



**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
REP 1	REP 2	REP 3	REP 4				

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:

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

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