



# Residue and Tillage Management

## Mulch Till

Alabama Guide Sheet No. AL345



### Definition

Residue Management--Mulch-till is managing 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 during the planting operation. Residue is partially incorporated using chisels, sweeps, field cultivators, or similar implements.

### Purpose

This practice is applied as a part of a conservation management system to support one or more of the following:

- Reduce sheet and rill erosion.
- Reduce wind erosion.
- Maintain or improve soil quality.
- Increase plant-available moisture.
- Reduce energy use.

### Conservation Management System

Residue and tillage management systems such as mulch-till are established as a part of a conservation management system consisting of structural and management practices to maintain the productivity and condition of the soil.

Crop rotation, cover crop, pest management, nutrient management, various structures, and buffer practices are used in resource management planning to address the natural resource concerns identified during the planning process. This practice applies to all cropland and other land where crops are grown.

### Specification

- Residue to be retained on the field shall be uniformly distributed. Combines or other harvesting machines

shall be equipped with spreaders capable of distributing residue over at least 80 percent of the combine header width.

- Residue shall not be burned
- Tillage implements shall be equipped to operate through plant residues without clogging, and to maintain residues on or near the soil surface by undercutting or mixing.
- Planters, drills, or air seeders shall be equipped to plant in residue distributed on the soil surface or mixed in the tillage layer.
- 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).
- A minimum of 30 percent of the soil surface shall be covered by plant residue immediately following the planting of the crop. (Additional crop residue is often needed to reduce soil erosion levels to the soil loss tolerance ("T") value, increase soil organic matter content, improve water quality, and to meet other resource objectives.
- Weed control techniques must be carefully planned, yet sufficiently flexible, to complement the system. Burndown herbicides applied at least two weeks prior to planting will kill the cover crop, weeds, and other vegetation that may compete with the crop and deplete the soil moisture. All pesticides used will be labeled for their intended use.

### Planning for Intended Purpose

#### All Purposes

Mulch-till may be practiced continuously throughout the crop sequence or may be managed as a part of a

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system that includes other tillage and planting methods such as no-till.

Production of adequate amounts of crop residues necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties in the rotation, cover crops, and adjustment of plant populations and row spacing.

Consider the need for other practices in conjunction with mulch-till during the planning process. For example, consider the need for grassed waterways and/or terraces where erosion by concentrated flow is a problem.

Use of undercutting tools will enhance the accumulation of organic material in the surface layer.

### Reduce Sheet and Rill Erosion

In most cases at least 50 percent residue cover provides protection against sheet and rill erosion to acceptable levels. Contact your NRCS technician for help in estimating your percent cover at planting.

### Reduce Wind Erosion/Reduce Soil Particulate Emissions

Maintaining residue cover during critical periods of growing season can reduce crop damage caused by wind erosion. Partial removal of residue by means such as baling or grazing

shall be limited to retain the amount needed to reduce wind erosion damages.

### Maintain or Improve Soil Condition

The amount of residue needed to maintain or improve soil condition shall be determined using the current approved soil conditioning index procedure and shall result in a positive trend.. At least 50 percent residue cover is needed to sustain soil organic matter. Contact your NRCS technician for help in estimating your level of residue at planting.

### Increase Plant-Available Moisture

A 60 percent residue cover shall be maintained throughout the year. Residue shall be evenly distributed and maintained on the soil surface. Contact your NRCS technician for help in estimating your level of residue .

## References

Alabama NRCS Conservation Practice Standards:

Residue and Tillage Management, Mulch Till (Code 345)

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11/2012