



CONSERVATION ENHANCEMENT ACTIVITY

E328A

CONSERVATION STEWARDSHIP PROGRAM

Resource conserving crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Soil; Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three-year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three-year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)
- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.



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- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The crop rotation shall include at least one of the following types of resource conserving crops (refer to State Specific List of Resource Conserving Crops):
 - With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - With at least one other crop in the rotation, include a legume-grass mixture that is grown at least 2 years from time of planting;
 - With at least one other crop in the rotation, include a grass-forbs or legume-grass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or
 - With at least two other crops in the rotation, include a non-fragile residue or high residue crop or a crop that efficiently uses soil moisture, reduces irrigation water needs, or is considered drought tolerant. Neither the crop residue nor the cover crop shall be harvested or grazed.



Documentation and Implementation Requirements

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Participant will:

- Y Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

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

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

NRCS will:

- Y As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- Y Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three-year crop rotation.
- Y Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).



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- Y Prior to implementation, use the information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value. **Management SCI Value = _____ OM subfactor value = _____**
- Y During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- Y After implementation, if the applied crop rotation is different than the planned crop rotation, use the information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria. **Management SCI Value = _____ OM subfactor value = _____**

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.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



SOUTH DAKOTA (SD) SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

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Additional Criteria for SD:

In addition to the criteria specified in the National job sheet E328A the following additional criteria apply in SD:

- Utilize Range Technical Note No. 4 to determine site suitability for perennial vegetation
[Range Tech Note 4.pdf \(usda.gov\)](https://www.usda.gov/range-technical-note-4)

South Dakota Resource Conserving Crops List

Introduced Cool-season Grasses	Native Cool-season Grasses	Native Warm-season Grasses	Introduced Legumes	Native Legumes
Alkali grass	American manna grass	Alkali sacaton	Alfalfa	American licorice
Altai wildrye	American slough grass	Big bluestem	Alsike clover	American vetch
Creeping foxtail	Basin wildrye	Blue grama	Bird's-foot trefoil	Canada milkvetch
Crested wheatgrass	Beardless wildrye	Buffalo grass	Cicer milkvetch	Canada tick trefoil
Crested wheatgrass hybrid	Blue wildrye	Green muhly	Hairy vetch	Cream / long bract wild indigo
Dhorian wildrye	Blue bunch wheatgrass	Indiangrass	Red clover	Greenplum milkvetch
Desert wheatgrass	Bluejoint reed grass	Inland Saltgrass	Sainfoin (pod less)	Illinois bundleflower
Green wheatgrass	Canada wildrye	Little bluestem	Strawberry clover	Illinois tick trefoil
Hard fescue	Fowl bluegrass	Prairie cordgrass	Sweet clover	Indian breadroot scurf pea
Intermediate wheatgrass	Fowl manna grass	Prairie dropseed	White clover	Purple prairie clover
Mammoth wildrye	Green needlegrass	Prairie slandered		Round-headed bush clover
Meadow brome	Indian rice grass	Sand bluestem		Showy partridge pea
Orchard grass	Montana wheatgrass	Sand dropseed		White prairie clover
Pubescent wheatgrass	Mountain brome	Sand lovegrass		
Russian wildrye	Needleandthread	Side oats grama		
Siberian wheatgrass	Nuttall's alkali grass	Switchgrass		
Smooth brome	Porcupine grass			
Tall fescue	Prairie June grass			
Tall wheatgrass	Prairie wedge grass			
Timothy	Reed canary grass			
	Sandberg bluegrass			
	Slender wheatgrass			
	Snake River wheatgrass			
	Squirrel tail			
	Thick spike wheatgrass			
	Tufted hairgrass			
	Virginia wildrye			
	Western wheatgrass			
	Whitetip			



South Dakota Resource Conserving Crops List (Continued)

