



**RESEARCH PROTOCOLS**

**Spring-Seeded Oat and Faba Bean Cover Crops Before Corn**

**Objectives:** Determine the effects of a spring-seeded oat or faba bean cover crop on 1) early season soil nitrate and soil compaction; 2) weed pressure; and 3) corn yield. **Hypothesis:** With proper establishment, 1) the spring-seeded oat cover crop will provide enough biomass to reduce erosion, improve weed control and improve soil health/tilth before a corn crop; and 2) the spring-seeded faba beans will provide at least 20% of the nitrogen that would normally be applied for the season in corn.

**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 treatments as shown in the diagram below by seeding cover crops as early as possible. Cover crops will be seeded such that “skip-zones” with no cover crop are created on 30-in. centers that corn will be planted in to later in the spring.
    - Oats
    - Faba beans
    - Control (no cover)

- Strips will be as wide as at least one combine pass and run the length of the field.
- Plant corn to all strips on same date. Plant corn into “skip-zones” in the cover crop strips.

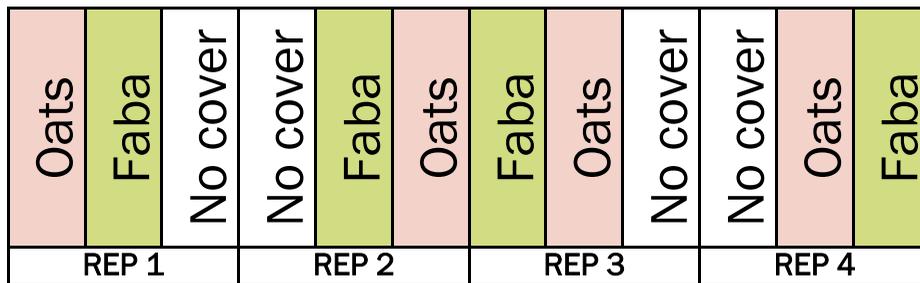
**Measurements** Work with Theo Gunther at Iowa Soybean Association to coordinate the following sampling:

- **Spring 2019**
  - Collect aboveground biomass samples of cover crop from strips just prior to termination.
- **Summer 2019**
  - Pre-sidedress: collect soil samples from each strip for late spring soil nitrate test.
  - Measure soil compaction in each strip with a penetrometer.
  - Take corn stand counts from each strip.
  - Document weed pressure in each strip.

- Take photos of trial progress.

**Fall 2019**, harvest corn 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.



**Practical Farmers of Iowa will:**

- Help coordinate sampling and cooperator honorarium (\$500) with Theo Gunther at ISA.
- 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.

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*The terms of this Research Protocols document are subject to the terms of the individual Research Cooperator’s Memorandum of Understanding agreement with PFI. To the extent these terms may differ or conflict, the Memorandum of Understanding shall control.*