



CONSERVATION ENHANCEMENT ACTIVITY

E328J

CONSERVATION STEWARDSHIP PROGRAM

Improved crop rotation to provide benefits to pollinators

Conservation Practice 328: Conservation Cropping System

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve the existing crop rotation by adding pollinator friendly crops into the rotation. The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Use of insecticides is limited for the pollinator friendly crop.

Criteria

- Crops will be grown in a planned sequence over a five-year rotation. The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation.
- The crop rotation must include at least one pollinator friendly. For these criteria, a pollinator friendly cover crop is considered a different crop. A pollinator friendly crop is defined as a crop, planted for harvest or as a cover crop, which provides nectar for pollinators and other beneficial insects. Examples of pollinator friendly crops are canola, sunflowers, clovers, and borage. To meet the purpose and definition of a pollinator friendly crop, these “flowering” crops must be allowed to bloom prior to harvest or termination. **<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>**

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- Each year the enhancement is planned, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Plan/contract the actual acres planted to the pollinator friendly crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Foliar systemic insecticides may not be applied to the pollinator friendly crop.
- Insecticides may not be applied during crop bloom period of the pollinator friendly crop.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation for all cropland acres on the operation. **<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>**
- Prior to implementation, as needed, NRCS can provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- Prior to implementation, provide maps for review by NRCS of the planned crop rotation, including areas which will include the pollinator friendly crops. Each year the enhancement is planned, at least 5% of the cropland acres on the operation must be planted to a pollinator friendly crop.

Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Planned Management Rotation including Pollinator Friendly Crops (complete table for each rotation)

Field	Planned Crops (in sequence)	Planting Date	Harvest Date	Acres in rotation



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- During implementation, maintain records of any insecticide applications to the pollinator friendly crop, including timing, material/product, application rate, and crop stage.

Field	Crop	Insecticide Applied	Application Date	Application Rate	Crop Stage

- During implementation, notify NRCS of any planned changes in crop rotation, insecticide applications, or management to verify the planned system meets the enhancement criteria.
- After implementation, if changes were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS for review.
- After implementation, provide insecticide application records to NRCS for review to verify implementation meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the crop rotation meets the criteria of the enhancement. The rotation must include a minimum of three different crops in a five-year crop rotation and each year the enhancement is planned the pollinator friendly crop must be planted on a minimum of 5% of cropland acres contained within the operation. *Plan/contract the actual acres planted to the pollinator friendly crop.*
- During implementation, evaluate any planned changes in crop rotation, insecticide applications, or management to verify the new system meets the enhancement criteria.



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After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to verify the applied rotation meets the enhancement criteria.

After implementation, review insecticide application records to verify implementation meets the enhancement criteria.

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

CONSERVATION STEWARDSHIP PROGRAM

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Additional Criteria for SD:

In addition to the criteria specified in the national job sheet E328J, the following additional criteria apply in SD:

Pollinator friendly crops for South Dakota				
Common Name	Planting Time	Bloom Period	Bloom Period End	Planting Time Comments
Safflower	Spring	August	October	Spring planting - 50 days until bloom. Fall planting not applicable - it would freeze before bloom.
Sunflower	Spring			Spring planting - 70 days until bloom. Fall planting not applicable- it would freeze before
Buckwheat	Spring/Fall	May	October	Spring planting - 45 days until bloom. Fall planting - blooms 45 days from planting and it will freeze kill.
Canola	Spring/Fall			Spring planting - 50 days until bloom. Fall planting - blooms the following spring or 50 days

- When including a pollinator friendly cover crop into a crop rotation, at a minimum, 75 percent (%) your seed mix will comprise of one or more of the pollinator friendly crops listed above.
- The balance of your mix may include any combination of cover crop species listed in Cover Crop Table 1 below.



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
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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
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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