

NATURAL RESOURCES CONSERVATION SERVICE

**CONSERVATION CROP ROTATION** (ACRE)

**CODE 328**

**MONTANA CONSERVATION PRACTICE SPECIFICATION / JOB SHEET**

**FLEXIBLE CROPPING**

COOPERATOR	FIELD(S)
TRACT(S)	DATE

**DEFINITION:** A sequence of adapted crops designed to maintain, protect, or improve the health and productivity of the soil and related natural resources.

**Flexible Crop Rotation:** This rotation is a modified crop-fallow sequence where the decision to recrop is based on the amount of stored soil moisture plus historical growing season precipitation.

**PURPOSE:** As part of a conservation management system, a crop rotation is an essential practice for all land where agricultural crops are grown to reduce erosion, maintain or improve soil organic matter, manage the balance of plant nutrients, improve water use efficiency, manage saline seeps, manage plant pests (weeds, insect, and diseases), provide food for domestic livestock, and provide food and cover for wildlife.

**CONSERVATION MANAGEMENT SYSTEM:** A conservation crop rotation is established as part of a conservation management system to address the soil, water, air, plant, animal, and human needs as related to the owner's goals and objectives. It is important to consider nutrient and pest management, crop residue management, agricultural waste utilization, and other supportive conservation practices when designing a crop rotation. A properly designed crop rotation can also provide substantial forage for livestock and improve soil health and the over all sustainability of the agricultural production system. A crop rotation is most effective in providing conservation benefits when used in combination with other agronomic or structural practices.

If crop residues are to be removed, or low residue crops are grown, protection against erosion may be provided by fall seeded small grain crops, cover crops, legumes, grasses, or the addition of residue or manure.

Crops should be planted whenever there is adequate soil moisture to prevent the development of high water tables. Fallow only when soil moisture is inadequate to produce a crop.\* Fallow may include chemical application or mechanical tillage, green manure crops, legume crops, or cover crops. Subsoil moisture should be monitored and fallow cover terminated so as to allow adequate subsoil moisture for the following year's crop. Grazing fallow cover may also be scheduled.

Perennial crops should be used to build and maintain soil quality. High organic matter levels are needed to maintain or improve infiltration rates, soil structure and tilth, and soil fertility. Practices that will maximize precipitation utilization and allow the most infiltration into the soil should be used.

When excess soil moisture exists beyond normal rooting depths, planting perennial crops such as grasses and alfalfa may be necessary for several years to reduce water tables and potential salinity problems.

**WILDLIFE:** Crop rotations can enhance wildlife objectives depending on the vegetative species used and management practiced. Consider using species that can provide food and cover for important wildlife.

**Specification MT328-B-2  
Flexible Cropping**

UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

MT-ECS-328B-2  
07/2002

**CROP DIVERSITY INDEX:**

Benchmark Index: \_\_\_\_\_

Planned Index: \_\_\_\_\_

**CROP ROTATION INTENSITY RATING:**

Benchmark Index: \_\_\_\_\_

Planned Index: \_\_\_\_\_

**FERTILIZER PLAN: (See FOTG, Section IV, Practice Specification 590–Nutrient Management)**

CROP ROTATION	PROJECTED YIELD	N	P	K	OTHER	APPLICATION DATE	APPLICATION METHOD
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Additional fertilizer information: \_\_\_\_\_  
\_\_\_\_\_

**WEED CONTROL PLAN: (See FOTG, Section IV, Practice Specification 595–Pest Management)**

Chemical or mechanical. Producer's plan for use of herbicides, rates, and application: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**DISEASES AND INSECT CONTROL: (See FOTG, Section IV, Practice Specification 595–Pest Management)**

Producers plans for disease or insect control if problems should occur: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Chemicals used in performing this practice must be federally, state and locally registered. They will be applied strictly in accordance with authorized registered uses, directions on the label, and other federal, state, and local regulations.

The crop rotation, in combination with other supporting practices, must include enough high residue producing crops to protect soil from erosion (planned to "T" or below). High residue crops include corn or sorghum for grain, small grains harvested for grain, alfalfa and grass cut for hay, winter cover crops, or the addition of manure (10 tons per acre is approximately equal to 20-30% residue).

**DECISION TO RECROP:** The two major factors in deciding to recrop in a flexible crop rotation are the annual available water and the stored subsoil moisture available determined just prior to planting. Approximately 9 inches of plant available water, at a minimum, is needed to produce a small grain crop. For every additional inch of plant available water 4-5 bushels per acre yield may be expected. Available water is stored soil moisture plus the potential growing season precipitation expected at the 70 percent probability level. The upper 4 feet of soil is used to calculate the stored soil moisture. It should be noted that this method assumes adequate weed control and adequate fertility levels to meet production goals.

\* If the yield potential, based on moisture conditions, is determined to be economically prohibitive, the decision to summer fallow may be appropriate. If the decision is made to fallow, measures must be implemented to ensure protection against soil erosion and utilization of excess soil moisture.

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Use the following calculations to determine when to **recrop**:

**Planting Spring Crops:**

\_\_\_\_\_ inches stored soil plant available water (measured in spring)  
+ \_\_\_\_\_ inches growing season precipitation – 70% probability  
\_\_\_\_\_ TOTAL inches plant-available water for growing season

**Planting Winter Crops:**

\_\_\_\_\_ inches stored soil plant available water (measured in fall)  
+ \_\_\_\_\_ inches average winter precipitation X adjustment factor  
+ \_\_\_\_\_ inches growing season precipitation - 70% probability  
\_\_\_\_\_ TOTAL inches plant-available water for growing season

**ATTACHED SPECIFICATIONS**

- |   |  |
|---|--|
| <input type="checkbox"/> 324–Chiseling and Subsoiling     | <input type="checkbox"/> 571–Soil Salinity Management  |
| <input type="checkbox"/> 329–Conservation Tillage System  | <input type="checkbox"/> 585–Contour Stripcropping     |
| <input type="checkbox"/> 340–Cover Crop                   | <input type="checkbox"/> 586–Stripcropping, Field      |
| <input type="checkbox"/> 344–Residue Management, Seasonal | <input type="checkbox"/> 589B–Cross Wind Stripcropping |
| <input type="checkbox"/> 392–Field Windbreaks             | <input type="checkbox"/> 609–Surface Roughening        |
| <input type="checkbox"/> 422A–Herbaceous Wind Barriers    | <input type="checkbox"/> 610–Toxic Salt Reduction      |
| <input type="checkbox"/> 449–Irrigation Water Management  | <input type="checkbox"/> 633–Waste Utilization         |

**APPROVALS:**

\_\_\_\_\_  
NRCS Conservationist

\_\_\_\_\_  
Job Approval Authority

\_\_\_\_\_  
Date

\_\_\_\_\_  
Producer

\_\_\_\_\_  
Date

**INSTALLATION CHECK:**

I hereby certify that this practice has been installed in accordance with NRCS standards and specifications.

\_\_\_\_\_  
NRCS or NRCS Certified Crop Advisor

\_\_\_\_\_  
Date

**Specification MT328-B-4**  
**Flexible Cropping**

NO INFORMATION