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USING COVER CROPS IN A NORTHEAST CORN-SOYBEANS ROTATION

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 corn-soybeans rotation 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 Gary Swede Farm LLC, located in New York. This farm trial focused on implementing planting green when using cover crops. 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 qualitative assessment is a visual evaluation of soil function that you can conduct on your own. See this [video guide](#) for instructions on how to conduct this assessment. For additional instructions and guidance on this assessment, see the [NRCS Technical Note](#) or contact your local NRCS office.*

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



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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.*

Always consider what your goals are when choosing cover crop species and management approaches. There are many resources and tools to 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:



- [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

- 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 starting with cover crops when you are planning to grow soybeans in the spring, as this is considered lower risk than when planting corn.
- Consider choosing a winter-kill cover crop species (oats, radishes, or a mix of these two) when you are starting, so you don't have to worry about termination. It can be riskier to use cover crop mixes when you are starting out.
- Oats are recommended for fields currently in a soybean crop that will be planted in corn in the spring (seed oats early as they are winter-killed). Cereal rye is recommended for fields currently in a corn crop that will be planted with soybeans in the spring.
- Very mature non-leguminous cover crops can tie up early nitrogen for your cash crop, especially in the case of corn, if planted soon after cover crop termination. You may need to apply additional Nitrogen fertilizer when your cash crop is being established. This challenge does not take place with soybeans, as it is a legume, and fixes its own nitrogen.

Sourcing and planting your cover crop

- Order cover crop seed early from a reputable dealer.
- As much as possible, seed cover crops early for their recommended planting range, especially if you are using winter-kill cover crop species.
- 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

- Be ready to be adaptive to terminate your cover crop, if not winter-killed, 10-14 days before planting corn, and up to 2 days before planting soybeans.
- 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. Carefully consider the timing of termination when using a roller crimper. For example, cereal rye is most effectively terminated towards the end of anthesis, whereas hairy vetch is best terminated between full bloom and early pod set.



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After a few years of trying cover crops:

- Consider using cereal rye as your first winter-tolerant cover crop.
- Consider shorter-season cash crop varieties to provide additional time for cover crop growth.
- Consider interseeding winter hardy cover crops into late-stage cash crops by broadcasting seed. This can provide additional time for cover crop growth with minimal or no effects on cash crop yield.
- 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:

- 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.
- Try out managing your mix in a small area for a season to experiment and expand as you feel more comfortable.
- A common cover crop mix to start with is the combination of cereal rye with hairy vetch or 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

Planting Green:

- Planting green is an advanced practice of planting the cash crop directly into the still living cover crop, with termination right before, at, or after planting.
- Successful adopters recommend planting the cover crop with the same care as the cash crop, managing for an even stand with even biomass production, for which the crop planting equipment can be adjusted for planting green.
- Consider planting green as a great option when conditions for planting are too wet, and the cover crop is helping you remove excess moisture from your soil. On the other hand, even if planting green is your priority, in dry springs, you may need to terminate the cover crop early so as to keep enough moisture for your cash crop. Keeping an eye on your long-term forecast and current soil moisture levels is key.
- When your objectives are to add more biomass or weed suppression, 2-4 additional weeks of growth for your cover crop pays off by producing at least twice the amount of biomass.



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- Consider using planting green for the first time when planting soybeans and not corn, as corn appears to be more susceptible to yield losses.
- Closely choose your cover crop species and monitor nitrogen content to prevent any Nitrogen tie-up issues in corn.
- Be prepared to adjust and adapt your planting implements. Additional plant material can create challenges for even emergence, which can impact yield.



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7. **Field Operations Schedule Template.** *What follows is an example of field operations of Swede farms with pre-plant terminated cover crops versus a schedule using planting green. Use the last column to start planning field operations at your farm.*

Field Operations	With Pre-Plant Terminated Cover Crops	With Planting Green into Cover Crops	Your Farm
Cover Crop Planting Method	Planted with a grain drill, 30 ft. At 24 lb per acre, with blended fertilizer applied		
Cover Crop Species	10- way mix before corn, 3-way mix before soybeans		
Cover Crop Planting Date	August 25		
Cover Crop Termination Date and Method	April 29 – Glyphosate application (pre-plant)	May 17 – Glyphosate application (post-plant)	
Strip tillage	May 14 – 16-row strip tillage to prepare seed bed		
Cash Crop Planting Date	May 15 – silage corn, conventional planter at 35,000 seeds per acre rate		
Cash Crop Harvest	September 24		



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References and Resources:

- [Northeast Cover Crops Council](#) (and its suite of cover crop selection, exploration, nitrogen dynamics, and other tools).
- Guide to Interseeding Cover Crops into Corn Systems in the Northeast. The University of Vermont Extension. Northwest Crops & Soils Program. (2024). [Guide-to-interseeding-cover-crops-in-the-Northeast_Updated.pdf](#)
- 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](#)
- [Organic No-Till Soybean Guide | New York Soil Health Initiative](#)
- [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

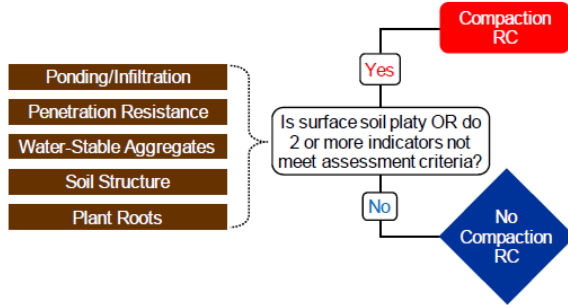


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Cropland In-Field Soil Health Assessment Resource Indicator Decision Trees

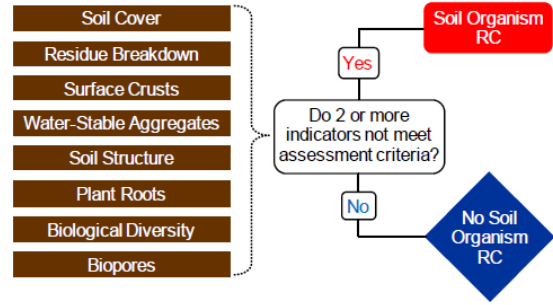
Compaction

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.



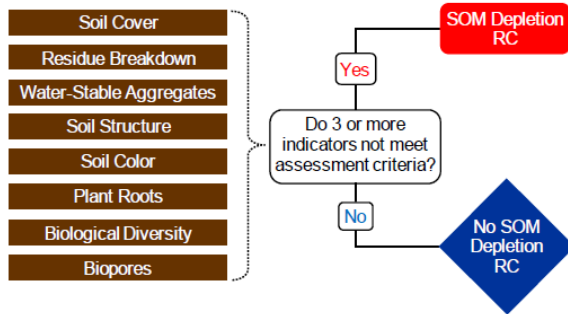
Soil Organism Habitat Loss or Degradation

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.

