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COLLEGE OF FOOD, AGRICULTURAL,
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OHIO COVER CROP RECIPE

MCCC-116

Post Corn, Going to Soybean: 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 into a corn-soybean rotation. Planting a cover crop ahead of a soybean cash crop is often the easiest way to introduce cover crops into your rotation.

Planning and Preparation

- **Planning**—Educate yourself. Start small. Be timely. Prioritize management based on your purpose and objectives.
- **Corn hybrid and planting**—If possible, plant the preceding corn crop early and use an early maturity corn hybrid. One strategy is to use a cover crop on the field you usually harvest first, on sloping ground, or on a field where you can watch it regularly, and to plant your earliest maturity hybrid on that field.
- **Residual corn herbicides**—Cereal rye can be seeded and a successful stand will occur in the fall following most of the spring-applied residuals used in corn. However, if cereal rye will be grazed or fed to livestock, there are some restrictions (see Resources section).
- **Seed purchase**—Order cereal rye seed early. Named varieties have more predictable growth but are more expensive. Start with VNS (variety not stated) seed with a good germination rate purchased from a reputable seed dealer. Note that this means the seed has been cleaned and has a certified lab-tested germination tag. Seeding rate calculations are based on one of two factors: pure live seed (PLS) or seed count. The Natural Resources Conservation Service (NRCS) calculations for Ohio are based on PLS for compensation.

Fall Work

- **Corn harvest**—Harvest fields where cereal rye is to be planted as early as possible.
- **Tillage or no-tillage**—To allow for adequate cover crop growth, it is best or easier if full-width tillage is

minimized before rye planting or before the intended rye termination date. To achieve maximum benefits, integrate cover crops into no-till or strip-till systems.

- **Timing of planting**—Ideally, plant cereal rye as soon after harvest as possible. In northern Ohio, this would be before November 1; in southern Ohio, before November 15. Use the Selector Tool (in Resources section) for more precise dates for your county.
- **Seeding rate**—Drilled seeding rate: 40–60 lbs./acre PLS. Broadcast with shallow incorporation: 45–65 lbs./acre PLS. Ohio NRCS approves broadcasting without incorporation if the PLS rate is increased by 20%. (See Calculating Pure Live Seed section below.)
- **Planting method**—Drill to 0.75–1.50 inches deep, broadcast with shallow incorporation, or surface broadcast. An air-seeder mounted on a vertical tillage tool can also be used. Seed-to-soil contact is important with cereal rye stands.
- **Fertility or liming**—If applying P, K, or lime, complete the application prior to the seeding operation or apply to the growing rye before the ground freezes. If it is necessary to inject manure, low-disturbance injectors are available that will cause minimal damage to the cereal rye. Surface application of liquid manure on top of the rye is not recommended until the rye is 3 inches tall. See the current NRCS Standard Practice 590 for manure application rates in Ohio. Surface broadcast of dry manure or litter should be done prior to seeding, but 4 tons or less can be applied to growing cereal rye with minimal damage by using modern spreading equipment that provides even distribution.

Spring Work

- **Early season scouting**—In the spring, scout your cover crop to determine how well it is growing and its coverage. But if rainfall is below normal, scout also to monitor soil moisture in case earlier termination is needed. Watch for vole and/or slug damage.
- **Termination timing**—Terminate the cereal rye in the spring when plants are 6 to 12 inches tall and actively



Figure 1: Terminate cereal rye growth when approximately 6 inches in height (shown here). (Eileen Kladviko)

growing or about two weeks before planting soybean—whichever comes first. Many growers will successfully plant soybean into terminated cereal rye much taller than 12 inches or even terminate cereal rye after planting soybean, especially if weed control is a primary purpose, but new cover crop users should terminate when the cereal rye is smaller (see Figure 1).

- **Termination herbicide**—Cereal rye can easily be terminated with a full rate of glyphosate (minimum of 1 lb. acid equivalent [ae]/acre) after dormancy breaks in the spring. Effectiveness and rapidity of termination improves if rye is rapidly growing and air temperatures are consistently above 50°F. Larger rye, rye past the boot stage, or rye sprayed during cooler weather can be more difficult to kill or will die more slowly.
- **Termination modifications for dry weather**—Watch the weather and be ready to modify your termination plans. In a dry spring, the cereal rye cover crop has the potential to use moisture that the cash crop will need, so terminate cover crops sooner.
- **Termination modifications for wet weather**—In a wet spring, be ready to take advantage of any break in the weather and/or use low axle weight sprayers. If projected soybean planting is less than 10 days away and the rye is tall, then it often works better to spray within a day or two of planting. It is usually better to plant either into brown, dead rye plants or into standing green plants rather than into large, dying, yellow/green (“rubbery”) cereal rye plants that have fallen on the soil surface and formed a mat. See publication AY-353-W (in Resources section) for more details.
- **Soybean planting**—It is usually best to no-till plant soybeans into the dead/dry or standing cereal rye cover crop. Almost all modern planters and no-till drills are fully capable of planting soybean into a cereal rye cover crop. Check planting depth and seed furrow closure

as some adjustments may be needed. Avoid drilling soybeans if the seed slot will not close due to wet soils.

- **Scouting after planting**—After soybean planting, scout for soybean emergence and population. Additionally, scout for weeds since substantial cereal rye residue can often delay the emergence of annual weeds, which may delay the application of post-emergence herbicides.

Calculating Pure Live Seed

For more information on calculating pure live seed (PLS), visit Calculating the Price of Pure Live Seed, a Penn State Extension website, at <https://extension.psu.edu/calculating-the-price-of-pure-live-seed>.

Resources

Herbicide Rotation Restrictions in Forage and Cover Cropping Systems (University of Wisconsin Extension publication), https://wcws.webhosting.cals.wisc.edu/wp-content/uploads/sites/96/2013/03/WCWS_201_Herbicide_Rotation_Restrictions_WEB.pdf

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

Sustainable Crop Rotations with Cover Crops (Ohio State University Extension Fact Sheet SAG-9), <https://ohioline.osu.edu/factsheet/SAG-9>

Timing of Cover Crop Termination and Related Factors (University of Nebraska–Lincoln website), <https://cropwatch.unl.edu/2018/timing-cover-crop-termination-and-related-factors>

Managing Cover Crops: An Introduction to Integrating Cover Crops into a Corn-Soybean Rotation (Purdue Extension publication AY-353-W)—https://edustore.purdue.edu/item.asp?item_number=AY-353-W

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