Nebraska On-Farm Research Network

Interseeded Cover Crop vs. None in Corn or Soybean

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Objective: Determine any effects on cover crop biomass, successive crop yield and economics of interseeding cover crop into corn or soybean.

Rationale: Establishing cover crops after corn or soybean harvest for fall growth is difficult due to lack of growing season available. Species are limited to primarily cereal rye at that time of year with the aim of spring growth (depending on the growing season). Interseeding cover crops between V3-V5 may allow for the seeds to germinate with plants growing until canopy closure occurs. The thought is that the plants remain dormant within the growing season and begin growing again after harvest to allow for more biomass in the fall. This protocol is an attempt to obtain more data on interseeding cover crops into corn or soybean.

Treatment Design: The following is an example treatment design for comparing two treatments. This design allows for the interseeded cover crops to be applied in strips wide enough to allow for two combine passes in the treatment strip. A total of 5 replications need to be harvested for this trial (7 is preferred). All other parameters need to be the same in this study other than interseeding cover crops or not.

Treatments for Experiment 1: Check vs. Interseeding Cover Crop

Check: No cover crop.
Interseeded Cover Crop Strips: Please plan to interseed by V3 in hopes to ensure interseeding occurs by V5.

NOTE: Yield from the full header width needs to be obtained for each treatment strip shown below.

Replication 1	Check	Yield from header width:
	Interseeded Cover Crop	Yield from header width:
Replication 2	Interseeded Cover Crop	Yield from header width:
	Check	Yield from header width:
Replication 3	Check	Yield from header width:
	Interseeded Cover Crop	Yield from header width:
Replication 4	Interseeded Cover Crop	Yield from header width:
	Check	Yield from header width:
Replication 5	Check	Yield from header width:
	Interseeded Cover Crop	Yield from header width:
Replication 6	Interseeded Cover Crop	Yield from header width:
	Check	Yield from header width:
Replication 7	Check	Yield from header width:
	Interseeded Cover Crop	Yield from header width:

Treatments for Experiment 2: Check vs. Interseeding Cover Crop Mix 1 vs. Interseeding Cover Crop Mix 2

Treatment Design: *The following is the design for a three treatment trial. A total of 4 replications are needed for this trial. The same hybrid and management practices should be used across the entire study area with the only differences being interseeding cover crop and the two mixes used.*

Check: *No cover crop.*
Interseeded Cover Crop Mix 1: *Note species used in mix. Plan to interseed by V3-V5.*
Interseeded Cover Crop Mix 2: *Note species used in mix. Plan to interseed by V3-V5.*

NOTE: *Rows planted in each treatment need to be equal to or greater than corn head width.*

Replication 1	*Check*	*Yield:*
	Interseeded Cover Crop Mix 1	*Yield:*
	Interseeded Cover Crop Mix 2	*Yield:*
Replication 2	*Interseeded Cover Crop Mix 1*	*Yield:*
	Interseeded Cover Crop Mix 2	*Yield:*
	Check	*Yield:*
Replication 3	*Interseeded Cover Crop Mix 1*	*Yield:*
	Check	*Yield:*
	Interseeded Cover Crop Mix 2	*Yield:*
Replication 4	*Interseeded Cover Crop Mix 2*	*Yield:*
	Check	*Yield:*
	Interseeded Cover Crop Mix 1	*Yield:*

Data to Collect for Both Studies:

1. Note the cover crop species interseeded, equipment used to interseed, seeding rate, corn or soybean crop growth stage at time of interseeding.
2. Document herbicide program used. (Optional: To determine which species may be impacted by herbicide treatment), place one 2'X2' sheet of clear plastic between the center crop rows of each treatment including the check prior to spraying the post-herbicide treatment. For observation only need one rep. For data, would need at least 3 reps. Adhere the plastic to ground in some way. Flag the corners where the plastic sheets were located and remove the plastic 48 hours after the herbicide application. Each month, document which species are present in the rest of the row vs. where the plastic was located. Pictures are helpful!
3. Document early season growth with pictures-what species germinating and growing. Aerial imagery would also be helpful throughout growing season and post-harvest.
4. Document the date of cover crop emergence and the crop growth stage on that date. Check the entire plot to ensure the cover crop emerged in all the reps at same time.
5. Harvest stand counts. In each treatment strip, 2 stand counts will be taken and averaged.

6. Yield. Yield can be collected using a well-calibrated yield monitor or with a weigh wagon.
7. Cover crop biomass after harvest: Photos are helpful and also list what species are present. Work with your local educator. To obtain cover crop biomass after killing frost: Find the center of each cover crop treatment plot. Walk in 20'. Lay a yardstick on the ground. Using a clipping or pruning shears, clip all the vegetation to the ground for the length of the yardstick and between the two crop rows. Place all vegetation into a paper bag. Walk another 20'. Repeat the above procedure putting vegetation in same bag. Walk another 20'. Repeat the above procedure. Thus, each cover crop treatment for each rep should have a total of 3 yardstick lengths of samples combined into one paper sack. Make sure each paper sack is labeled regarding treatment and rep. Give all samples to Extension Educator for drying and weighing. Need a minimum of 3 reps sampled and best if more. This sampling method accounts for potential variability of cover crop establishment.

Visual on One Sample Per Treatment Per Rep: Combination of Three 36" clippings between crop rows.

Field Edge between center rows of cover crop treatment plot	Walk 20' →	Clip 36" length between two crop rows	Walk 20' →	Clip 36" length between two crop rows	Walk 20' →	Clip 36" length between two crop rows

Grower Requirements:

1. Flag or mark GPS location of each treatment.
2. Provide all necessary inputs for crop production.
3. Complete background agronomic form about site and practices.
4. Collect yield data and grain moisture with weight wagon or yield monitor. If using yield monitor, please designate a separate "load" for each treatment and set up separate "products" names for each treatment harvested. Yield monitor must be **well calibrated**. Contact UNL Extension if assistance with this process is needed.
5. Work with local Educator on all data collection.
6. Submit harvest data to UNL Extension within 30 days of harvest or by Dec. 15.
7. Allow UNL Extension to use submitted and collected data for research, educational, and informational purposes.

Nebraska On-Farm Research Network will:

1. Provide technical assistance in setting up replicated and randomized experimental design.
2. Provide assistance upon request with treatment implementation, flagging, stand counts, stalk rot tests, biomass assessments, and recording yield.
3. Analyze raw data using statistical analysis and provide this information to the grower.

Disclaimer: The Nebraska On-Farm Research Network does not endorse the use of products tested in on-farm replicated strip trials. While treatments are replicated within trials and may be replicated across multiple sites under various conditions, your individual results may vary.