**alliance practice worksheet**

arkansas

Cover crop (340)

*The conditions and specifications below are adapted from the Natural Resources Conservation Service. Producers who are installing these practices under the Alliance will use the conditions and implementation guides below but are exempt from NRCS verification and certification. Completing the Purposes and Practice Specifications on this document is sufficient to self-verify practice installation and completion.*

# Farm Info

|  |  |
| --- | --- |
| Producer Name |  |
| County (Farm Location) |  |
| FSA Farm Number |  |
| FSA Field Number(s) |  |
| FSA Tract Number(s) |  |
| Practice Status:*If a practice has not yet been implemented, select Planned**If a practice has been implemented, select Applied* | [ ]  Planned | [ ]  Applied |
| Planned Date of IMPLEMENTATION: | Date Practice was APPLIED: |

# PRACTICE: Cover crop (340)

**DEFINITION:** Grass, legumes, and forbs planted for seasonal vegetative cover.

***NOTE:*** *If a cover crop has been implemented on your enrolled fields prior to your enrollment in this program, you are required to add an additional species to the cover crop mixture that is implemented during the time of this contract, and that additional species must differ in functional group from the original species used. Cover crops are typically grouped by plant type as grasses, legumes, crucifers, and forbs. For example, to comply with this requirement, if the previous species/mixture contained only grass type species, you must add a legume, crucifer, or forb type species to fulfill the requirement. If the previous cover crop contained a mixture of 3 or more species and all 3 species are from different functional groups, no additional species will be required. However, the composition of the cover crop mixture may be adjusted as long as it complies with the NRCS standards and specification.*

**CONDITIONS WHERE PRACTICE APPLIES:** This practice applies to all lands requiring seasonal vegetative cover for natural resource protection or improvement.

NRCS Conservation Practice Standard: [Conservation Practice Standard Cover Crop (Code 340) (usda.gov)](https://efotg.sc.egov.usda.gov/api/CPSFile/9823/340_AR_CPS_Cover_Crop_2015)

**AT A MINIMUM, PRODUCERS WILL PROVIDE A RECORD OF THE FOLLOWING**

Prepare plans and specifications for each field or treatment unit according to the planning criteria and operation and maintenance requirements of this standard. Specifications shall describe the requirements to apply the practice to achieve the intended purpose for the practice site. Plans for the establishment of cover crops shall, as a minimum, include the following specification components:

* Field number and acres
* Species of plant(s) to be established.
* Seeding rates.
* Seeding dates.
* Establishment procedure.
* Rates, timing, and forms of nutrient application (if needed).
* Dates and method to terminate the cover crop.

Other information pertinent to establishing and managing the cover crop e.g., if haying or grazing is planned specify the planned management for haying or grazing.

# GENERAL CRITERIA APPLICABLE TO ALL PURPOSES

* 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.
* Select species that are compatible with other components of the cropping system.
* Ensure herbicides used with crops are compatible with cover crop selections and purpose(s).
* Cover crops may be established between successive production crops, or companion- planted or relayplanted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
* Do not burn cover crop residue.
* Determine the method and timing of termination to meet the grower’s objective and the current NRCS Cover Crop Termination Guidelines.
* When a cover crop will be grazed or hayed ensure that crop selection(s) comply with pesticide label rotational crop restrictions and that the planned management will not compromise the selected conservation purpose(s).
* Do not harvest cover crops for seed.
* If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.

# additonal criteria to reduce erosion from wind and water

* Time the cover crop establishment in conjunction with other practices to adequately protect the soil during the critical erosion period(s).
* Select cover crops that will have the physical characteristics necessary to provide adequate erosion protection.
* Use the current erosion prediction technology to determine the amount of surface and/or canopy cover needed from the cover crop to achieve the erosion objective.

# additional criteria to maintain or increase soil health and organic matter content

* Cover crop species will be selected on the basis of producing higher volumes of organic material and root mass to maintain or increase soil organic matter.
* The planned crop rotation including the cover crop and associated management activities will score a Soil Conditioning Index (SCI) value > 0, as determined using the current approved NRCS Soil Conditioning Index (SCI) procedure, with appropriate adjustments for additions to and or subtractions from plant biomass.
* The cover crop shall be planted as early as possible and be terminated as late as practical for the producer’s cropping system to maximize plant biomass production, considering crop insurance criteria, the time needed to prepare the field for planting the next crop, and soil moisture depletion.

# Additional criteria to reduce water quality degradation by utilizing excessive soil nutrients

* Establish cover crops as soon as practical prior to or after harvest of the production crop. (i.e. before or after harvest)
* Select cover crop species for their ability to effectively utilize nutrients.
* Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Practical considerations for termination date may include crop insurance criteria, the amount of time needed to prepare the field for planting the next crop, weather conditions, and cover crop effects on soil moisture and nutrient availability to the following crop.
* If the cover crop will be harvested for feed (hay/balage/etc.), choose species that are suitable for the planned livestock, and capable of removing the excess nutrients present.

# Additional criteria to suppress excessive weed pressures and break pest cycles

* Select cover crop species for their life cycles, growth habits, and other biological, chemical and or physical characteristics to provide one or more of the following:
	+ To suppress weeds, or compete with weeds.
	+ Break pest life cycles or suppress of plant pests or pathogens.
	+ Provide food or habitat for natural enemies of pests.
	+ Release compounds such as glucosinolates that suppress soil borne pathogens or pests.
* Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation.

