

News Column
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Raise cutting height of wheat - benefits next crop

Farmers that have been cropping more intensively realize the importance of residue management to their overall success. Wheat residue is especially important to the success of a summer annual crop being planted the next spring. It has been shown that residue improves infiltration, reduces evaporation, reduces weed growth, and when standing retains snow.

Good residue management starts at harvest. Residue management at harvest should focus on two key objectives: leaving stubble standing at the maximum height possible and even distribution of the residue that must pass through the combine. “I realize this year that will be more of a challenge due to the dry conditions in early spring and thus a shorter than average wheat crop,” says Campbell.

Cutting wheat as high as possible with a grain platform or the use of a stripper header offers many benefits from both machinery management and agronomic perspectives. Increasing cutting height reduces the MOG (material other than grain) that must pass through the gathering, separation, and cleaning systems of a combine. Reducing MOG increases the clean grain capacity of the combine, improves separation efficiency, decreases specific fuel consumption, reduces straw-walker loss in conventional machines, and desensitizes the combine’s response to varying crop conditions. Use of a stripper header has been shown to increase field capacity by 15 – 49%. This is achieved by essentially eliminating the straw portion of MOG entering the combine.

A common perception among farmers using straight cut platforms is that too many heads are missed when wheat is cut tall. Data from eastern Colorado shows that by raising the cutting height translates into less than a 0.5% grain loss as lower heads typically yield significantly less than those closer to the average height.

It’s important to evenly distribute the crop residues leaving the combine regardless of which header design is used. This has become increasingly challenging as header widths continue to increase. Even distribution of the residue is essential for a variety of reasons. Improvements in evaporation suppression, increased infiltration, and improved weed control as a result of residue can be considered a typical diminishing returns situation. The largest gains happen as the first pounds of residue are applied to a bare soil condition and then diminish with each additional pound of residue until no further benefit can be seen. Poor residue distribution results in areas near the edges of the combine pass in a near bare soil condition while the area directly behind the combine may have more residue than is beneficial, and in some cases detrimental to successful no-till planting. In addition, the nutrients located within the chaff and straw are unevenly redistributed creating additional variability of nutrients within the field. **Cutting wheat shorter than**

necessary compounds these problems as residue becomes even more concentrated in a band directly behind the combine.

Effect of stubble height on post-wheat harvest evaporation in Decatur County, Kansas and Red Willow County Nebraska have shown that short cut stubble always had the highest amount of water loss followed by the tall cut and stripped stubble.

Measured snow depths and equivalent precipitation were significantly different among stubble heights of 4-8 inches, 10-14, and stripper stubble of 28 inches.

As Spock would say all of this sounds logical, but a farmer wants to know if it can translate into more bushels or gross revenue/income. Studies were conducted for multiple years at the Tribune research station evaluating the impact of stubble height on subsequent corn yields. When averaged over years the stubble heights have resulted in corn yields of 76, 73 and 62 bushels per acre for the stripped, high cut (cutter bar at 2/3 height), and low cut (cutter bar at 1/3 height) treatments.

Further research on the impact of stubble height on corn yields of a short season and long season hybrid planted across a range of populations. Both the stripped and tall cut stubble treatment yielded higher than the short cut stubble at all populations and exhibited a positive response to increasing plant population. The short cut stubble treatment resulted in a yield reduction of 16.2 bu. ac at the lowest population. This reduction grew larger as grain yields from the short cut stubble treatment declined further with increasing plant population.

The research also revealed in dry years, stubble height affects crop yields, sometimes quite dramatically. In years with optimal environments and plentiful growing season precipitation differences due to stubble height are small or indistinguishable. There has been no observation that taller stubble has had a negative effect on subsequent corn production.