

**Corn & Soybeans**

# **Crop Residue Management Guide**

- Can you pass the residue test?
- Learn to measure, picture crop residue levels
- Estimate residue remaining after tillage passes
- Twelve tips to more residue

United States  
Department of  
Agriculture

Soil Conservation  
Service



## Estimates of residue cover after machinery operations

Most tillage operations bury some crop residues. How much residue is buried depends primarily on the type of machine used, how it's used, and the type of residue it's used on.

The chart on these pages has been developed from research data. For each machine listed, the numbers to the right are the ranges of crop residue that you could expect to leave after one pass with that piece of equipment. The actual residue level can vary widely.

### Type of machine

Machinery listed is that commonly used with corn and soybeans. Machines that are designed to turn the soil over, throw soil, and till the entire machine width tend to bury the most residue.

### Tillage techniques

The person on the tractor seat can use a tillage tool to full advantage to leave crop residues on the soil surface. It's best to set equipment to work shallower, drive slower, and use tillage points that fracture the soil rather than turn or throw it.

Machine or operation	Percent Residue Left	
	Corn/Small Grain	Soybean
Over winter weathering	80-95	70-80
Moldboard plow	0-10	0-5
Paraplow/Paratill	80-90	65-75
V ripper/subsoiler	70-90	60-70
Chisel plows with:		
Sweeps	65-85	35-55
Straight chisel points	55-80	30-50
Twisted points	40-60	15-35
Coulter chisel plows with:		
Sweeps	60-80	30-60
Straight chisel points	50-70	25-45
Twisted points	35-55	10-30
Disk chisel plows:		
Sweeps	55-75	25-45
Straight chisel points	45-65	20-40
Twisted points	30-50	10-25
Disks:		
Offset light duty	45-55	30-40
Offset heavy duty	35-45	25-35
Tandem disk (as a secondary operation)	40-60	35-45
Tandem disk after harvest, before other tillage	80-90	50-60
Field cultivators as primary tillage operation:		
Duckfoot points	—	30-55
Sweeps or shovels 6-12"	—	50-70
Sweeps 12-20"	—	55-75

**Machine or operation**

	<b>Percent Residue Left</b>	
	<b>Corn/Small Grain</b>	<b>Soybean</b>

Field cultivators as secondary operation:

Duckfoot points	60-80	50-70
Sweeps or shovels 6-12"	75-85	60-75
Sweeps 12-20"	80-90	65-80

Finishing tools:

Soil finisher	45-65	30-50
Seedbed conditioner	75-95	50-70
Culti-mulcher	70-90	60-70
Harrows	70-90	65-85

Drills:

Hoe openers	50-80	40-60
Disk openers	80-90	60-80
No-till coulters	75-85	70-80
Cross slot openers	90-95	90-95

Planters:

Runner planters	85-95	80-90
Double disk opener planters	80-90	70-80
Sweeps or double row cleaning disks	60-80	40-60
Ridge-till planter	60-70	30-50

No-till planters with:

Offset double disk openers	90-95	85-95
Smooth coulters	90-95	85-95
Ripple coulters	85-90	80-90
Fluted coulters	80-85	70-80
2 or 3 fluted coulters	75-85	65-75

Anhydrous applicator

Knife-type fertilizer applicator

After Harvest\*

\* Begin calculations with residue remaining after harvest.

**Crop residue type**

Fragile crop residues such as soybean stubble are more easily buried than larger, coarse residues such as corn stalks. Fragile residues decompose more quickly, and may be blown away. Fragile residues are produced from most vegetables, peanuts, grapes, and small grains harvested with a rotary combine.

Examples of non-fragile residue are sorghum, tobacco, sunflowers, popcorn, wheat, oats and cotton.

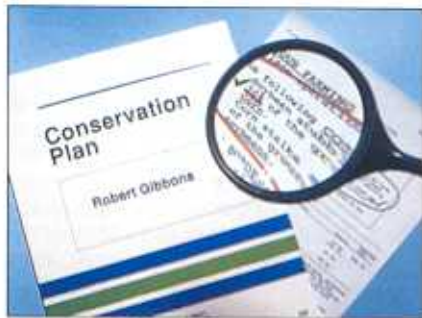
**Using the tillage chart**

Use the chart on the left to compare tillage implements for their ability to leave residues on the soil surface and to get a rough estimate of the percent residue you could expect to leave after planting from a specific tillage system. Multiply each of the machinery operations' numbers together. Choose from within the range listed.

Include the overwintering factor. As a general rule, use the higher number in northern states and the lower number in the South. Residue decomposes more quickly in warmer temperatures.

Here's an example of how to estimate ground cover after planting:  
 $.95$  (% cover after harvest) X  $.90$  (over-winter) X  $.60$  (spring chisel -straight points) X  $.80$  (field cultivate w/ sweeps) X  $.90$  (planting) =  $.37$  (times 100 equals 37% ground cover after planting.)

## Can you pass the residue test?



Do you know how much crop residue is called for in your conservation plan?



Does your tillage system allow for leaving that amount of residue?



Did you measure that percent ground cover after planting?

**If you answered “yes” to these questions  
YOU PASS!**