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Measure your crop residue

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Abstract

By now, many producers have completed a great deal of this year's planting, and that means it is a good time to measure crop residues--the stems and stalks remaining from last year's crop. Last year's crop residue provides the most important cover for the soil during this critical time of year, shielding soil particles from erosion until crops can produce a protective canopy.

Keywords

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Disciplines

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INTEGRATED CROP MANAGEMENT

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By now, many producers have completed a great deal of this year's planting, and that means it is a good time to measure crop residues--the stems and stalks remaining from last year's crop. Last year's crop residue provides the most important cover for the soil during this critical time of year, shielding soil particles from erosion until crops can produce a protective canopy.

Knowing how to measure existing residue can give you a good idea of how well your soil is protected against erosion. And measuring residue as this year's crop emerges will help to ensure that you are implementing erosion prevention practices and in compliance with the objectives of your farm's conservation plan.

How much residue is enough at this time of year? For most soils, the higher the level of crop residue, the greater the benefits. But the consensus of most experts is that the most effective conservation tillage systems show at least 30 percent or more crop residue remaining after planting.

There are several methods for estimating residue. The most reliable is the line-transect method. The line-transect method involves counting the number of times a marked line intersects a piece of residue. To use this method, you need a 50-foot tape measure or rope or line with marks spaced at 6-inch intervals. Stretch the tape between two stakes placed diagonally at a 45° angle from the direction of the crop rows (be sure to exclude end rows from your sample). Walk along the tape and count the number of times the marks intersect a piece of residue. To guarantee accuracy, be sure to look from directly above the tape. When you are done, the number of counts can be converted directly to the percentage of crop residue remaining in that sample area. It is important to get a minimum of five measurements by using areas that are typical of the field that you are measuring. Then average the estimates to obtain the most accurate overall assessment.

Another method for estimating residues involves using a meter stick (or a yardstick with metric marks). Place the meter stick on the soil. Measure in centimeters the crop residue occurring along one edge of the meter stick, and total those measurements. For example, if the total residue occurring along the meter stick measures 35 centimeters, your percentage of residue remaining is 35 percent. Again, sample several areas of the field. Places where the measurements are taken can be determined randomly by throwing the meter stick over your shoulder.

The photo-comparison method can help you estimate your residue by comparing it with percentages in a photo that shows a known percentage of crop residue (see page 63). Be sure to look straight down when comparing the photos in your fields because your

perspective from an angle will be misleading. Again, repeat your estimates at several sites and average them to ensure that you are getting a reasonable estimate for the entire field.

The calculation method described in the May 3 ICM newsletter is a good way to estimate residue without going to the field. But because there are many variables, including weathering and individual tillage operations, it is less reliable and provides only a rough estimate. If you do not have the time to do an estimate on a field-by-field basis, a general estimate can be made by using the table from the May 3 ICM newsletter, page 50.

Finally, remember that planning residue cover begins in the fall as you harvest. Make certain that your combine is properly set to distribute residues evenly over the crop field. Residues are your only protection against fall, winter, and spring precipitation and potential erosion. Also, consider reducing the number of tillage passes because every tillage pass buries additional crop residue.

If you have any questions about measuring your crop residues, please feel free to call your local Soil and Water Conservation District office.

Below: Corn (left) and soybean (right) residue cover percentages (25, 50, 75, 90). The percentage of residue coverage increases from top to bottom for each crop in a column. Photos are courtesy of Nebraska Extension publication G95-1134-A, *Estimating Percent Residue Cover Using the Photo Comparison Method* [1] (D.P. Shelton and P.J. Jasa).



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[1] <http://www.ianr.unl.edu/pubs/fieldcrops/g1134.htm>

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