

# FARM WATER QUALITY PLANNING MANAGEMENT PRACTICE

**Conservation Cover**  
#327

*University of California Cooperative Extension  
Natural Resources Conservation Service*



Conservation Cover is the practice of establishing and maintaining permanent vegetative cover to reduce erosion and protect wildlife. This practice applies on land to be retired from agricultural production. It does not apply to plantings for forage production or critical area plantings. Use native species when available.

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### **Advantages**

- Decrease in labor and equipment costs
- Reduced runoff and downstream flooding
- Reduced wind and water erosion
- Improved animal habitat, cover and shelter
- Improved groundwater recharge
- Hunting and wildlife viewing opportunities
- Potential beneficial insect and raptor habitat

### **Disadvantages**

- Loss of crop revenue
- Potential for pest habitat

### Practice Effectiveness for Reducing Water Quality NPS Pollution Potential

<b>Erosion-sheet &amp; rill</b>	<b>Erosion-streambank</b>	<b>Pesticides-leaching</b>	<b>Pesticides-dissolved in runoff</b>	<b>Pesticides-adsorbed to sediment</b>	<b>Nutrients-leaching</b>	<b>Nutrients-surface waters</b>
Moderate to significant	negligible	significant	significant	significant	slight	slight

#### Additional sources of information regarding conservation cover:

UC Sustainable Agriculture Research and Extension Program <http://www.sarep.ucdavis.edu/>  
UC Weed Research and Information Center <http://wric.ucdavis.edu/>

The picture and some of the information in this management sheet has been taken from the Natural Resource Conservation Service (NRCS) Handbook of Conservation Practices practice #327. Contact your local NRCS office or visit <http://www.nrcs.usda.gov> for more information.

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**327 - CONSERVATION COVER**

**I. SCOPE**

The work shall consist of furnishing all materials and placing them on all designated areas to the limits as shown on the drawings, or as staked in the field, and performing cultural operations to grow the plants and to maintain the life of the stand.

**II. MATERIALS**

Seed - All seed shall be delivered to the site tagged and labeled in accordance with the California Agricultural Code, and shall be acceptable to the County Agricultural Commissioner.

Bag tag figures will be evidence of purity and germination. Time since date of seed test shall not exceed 9 months.

Seed shall be of a quality that weed seed shall not exceed 0.5% of the aggregate of pure live seed (PLS) (% germination x % purity) and other material.

Fertilizer - Unless otherwise specified on the Practice Requirements sheet, all fertilizer shall be uniform in composition, dry and free flowing, pelleted or granular.

All fertilizer shall be labeled in accordance with applicable state regulations and bear the warranty of the producer for the grade furnished.

Inoculants - The inoculant for treating legume seeds shall be a pure culture of Nitrogen fixing bacteria prepared specifically for the plant species and shall not be used later than the date indicated on the container. A mixing medium, as recommended by the manufacturer or approved substitute, shall be used to bond the inoculant to the seed. For nonpellet inoculated seed, two times the amount of the inoculant recommended by the manufacturer shall be used and seed shall be sown within 24 hours.

For pellet inoculated seed, at least 30 pounds of inoculant shall be used per 1,000 pounds of raw seed and the seed shall be labeled to show the Lot Number, Expiration Date, and Percent Coat of the finished

product. Pellet inoculated seed shall be kept cool and sown within 180 days.

Chemicals - All pesticides used in performing this practice shall be Federally, State, and locally registered and shall be applied strictly in accordance with authorized and registered uses, directions on the label, and other Federal or State policies and requirements. Chemical containers shall be properly stored and disposed of in a safe manner.

**III. SEEDING MIXTURE AND PLANTING DATE**

The seed(s) and rate(s) specified on the Practice Requirements sheet shall be used.

The seeding rate(s) shall be the weight exclusive of any coating material. Any legume seed used shall be inoculated. Based on bag tags, seeding rates shall be adjusted to insure the required amounts of pure live seed.

Planting shall be performed during the period that is specified on the Practice Requirements sheet.

**IV. SEEDBED PREPARATION**

Unless otherwise specified on the Practice Requirements sheet, the area to be planted shall be weed free and have a firm seedbed which has previously been roughened by scarifying, disking, harrowing, chiseling, or otherwise worked to a depth of 2 to 4 inches, except when planting no-till. No implement shall be used that will create an excessive amount of downward movement of clods on sloping areas.

