

SPRING COVER CROP SEEDING GUIDELINES
FOR EASTERN WASHINGTON:

A PRIMER

April 2013

General Guidelines

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Cover Crop Job Sheet

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GENERAL GUIDELINES

- Work with your local NRCS office to ensure that any program policies are met and prevent confusion.
- Start with small acreage. Cover cropping has pitfalls as well as opportunities.
- Select covers that will provide rapid growth and fit your farming operation.
- Spring cover crop mixtures are intended to be grown during the spring and terminated by June 1.
- There are basically two seeding windows for spring cover crops:
 - Early spring when the soil is dry enough to operate a drill
 - Late fall when the soil is too cold to allow for fall emergence (also known as a “fall dormant planting”)
- We are not recommending spring broadcast seeding because poor establishment is very likely.

SPRING COVER CROP PLANTING CONSIDERATIONS

1. DRILL COVER CROP SEED INTO STANDING STUBBLE

- ⇒ **Double-disk openers** with or w/o depth bands can be used. Depth control will be relatively easy to achieve. **Relatively LOW risk.**
- ⇒ **Hoe openers** could be problematic because trash can accumulate on hoe openers. Also, depth could be difficult to regulate. **Relatively LOW to MODERATE risk.**

2. DRILL COVER CROP SEED INTO TILLED SEEDBED

- ⇒ **Double-disk openers** with or w/o depth bands can be used. Proper seed depth placement will be relatively easy to achieve. **Relatively LOW risk.**
- ⇒ **Hoe openers** could be problematic in fluffy soils because shallow placement of seed could be difficult to achieve. **Relatively LOW to MODERATE risk.**

3. BROADCAST COVER CROP SEED INTO STANDING STUBBLE

- ⇒ **Aerially Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Most of the seed will not have good seed-to-soil contact which will diminish establishment. Small seeded covers such as clovers or canola should be emphasized. Off target seeding caused by propeller draft will place some seed out of the field and into adjoining fields. **Relatively VERY HIGH risk.**
- ⇒ **Ground Applied Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Most of the seed will not have good seed-to-soil contact which will diminish establishment. Small seeded covers such as clovers or canola should be emphasized. **Relatively VERY HIGH risk.**

4. BROADCAST COVER CROP SEED INTO TILLED SEEDBED

- ⇒ **Aerially Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Good seed-to-soil contact could be low if the soil is crusted at seeding. Off target seeding caused by propeller draft will place some seed out of the field and into adjoining fields. **Relatively MODERATE to HIGH risk.**
- ⇒ **Ground Applied Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Good seed-to-soil contact could be low if the soil is crusted at seeding. **Relatively MODERATE to HIGH risk.**

5. BROADCAST COVER CROP SEED INTO STANDING STUBBLE + FOLLOW WITH HARROWING OR ROLLING

- ⇒ **Aerially Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Rolling or harrowing after seeding will improve seed-to-soil contact and aid in establishment. Note: rolling and/or harrowing are not allowed under EQIP Direct Seed protocols. Off target seeding caused by propeller draft will place some seed out of the field and into adjoining fields. **Relatively HIGH risk.**
- ⇒ **Ground Applied Broadcast seeding** will require doubling the seeding rate. Fall germinating weeds such as cheatgrass must be controlled prior to seeding. Rolling or harrowing after seeding will improve seed-to-soil contact and aid in establishment. Note: rolling and/or harrowing are not allowed under EQIP Direct Seed protocols. **Relatively HIGH risk.**

Seed Mix Options for Spring Cover Crops

Examples of a 4 Species Seed Mix:

Option #1 for the Drier Areas

	Lb/ac	Seed/sqft
Barley	15	4
Sweetclover	2	10
Mustard or Canola	5	13
Peas	10	1
Total	32	28

Option #2 for the Drier Areas

Oats	15	5
Sweetclover	2	10
Mustard or Canola	5	13
Peas	10	1
Total	32	29

Option #3 for the Moister Areas

Barley	15	4
Sweetclover or Alfalfa	2	10
Mustard or Canola	5	13
Peas	10	1
Total	32	28

