Objectives: Determine the effects of reduced herbicide programs on weed control and soybean yield when allowing a cereal rye cover crop to grow to at least two feet tall before planting the soybeans. Hypothesis: Provided adequate cover crop growth, weed control and soybean yield will not be sacrificed by reducing herbicide use. A cereal rye cover crop paired with reduced herbicide use could be considered a cost-effective weed control program.

Farmer-Cooperator will:
- Take photos throughout the project and keep in contact with PFI with updates and questions.
- Establish treatments
  - Fall 2018, seed cereal rye cover crop to the entire field.
  - Spring 2019, establish at least 4 replications of treatments as shown in the diagram below
    - 1 pass: Cover crop termination only (glyphosate)
    - 2 passes: Early weed burndown (2,4-D) + cover crop termination (glyphosate)
    - 3 passes: Early weed burndown (2,4-D) + cover crop termination (glyphosate + residual) + post emergence herbicide
- Plant soybeans to all strips on the same date.
- Strips will be as wide as at least one combine pass and run the length of the field.

Measurements
- Spring 2019, prior to cover crop termination
  - Measure cover crop height and collect aboveground biomass samples from each strip.
- Summer 2019
  - Take photos of trial progress.
  - Conduct weed counts in each strip.
- Fall 2019, harvest soybeans 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 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 honorarium after all data is submitted at conclusion of the project in 2019.

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