

## HOW DO I GET THERE?

- ❑ **Select species to plant.** Sustainable Agriculture Research & Education (SARE) and the Midwest Cover Crop Council (MCCC) have species-specific information.
- ❑ **Decide how to plant them.** Best cover crop establishment is from drilling, which will require high clearance machinery if you are interseeding. After harvest, a standard drill should be effective. Cover crop growth will be more vigorous with sufficient moisture and warm weather.
- ❑ **Plan termination.** Termination can occur any time from several weeks before planting to up to shortly after crop emergence. Herbicide is the most reliable method of termination, and should be carried out at a full rate in order to keep cover crops from becoming weeds. Check your crop insurance regulations to make sure you are not terminating too close to cash crop planting date.
- ❑ **Minimize risk.** State cost-share programs, administered by local Soil and Water Conservation Districts in many counties, can give you several years of partial funding for cover crops. Federal cost-share through the NRCS EQIP program is also available. Start small and grow from there.
- ❑ **Estimate costs and benefits.** Both UMN and ISU have spreadsheets to calculate total expected costs and benefits. These, as well as talking to experienced growers, can give you and your lender an idea of how much you may spend.
- ❑ **Reducing tillage will speed soil change.** Since tillage destroys soil structure and cover crops build soil structure, these two strategies will work against each other. Using cover crops with no-till and strip-till strategies will help speed improvements.

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**Winter rye may attain varying amounts of biomass depending on planting date, rate, and the weather conditions of the growing season.**

Photo courtesy of Matt Ruark, UW-Madison

## Want to Grow Cover Crops?



**Four questions to ask before you start**

**MINNESOTA COVER CROP GUIDE**

UNIVERSITY OF MINNESOTA  
**EXTENSION**



## WHY AM I PLANTING COVER CROPS?

- Increase profitability.** Cover crops are most likely to be profitable if you harvest covers as forage and/or reduce tillage as part of the cover crop system.
- Reduce crop inputs.** Many cover crop growers do reduce fertilizer or herbicide inputs, but this usually takes 3-5 years. Use check strips to be confident you can reduce inputs without reducing profits.
- Resilience to extreme weather.** Resilience means less loss in bad weather years. Keeping the soil covered can reduce flooding impacts and retain moisture to prevent drought impacts.
- Reduce nitrogen loss.** Cover crops scavenge nitrogen when cash crops aren't growing. For example, cereal rye reduced soil N down to 60 cm by 13% to 84%.
- Increase forage use.** If you plan for sufficient biomass, using cover crops for forage gives you a second crop of high-quality livestock feed. Covers can be grazed or harvested.

- Support pollinators.** Cover crops like pennycress and winter canola provide pollinator resources if they're allowed to flower. High cumulative nectar production provides food resources to pollinators in early spring.
- Weed control.** Sufficient residue, especially from a winter-hardy grass like cereal rye, will shade out weed emergence during the growing season.
- Pest control.** Choose cover crops from different functional groups to break cycles of pests and disease. Pay attention to which cover crop species are hosts to or resistant to crop pests.
- Soil erosion control.** Any cover crop growth will protect the soil surface from rain and wind. Roots hold the soil in place and improve structure.
- Improve water management.** Large roots create macropores in the soil, increasing infiltration, while small roots improve structure and increase water holding capacity. Larger stands will take up more water, so if your concern is spring droughtiness, consider terminating earlier in spring.
- Improve trafficability.** Because of the improved water management, cover crop producers report longer windows for spring and fall field work without rutting or compaction.
- Increased organic matter.** Cover crop residue breaks down and adds organic matter, which improves soil fertility. Total SOM may take years for measurable increase.

## WHO SHOULD BE INVOLVED IN PLANNING?

Talk about cover crops with other stakeholders in your operation, bringing up risk, division of labor, and any other concerns.

- |  |   |
|--|---|
| <input type="checkbox"/> Family            | <input type="checkbox"/> Landlord or renter |
| <input type="checkbox"/> Business partners | <input type="checkbox"/> Agronomist         |
| <input type="checkbox"/> Neighbors         | <input type="checkbox"/> Lender             |

## WHAT'S MY STARTING POINT?

- Soil types**  
Fine-textured soils may have the most to gain from improving structure while coarse-textured soils may need the extra organic matter from cover crops.
- Soil test needs**  
A soil test is always a good idea to plan nutrient applications, especially to check whether cover crops draw down nutrients for the cash crop.
- Climate**  
Check cover crop growing requirements. Winter-hardy species will provide more biomass and benefits throughout Minnesota.
- Rotation considerations**  
Corn-soybean rotations are the most limiting for establishing cover crops before the winter freeze. Interseeding covers during the corn or soybean growing season can buy you time.
- Options for adding other crops**  
Winter wheat, corn silage, or canning crops all offer longer windows to establish cover crops before freeze-up.
- Livestock**  
If you have livestock, cover crops can reduce nutrients lost from manure spread outside corn or soy growing season. If you have livestock in your area, check whether your neighbors would like to graze or harvest your cover crops. Use MDA's Cropland Grazing Exchange to find potential cooperators.
- Herbicide residuals**  
If you have residuals in your program, cereal rye is a fairly safe bet. Other cover crops might be damaged by residual herbicide, depending on planting dates, cover crop species, and weather. Wisconsin, Missouri and Penn State Extension have resources on residual herbicide damage.

## Get help:

**MN Office for Soil Health:** [mosh.umn.edu](http://mosh.umn.edu)  
**UMN Extension:** [z.umn.edu/ExtCoverCrops](http://z.umn.edu/ExtCoverCrops)  
**Midwest Cover Crop Council:** [mccc.msu.edu](http://mccc.msu.edu)  
**Your local Soil and Water Conservation District**  
**Spreadsheet decision tools:**  
[z.umn.edu/CoverCropTools](http://z.umn.edu/CoverCropTools)

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