



Extension
UNIVERSITY OF WISCONSIN-MADISON

WISCONSIN COVER CROP RECIPE

MCCC-118

Post Corn Silage, Going to Corn: Use Cereal Rye

This publication is intended to provide a starting point for farmers who are new to growing cover crops. With experience, farmers may fine-tune the use of cover crops for their systems.

Introduction

The following recipe provides an introductory approach to integrating a cover crop after corn silage harvest and planting corn for grain or silage as the next crop.

Planning and Preparation

- **Planning**—Read about cover crops. Go to field days. Start small. Be timely. Prioritize management based on purpose and objectives.
- **Corn hybrid and planting**—If possible, plant the preceding corn silage crop early and use a hybrid within the adapted maturity range for your location.
- **Residual corn herbicides**—Cereal rye can be planted in the fall and produce a successful stand following most spring-applied residual corn herbicides. If cereal rye is to be grazed or harvested for forage, there are some time-interval restrictions. (See Resources.)
- **Seed purchase**—Order cereal rye seed early, usually by early summer. Named rye varieties can produce substantially more growth and have predictable development, but they are usually more expensive than VNS (variety not stated) seed. Use good quality seed from a reputable seed dealer.

Fall Work

- **Corn silage harvest**—Harvest fields where cereal rye is to be planted as early as possible.
- **Fall manure**—It generally works best to plant cover crops following manure application via injection or surface application and incorporation. Manure can also be injected with a low-disturbance applicator after the rye cover crop is at least 4 inches tall. Other application methods into or onto an established cereal rye may result in significant damage to the rye.
- **Tillage or no-tillage**—Generally, it is easier to integrate cover crops into no-till or strip-till systems. If tillage is necessary to incorporate manure or smooth the seedbed after corn silage harvest, it should take place prior to rye seeding.

- **Timing of planting**—Plant cereal rye as soon as possible after corn harvest and at least two weeks before the average hard frost date (28°F). If planting later than mid-October, consider increasing the seeding rate.
- **Seeding rate**—Seed at a rate of 40–60 lb./acre (assuming a germination rate of 85% or greater). Seeding rates should be increased by 20% if broadcasting and increased by 10% if broadcasting and incorporating. Also increase the rate if the rye will be harvested as a silage crop in the spring.
- **Planting method**—Drill to a depth of 0.75–1.50 inches or broadcast with shallow incorporation to less than 1.50 inches. Aerial or other broadcast seeding is an option for earlier establishment into standing corn with some risk. Harvest should be planned within two weeks of seeding. Overly wet or dry conditions after aerial seeding or presence of slugs will limit success.
- **Other fall operations**—Surface applying P, K, or lime before the ground freezes can be done without harming the cover crop too much if the soil is not too wet, although some damage may occur in the wheel tracks.

Spring Work

- **Termination timing**—Terminate the cereal rye in the spring when plants are 6 to 12 inches tall and actively growing or at least 10 days before planting corn—whichever comes first. In a wet or windy spring, be ready to take advantage of any break in the weather and/or use low axle weight sprayers. Be familiar with the rules related to termination timing and crop insurance. (See *NRCS Cover Crop Termination Guidelines* in Resources.)
- **Termination herbicide**—Cereal rye can easily be terminated with a full rate of glyphosate (1 lb. acid equivalent/acre) after the rye begins growing in the spring. Effectiveness and rapidity of termination improves if rye is rapidly growing and air temperatures are warmer (> 60°F). Larger rye, rye past the boot stage, or rye sprayed during cooler weather can be more difficult to kill, may require higher glyphosate rates, or will die more slowly. Use best management practices for glyphosate to improve effectiveness.



