

Cover Crop Job Sheet (340) Soil Protection and Nitrogen Scavenging

Natural Resources Conservation Service (NRCS)

April 2015

Small Grain Cover Crop or Small Grain – Brassica Cover Crop

Producer Name: _____

Date: _____

Contract#: _____

**INFORMATION ON THIS JOB SHEET IS
 CONSIDERED TO BE PART OF THE
 CONTRACT AND/OR CONSERVATION
 PLAN.**

Purpose

This job sheet will be used to establish cover crops that provide ground cover for erosion control and nitrogen scavenging purposes. This cover crop can also reduce compaction.

Cover crops protect the soil surface from erosion while maintaining/improving the soil's physical, biological, and chemical properties. They also assist with weed control, limit runoff of fertilizers and chemicals, conserve moisture, cycle nutrients, etc.

This cover crop scavenges available nitrogen left in soil system after a cash crop has been grown, holds it over winter months and releases it back to the following year's cash crop.

Cover crops assist in achieving the goal of keeping something growing in the field at times when the soil would otherwise be bare or fallow for more than 30 days.

Conditions Where Practice Applies

On all lands requiring vegetative cover crops for natural resource protection, improvement and/or nitrogen sequestration.



Establishment Specifications

1. Appropriate winter cover crops and "Estimated Nitrogen Sequestration" for individual cover species and mixtures are listed on Insert #1.
2. For appropriate plant species seeding mixtures and seeding rates see "**Kentucky Cover Crop Guidance Document**", **Tables 1 and 2, eFOTG, Section IV**. Landowner decisions and applications can be recorded in attached Table 1.
3. Seed will conform to minimum state standards for purity, germination and other features. Commercially marketed seed in Kentucky meets these requirements.

Important: If soil is wet, avoid no-till planting or culti-packing planted seedbeds. This may result in placing the seed too deep in the ground, compacting the soil from wheel traffic, and causing sidewall compaction by the planter.

Seeding and Seedbed Preparation

No-till establishment is the preferred method of seeding since soil disturbance is minimal, thus reducing weed competition and erosion while maintaining soil health.

Seeding Dates

Optimum dates for seeding cover crop mixtures containing daikon radishes West of Interstate 65 is **September 1st through 20th**. **Early September planting dates are considered optimal**. Cover crops containing brassicas (radish and turnips) must be sown no later than **September 30th West of Interstate 65**.

Optimum dates for seeding cover crop mixtures containing daikon radishes East of Interstate 65 is **August 15th through September 10th**. Cover crops containing brassicas (radish and turnips) must be sown no later than **September 15th East of Interstate 65**.

Optimum dates for seeding monoculture stands of cereal rye are from September 1 through October 15th in all regions of Kentucky. Early seeding dates are more desirable for erosion control and nitrogen sequestration. Monoculture cereal rye cover crops must be sown no later than November 1st.

Optimum dates for seeding monoculture stands of wheat are from October 15th through November 1st in all regions of Kentucky. As a rule of thumb, wheat should not be sown in Kentucky before October 15th due to Hessian fly problems that it may cause in non-resistant wheat for grain crops. Refer to University of Kentucky [ENTFACT-101](#). Hessian fly free dates for more specific guidance for your location. Wheat must be sown no later than November 1st in all areas throughout Kentucky.

No-Till Seeding

Care should be exercised when setting drills to ensure planting depths and rates are correct for the species planted.

Conventional Seeding

The importance of a dry firm seedbed cannot be

over emphasized to ensure proper planting depth.

Seedbeds may be prepared by disking.

Once seedbed is prepared, broadcast seed, cultipack, harrow or roll the seeded area only once to ensure good seed to soil contact and the proper seeding depth.

Aerial Seeding

When using aerial seeding, cover crop seeding rates must be increased by at least 25% for all cover crop species to insure an adequate cover crop stand.

Optimum seeding dates for aerial seeding are from September 1st through 10th at all locations within Kentucky. Wheat cover crops should follow timelines listed under Seeding Dates. (In extremely wet late summer or fall conditions where corn is still green, it is better to wait until corn dries up to the ear and opens canopy before aerial seeding the cover crop. Careful attention should be paid to choose appropriate growing season corn that will allow the above cover crop seeding dates to be met.)

When possible, aerial seeding should be performed over top of an existing crop before leaves of the existing crop fall to the ground. (Example: Aerial seeding of cover crop over soybeans prior to fall of soybean foliage to ensure good seed to soil contact.)

Operation and Maintenance:

It should be noted that cover crops must over winter before termination. All cover crop plant residues should be left on soil surface to maximize soil biomass and organic matter.

For NRCS program purposes:

- **Winter cover crops MUST BE TERMINATED at or within 5 days after planting cash crop, but before crop emergence as stated in 2014 RMA Guidelines for Zone 4. The participant should contact their crop insurance company if they have crop insurance**

eligibility concerns. When the cover crop objective of landowner is N scavenging it is highly recommended to allow cover crop to grow to at least growth stage 4 of the attached Purdue University Extension Service, “Small Grain Growth Stages” chart (Insert 2). Terminating cover crop prior to stage 4 could substantially limit cover crops ability to scavenge N for the following cash crop.

- **Cover crops CANNOT be harvested for grain, silage, or hay. All crop residues must be left on the soil surface.**

Insert 1: Estimated Nitrogen Scavenging For Single or Mixed Cover Crop Species.

