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Plan for 2002 residue before harvest

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Plan for 2002 residue before harvest

Abstract

Now, before harvest, is the best time to make plans for the 2002 crop season. One of the first things to plan for is crop residue coverage. Consider the following points before doing any harvesting or fieldwork. A blanket of crop residue is very effective in controlling soil erosion and should be part of your conservation plan. All crop residues (stalks, straw, chaff, and even the finest materials) stop rain splash, slow and trap runoff, and allow water infiltration.

Keywords

Agronomy, Agricultural and Biosystems Engineering

Disciplines

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Now, before harvest, is the best time to make plans for the 2002 crop season. One of the first things to plan for is crop residue coverage. Consider the following points before doing any harvesting or fieldwork.

Why plan for crop residue?

A blanket of crop residue is very effective in controlling soil erosion and should be part of your conservation plan. All crop residues (stalks, straw, chaff, and even the finest materials) stop rain splash, slow and trap runoff, and allow water infiltration. Plant residue also improves soil organic matter, which enhances soil physical and chemical properties such as soil tilth, aggregate stability, and cation exchange capacity.

For most Iowa soils, high residue levels translate into soil conservation and soil erosion benefits. Complete residue cover under no-till can dramatically reduce soil erosion compared with conventional tillage (see [Preventing soil erosion after spring rains \[1\]](#) and [Fall tillage and tillage equipment \[2\]](#), in the May 21 and August 20, 2001, ICM newsletters, respectively).

What to shoot for

Generally, effective conservation tillage practices should leave at least 30 percent crop residue after planting. Due to fall or spring tillage, other field operations (knifing in nitrogen or manure), and residue turning and decomposition, ending up with 30 percent crop residue after planting (especially after soybean harvest) requires very careful planning. Soil type, slope, and crop rotation greatly affect decisions about timing, intensity, and type of tillage to achieve the level of residue needed to protect the soil until next year's crop is up and growing.

How to hit the 30 percent target

There are tillage management systems in place that are designed to provide crop residue coverage. No-till, a tillage system where no disturbance of the soil occurs before planting, with the exception of injection of liquid manure or anhydrous ammonia, leaves nearly all available crop residue on the soil surface at planting time. Strip-tillage requires tilling only in narrow strips (6 to 8 inches in width) where next year's rows will be planted. Fertilizer such as phosphorus and potassium or anhydrous can be placed in the strips at the same time. This kind of tillage is mainly done during fall with seeds planted in the tilled strips in spring.

It all starts at the combine

An even distribution of crop residue while harvesting is critical. Concentrated crop residues can insulate the soil's surface from the sun, reduce seed to soil contact, and make it tougher to plant in the spring. Doing a good job of spreading chaff and stalks can minimize the amount of tillage needed to plant the crop next year.

Combine operators need to set up their equipment to evenly distribute residue. Large headers make the job tougher because they tend to concentrate material behind the machine. Refer to the operator's manual or talk to your dealer about getting the most even distribution possible from a machine.

Corn residue is usually heavy and most corn heads do a good job of chewing up the stalks and dropping them back in place. But the challenge is great in soybean, where essentially the whole plant goes through the combine. And fine materials from any crop can end up in a windrow behind the combine because they cannot be thrown as far (due to air drag). Consider redirecting or increasing airflow from the combine's chopper to spread light particles further.

Cut high or low?

Be aware of the height of the crop stubble left on the field. Crop stubble can protect the soil by limiting exposure to wind and water erosion through fall, winter, and early spring. Soybean needs to be cut near the ground to avoid grain loss, but operating the corn head higher leaves stubble and fewer stalks are run through the machine.

Get the Conservation Tillage handbook

Producers can also refer to Iowa State University Extension publication MWPS 45, *Conservation Tillage Systems and Management*, a 270-page handbook on conservation tillage systems. To get a copy, contact Iowa State University Extension Distribution Center, 119 Printing and Publications Building, Iowa State University, Ames, IA 50011, or call (515) 294-5247. The publication cost is \$15 plus shipping.

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[1] <http://www.ipm.iastate.edu/ipm/icm/2001/5-21-2001/preventeros.html>

[2] <http://www.ipm.iastate.edu/ipm/icm/2001/8-20-2001/falltillage.html>

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