Figure 1. This cereal rye cover crop was planted near Arlington, WI, after corn silage harvest and fall manure application. (Jaimie West)

- **High cereal rye biomass considerations**—If cereal rye biomass exceeds one-half ton/acre (dry matter), apply N toward the higher side of the application guidelines and apply at or before planting. If manure was applied in the fall prior to cover crop planting, cereal rye biomass in excess of 1 ton/acre (dry matter) may reduce or eliminate the amount of N available for the next corn crop. (See *Cover Crops, Manure, and Nitrogen Management* in Resources.) In this case, consider harvesting the cereal rye for silage or switching from corn to soybean.
- **Option to harvest cereal rye as a silage crop**—Some growers may be interested in harvesting cereal rye as an additional silage crop. Make sure all herbicide rules are followed. Also, this will typically delay the planting date for the next silage crop, but any fall-applied nutrients can be counted toward the cereal rye crop in nutrient management planning. (See *Planting Winter Rye after Corn Silage: Managing for Forage* in Resources.) Use a full burndown rate of glyphosate to completely terminate the rye regrowth after harvest. Termination must be done prior to emergence of the subsequent crop for crop insurance eligibility in Wisconsin.
- **Corn planting**—Proper planter adjustment and maintenance is critical to achieve success when planting into cover crop residue. Under most conditions, no-till planting of corn is the best management practice; modern no-till planter setups can handle planting into grass cover crop biomass. Row cleaner attachments can sometimes be beneficial to increase soil warming but may plug with cover crop residue if not set up properly. Check planting depth and seed furrow closure shortly after beginning to plant and make adjustments as needed.
- **Starter fertilizer**—Consider equipping your corn planter with a 2x2 starter fertilizer applicator and aim for a nitrogen rate of 30–50 lb./acre. Also consider moving up the timing of in-season N applications.

- **Scouting after planting**—Scout for corn emergence, population, and insect pests after planting. Additionally, scout for weeds because substantial rye residue may delay emergence of annual weeds, which may then delay the application of post-emergence herbicides.

Resources

Cover Crop Selector Tool, <http://mccc.msu.edu/selector-tool/>—available from Midwest Cover Crops Council, www.mccc.msu.edu

Cover Crops 101 (University of Wisconsin–Madison Extension publication A4176), <https://cdn.shopify.com/s/files/1/0145/8808/4272/files/A4176.pdf>

Herbicide Rotational Restrictions for Cover and Forage Cropping Systems (University of Wisconsin–Madison Nutrient and Pest Management publication), https://ipcm.wisc.edu/download/pubsPM/2019_RotationalRestrictions_final.pdf

NRCS Cover Crop Termination Guidelines (version 4, June 2019)—available from the USDA–National Resources Conservation Service, https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1467638&ext=pdf

Cover Crops, Manure, and Nitrogen Management (University of Wisconsin–Madison Extension publication A4178), <https://go.wisc.edu/dwx72w>

Planting Winter Rye after Corn Silage: Managing for Forage (University of Wisconsin–Madison Nutrient and Pest Management publication), https://ipcm.wisc.edu/download/pubsNM/Rye_090507_final.pdf

Termination of Winter Rye and Annual Ryegrass Using Glyphosate (University of Wisconsin–Madison Nutrient and Pest Management publication), https://ipcm.wisc.edu/download/pubsPM/AnnualRye_WinterRye_Glyphosate.pdf

Authors

Matt Ruark, Daniel H. Smith, and Kevin Shelley, University of Wisconsin–Madison (*Note: This publication was adapted with consent from MCCC under a joint project to produce customized introductory guidance about cover crops for all member states/provinces.*)

Reviewers and Contributors

Brian Briski, USDA-NRCS; **Jason Cavadini**, University of Wisconsin–Madison; **Tom Kaspar**, USDA-ARS (retired); **Eileen Kladvik**, Purdue University; and **Anna Morrow**, Midwest Cover Crops Council

The Midwest Cover Crops Council (www.mccc.msu.edu) aims to facilitate widespread adoption of cover crops throughout the Midwest by providing educational/outreach resources and programs, conducting new research, and communicating about cover crops to the public.

Funding for this project was provided by McKnight Foundation.

MCKNIGHT FOUNDATION

January 2020

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer. ©2020 by MCCC. All rights reserved.