



**RESEARCH  
 PROTOCOLS**

**Summer-Seeded Cover Crop  
 Mixes in Field Pea-Corn System**

**Objective:** Determine the effect on corn yield of cover crop mixes (TBD) seeded after field pea harvest the prior summer.

**Hypothesis:** The mix that produces the most biomass will result in superior corn yield.

**Farmer-Cooperator will:**

- Follow Research Protocols in accordance with Project Design, Data to Collect, Photo List 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
Mix 1	Seed Mix 1 following field pea harvest.
Mix 2	Seed Mix 2 following field pea harvest.

- Apply these 2 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:

Mix 2	Mix 1	Mix 2	Mix 1	Mix 1	Mix 2	Mix 2	Mix 1
<b>REP 1</b>	<b>REP 2</b>	<b>REP 3</b>	<b>REP 4</b>				

**Data to Collect (cooperator):**

- Cover crop biomass
  - In fall, 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 plant material from a single square into one paper bag
    - Label paper bags accordingly
      - Rep #
      - Treatment: Tine-weed or control
      - Number of squares sampled from (e.g., 1 square = 1 ft<sup>2</sup>)
      - Date of collection
    - Optional: Repeat this process 2-3 times per strip
      - (e.g., 2-3 paper bags per strip)
    - Send paper bags to PFI office
      - Samples will be dried and weighed
        - Pending funding: send samples for lab analysis (C and N concentration).
- Corn yield (2021)
  - Harvest and record grain yield and moisture from each strip.

**Photo List (cooperator):**

- Seeding cover crop mixes; equipment in field.
- Cover crop mixes growing (throughout season).
  - Close-ups of individual species.
  - Whole strips of cover crops.
    - Strips side-by-side showing differences.
- Cooperator collecting data.
- Cooperator in field trial.

**Project Timeline:**

<b>Summer 2020</b>	<b>Fall 2020</b>	<b>Spring 2021</b>	<b>Fall 2021</b>
<ul style="list-style-type: none"><li>• Harvest field peas from entire field.</li><li>• Apply manure to entire field</li><li>• Seed cover crop mixes in strips.</li><li>• Take photos.</li></ul>	<ul style="list-style-type: none"><li>• Collect cover crop biomass from all strips.</li><li>• Take photos.</li></ul>	<ul style="list-style-type: none"><li>• Plant corn to entire field.</li></ul>	<ul style="list-style-type: none"><li>• Harvest corn from all strips.</li><li>• Turn in data.</li><li>• Take post-project survey.</li></ul>

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