



**RESEARCH  
 PROTOCOLS**

**Spring Seeding Date for Cereal Rye for  
 Weed Control in Organic Soybeans**

**Objective:** Determine the effect of spring seeding date of a cereal rye cover crop (seeded prior to planting soybeans) on weed pressure and soybean yield when the rye is allowed to persist as a companion to the soybeans.  
**Hypothesis:** An earlier spring seeding date of cereal rye will produce more biomass, lessen weed pressure but not affect soybean yields compared to a seeding date closer to the time of soybean planting. Spring-seeding a cereal rye cover crop may prove to be an effective weed control measure for organic soybean production.

**Farmer-Cooperator will:**

- Take photos throughout the project and keep in contact with PFI with updates and questions.

**Establish treatments**

- **Spring 2019**, establish at least 4 replications of the seeding date treatments as shown below.
  - **Early: Seed cereal rye cover crop as early as possible in spring**
  - **Late: Seed cereal rye cover crop just prior to planting soybeans**
  - **Control: no cover**
- Strips will be as wide as at least one combine pass and run the length of the field.
- Plant soybeans to all strips on the same date.

**Measurements**

- **Summer 2019**
  - Take photos of trial progress.
  - One month after planting soybeans: Collect aboveground biomass samples of cover crop (see next page for more detail).
  - June: Take soybean stand counts from each strip (see next page for more detail).
  - Document weed pressure and weed control measures for each strip.
- **Fall 2019**
  - Harvest soybeans from each strip individually.
- Turn in all info and data pertinent to this trial to Practical Farmers of Iowa by the end of the project.

Early	Late	Control	Early	Late	Control	Early	Late	Control	Early	Late	Control
REP 1			REP 2			REP 3			REP 4		

**Practical Farmers of Iowa will:**

- Help set up monitoring protocol, monitor progress of project and provide support when needed.
- Publish results in a PFI research report, on PFI website and potentially other outlets.
- Provide \$550 honorarium after all data is submitted at conclusion of the project in 2019.

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## Summer Data Collection Details

*One month after planting soybeans: Collect aboveground biomass samples of cover crop.*

- Collect at least one sample from each strip
- Randomly place 1'x1' PVC square in strip
  - Use shears to clip all aboveground plant material from within the square
- Place all samples from a single strip into one paper bag (e.g., one paper bag per strip)
  - Label paper bags accordingly
    - Number of squares sampled from (e.g., 3 squares = 3 ft<sup>2</sup>)
    - Date of collection
- Send paper bags to PFI office
  - Samples will be dried and weighed.

*June: Take stand counts in each strip*

- Take stand counts from 3 random locations in each strip.
  - Count and record number of plants from within 1/1000 of an acre:

Row-width	Length of row to count from
30 in.	17 ft, 5 in.
15 in.	34 ft, 10 in.
10 in.	52 ft, 3 in.
7.5 in.	69 ft, 8 in.

- For narrow, drilled rows, consider using the hula hoop method.
  - Randomly toss hoop into strip and count the number of plants inside the circle.
  - Note diameter of hoop.

For more info, consult this website:

<https://fyi.extension.wisc.edu/discoveryfarms/2010/05/taking-a-stand-count/>