<i>Cover Crop Species (single or mixtures)</i>	<i>*Estimated Nitrogen Scavenging</i>
Cereal Rye (60 lbs/ac) and Diakon Radish or Turnip (2 lbs/ac)	50 lbs/ac N
Cereal Rye (65 lbs/ac)	30lbs/ac N
Wheat (90 lbs/ac)	20 lbs/ac N

*It should be noted there are several variables that cannot be accurately estimated that have a significant impact on a cover crop's ability to "scavenge" nitrogen in a soil system. Due to these factors, we have used conservative estimates in the above table for "Estimated Nitrogen Scavenging" for each cover crop species listed. If you desire to be more accurate than the tables above then soil nitrogen testing is an option .

Note: "Estimated Nitrogen Scavenging" estimates were obtained from the University of Kentucky and the USDA East National Technical Support Center.

Insert 2: Purdue University Extension Service

Small Grains Growth Stages

Stage 1

3-Leaf Stage: The first two leaves are completely developed, and the middle, or third, leaf is partially developed.

Stage 2

The tillers (sometimes called side shoots) are beginning to form.

Stage 3

Tillers have formed and are in their primary growth stage.

Stage 4

Tillers have ended their growth and the leaf sheaths (the lower part of the leaf which surrounds the stem) begin to form.

Stage 5

Leaf sheaths are strongly erected and the stems formed start to grow in length.

Stage 6

One-Joint Stage: The first joint develops near the soil surface and can be felt inside the stem. The joints, or nodes, produce a swelled appearance in the lower portion of the stem.

Stage 7

Two-Joint Stage: The second joint has formed, marking the beginning of the reproductive phase.

Stage 8

Appearance of the last leaf.

Stage 9

Ligule Stage: The ligule (a membrane at the junction of the leaf sheath and leaf base) of the last leaf is fully developed, and the leaf sheath is swollen at the level of the capsuled head of grain.

Stage 10

"Boot" Stage: At this stage, the immature head of grain presses the rolled leaf sheath apart and becomes visible.

Stage 10.1

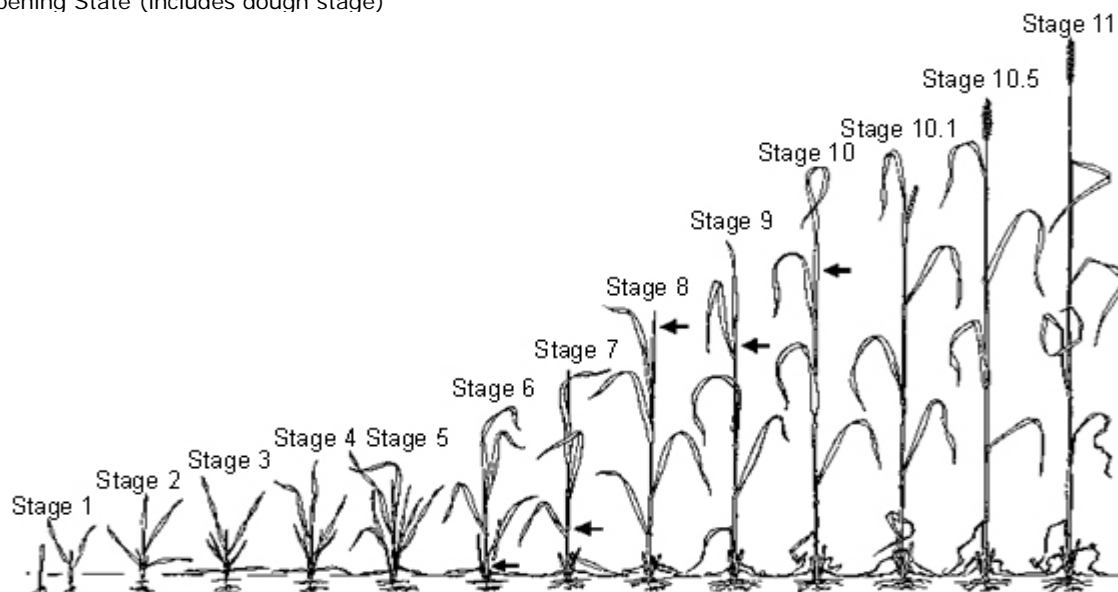
Head Emergence Stage

Stage 10.5

Flowering Stage

Stage 11

Ripening State (includes dough stage)



Soil Protection/Nitrogen Scavenging Cover Crop Establishment

Producer Name: _____

Date: _____

Table 1 Record of landowner decisions and application. If additional room is needed, make copies of this table and attach it to the back of the job sheet.

Tract Number _____

Species and seeding rates options:

Cereal Rye (60 lbs/ac) and Daikon Radish or Turnip (2 lbs/ac)
Cereal Rye (65 lbs/ac)
Wheat (90 lbs/ac)

Field No.(s)	Acres	Cover Crop Species	Lbs./Ac Seed*	Total Lbs. Seed Required	Seeding Method (Conventional No-Till, or Aerial)	Seeding Date

(Seeding rates/dates were interpreted from University of Kentucky recommendations and guidelines, USDA Sustainable Agriculture Research and Education (SARE) program's, Managing Cover Crops Profitably Manual, and recommendations of the USDA-NRCS East National Technical Support Center.)

*When aerial seeding cover crops, seeding rates must be increased by a minimum of 25%.

Note: -Early September seeding dates are preferred.

-For maximum soil quality benefits, no-till seeding methods should be used throughout the rotation.

Certifications

Job Sheet	Prepared by:	Title:	Date:
	Approved by:	Title:	Date:
Installation	Meets NRCS standards and specifications.		
	Certification by:	Title:	Date:
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