

THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Maximize Conservation Tillage Profitability With Effective Residue Management

It is common knowledge that reduced-tillage systems like strip-till and no-till are better for the environment. Reduced-tillage production agriculture techniques leave significant amounts of crop residue on the soil surface, protecting the soil from wind and water erosion and improving water permeation and soil tilth.

Reduced tillage systems have benefits in addition to soil conservation. Strip-till creates a loose, mellow soil which encourages rapid root development and allows quicker contact with bands of nutrients to jump-start yield potential. The balance of untouched residue helps retain soil moisture. No-till offers the same benefits of residue coverage and further reduction in required labor.



Strips created in the fall of the year

However, it was once difficult to match conventional tillage yields using reduced tillage. Excess residue on the surface means crops may not be able to effectively use nutrients. For this reason, in reduced-tillage operations, proper residue management is key to equaling conventional tillage yields and increasing profits.

Managing residue as a part of a reduced-tillage system is a long-term commitment, and growers need to use a systematic approach beginning at harvest and continuing on through the planting season. Properly managed residue means implementing the right equipment and techniques throughout the year.

Managing Residue Starts in the Fall

Spreading a consistent layer of residue at harvest is the right place to start. Full residue coverage can reduce soil erosion up to 98% by slowing and trapping runoff

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and allowing for better water infiltration.

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Growers may choose to cut residue to a manageable height or size residue after harvest with new vertical tillage attachment alternatives. If utilizing vertical tillage, it is imperative that residue be cut at one to two feet for maximum manageability. Doing so minimizes the potential for equipment and tire damage during field operation. Vertical tillage attachments can be used in the fall to lightly till the soil and incorporate and size residue, which facilitates residue decomposition

Residue Management Continues in the Spring

In the spring, to avoid hairpinning and achieve proper seed placement, residue must be moved before planting. Effective residue management procedures avoid engaging too much soil. Moving the soil as well as any herbicides that have been applied is clearly counterproductive. Incorrectly set residue managers' fingers will also create a trench in the seedbed, which allows erratic seed placement and leaves soil susceptible to heavy rain, which can carry away seeds, soil, fertilizer, and herbicides.



Planting in high residue conditions with Sharktooth® Wheels.

Managing Residue With the Right Techniques and Tools

Obtaining the desired percentage of residue removal is possible without disturbing the soil if the right residue management tool is chosen. A wide variety of residue managers with many different attachments are readily available. A properly set residue manager moves the residue without moving the soil, and planter gauge wheels will run on level ground for optimum seed placement.

When clearing residue, it is important to adjust the planter frame height and drawbar so that the planter unit closely follows the ground's contours. Set the downpressure spring so that the residue manager doesn't go too deep. If the residue managers' wheels stop turning from time to time, it means that they are set at the correct depth and you are not moving the soil. In finely tilled or soft soils in which the planter may lose flotation, make any additional adjustments needed to keep residue managers on top of the soil. Ground speed affects residue flow, so keep the planter moving fast enough to let the residue manager do its job.

For severing certain types of residue, a sharp cutting edge may be

required. The most extreme conditions require wheels that slice through the thickest residue while minimizing build-up and soil movement.

Managing Residue and Fertilizer Application

Precision fertilizer placement tools coupled with residue managers have helped to drive yields to new highs. Doubling up on fertilizer placement and residue management can be a huge time saver, especially in the fall when time for producers is scarce. The ideal tools for fall strip-till work together to build consistent berms and move just the right amount of residue without disturbing soil. Fertilizer should be placed in the root zone, ready and waiting for spring planting.



Residue management in Strip-Till.

The best system for fertilizer application in reduced-tillage is injection below the residue layer in the soil. Thin profile knives are the best equipment option to minimize soil disturbance. While most research supports applying knife-injected fertilizer in every row, some studies have shown alternate rows to be just as effective. For further savings and environmental benefits, explore this option.

Proper Residue Management Makes Reduced Tillage Profitable

Reduced-tillage practices are a solution producers should consider as equipment, labor, and fuel costs rise and cash rent increases. They are proven to save growers time and therefore money with fewer trips out to the field. Properly managed surface residue, coupled with the money saved with reduced-tillage practices, results in increased profits and matching yields.

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