

MU Guide

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Estimating Residue: Line Transect Method

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Missouri producers have chosen conservation tillage as part of their conservation compliance plans. Conservation tillage means leaving 30 percent or more of the ground surface covered with residue – **measured immediately after planting.**

The line transect method is a quick and effective method to estimate the amount of residue present on the soil surface. All that is necessary is a 100-foot measuring tape. (See page 2 for options using 50-foot tape.)

The basic steps in determining the residue cover of a field by the line transect method are:

Step one:

Lay out the 100-foot tape measure across the crop rows at a 45-degree diagonal to the row direction (Figure 1). Both ends should be anchored in a row.

Step two:

Walk along the measuring tape and look straight down at each 1-foot mark. As you look down, always choose the same side of the tape, to be consistent.

Count the number of times that a piece of crop residue intersects the tape measure at the 1-foot mark. (Figure 1)

This will require some judgment calls. To decide whether the residue intersects the mark, ask yourself this: If a raindrop falls at this point on the tape, will it hit crop residue or bare soil? If you have any doubt whether the point intersects residue, or if the piece of residue looks too small to intercept a raindrop, don't count it.

Step three:

The total number of intersections you found equals the percentage of surface covered by residue. If 44 out of 100 foot-marks intersect residue, then you have 44 percent residue coverage in this area of the field.

Step four:

Repeat the measuring procedure five times in each field and average the results to arrive at an estimate of soil cover for the entire field.

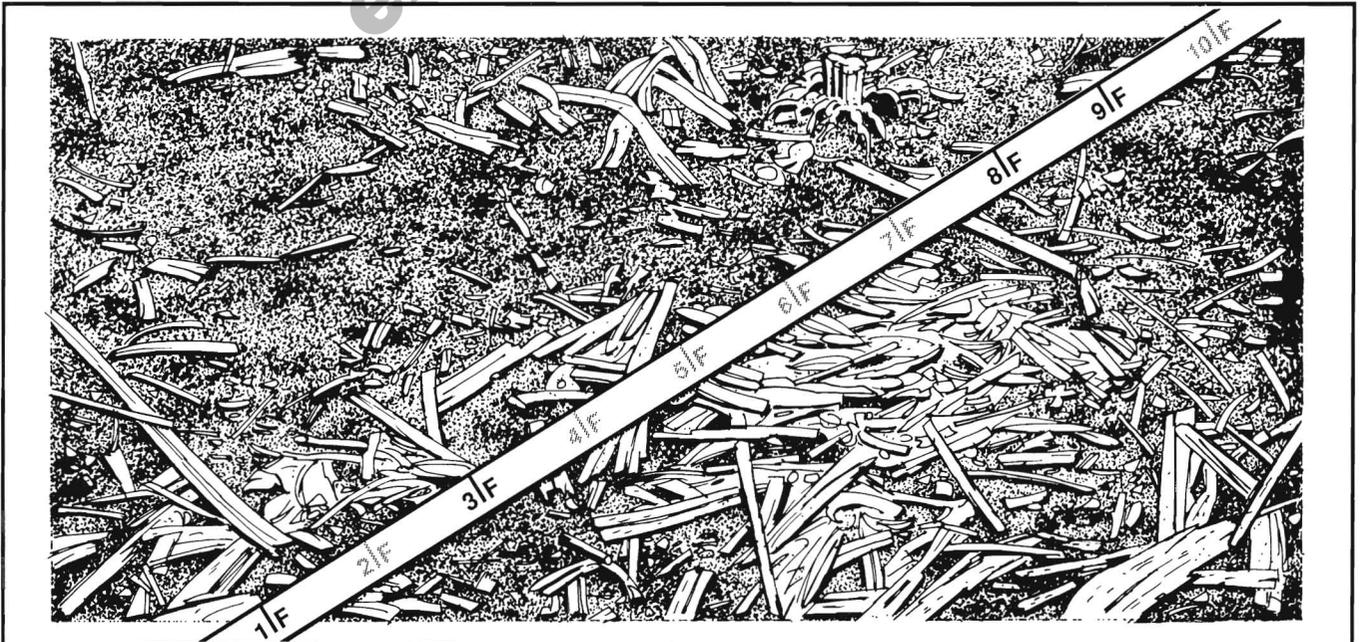


Figure 1. Lay out a 100-foot tape measure across crop rows at a 45-degree diagonal. Anchor both ends in a row. Look straight down at each 1-foot mark, always choosing the same side of the tape. Count the number of times that a piece of crop residue intersects the tape measure at one of the 1-foot marks. Example: the 1-, 3-, 8- and 9-foot markers above **HAVE** residue while the 2-, 4-, 5-, 6-, 7- and 10-foot markers **DO NOT** have residue.

Measurement options

If a 50-foot tape is used, there are two ways to calculate residue:

1. Count the times residue intersects each 6-inch interval.

2. If more or less than 100 points are counted, calculate percent residue by:

$$\% \text{ cover} = \left(\frac{\text{No. of points intersecting residue}}{\text{Total no. of points}} \right) \times 100$$

For example, if 12 out of a total of 50 points are intersected by residue:

$$\% \text{ cover} = \left(\frac{12}{50} \right) \times 100$$