



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

**ALABAMA – E328J Improved Crop Rotation to provide benefits to pollinators**

- The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation.
- The existing rotation must be improved by the addition of pollinator friendly crops not currently grown.
- Only the acres planted to the pollinator friendly crop shall be contracted for payment.
- The pollinator friendly crop will be planted on a minimum of 5% of the cropland acres.
- Complete the tables in the national jobsheet regarding the current and planned rotation.
- Complete the tables in the national jobsheet regarding records of insecticide applications to the pollinator friendly crop.
- All pollinator friendly crops must be allowed to complete flowering before termination.
- 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.
- Utilize a planting pattern to coincide with sprayer boom widths so that there is not incidental overspray of insecticides applied to adjacent crops.
- Refer to the attached list for approved pollinator crops for Alabama. Seed for pollinator crops must not be treated with systemic insecticides. Additionally, some other crop types may be suitable as pollinators when seed treatments with systemic insecticides have not been applied. Documentation of non-treated seeds must be available. Contact the state agronomist regarding crops not listed.

Note that seeds coated with insecticides would be prohibited for this practice.					
Crop	Scientific name	Primary Use	Additional Use	Notes	Sources (see below for details)
Alfalfa	<i>Medicago sativa</i>	harvestable	cover crop, wildlife		NASS, Smith
Basil	<i>Ocimum basilicum</i>	harvestable			
Bean, fava or bell	<i>Vicia faba</i>	harvestable			
Bean, lablab hyacinth	<i>Lablab purpureus</i>	harvestable	harvestable		Smith
Bean, lima	<i>Phaseolus lunatus</i>	harvestable			NASS
Bean, snap (bush)	<i>Phaseolus vulgaris</i>	harvestable			NASS
Bean, snap (pole)	<i>Phaseolus coccineus</i>	harvestable			NASS
Bean, velvet	<i>Mucuna pruriens</i>	harvestable			Nichols
Borage	<i>Borago officinalis</i>	harvestable			
Buckwheat	<i>Fagopyrum esculentum</i>	harvestable	cover crop, wildlife		Nichols , Smith
Canola	<i>Brassica napus</i>	harvestable			
Chickpea	<i>Cicer arietinum</i>	harvestable			NASS
Chicory	<i>Cichorium intybus</i>	cover crop	wildlife		
Cilantro	<i>Coriandrum sativum</i>	harvestable			
Clover, alsike	<i>Trifolium hybridum</i>	cover crop			
Clover, alyce	<i>Alysicarpus vaginalis</i>	cover crop	cover crop		Smith
Clover, arrowleaf	<i>Trifolium vesiculosum</i>	cover crop	pasture legume, wildlife		Surrency, Smith
Clover, berseem	<i>Trifolium alexandrinum</i>	cover crop			
Clover, crimson	<i>Trifolium incarnatum</i>	cover crop			AL Extn (legume cover crops), Smith
Clover, kura	<i>Trifolium ambiguum</i>	cover crop			
Clover, red	<i>Trifolium pratense</i>	cover crop	wildlife		Smith
Clover, rose	<i>Trifolium hirtum</i>	cover crop			
Clover, strawberry	<i>Trifolium fragiferum</i>	cover crop			

Clover, subterranean	<i>Trifolium subterraneum</i>	cover crop	wildlife		Smith
Clover, white	<i>Trifolium repens</i>	cover crop	wildlife		Smith
Collards	<i>Brassica oleracea</i> var. <i>viridis</i>	cover crop	harvestable for greens	only if allowed to flower	NASS
Cucumber	<i>Cucumis sativus</i>	harvestable			
Cut flowers (e.g. cosmos, zinnias)	(various)	harvestable			NASS
Daikon	<i>Raphanus sativus</i> var. <i>Longipila</i>	cover crop	harvestable	only if allowed to flower	NASS
Dill	<i>Anethum graveolens</i>	harvestable			
Eggplant	<i>Solanum melongena</i>	harvestable			NASS
Fennel	<i>Foeniculum vulgare</i>	harvestable			
Flax	<i>Linum usitatissimum</i>	cover crop			
Garlic	<i>Allium sativum</i>	harvestable			
Kale	<i>Brassica oleracea</i> var. <i>sabellica</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Smith
Lentil	<i>Lens culinaris</i>	harvestable			
Lupine, Armex	<i>Lupinus elegans</i>	cover crop			Surrency
Lupine, sweet blue	<i>Lupinus angustifolius</i>	cover crop	wildlife		Nichols, Smith, Clark
Lupine, white	<i>Lupinus albus</i>	cover crop		AU HOMER cultivar released	Nichols, Smith, Clark
Meadowfoam	<i>Limnanthes alba</i>	cover crop			
Melon, cantaloupe or muskmelon	<i>Cucumis melo</i> var. <i>cantalupensis</i>	harvestable			NASS
Melon, honeydew	<i>Cucumis melo</i> 'Honey Dew'	harvestable			
Milkvetch	<i>Astragalus</i> spp.	cover crop			
Mustard greens	<i>Brassica juncea</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Nichols
Okra	<i>Abelmoschus esculentus</i>	harvestable			NASS
Parsley	Could harvest, then let flower.	harvestable			NASS
Partridge Pea	<i>Chamaecrista fasciculata</i>	cover crop			
Partridge Pea, small	<i>Chamaecrista nictitans</i>	cover crop			