Option #4 for the Moister Areas

Oats	15	5
Sweetclover or Alfalfa	2	10
Mustard or Canola	5	13
Buckwheat	10	3
Total	32	31

Option #5 for the Irrigated Areas

Winter triticale	15	6
Sweetclover or Alfalfa	2	10
Mustard or Canola	5	13
Forage Radish	10	9
Total	32	38

Option #6 for the Irrigated Areas

Oats	15	5
Peas	10	1
Mustard or Canola	5	13
Buckwheat	5	5
Total	35	24

Examples of a 6 Species Seed Mix:

Example Mix Option for the Drier Areas

	Lb/ac	Seed/sqft
Barley or Oats	15	4
Sweetclover	2	10
Mustard or Canola	2	5
Peas	10	1
Forage Radish	3	3
Flax	1	2
Total	33	25

Example Mix Option for the Moister Areas

Barley or Oats	15	4
Sweetclover or Alfalfa	2	10
Mustard or Canola	4	10
Peas	10	1
Forage Radish	3	3
Buckwheat	1	1
Total	35	29

Example Mix Option for the Irrigated Areas

Winter Triticale	15	6
Sweetclover or Alfalfa	2	10
Mustard or Canola	2	5
Forage Radish	5	5
Lentils	7	2
Buckwheat	2	2
Total	33	30

Examples of a 9 Species Seed Mix:

	Lb/ac	Seed/sqft
Barley	10	3
Sweetclover	1	5
Mustard or Canola	5	13
Peas	10	1
Forage Radish	2	2
Crimson Clover	1	4
Buckwheat	2	2
Flax	1	2
Lentils	4	1
Total	35	33

Example of a 12 Species Seed Mix:

	Lb/ac	Seed/sqft
Barley	10	3
Sweetclover	1	5
Mustard or Canola	5	13
Peas	10	1
Forage Radish	2	2
Crimson Clover	1	4
Buckwheat	1	1
Flax	1	2
Lentils	4	1
Safflower	3	1
Sunflower	5	1
Sugar Beet	2	1
Total	45	35

Alternative Spring Cover Crops:

Triticale- a hybrid of cereal rye and wheat. It grows more rapidly at cold temperatures than other cereals. Winter varieties should be planted in spring plantings to reduce the potential for seed production.

Wheat- winter varieties are preferred for spring cover to lessen the chance of it making seed. Hard red winter and durum are not recommended because they produce few leaves in comparison to white wheats.

Corn- needs 60 degree soil temperatures for good emergence. Not a good choice for early spring cover that requires termination by June 1. Most varieties are Round-up Ready. Do not use these varieties if you plan to terminate your cover with glyphosate.

Millet- needs 60 degree soil temperatures for good emergence. Not a good choice for early spring cover that requires termination by June 1.

Sorghum or Sorghum-Sudangrass- needs 60 degree soil temperatures for good emergence. Not a good choice for early spring cover that requires termination by June 1.

Austrian Winter Pea- provides excellent growth. May not be suitable for regions where peas are grown for seed.

Camelina- produces far less top growth than rape or canola. Very small seeded.

Flax- a good substitute for buckwheat. The stems can become wiry so it is not a good choice for growers that plan to use a hoe drill to seed subsequent crops.

Crimson Clover- normally planted on the west side of the state. It grows well in cool soils but will winterkill most years. It is small seeded so it must be seeded shallow.

Safflower- needs warm temperatures to grow well. It could be substituted for buckwheat

Sunflower- needs warm temperatures to grow well. It could be substituted for buckwheat.

Vetch (common and hairy)- grow well in cool soils. They do have a high percentage of hard seed. It is not a good choice for fields that produce crops with low dockage requirements.

Soybean- needs 60 degree soil temperatures for good emergence. Not a good choice for early spring cover that requires termination by June 1. Most varieties are Round-up Ready. Do not use these varieties if you plan to terminate your cover with glyphosate.

Cover Crop

Washington: Conservation Practice Job Sheet

WA-340



Cover Crop Grant County, WA.

Definition

Grasses, legumes, forbs, or other herbaceous plants established for seasonal cover and conservation purposes.

