



CONSERVATION ENHANCEMENT ACTIVITY

E340A

CONSERVATION STEWARDSHIP PROGRAM

Cover crop to reduce soil erosion

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Cover crop added to current crop rotation to reduce soil erosion from water and wind to below soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**). Determine method and timing of termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion-planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.



CONSERVATION STEWARDSHIP PROGRAM

- If specific rhizobium bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Time cover crop establishment in conjunction with other practices to adequately protect soil during critical erosion period(s).
- Select cover crops that will have the physical characteristics necessary to provide adequate erosion protection.
- Use NRCS erosion prediction technology to determine amount of surface and/or canopy cover needed from cover crop to achieve the erosion objective (average annual soil loss below T).
- Crops planted following the cover crop must be no-tilled.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current planned crop rotation, cover crop information, and field operation(s) used for each crop.

Current Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date



CONSERVATION STEWARDSHIP PROGRAM

Planned Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)

Cover Crop Mix and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)

Establishment and Management Considerations:

Task	Provide information and details
Seedbed Preparation	
Seeding Date	
Seeding Depth	
Seeding Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, cover crops must not be burned, grazed or harvested.
- During implementation, the crop following the cover crop must be no till seeded.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.

NRCS will:

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, use information provided from the participant to calculate the management sheet and rill erosion from water and wind erosion value for each field using current NRCS water erosion prediction technologies.

Benchmark Management Soil Loss = _____ tons/acre/year

Planned Management Soil Loss = _____ tons/acre/year

- During implementation, evaluate any planned changes to cover crop mix, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied cover crop in the crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate erosion values to document that the applied rotation met the enhancement criteria.

Applied Management Soil Loss = _____ tons/acre/year



NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





SOUTH DAKOTA (SD) SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340A

Additional Criteria for SD:

In addition to the criteria specified in the national job sheet E340A, the following additional criteria apply in SD:

- Ninety percent (90%) of the mix need to be rated Good (G) or Fair (F) for Soil Erosion Reduction on the attached Cover Crop Table 1.