Pea, Caley	<i>Lathyrus hirsutus</i>	harvestable	wildlife		Surrency, Smith	
Pea, Austrian winter	<i>Pisum arvense</i>	cover crop	wildlife		AL Extn (legume cover crops), Smith	
Pea, green, sugar, or snow	<i>Pisum sativum</i>	harvestable			NASS	
Pea, southern (cowpeas), blackeyed, purple hull, crowder, etc.	<i>Vigna unguiculata</i>	harvestable			NASS, AL Extn (legume cover crops), Nichols, Smith	
Peppers, Bell, chile, pimientos, etc.	<i>Capsicum</i> spp.	harvestable			NASS	
Pumpkin	<i>Cucurbita pepo</i>	harvestable			NASS	
Radish, oilseed/tillage	<i>Raphanus sativus</i>	cover crop			Nichols	
Safflower	<i>Carthamus tinctorius</i>	harvestable				
Sanfoin	<i>Onobrychis viciifolia</i>	cover crop				
Sesame	<i>Sesamum orientale</i>	harvestable	cover crop, wildlife		Smith	
Squash, summer	<i>Cucurbita pepo</i>	harvestable			NASS	
Squash, winter	<i>Cucurbita maxima</i> <sup>1</sup>	harvestable			NASS	
Strawberry	<i>Fragaria × ananassa</i>	harvestable			NASS	
Sunflower	<i>Helianthus annuus</i>	harvestable	wildlife		NASS, Nichols, Smith	
Sunn Hemp	<i>Crotalaria juncea</i>	cover crop			AL Extn (legume cover crops), Nichols, Smith	
Sweet alyssum	<i>Lobularia maritima</i>	cover crop				
Tomatillo	<i>Physalis philadelphica</i>	harvestable				
Tomato	<i>Lycopersicon esculentum</i>	harvestable			NASS	
Turnip	<i>Brassica rapa</i> subsp. <i>rapa</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Smith	
Vetch, Cahaba	<i>Vicia sativa</i> cv. 'cahaba white'	cover crop				
Vetch, common or garden	<i>Vicia sativa</i>	cover crop	wildlife		Smith	
Vetch, hairy or chickling	<i>Vicia villosa</i>	cover crop			AL Extn (legume cover crops), Surrency, Nichols, Smith	
Vetch, purple	<i>Vicia americana</i>	cover crop				
Watermelon	<i>Citrullus lanatus</i>	harvestable			NASS	

Footnotes						
<sup>1</sup> Winter squash also includes <i>Cucurbita argyrosperma</i> , <i>C. moschata</i> , and <i>C. pepo</i> .						
<b>Crop Information Sources</b>						
Alabama Extension. 2018. Cover Crops: Legumes. <a href="https://www.aces.edu/blog/topics/row-cover-crop-soils/cover-crop-selection-legumes/">https://www.aces.edu/blog/topics/row-cover-crop-soils/cover-crop-selection-legumes/</a>						
Clark, A. (Ed.). 2008. Managing cover crops profitably. Diane Publishing. <a href="https://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Appendix-B">https://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Appendix-B</a>						
NASS, USDA. 2017. Census of Agriculture (Alabama)--State Level						
Nichols, K. 2016. Alabama: Why plant cover crops? AgFax (Jan 15). <a href="https://agfax.com/2016/01/15/alabama-plant-cover-crops/">https://agfax.com/2016/01/15/alabama-plant-cover-crops/</a>						
Smith, M, J. Armstrong, J. Johnson, and P. Mask. 2019. Plantings for						
Surrency, D. and L. Undayag. 2000. Cover Crops for the Southeast. US						
<b>Invasive Plant Information Sources (did not include species found to be invasive or likely to be invasive in Alabama)</b>						
Alabama Invasive Plant Council. <a href="https://www.invasive.org/species/list.cfm?id=71">https://www.invasive.org/species/list.cfm?id=71</a>						
EDD MapS. <a href="https://www.eddmaps.org/species/subject.cfm?sub=6008">https://www.eddmaps.org/species/subject.cfm?sub=6008</a>						
IPM Images. <a href="https://www.ipmimages.org/browse/subinfo.cfm?sub=5533">https://www.ipmimages.org/browse/subinfo.cfm?sub=5533</a>						