



**30% residue**

*Top - Spring field cultivation and planting*

*Bottom - One fall chiseling with straight shanks, a shallow disking in the spring, field cultivation and planting*

## What is Mulch-Till?

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

## Purposes

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

- ▶ Reduce water erosion
- ▶ Reduce wind erosion
- ▶ Maintain or increase soil organic matter and soil tilth
- ▶ Conserve soil moisture
- ▶ Provide food and escape cover for wildlife

## Secondary Benefits

- ▶ Water quality improves both onsite and offsite.
- ▶ Air quality improves both onsite and offsite.
- ▶ Sedimentation is reduced.

## Conservation Management Systems

Mulch tillage is normally used as a component of a conservation management system. It should be used in conjunction with Crop Rotation, Nutrient Management, Pest Management, the Buffer Practices, and other practices needed on a site-specific basis to address natural resource concerns and the landowner's objectives.

Major roles of the mulch-till component of a system include providing soil protection, reducing runoff, and improving soil tilth by allowing the soil to accumulate more organic matter.

## Practice Specifications

Practice specifications are provided to assure the mulch-till system meets the resource needs and 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 on Table 1.

## General Specifications

*applicable to all practice purposes*

- ▶ Residue to be retained on the field shall be uniformly distributed. Combines or other harvesting machines shall be equipped with spreaders capable of spreading residue over at least 80 percent of the combine header width.
- ▶ Secondary removal of crop residue by baling or grazing shall be limited to retain the amount of residue needed to achieve the intended purpose(s).
- ▶ Residue shall not be burned.
- ▶ Anhydrous injectors, manure injectors, and similar equipment may need to be modified to operate in high residue situations.
- ▶ Tillage implements, such as field cultivators, chisels, or similar tools, should be selected and operated to leave a specified amount of residue on the soil surface.
- ▶ Planting implements should be equipped with coulters and disk openers designed to cut through surface residue.
- ▶ Row cleaners may be attached to the planters to move residue out of the row area and help warm and dry the seedbed.

## Additional Specifications

*applicable to purposes identified during planning*

- ▶ Reduce erosion from wind and water, and improve water and air quality.
- ▶ The specified amount, timing, and orientation of residue will be in accordance with site-specific data recorded in Table 1.
- ▶ Current wind and water erosion technology will be used to establish minimum specifications.

## Maintain or increase soil organic matter content

Tillage aerates the soil and increase decomposition of organic matter. Mulch-till reduces tillage and leaves the necessary amount of residue on or near the soil surface for soil improvement. The required amounts of residue for soil protection are specified in Table 1.

## Conserve moisture

- ▶ Residue shall 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 and reducing evaporation. A minimum of 50 percent surface residue cover is required to significantly reduce surface evaporation.

## Provide food and cover for wildlife

- ▶ The amount of residue, height of stubble, and time requirements to meet the minimum needs of the target wildlife species are specified in Table 1. This information is based on a wildlife habitat index procedure.

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# Mulch-Till Design and Specification Worksheet

Landowner \_\_\_\_\_

<b>Farm #</b>	
<b>Tract #</b>	

Practice Purpose (check one or more that apply)			
1	Reduce water erosion		5 Improve wildlife habitat (food and cover)
2	Conserve soil moisture		6 Manage snow cover for plant available water
3	Improve soil condition		7 Other
4	Reduce wind erosion		

Table 1 Specifications and Application Record											
Tract/ Field	Crop to be planted	Previous Crop Residue	Orientation standing or flat	Height in inches	Critical seasons	Row width in inches	Percent row width disturbed	Pounds of residue		Percent residue cover	
								Planned / Applied		Planned / Applied	

**Notes:** If residue is managed for wildlife benefits, describe planned wildlife provision. Also use this space to describe row direction, grade restrictions, or other site-specific requirements.