Trash, weeds, and other debris that will interfere with seeding or maintenance shall be removed.

Seedbed preparation shall be suspended when soil moisture conditions are not suitable for obtaining a satisfactory seedbed.

## **V. FERTILIZING AND SEEDING**

Fertilizing - The fertilizer(s) and rate(s) specified on the Practice Requirements sheet shall be used.

When required and unless otherwise specified on the Practice Requirements sheet, fertilizer shall be applied in any way that will result in uniform distribution. The fertilizer shall be incorporated into the soil as part of the seedbed preparation or as part of the seeding operation.

Seeding - Unless otherwise specified on the Practice Requirements sheet, seed shall be drilled at the depth specified on the Practice Requirements sheet.

Seeding shall be performed as nearly as practical across the slope unless otherwise specified on the Practice Requirements sheet.

## **VI. IRRIGATION**

When specified, irrigation water shall be applied during the establishment period at the times and rates listed on the Practice Requirements sheet.

## **VII. ADDITIONAL CULTURAL OPERATIONS**

Cultural operations performed shall maintain a population of at least three planted and/or desirable resident perennial plants per square yard not including any noxious weeds on at least 75 percent of the area after the establishment period. The desirable resident species are those specified on the Practice Requirements sheet.

Vegetative cover shall provide a minimum of 60 percent ground cover on fields subject to rainfall erosion within three years after planting and thereafter. Vegetative cover shall reduce erosion to the soil loss tolerance level on fields subject to wind erosion.

Mowing can be performed for control of noxious weeds and for a designated firebreak. No tillage shall be performed except for injecting or banding fertilizer through knives. Periodic mowing can be performed to reduce rank growth and maintain species populations.

Herbicides used shall not endanger the planted species, except when required for control of noxious weeds.

## **VIII. OPERATION AND MAINTENANCE**

Other details for the establishment and maintenance of the plants including, but not limited to, the need for

livestock and traffic control shall be applied when specified on the Practice Requirements sheet.

Measures and methods that enhance fish and wildlife values, protect visual resources, and maintain key shade, food, and den trees shall be performed when specified on the Practice Requirements sheet.

Operations shall be done in such a manner that soil erosion and air and water pollution are minimized and held within legal limits.

The owner, operator, contractor, or other persons shall conduct all work and operations in accordance with proper safety codes for the type of equipment and operations being performed with due regards to safety of all persons and property.

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**CONSERVATION COVER**

(Acre)

**CODE 327**

**DEFINITION**

Establishing and maintaining permanent vegetative cover to protect soil and water resources.

**PURPOSES**

- Reduce soil erosion and sedimentation.
- Improve water quality.
- Enhance wildlife habitat .

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies on land to be retired from agricultural production requiring permanent protective cover, and on other lands needing permanent protective cover. This practice does not apply to plantings for forage production or to critical area plantings.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Species shall be adapted to soil, range site, and climate conditions.

Species planted shall be suitable for the planned purpose and site conditions. Use of invasive species shall be avoided.

Seeding rates and methods shall be adequate to accomplish the planned purpose.

Planting dates, planting methods and care in handling and planting of the seed or planting stock shall ensure that planted materials have an acceptable rate of survival.

Only viable, high quality and adapted seed of planting stock shall be used.

Legume seed shall be inoculated with the proper Rhizobia bacteria before planting.

Site preparation shall be sufficient for establishment and growth of selected species.

Timing and use of equipment shall be appropriate for the site and soil conditions.

Vegetative manipulation will be accomplished by mechanical, biological or chemical methods, by prescribed burning, or a combination of the four. If burning is used alone or in combination with the other methods, Prescribed burning, Practice Code 338, must be included as a planned practice.

All nutrients shall be applied following the nutrient management requirements in the Field Office Technical guide (FOTG).

Nitrogen fertilizer shall not be applied at seeding time where annual grasses are expected to become a weed problem.

Legume seed shall be inoculated with the proper Rhizobia bacteria before planting.

Vegetative cover shall provide a minimum of 60 percent ground cover on fields subject to rainfall erosion within three years after planting and thereafter. Vegetative cover shall reduce erosion to the soil loss tolerance level on fields subject to wind erosion.

Based on bag tags, adjust seeding rates at the field site to insure the required amounts of pure live seed of each species (germination x purity). Do not include any hard seed in the percent germination. When coated seed is used, adjust seeding rate to compensate for the weight of coating.

