



**RESEARCH
 PROTOCOLS**

**Interseeding Clover Cover Crop to Corn
 In Early Summer**

Objective: Determine if a clover cover crop interseeded to corn in early summer can survive underneath the corn canopy and reduce the amount of N fertilizer needed for corn grown the following year.

Hypothesis: Second-year corn yield will be improved by clover interseeded the previous year.

Farmer-Cooperator will:

- Follow Research Protocols in accordance with Project Design, Data to Collect and Timeline detailed below.
- Take photos throughout the project. Try to capture photos that depict the differences you observe among the treatments.
- Keep in contact with PFI with updates and questions.
- Turn in data and complete post-project survey by November 2021.

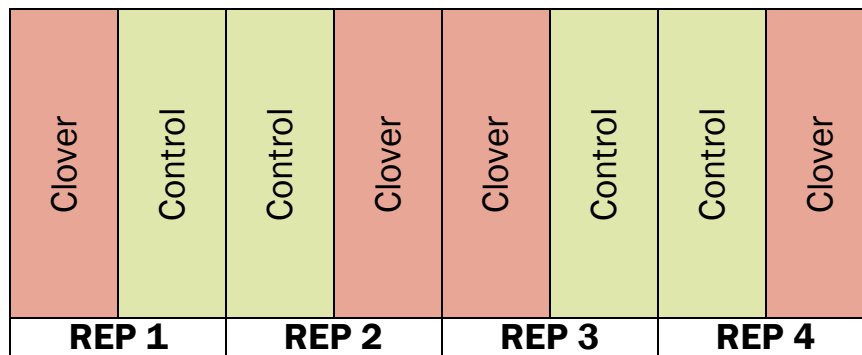
Practical Farmers of Iowa will:

- Help set up research 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 research honorarium to cooperator upon receipt of data.

Project Design:

| Treatment | Description |
|-----------|--|
| Control | Typical practice. Corn grown in 2020 with no interseeded cover crop. |
| Clover | Interseed clover to corn grown in 2020 at ~V4 stage in early summer. |

- Apply these three treatments in a randomized, replicated trial: at least four replications of randomized paired strips. 2 treatments x 4 replications = 8 strips total.
- Strips must be at least as wide as one combine pass and should run the length of the field.
 - Example layout:



Data to Collect (cooperator):

- Clover biomass 2020
 - Just prior to onset of winter, sample aboveground biomass 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
- Corn grain yield 2020 and 2021
 - Harvest and record grain yield and moisture from each strip.
- Optional: Late-spring soil nitrate test (LSNT) 2021
 - When the corn is 6-12 in. tall, collect soil cores to a depth of 12 in. from each strip.
 - One sample per strip.
 - Collect samples in sets of 8 cores.
 - The first core is collected in a corn row.
 - The second is collected 1/8 of the distance between any two rows after moving to another part of the sampling area.
 - The third is collected 1/4 of the distance between any two corn rows after moving to another part of the sampling area.
 - The process is continued until the eighth core is collected 7/8 of the distance between any two corn rows.
 - At least three sets (24 cores) should be collected to comprise one sample.
- Optional: Cornstalk nitrate test 2021
 - In late summer, after corn has reached physiological maturity, collect stalk samples from each strip.
 - Sample collection protocols from ISU:
 - <https://store.extension.iastate.edu/product/Use-of-the-End-of-Season-Corn-Stalk-Nitrate-Test-in-Iowa-Corn-Production>
 - <https://store.extension.iastate.edu/product/End-of-Season-Cornstalk-Nitrate-Testing-Video>

Project Timeline:

| Spring 2020 | Summer 2020 | Fall 2020 | Spring 2021 | Summer 2021 | Fall 2021 |
|---|--|--|---|--|--|
| <ul style="list-style-type: none"> • Plant corn. | <ul style="list-style-type: none"> • Interseed clover to designated strips. • Take photos. | <ul style="list-style-type: none"> • Harvest corn from all strips. • Collect clover biomass samples. • Take photos. | <ul style="list-style-type: none"> • Plant corn. | <ul style="list-style-type: none"> • Collect LSNT soil samples. • Collect cornstalk samples. | <ul style="list-style-type: none"> • Harvest corn from all strips. • Turn in data and photos. • Take post-project survey. |

Contact: Stefan Gailans, Research and Field Crops Director, (515) 232-5661; stefan@practicalfarmers.org