

Recommendations for Managing Corn Residue at Harvest

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With good corn yields and increased plant material, some farmers are concerned about dealing with all the residue. Properly handling the residue at harvest is key to preparing for the next crop.

1. Process the residue with the cornhead. Corn stalks and leaves must be processed down through the snapping rolls at harvest to make no tilling into corn residue easier. Knife-to-knife or tapered snapping rolls are more aggressive to lacerate and crush the stalks. By getting the stalks broken open and down to the soil, they are exposed to microbes and weather conditions that will help speed decomposition. With *Bt* corn hybrids, new disease packages, and in-season fungicide applications, processing the stalks with the cornhead is even more important as there is less natural breakdown.

Too often, intermeshing snapping rolls don't let the corn stalks between them and generally have considerable wear at the beginning of the flutes, directly behind the intake screws. In addition, the stripper plates usually wear more at the same point, making it difficult to cleanly snap the ears. Since the stalks aren't processed through the rolls, they are left tall and leaning. While this catches more snowfall, it doesn't allow the stalks to decompose much before planting.

Numerous aftermarket snapping rolls are available to aid in processing residue. Many of them are tapered or a knife-to-knife design, such as those on most of the newer European corn heads being promoted to process residue. Usually, producers should avoid the chopping heads with the shredders underneath as they cost more, weigh more, and take more horsepower. In addition, the chopping corn heads process the residue too much, leaving it much more likely to blow around.

2. Leave some of the corn stalk standing at

harvest. A 12- to 18-inch tall corn stalk anchored and upright after harvest helps keep the residue in place, reducing residue movement by wind and water. It also catches snowfall and reduces wind erosion. The standing residue allows good air movement down to the soil surface, encouraging faster breakdown of the residue. Matted or flattened residue doesn't let the surface soil dry as



Run the combine cornhead about a foot high at harvest to get most of the residue down to the ground yet leave enough residue standing to keep it in place and to catch snowfall. Knife-to-knife snapping rolls (as on this cornhead) or tapered snapping rolls do a good job of processing the residue to make no tilling into corn residue easier.



When the cornhead is properly processing the residue, very little has to be spread out the back of the combine. Notice how little residue is coming out of this machine while harvesting 200+ bu/ac corn with a cornhead with tapered snapping rolls.

quickly and may delay planting in wet springs. Leaving taller stalks at harvest may create problems when catching on planters or fertilizer equipment the next spring.

3. Consider grazing the corn stalks or taking a strategic cutting to reduce residue levels and clean up volunteer corn. Some producers generate extra income by renting out the corn stalks for grazing or by harvesting the residue for feed or bedding. While this decreases the amount of residue, not all of the residue should be removed and it shouldn't be done every year. If mechanically removing residue, leave 8, 12, 16 or 24 rows standing every 48 rows to reduce wind erosion and trap snowfall. This may create some problems with planting since the soil and residue conditions will not be uniform.

A better plan would be to remove the residue from 24 rows and leave 24 rows standing; or another number of rows to fit multiple widths of the planter. In the spring, plant the strips in the field where the residue was removed first. Then stop and make adjustments on the planter to handle the residue and plant the rest of the field. Controlled traffic, ridge planting, light bars, or auto steer make planting in strips easier.

4. Realize the value of leaving residue in the field. Residue should be left in the field as it protects the soil to reduce erosion and conserve water, critical in dryland production. The residue mulch greatly reduces evaporation, saving three to five inches of water over the growing season.

The nutrients in the removed residue will need to be replaced with increased fertilizer rates. Estimates are that for every ton of corn grain produced, about one ton of stover is produced. With 200 bushel corn, there would be 11,200 pounds of corn grain, or 5.6 tons of grain, and about 5 tons of stover. Each ton of stover contains about 17 pounds of nitrogen, 4 pounds of phosphorus, and 50 pounds of potassium. If residue is removed, these nutrients need to be replaced. Removing too much residue over several years will lead to a decrease in organic matter as the carbon in the residue isn't being returned to the soil. (See "Selling Stover May Cost You More Than You Get" in the September 25, 2009 issue of *CropWatch*.)

5. Expand the use of cover crops. It sounds odd, but cover crops will add bio-diversity to help the corn residue break down. The humidity in the growing cover crop canopy helps decompose the residue after corn harvest and the growing cover crops feed the soil microbes. In addition, cover crops can help dry poorly drained soils to aid soil warming in the spring. The added roots help stabilize the soil and build soil structure. However, the cover crop must be controlled in a timely manner so that it doesn't dry out the soil or create too much additional residue.

6. Leave residue anchored and attached, standing upright. Shredding the stalks or fluffing the top layer of soil with a rotary harrow or similar tool may aid in residue decomposition, but it also detaches the residue or flattens it. The residue mat formed makes it more difficult for the soil surface to dry and may interfere with the planting process if it's not uniformly distributed or if it's too thick. In addition, if the residue is detached, it may plug up the planter or move with wind or water. Any residue that's standing upright doesn't have to be cut with the planter or fertilizer equipment and helps keep the wind and sun off the soil surface.