Use seeding rates for nurse crops that are 35 to 40 percent of their rate used for a cover crop.

**CONSIDERATIONS**

In selection and management of plant species, consider long-term land use objectives and habitat needs of target wildlife species.

Control of noxious weeds by mowing should be evaluated as an alternative to use of herbicides.

On sloping land where crop residues are present or will result from the existing or planned crop, minimize seedbed operations to maintain adequate residues on the surface for protecting the new planting.

In wind erosion areas, consider a temporary cover crop or a nurse crop to control erosion and protect seedlings.

In Major Land Resource Areas (MLRA) 21 and 23, temporary cover crops can be planted in early Spring to reduce weeds and wind erosion. Select cover crops that will not head out and use the same seeding rates as for a cover crop. Plant the perennial grasses the next Fall or following Spring into the cover crop residue using a no-till drill or range type drill.

#### **Additional Criteria for Enhancing Wildlife Habitat**

##### **Planting/Establishment**

Grasses, forbs, and legumes shall be planted in mixes to encourage maximum plant diversity.

##### **Management/Maintenance**

Methods used shall be designed to protect the soil resource from erosion.

Maintenance practices and activities shall not disturb cover during the reproductive period for grassland wildlife species.

Maintenance measures must be adequate to control noxious weeds and other invasive species.

To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds shall be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife.

##### **Endangered Species Considerations**

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS' objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the

alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that during critical periods, such as spawning, eggs in gravels, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

##### **Water Quantity**

The practice may increase infiltration and the amount of soil water by reducing evaporation and runoff. The plants will utilize soil moisture and deep percolation will diminish. The increased vegetation may more efficiently trap snow with an improved distribution, where available, and snow may increase soil water when it melts. Seasonally frozen ground may not permit infiltration and the meltwater may increase runoff.

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.
2. Effects of vegetation on soil moisture.
3. Effects of snowcatch and melt on the water budget.
4. Effects of increasing organic matter on water holding capacity of the soil.

##### **Water Quality**

Agricultural chemicals are usually not applied to this cover in large quantities and surface and ground water

quality may improve where these materials are not used. Ground cover and crop residue will be increased with this practice. Erosion and yields of sediment and sediment related stream pollutants could decrease. Temperatures of the soil surface runoff and receiving water may be reduced. Effects will vary during the establishment period and include increases in runoff, erosion and sediment yield. Due to the reduction of deep percolation, the leaching of soluble materials will be reduced, as will be the potential for causing saline seeps. Long-term effects of the practice would reduce agricultural nonpoint sources pollution to all water resources.

1. Filtering effects of vegetation on movement of sediment and dissolved and sediment-attached substances.
2. Effects of growing and decaying vegetation on nutrient balance in the root zone.
3. Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that could be carried by runoff.
4. Effects on the use of management of nutrients and pesticides and resulting effects on surface and ground water quality.
5. Potential of vegetation to alleviate saline seeps.

#### **PLANS AND SPECIFICATIONS**

Plans and specifications are to be prepared for specific fields.

Seeding mixtures and rates shall be in conformance with the Vegetative Guide in Section II of the Field Office Technical Guide.

On fields judged to contain a good seed supply of desirable species, do not specify any seeding mixture on the Practice Requirements sheet. Fertilizer must still be specified on the Practice Requirements sheet unless existing fertility of the field is judged adequate.

When planting perennial grasses alone or in mixtures, do not fertilize with nitrogen at planting time.

When seeding legumes, fertilize with Phosphorus when indicated by soil tests.

When available, also specify a no-till drill or similar seed drill be used.

When plantings are to be irrigated, maintain adequate moisture in the upper six (6) inches of soil during the first four (4) weeks and then in the upper 12 inches thereafter until the rainy season during the establishment period.

#### **OPERATION AND MAINTENANCE**

Maintenance practices and activities should not disturb cover during the primary nesting period for grassland species. Exceptions should be considered for periodic burning or mowing when necessary to maintain the health of the plant community. Mowing may be needed during the establishment period to reduce competition from annual weeds. Noxious weeds will be controlled to prevent proliferation and spreading to adjacent fields.

Annual mowing of the conservation cover stand for general weed control is not recommended. Any use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose.

Manage vegetative growth, as applicable, by mowing, controlled grazing, approved chemicals, or other means to maintain the desired cover.

Reseeding or replanting, along with the use of fertilizers and/or soil amendments and irrigation, as needed.

#### **REFERENCES**