

# Cover Cropping Before Soybean

**Cover crops:** crops planted for seasonal vegetative cover and conservation purposes.

## Key Takeaways

- > Cover crops have the potential to provide many benefits, such as preventing soil erosion, suppressing weeds, and recycling nutrients
- > Winter annual grass cover crops followed by soybean is an excellent approach due to soybeans' adaptability
- > Anticipate challenges and reduce risk by starting on a small scale
- > Cover crop expenses may be offset with cost-share programs

## Potential Benefits

- > Reducing soil erosion
- > Suppressing weeds, diseases, and nematodes
- > Recycling nutrients
- > Alleviating soil crusting
- > Conserving soil moisture
- > Enhancing organic matter over time
- > Improving long-term soil health
- > Protecting downstream water quality



*A field that loses a dime's width of soil is equivalent to losing 50 tons of soil per acre. While cover crops are promoted for many functions, protecting soil and reducing erosion are the leading benefits of cover cropping.*

## Choosing the Right Species

Cover crop species need to be adapted to your unique fields.



### Winter annual grasses

Cereal rye, wheat, barley

Best for:

- > Cover cropping beginners
- > Reducing soil erosion
- > Weed suppression due to residue persistence

Grasses are easy to establish, easy to terminate, and easily followed by soybeans. They are widely adapted and easily air-seeded before harvesting or drilled after harvesting.

Drilling is the preferred method, but broadcasting and incorporation is easy if you do not have a drill.



### Legumes

Best for:

- > Providing additional nitrogen to the spring crop



### Brassicas

Best for:

- > Reducing nematode populations
- > Alleviating soil compaction

Some evidence suggests brassica roots do not alleviate compact soils as much as previously thought.

## Potential Challenges

Growing cover crops for the first time is a steep learning curve and requires careful planning.

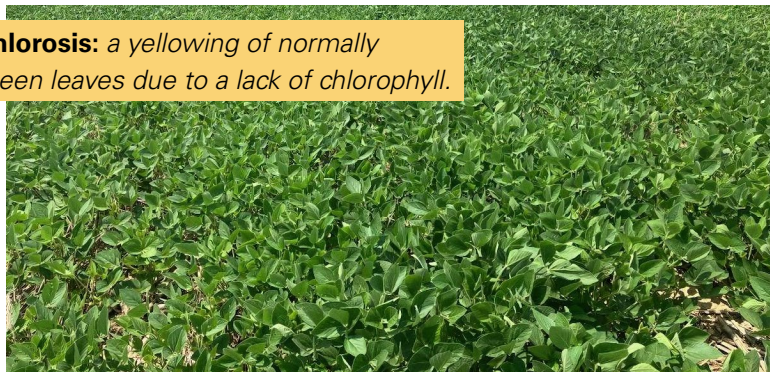
### 1. Planting Challenges

- > Cover crop residue can interfere with the planter and lead to inadequate seed furrow closure and seed-to-soil contact.
- > Pinning of the cover crop in the seed trench can occur when planting the main crop, especially if the cover crop is not fully dry.
- > Planter technologies including downforce, row cleaners, and coulters should be utilized as needed to ensure good seed-to-soil contact when planting into residue.

### 2. Chlorosis (mild and uncommon)

- > Though uncommon in soybeans, mild chlorosis may occur if growing a grass cover crop before soybean.

**Chlorosis:** a yellowing of normally green leaves due to a lack of chlorophyll.



*Soybean may show chlorosis after a cereal cover crop.*

### 3. Drainage and Moisture Challenges

- > Deep-rooted cover crops may plug tile drainage.
- > Cover crops can deplete soil moisture before cash crop planting in environments with low rainfall. Early cover crop termination is essential if planting conditions are abnormally dry.
- > Cover crops can help reduce soil moisture and enhance field trafficability in environments with high early-season rainfall if terminated later.

### 4. Residue Challenges

- > Cover crop residue can lower the soil temperature, which may slow soybean emergence and reduce stands.
- > Cover crop residue can serve as a host for insects and pathogens.

### 5. Economic Challenges

- > Costs to plant and manage cover crops can be offset using cost-share programs through the NRCS or state programs.

## Cover Cropping Checklist

- Identify goals and target issues to address with cover crops.
- Select a cover crop species.
- Identify the best planting date and seeding rate to obtain a manageable amount of cover crop biomass to meet your cropping goals. These items are highly region-dependent.
- Select termination strategy. Some cover crops will be winter-killed. In the spring, termination may be mechanical or chemical.
- Adjust downforce and other planter settings when moving into and out of cover crop areas.
- Check state Extension guidelines and work with a farmer in the area with cover crop experience who can help you avoid common pitfalls.
- Understand the costs of growing, terminating, and managing a cover crop. A cover crop will show up as costs in your annual budgets, but the long-term benefits of cover cropping will eventually offset costs within 5 to 10 years through reduction in soil erosion, nutrient capture, improved soil health, etc.

**Pro Tip:** Gain experience with relatively low risk by starting on a small scale. Allow yourself time to learn basic management practices, build confidence, and compare results to non-cover cropped fields..

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