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:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix 1</td>
<td>Seed Mix 1 following field pea harvest.</td>
</tr>
<tr>
<td>Mix 2</td>
<td>Seed Mix 2 following field pea harvest.</td>
</tr>
</tbody>
</table>

- 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:
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 ft²)
      - 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:

<table>
<thead>
<tr>
<th>Summer 2020</th>
<th>Fall 2020</th>
<th>Spring 2021</th>
<th>Fall 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Harvest field peas from entire field.</td>
<td>• Collect cover crop biomass from all strips.</td>
<td>• Plant corn to entire field.</td>
<td>• Harvest corn from all strips.</td>
</tr>
<tr>
<td>• Apply manure to entire field</td>
<td>• Take photos.</td>
<td>• Turn in data.</td>
<td>• Take post-project survey.</td>
</tr>
<tr>
<td>• Seed cover crop mixes in strips.</td>
<td></td>
<td></td>
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<tr>
<td>• Take photos.</td>
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</tbody>
</table>

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