Forbs

Small burnet	Grass-leaved / flat-top goldenrod	Sawtooth sunflower
Allegheny monkeyflower	Grayhead coneflower	Scarlet globemallow
American / Water horehound	Great blue Lobelia	Shell-leaf penstemon
Arrow-leaved / common blue wood aster	Heart-leaved golden Alexanders	Showy goldenrod
Black-eyed Susan	Heath aster	Silky / western silver aster
Blanket flower	Hoary vervain	Sky-blue aster
Blue vervain	Indian blanket	Sneezeweed
Boneset	Ironweed	Stiff goldenrod
Bottle gentian	Joe-pye weed	Stiff sunflower
Broad beard beardtongue	Late figwort / carpenter's square	Swamp / purple stem aster
Butterfly milkweed	Lewis flax	Swamp milkweed
Calico aster	Lindley's aster	Sweet cicely / Clayton's sweet root
Canada / Meadow Anemone	Mad dog / blue skullcap	Sweet flag
Candle anemone / Thimbleweed	Marsh betony / swamp lousewort	Tall / American bellflower
Columbine	Maximilian sunflower	Tall meadow rue
Common Burreed	Meadow blazing star	Tall thimbleweed
Common milkweed	Narrow-leaved Purple Coneflower	Thick spike gayfeather
Compass plant	New England aster	Water plantain
Cudweed sage wort	Nodding beggar tick / bur marigold	Western yarrow
Culvers root	Nodding onion	White panicle Aster
Cup plant	Obedient plant	White snakeroot
Devil's beggar tick	Old field goldenrod / Gray goldenrod	Whorled Milkweed
Ditch stonecrop	Pale spiked lobelia	Wild bergamot
Dotted gayfeather	Pasqueflower	Wild garlic
Early / lance leaf figwort	Pennsylvania smartweed	Wild geranium
Early Meadow rue	Plains coreopsis	Wild golden glow / cut leaf coneflower
Eastern Daisy fleabane	Prairie / Carolina larkspur	
Eastern Purple Coneflower	Prairie / downy phlox	
Evening primrose	Prairie / Richardson's alumroot	
False aster	Prairie aster	
False boneset	Prairie blue-eyed grass	
False gromwell	Prairie coneflower	
False sunflower	Prairie Goldenrod / Upland white aster	
Field / Green sage wort	Prairie Onion	
Foxglove beardtongue	Prairie smoke	
Fragrant giant hyssop	Prairie spiderwort	
Frost / hairy white old field aster	Prairie sunflower	
Fuzzy tongue penstemon	Prairie violet	
Geyer's aster	Purple giant hyssop	
Giant goldenrod	Rocky Mountain bee plant	
Golden alexanders	Rough blazing star	



- In SD the selected resource conserving crop must be new to the crop rotation and cannot have been grown in the field within the last 5 years.
- The cover crop must follow small grain or be grown full season.
- The cover crop mixture must contain a minimum of 60 percent (%) grass species.
- **Neither the crop residue nor the cover crop shall be harvested or grazed.**

South Dakota Resource Conserving Crops List (Continued)

High Residue Crops (non-fragile)	Efficient Moisture Using Crops	Drought Tolerant Crops
Alfalfa	Flax	Canola
Barley	Millet, grain	Safflowers
Corn, grain	Safflowers	Sorghum, grain
Millet, grain	Sorghum, grain	Sunflowers
Oats	Sunflowers	
Rye, cereal		
Spelt		
Sorghum, grain		
Triticale		
Wheat, all		

Cover Crops

African Cabbage (F)	Crimson Clover (L)	Radish (F)
Alfalfa (L)	Fava Bean (L)	Red Clover (L)
Annual Ryegrass (G)	Forage Sorghum (G)	Spring Wheat (G)
Balansa Clover (L)	Grain Sorghum (G)	Sudan grass (G)
Barley (G)	Hairy Vetch (L)	Sudan-Sorghum Hyb.(G)
Brassica Hybrids (F)	Kale (F)s	Sunn hemp (L)
Cereal Rye (G)	Lentils (L)	Sweet Clover (L)
Chickling Vetch (L)	Millet (G)	Teff Grass (G)
Collards (F)	Mustard (F)	Triticale (G)
Common Vetch (L)	Oats (G)	Turnip (F)
Cowpea (L)	Peas (L)	Winter Wheat (G)