Purpose

Conservation Cover:

- ◆ Reduces erosion from wind and water.
- ◆ Increases soil organic matter.
- ◆ Capture and recycle or redistribute nutrients in the soil profile.
- ◆ Promotes biological nitrogen fixation and reduce energy use.
- ◆ Increases bio-diversity.
- ◆ Suppress weeds.
- ◆ Manage soil moisture.
- ◆ Minimize and reduce soil compaction.

Where Used

Cover crops are used on lands requiring vegetative cover for natural resource protection.

Wildlife

Cover crops can enhance wildlife objectives, depending on the vegetative species used and management practiced. Using native or adapted vegetative species can improve the wildlife values of a cover crop as well as biodiversity. Avoid mowing during nesting periods. Connecting land areas with cover crops provide escape and travel cover.

Resource Management System

Cover crops are normally established concurrently with other practices as part of a resource management system for a conservation management unit. They should be annually installed when vegetative material is needed as green growth of residue to protect an area against wind and water erosion or to enhance the nutrient and organic contents of the soil resource. A cover crop is considered part of the crop rotation. Cover crop residue shall not be burned.

Specifications

Site-specific requirements are listed on the specification sheet. Additional provisions are illustrated on the job sketch sheet. Specifications included in this job sheet are prepared in accordance with the NRCS Field Office Technical Guide. [For required criteria see current WA state practice standard Cover Crop \(340\).](#)

Producer:	Contract Number:	Date:
Location:	County:	Tract Number:

Field Number/Location: Acres: <i>(Separate job sheets should be done for different management units or when different specifications are needed for individual fields.)</i>

Purpose (check all that apply)	
<input type="checkbox"/> Reduce erosion from wind and water	<input type="checkbox"/> Increase biodiversity
<input type="checkbox"/> Increase soil organic matter	<input type="checkbox"/> Suppress Weeds
<input type="checkbox"/> Capture & recycle or redistribute nutrients in the soil profile	<input type="checkbox"/> Manage soil moisture
<input type="checkbox"/> Promote biological nitrogen fixation & reduce energy use	<input type="checkbox"/> Minimize and reduce soil compaction

Ensure that plants are not listed as noxious weeds or invasive species for the county or state. The majority of the species must show properties of identified purpose(s). If actual planting differs from planned document attach						
Species	Variety	Crop Type (WB, WG, CB, CG)	Seed Size	Seeding Depth (in.)	Seeding Rate (PLS lbs/acre)	Percent of Mixture
Totals:						

Cover Crop Establishment and Management considerations: Add additional comments below
Seedbed preparation: Prepare a firm, weed-free seedbed. Cultivate seedbed and leave firm so that an average person's tracks are not more than 1/2" deep. No-till plantings may also be completed. Perform all seedbed prep and planting operations in a manner that will minimize erosion until cover is established. Additional Requirements:
Recommended Seeding dates, depth & method: Drill (preferred) or broadcast uniformly over the area. Rhizobium is purchased by type or legume group. If seed is not inoculated when purchased coat the seed with milk, weak sugar water or a commercial sticking agent to help the material stick to the seeds. Additional Requirements:
Fertilizer: (see Nutrient Management Spec (590)): Fertilize to soil test recommendations to maintain a vigorous stand. Additional Requirements:
Pest management: (see Pest Management Spec (595)): Weeds will be controlled by mowing or with proper herbicides as needed in accordance with product label directions and current LGU and Extension Service recommendations. Additional Requirements:
Recommended Termination window & method: Some examples mowing, rolling, frost, tillage or herbicides. Cover crop will not be harvested or burned. Terminate cover crop as late as possible to maximize plant growth while retaining adequate soil moisture for the subsequent crop. Additional Requirements:

Job Sheet Specification

Resource Evaluations		
	Existing Condition W/O Cover Crop	Planned Condition With Cover Crop
Soil erosion by wind (WEPS): t/ac/yr		
Soil erosion by water (RUSLE2): Soil loss, t/ac/yr		
Soil erosion by water (RUSLE2): Sediment delivery, t/ac/yr		
Soil Conditioning Index (RUSLE2):		

	Projected Nitrogen Credits Achieved (lbs N/ac)	Projected BTU Savings (BTU/ac)
Energy Savings: (required for EQIP Energy plans) Factor = 20,000 BTU's/lb of synthetic nitrogen reduced.		

