



## Residue and Tillage Management Mulch Till (345)

Oregon Conservation Practice Job Sheet

September 2006



### What is Mulch-Till?

Mulch-till systems manage the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round while limiting the soil disturbing activities used to grow crops in systems where the entire field surface is tilled prior to planting. Residue is partially incorporated using chisels, sweeps, field cultivators or similar implements.

### Purposes

Mulch-till systems are designed to accomplish one or more of the following conservation purposes:

- Reduce sheet and rill erosion
- Reduce wind erosion
- Reduce soil particulate emissions
- Maintain or improve soil condition
- Increase plant available moisture
- Provide food and escape cover for wildlife

### Resource Management Systems

Mulch tillage is implemented as a component of a Resource Management System. Crop Rotation, Nutrient Management, Pest Management, various structural practices, and buffer practices are examples of companion practices to address resource concerns identified during the planning process.

### Practice Criteria

Practice criteria are provided to ensure that system components meet the resource needs and the producer's objectives. The specifications are based on the amount, timing, and orientation of crop residue left on the soil surface. These requirements are recorded in Table 1.

### Practice Criteria:

The following criteria for residue management (345) apply to all practice purposes:

- All residues shall be uniformly distributed over the entire field
- Residue shall not be burned

### Additional Criteria:

*Applicable to purposes identified during the planning process:*

#### Reduce erosion due to wind and water

Maintain the amount of surface residue and the level of soil disturbing operations needed for the average annual soil loss to be at or below the planned soil loss objective identified in the plan for the cropping system.

Current wind and water erosion prediction technology will be used to measure the impact of residue and soil disturbance on soil loss. Calculations will account for the effects of other practices in the management system.

#### Maintain or improve soil condition

The impact of the planned cropping system on soil condition will be measured using the current approved soil conditioning index (SCI). The SCI for the planned crop rotation system on specific field locations will result in a positive trend.

#### Reduce soil particulate emissions

Maintain the amount and orientation of surface residue and the amount of soil disturbing operations needed to reduce wind erosion to the Tolerable soil loss value (T) or lower. Effects of other practices in the management system will be included in the erosion estimates. The current, approved wind erosion prediction model will be used to estimate soil loss due to wind for the cropping system.



**Additional Specifications (continued):**

*Applicable to purposes identified during the planning process*

**Increase plant available moisture:**

Residue will be evenly distributed and maintained on the soil surface during the growing season or fallow period to retain soil moisture for crop use by enhancing infiltration, catching snow, and reducing evaporation.

A minimum of 2000 lb/ac or 60 percent surface residue cover is maintained throughout the year to significantly reduce evaporation from the Soil Surface.

Crop stubble height on fields when significant snowfall is expected to occur will be:

Crops with less than 15" row spacing will have a minimum stubble height of 10"

Crops with 15" or greater row spacing will have a minimum stubble height of 15"

These heights will be present over at least 50% of the field

Fall tillage operations will be done as close to perpendicular as possible to the direction of prevailing winds during the time that significant snowfall is expected to occur.

**Provide food and escape cover for wildlife**

The time of year that residue is present, the amount, the orientation and the stubble height needed to provide adequate food and cover for the target wildlife species are specified in Table 1. This information is based on Oregon Biology Technical Note No. 27, Wildlife Habitat Evaluation Guide Guide.

Harvest or tillage operations that disturb or cover the entire field will not be performed during the nesting and brood-rearing period of the target species.

**Record the planned purpose-specific practice specifications in Table 1.**

The considerations section in Residue and Tillage Management: Mulch Till practice standard (345) provides detailed discussion of additional activities and descriptions of their effects for successful implementation of the practice.

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<b>Producer:</b>			
<b>Planner/Field Office:</b>			
<b>Critical Seasons:</b>	<b>Evaporation:</b>	<b>Rainfall:</b>	<b>Snowfall:</b>
<b>Date:</b>		<b>Crop Year:</b>	

**Practice Purpose (check one or more that apply)**

1	Reduce sheet and rill erosion	5	Reduce soil particulate emissions
2	Reduce wind erosion	6	Increase plant available water
3	Maintain or improve soil condition	7	Provide food and escape cover for wildlife

**Table 1 Specifications (and application record)**

Tract	Field	Crop	SCI	Soil Loss (sheet / rill)	Soil Loss (wind)	Stubble Height	Wildlife Habitat Evaluation	Minimum Annual Residue	
								Lb/ac	% cover

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**Notes:**

Attach documentation of NRCS tools used to establish purpose-specific criteria values entered in Table 1. These include: Oregon Technical Note No. 27, current approved water and wind erosion prediction technology documentation, Soil Conditioning Index (SCI), and maps with field boundaries and soils used for planning.

**ADDITIONAL NOTES:**

**DESIGN APPROVAL:**

Practice Code NO.	PRACTICE	LEAD DISCIPLINE	CONTROLLING FACTOR	UNITS	JOB CLASS				
					I	II	III	IV	V
345	Residue and Tillage Management Mulch Till	BCSD-Agron	Area	Acres	160	320	640	All	All

This practice is classified as Job Class \_\_\_\_\_

Design Approved by:/s/ \_\_\_\_\_

Date: \_\_\_\_\_

Job title: \_\_

**CLIENTS ACKNOWLEDGEMENT STATEMENT:**

The Client acknowledges that:

- a. They have received a copy of the specification and understand the contents and requirements.
- b. The following information must be provided to NRCS by the client before this practice can be certified as applied:
  - Planting system used, previous crop grown, and planting date of current crop
  - After planting orientation of residue and estimated percent residue cover
- c. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by:/s/ \_\_\_\_\_ Date: \_\_\_\_\_

**CERTIFICATION:**

I have completed a review of the information provided by the client and certify this practice has been applied.

Certification by:/s/ \_\_\_\_\_ Date: \_\_

Job Title: \_\_\_\_\_