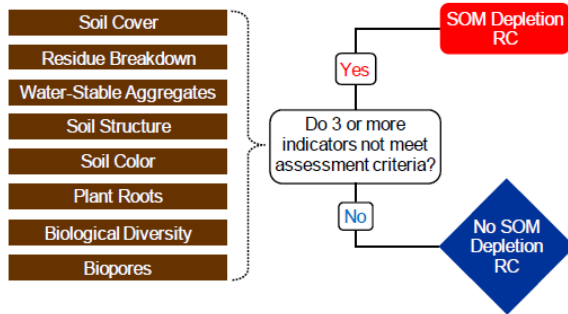
Soil Organism Habitat Loss or Degradation

Circle the indicators that do not meet assessment criteria during the evaluation and follow decision tree below to determine if the given resource concern (RC) is present. Document on worksheet.



Soil Organic Matter Depletion

Circle the indicators that do not meet assessment criteria during the evaluation and follow decision tree below to determine if the given resource concern (RC) is present. Document on worksheet.



Aggregate Instability

Circle the indicators that do not meet assessment criteria during the evaluation and follow decision tree below to determine if the given resource concern (RC) is present. Document on worksheet.