# Additional criteria to improve soil moisture use efficiency

* In areas of limited soil moisture, terminate growth of the cover crop sufficiently early to conserve soil moisture for the subsequent crop. Cover crops established for moisture conservation shall be left on the soil surface. -CPS-2 NRCS, AR 340 January 2015 In areas of potential excess soil moisture, allow the cover crop to grow as long as possible to maximize soil moisture removal.

# Additional criteria to minimize soil compaction

* Select cover crop species that have the ability to root deeply and the capacity to penetrate or prevent compacted layers.

# Considerations

* Plant cover crops in a timely matter and when there is adequate moisture to establish a good stand.
* When applicable, ensure cover crops are managed and are compatible with the client’s crop insurance criteria.
* Maintain an actively growing cover crop as late as feasible to maximize plant growth, allowing time to prepare the field for the next crop and to optimize soil moisture.
* Select cover crops that are compatible with the production system, well adapted to the region’s climate and soils, and resistant to prevalent pests, weeds, and diseases. Avoid cover crop species that harbor or carry over potentially damaging diseases or insects.
* Cover crops may be used to improve site conditions for establishment of perennial species.
* When cover crops are used for grazing, select species that will have desired forage traits, be palatable to livestock, and not interfere with the production of the subsequent crop.
* Use plant species that enhance forage opportunities for pollinators by using diverse legumes and other forbs.
* Cover crops may be selected to provide food or habitat for natural enemies of production crop pests.
* Cover crops residues should be left on the soil surface to maximize allelopathic (chemical) and mulching (physical) effects.
* Seed a higher density cover crop stand to promote rapid canopy closure and greater weed suppression. Increased seeding rates (1.5 to 2 times normal) can improve weed- competitiveness.
* Cover crops may be selected that release biofumigation compounds that inhibit soil-borne plant pests and pathogens.
* Species can be selected to serve as trap crops to divert pests from production crops.
* Select a mixture of two or more cover crop species from different plant families to achieve one or more of the following: (1) species mix with different maturity dates, (2) attract beneficial insects, (3) attract pollinators, (4) increase soil biological diversity, (5) serve as a trap crop for insect pests, or (6) provide food and cover for wildlife habitat management.
* Plant legumes or mixtures of legumes with grasses, crucifers, and/or other forbs to achieve biological nitrogen fixation. Select cover crop species or mixture, and timing and method of termination that will maximize efficiency of nitrogen utilization by the following crop, considering soil type and conditions, season and weather conditions, cropping system, C:N ratio of the cover crop at termination, and anticipated nitrogen needs of the subsequent crop. Use LGU- recommended nitrogen credits from the legume and reduce nitrogen applications to the subsequent crop accordingly. “If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
* Time the termination of cover crops to meet nutrient release goals. Termination at early vegetative stages may cause a more rapid release compared to termination at a more mature stage.
* Both residue decomposition rates and soil fertility can affect nutrient availability following termination of cover crops.
* Allelopathic effects to the subsequent crop should be evaluated when selecting the appropriate cover crop.
* Legumes add the most plant-available N if terminated when about 30% of the crop is in bloom.

**ADDITIONAL CONSIDERATIONS**

* Additional Considerations to Reduce Erosion by Wind or Water
	+ To reduce erosion, best results are achieved when the combined canopy and surface residue cover attains 90 percent or greater during the period of potentially erosive wind or rainfall.
* Additional Consideration to Reduce Water Quality Degradation by Utilizing Excessive Soil Nutrients
	+ Use deep-rooted species to maximize nutrient recovery.
	+ When appropriate for the crop production system, mowing certain grass cover crops (e.g., sorghum-sudangrass, pearl millet) prior to heading and allowing the cover crop to regrow can enhance rooting depth and density, thereby increasing their subsoiling and nutrient-recycling efficacy.
* Additional Consideration to Increase Soil Health and Organic Matter Content
	+ Increase the diversity of cover crops (e.g., mixtures of several plant species) to promote a wider diversity of soil organisms, and thereby promote increased soil organic matter.
	+ Plant legumes or mixtures of legumes with grasses, crucifers, and/or other forbs to provide nitrogen through biological nitrogen fixation.
	+ Legumes add the most plant-available N if terminated when about 30% of the crop is in bloom.

# planned management

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Field #** | **Acres** | **Species** | **Seeding Rate lbs/ac** | **Seeding Date Range** | **Seeding Method** | **Termination Date or Stage** | **Termination Method** |
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* NRCS Cover Crop Termination Guidelines: [340\_AR\_GD\_Cover\_Crop-Termination\_Guideline\_2014 (usda.gov)](https://efotg.sc.egov.usda.gov/api/CPSFile/9827/340_AR_GD_Cover_Crop-Termination_Guideline_2014)
* Practice Specification: [Practice Specification for CPS Cover Crop (Code 340) (usda.gov)](https://efotg.sc.egov.usda.gov/api/CPSFile/9830/340_AR_PS_Cover_Crop_2004)

# operation and maintenance

* 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.

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| Notes: |

# PRODUCER SELF-CERTIFICATION

By signing below, I certify that I have reviewed all required documentation, and the information outlined above meet all criteria and requirements as defined in the Natural Resources Conservation Service **COVER CROPS (340)** standard and specifications for the identified acres or animal units.

Further, I agree that:

[ ]  I have not received a payment for this conservation practice on these fields and acres from another USDA Conservation Program or another USDA Partnership for Climate-Smart Commodities grant partner.

[ ]  I will retain all practice documentation to support this certification for up to 12 months following practice adoption and will provide this documentation to the Alliance if selected for a spot check. *(Up to 10% of enrolled Alliance participants will be randomly selected for spot checks).*

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| --- | --- |
| **Producer Name:** |  |
| **Date:** |  |