

Tine Weeding Oats



Objective: Determine the effect on weed pressure, intercropped red clover and oat yield from tineweeding oats in an organic production system.

Hypothesis: Tine-weeding oats prior to interseeding red clover will reduce weed pressure, improve oat yield and have no effect on intercropped red clover biomass production compared to co-seeding oats and clover and no tine-weeding.

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 2020.

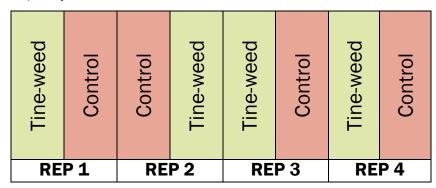
Practical Farmers of Iowa will:

- 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		
Tine-weed	Plant oats. Make two tine harrow passes and interseed red clover		
	on second pass.		
Control	Plant oats and red clover at same time. No tine harrow passes.		

- 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):

- Weed assessment (density and/or biomass; on same date if assessing both)
 - DENSITY: In late spring/early summer, count and record number of weeds in a 3-ft radius at seven random points along a 100-pace transect through the center of each strip.
 - o BIOMASS: In late spring/early summer, sample aboveground weed growth 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 <u>paper</u> 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
- Oat yield
 - Harvest and record grain yield and moisture from each strip.
- · Red clover biomass
 - o 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 <u>paper</u> 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 and, pending funding, will be sent for lab analysis (C and N concentration).

Photo List (cooperator):

- Tine harrow passes; equipment in field
- Oats + red clover growing together (throughout season).
- Cooperator collecting data.
- Cooperator in field trial.

Project Timeline:

Spring	Summer	Fall
 Plant oats to entire field. Co-seed clover to 'Control' strips Make two tine harrow passes in 'Tine-weed' strips. Interseed red clover on second tine harrow pass. Take photos. 	Conduct weed assessmentHarvest oats from all stripsTake photos.	 Collect red clover biomass from all strips. Turn in data. Take post-project survey.

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