

4.1.3 CROP RESIDUE MANAGEMENT AND CONSERVATION TILLAGE

A. Applicability

This BMP is applicable to irrigated crops and most agricultural producers using irrigation water. Conservation tillage in general is applicable to both irrigated and dryland farming and can be used to preserve soil moisture in areas where there is significant winter precipitation to allow conversion of irrigated land to dryland farming.

B. Description

This BMP includes tillage methods such as no till, strip till, mulch tillage, and ridge till. Residue management and conservation tillage allow for the management of the amount, orientation and distribution of crop and other plant residue on the soil surface year-round on crops grown where the entire field surface is tilled prior to planting. Conservation tillage improves the ability of the soil to hold moisture, reduces the amount of water that runs off the field, and reduces evaporation of water from the soil surface.

C. Implementation

The number, sequence and timing of tillage and planting operations and the selection of ground-engaging components shall be managed to achieve the planned amount, distribution and orientation of the residue after planting or at other essential time periods. Loose residue shall be uniformly distributed on the soil surface. Tillage implements shall be equipped to operate through plant residues to maintain residue on or near the soil surface by undercutting or mixing. Planting devices shall be equipped to plant in the distributed residue on the soil surface or mixed in the tillage layer.

D. Schedule

Residue management and conservation tillage may be practiced continuously throughout the crop sequence or may be managed as part of a residue management system that includes other tillage methods such as no till.

E. Scope

For furrow irrigation, crop residue in furrows can impede the flow of water down the field and cause problems with irrigation uniformity and application efficiency. Conservation tillage is more appropriate with some types of irrigation systems than others. For example, conservation tillage works well with low-pressure center pivot irrigation and subsurface drip irrigation.

F. Documentation

Establishment and operation of this practice shall be prepared for each field and recorded using jobs sheet, narrative statements in the conservation plan or other acceptable documentation.

G. Determination of Water Savings

The amount of water saved by conservation tillage will vary by climate and irrigation method. Increased spring soil moisture content resulting from conservation tillage may allow a farmer to conserve one or more irrigation applications per year (typically 0.25 to 0.50 acre-feet per acre). Reduction in soil moisture loss during the irrigation season may save an additional 0.5 acre-foot per acre.

H. Cost-Effectiveness Considerations

The cost of conservation tillage depends on the type of field operation used to manage crop residues. Some conservation tillage programs are less expensive than conventional tillage.

I. References for Additional Information

- 1) *Conservation Practice Standard for Residue Management, No Till/Strip Till (Acre)*, Code 329A, Natural Resources Conservation Service, March 1999.
- 2) *Conservation Practice Standard for Residue Management, Mulch Till (Acre)*, Code 329B, Natural Resources Conservation Service, March 1999.
- 3) *Conservation Practice Standard for Residue Management, Ridge Till (Acre)*, Code 329C, Natural Resources Conservation Service, November 2002.