Table 1: Cover Crop - Common Species and Properties

Cover Crop	Full seeding rate lbs/acre/4	Seeding depth, inches	Reduce erosion	Increase soil organic matter	Scavenge nutrients	Biological N fixation	Suppress weeds	Provide supplemental hay	Provide supplemental grazing	Rooting depth / Plant water use ¹	Minimize / Reduce surface soil compaction	Minimize/ Reduce subsoil compaction	Seed size (Large or Fine)	Crop type and seeding dates ² / ³	Winter Survival	Salinity Tolerance	CN Ratio	Mycorrhizal fungi association	Seeds/lb	Shade Tolerance
Alfalfa	6.5	.25 - .75	G	G	G	Y	G	G	F	DH	G	G	F	CB	Y	P	L	M	210,000	F
Barley	50	.75 - 2.0	G	G	G	N	G	G	G	MM	G	F	L	CG	N	G	M	M	14,000	F
Brassica hybrids	7	.25 - .5	F	F	G	N	G	F	G	MM	G	G	F	CB	N	G	L	N	180,000	P
Buckwheat / 5	50	.5 - 1.5	P	P	F	N	F	P	P	SL	F	P	L	WB	N	P	L	N	19,000	G
Cabbage, African	5	.25 - .75	F	F	G	N	F	F	F	MM	G	G	F	CB	N	G	L	N	180,000	F
Camelina, Winter	3	.25 - .5	F	F	F	N	P	P	P	ML	P	F	F	CB	S	P	L	N	400,000	P
Canola	5	.25 - .75	F	F	G	N	G	F	F	MM	G	G	F	CB	S	G	L	N	140,000	F
Clover, Balansa	5	.25 - .75	F	P	F	Y	P	P	F	SL	P	P	F	CB	N	P	L	M	500,000	F
Clover, Crimson	15	.25 - .75	F	F	F	Y	P	F	F	SM	P	P	F	CB	S	P	L	M	150,000	F
Clover, Red	5	.25 - .75	G	F	F	Y	F	F	F	SL	F	F	F	CB	Y	P	L	M	275,000	G
Clover, Sweet	4	.25 - 1.0	G	G	F	Y	G	F	F	MM	G	G	F	CB	Y	F	L	M	260,000	G
Collards or Kale	5	.25 - .5	F	F	G	N	G	F	G	MM	G	G	F	CB	N	G	L	N	175,000	F
Corn	12	1 - 1.5	G	G	G	N	G	F	G	DH	G	G	L	WG	N	P	H	H	2,500	F
Cowpeas or Dry Beans	30	1 - 1.5	P	F	F	Y	P	P	F	SL	F	F	L	WB	N	P	L	M	4,000	F
Fava beans	75	1 - 1.5	F	F	F	Y	F	G	G	DM	F	F	L	CB	N	F	L	P	2,500	P
Flax	30	.25 - .75	F	F	F	N	P	P	P	SM	F	P	F	CB	N	P	H	H	80,000	P
Lentils	30	1 - 1.5	P	P	P	Y	P	P	P	SL	P	P	F	CB	N	P	L	M	20,000	P
Millet, hay	15	.5 - 1.0	G	G	G	N	G	G	G	SL	G	F	F	WG	N	P	M	H	180,000	P
Millet, proso	25	.5 - 1.0	G	G	G	N	G	G	G	SL	G	F	F	WG	N	P	M	H	80,000	P
Mustard	6	.25 - .75	F	F	F	N	G	F	P	MH	G	F	F	CB	N	P	L	N	140,000	P
Oats	70	.5 - 1.5	G	G	G	N	G	G	G	MM	G	F	L	CG	N	F	M	H	16,000	F
Peas	70	1.5 - 3.0	F	P	P	Y	F	G	G	SL	F	F	L	CB	N	P	L	M	3,500	F
Phacelia	4	.25 - .5	F	F	F	N	P	P	P	DH	F	P	F	CB	N	P	L	M	225,000	F
Radishes	8	.25 - .75	F	F	G	N	G	P	G	DH	G	G	F	CB	N	P	L	N	25,000	P
Rapeseed	5	.25 - .75	F	F	G	N	G	F	G	MM	G	G	F	CB	Y	G	L	N	140,000	F
Rye, Cereal	60	.75 - 2.0	G	G	G	N	G	G	G	MH	G	G	L	CG	Y	G	H	M	18,000	G
Ryegrass, Annual	15	.5 - 1.5	G	G	G	N	F	G	G	MM	G	F	F	CG	S	F	M	M	190,000	G
Safflowers	30	.5 - 1.0	F	F	G	N	F	P	P	DM	F	G	L	WB	N	F	M	M	15,000	P
Sorghum, Forage and Sudan Hybrids	15	.5 - 1.5	G	G	G	N	G	G	G	MM	G	G	L	WG	N	F	M	H	17,000	P
Sorghum, Grain	5	.5 - 1.5	G	G	G	N	G	G	G	MM	G	G	L	WG	N	F	M	H	17,000	P
Soybeans	35	1 - 1.5	F	P	F	Y	F	F	F	SM	F	F	L	WB	N	P	L	M	3,000	F
Sudangrass	20	.5 - 1.5	G	G	G	N	G	G	G	MM	G	G	L	WG	N	F	M	H	25,000	P
Sugar beets	4	.25 - .5	F	P	G	N	F	P	G	DH	G	G	F	CB	N	G	L	N	22,000	P
Sunflowers	7	.5 - 1.0	F	F	G	N	F	P	G	DM	F	G	L	WB	N	F	M	M	8,000	P
Sunn hemp	15	1.5 - 2.0	F	F	F	Y	F	P	F	DM	F	F	L	WB	N	P	L	M	15,000	P
Teff grass	5	.13 - .25	G	G	F	N	F	G	G	SM	G	F	F	WG	N	P	M	H	1M	N
Triticale	60	.5 - 1.5	G	G	G	N	G	G	G	MH	G	F	L	CG	Y	G	M	M	15,000	F
Turnips	4	.25 - .5	F	P	G	N	G	P	G	DH	G	G	F	CB	S	P	L	N	175,000	P
Vetch, Chickling	50	.5 - 1.5	F	F	F	Y	F	F	P	SL	F	F	L	CB	N	P	L	M	2,500	F
Vetch, Common	25	.5 - 1.5	F	F	F	Y	F	F	G	SM	F	F	L	CB	N	P	L	M	8,000	F
Vetch, Hairy	15	.5 - 1.5	G	F	F	Y	F	F	F	SM	G	F	L	CB	Y	P	L	M	14,000	G
Wheat, Spring	60	.5 - 1.5	G	G	G	N	G	G	G	MH	G	F	L	CG	N	G	M	M	15,000	F
Wheat, Winter	60	.75 - 2.0	G	G	G	N	G	G	G	MH	G	F	L	CG	Y	G	M	M	15,000	F