Operation and Maintenance
<p>Check all that apply:</p> <p><input type="checkbox"/> Control growth of the cover crop to reduce competition from volunteer plants and shading.</p> <p><input type="checkbox"/> Control weeds in cover crops by mowing or by using other pest management techniques.</p> <p><input type="checkbox"/> Control soil moisture depletion by selecting water efficient plant species and terminating the cover crop before excessive transpiration.</p> <p><input type="checkbox"/> Evaluate the cover crop to determine if the cover crop is meeting the planned purpose(s). If the cover crop is not meeting the purpose(s) adjust the management, change the species of cover crop, or choose a different technology.</p> <p><i>Additional:</i></p>

Additional Specifications and Notes:
<p><i>Suggestions: Establish baseline soil test and follow up soil tests before the next crop, collect tissue samples for analysis and measure biomass of cover crop. <u>When applicable, ensure cover crops are managed and are compatible with the client's crop insurance criteria.</u></i></p>

Client's Acknowledgement (To be signed after Job sheet is completed and before practice installation.)	
By signing below, I acknowledge that I:	
<ul style="list-style-type: none"> • have reviewed and understand the site specific design, installation specifications and operation/maintenance requirements in this Job Sheet and have an understanding of the purposes and criteria for use of this conservation practice; • will install, operate, and maintain this conservation practice in accordance with the site specific Job Sheet specifications. • will make no changes to the planned design and installation without prior written approval of the Natural Resources Conservation Service. • will obtain all necessary permits and/or rights, and comply with all ordinances and laws pertaining to the installation, operation, and maintenance of this conservation practice, prior to the start of installation; and • will assume responsibility for notifying all Utilities affected by the installation, operation and maintenance of this conservation practice. 	
Signature	Date
Print Name	Title

Required Job Approval Authority or TSP Certification Category: Field Border 396			
<u>NRCS Job Approval Authority:</u> (Job Class required for design and installation). (I, II, III, IV, or V).			
Design:		Installation:	
Practice Units Description:	ACRES	Amount Applied	
<u>Required Certification Categories for Technical Service Providers</u>		Category for this Practice:	Land Treatment - Vegetative Land Stabilization

Practice Design Certification: (To be completed after Job Sheet is complete and before practice installation.)	
By signing below, I certify that:	
<ul style="list-style-type: none"> • The conservation practice planning and design outlined in this Job Sheet Specification meet the purposes, associated criteria, appropriate site conditions and client objectives; and • I have the required Job Approval Authority or TSP certification required for this conservation practice design. 	
Signature	Date
Print Name	Title

Practice Installation Certification (To be completed after practice installation and check out)	
By signing below, I certify that:	
<ul style="list-style-type: none"> • the practice has been installed according to the site specific installation requirements and specifications, • required operation and maintenance requirements are being met; and • I have the required Job Approval Authority or TSP Certification for this conservation practice installation 	
Signature	Date
Print Name	Title

USDA is an equal opportunity employer and service provider.

Seed Availability Notes:

Barley, Wheat, Oats, Triticale- seed is widely available throughout much of Washington.

Sweetclover- seed is widely available in Washington.

Mustards & Canola- seed is widely available in Washington.

Buckwheat- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Alfalfa- seed is widely available throughout most of Washington.

Sorghum or Sorghum-Sudangrass- seed is widely available in the Columbia Basin. Expect a few days for shipment to other regions of the state.

Peas & Austrian Winter Pea- seed is readily available.

Lentils- seed is readily available.

Millet- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Camelina- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Flax- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Crimson Clover- seed is readily available on the west side. Expect a few days for seed shipment to other regions of the state.

Safflower- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Sunflower- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.

Vetch (common and hairy)- seed is readily available in Washington.

Soybean- don't expect the seed to be readily available. It may take a few weeks for seed companies to acquire and ship.