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.

<table>
<thead>
<tr>
<th>Early</th>
<th>Late</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>REP 1</td>
<td>REP 2</td>
<td>REP 3</td>
</tr>
</tbody>
</table>

**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.

**Contact:** Stefan Gallans, research and field crops director, (515) 232-5661; [stefan@practicalfarmers.org](mailto:stefan@practicalfarmers.org)
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 ft²)
    - 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:
    - 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/