

# Field Crops Research Protocols

## Nitrogen Rate Comparison in Corn Following Green Manure Cover Crop Mixes

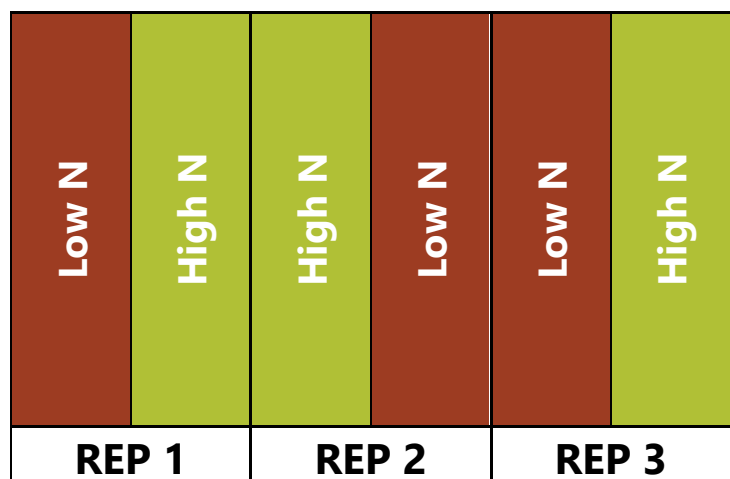
**Objective:** Quantify the agronomic and economic effect on corn yields receiving a high and low nitrogen rate following a two different green manure cover crop mixes seeded after cereal rye harvest.

**Farmer-cooperator will:**

- Take photos throughout the project.
- Keep in contact with PFI with updates and questions.
- **Late summer 2015**, plant green manure cover crop mixes after cereal rye harvest in two fields
  - *Field 1:* oilseed radish + rapeseed + cereal rye.
  - *Field 2:* hairy vetch + Austrian winter pea + cereal rye.
- **Fall 2015**, collect aboveground biomass samples in both fields for dry matter, total C and total N analysis.
  - After biomass collection, graze mixes in both fields with cattle into winter.
- **Spring 2016**, collect aboveground biomass samples of regrowth in both fields for dry matter, TC and TN.
- Terminate the green manure cover crop mixes in both fields.
- Plant corn of the same variety and plant population across the both fields; apply 70 lb N/ac to entire field in both fields.
- Establish a minimum of 3 replications in both fields as shown in the diagram below with randomized and replicated strips of:
  - 70 lb N/ac (Low N)
  - 70 lb N/ac + sidedress rate determined by LSNT (High N)
- Strips will be as wide as at least one combine pass and run the length of the field
- **Fall 2016**, harvest corn in strips, record yield of each strip from both fields.
- Turn in data to Practical Farmers of Iowa at the end of project.

**Practical Farmers of Iowa will:**

- 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
- Provide \$550 compensation at conclusion of the project in 2016



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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.*