Can residue be managed successfully with no-till?

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Abstract
No-till farming systems have both advantages and challenges concerning the management of crop residue. One of the biggest advantages of this system is that it leaves significant amounts of crop residue on the soil surface, which protects the soil from water erosion and improves soil tilth. Conversely, these significant amounts of residue pose a challenge of their own: How to manage residue as a part of a no-till system. To ensure the success of no-till, farmers need to use a system approach in the management of residue. This involves the integration of planting, nutrient application, and harvesting processes.

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Can residue be managed successfully with no-till?

by Mahdi Al-Kaisi, Department of Agronomy

N o-till farming systems have both advantages and challenges concerning the management of crop residue. One of the biggest advantages of this system is that it leaves significant amounts of crop residue on the soil surface, which protects the soil from water erosion and improves soil tilth. Conversely, these significant amounts of residue pose a challenge of their own: How to manage residue as a part of a no-till system. To ensure the success of no-till, farmers need to use a system approach in the management of residue. This involves the integration of planting, nutrient application, and harvesting processes. While each of these components is important, this article will focus on two ways to manage crop residue in a no-till system: (1) cutting residue after harvest and (2) adjusting the combine to ensure uniform height, volume, and distribution of residue during harvest.

Overcoming the challenges associated with managing crop residue during planting season starts at harvest time. The way residue is managed on the field after harvest is very critical to the success of providing a good soil seedbed environment for planting. Cutting residue at 12 inches or more will provide a better residue orientation for trapping snow and uniform distribution of it across the field. Many farmers have gotten into the habit of chopping corn stalks after harvest. This can present a significant management problem as well as other potential production problems that are associated

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The misconception about residue in no-till as an obstacle is widely used to avoid the adoption of no-till. The success of farmers who have been using no-till for many years shows that managing residue is possible and pays off economically and environmentally. Studies show that tilling corn residue prior to soybean planting did not improve soybean yield (see the April 3, 2006, ICM article, “Is tillage needed for your soybean crop?”). Removing residue for any purpose needs to be balanced with the potential impact that may take place—especially from water and soil quality perspectives. Although standing residue in the field is sometimes viewed negatively, it actually presents fewer problems for equipment or seedling establishment than chopped, detached residue.

The main idea is to look at no-till and residue management in a system approach by properly calibrating planting and harvesting equipment to achieve the intended results of no-till. Some producers approach no-till with the mindset to prove it does not work. Others approach no-till with the attitude that it can be done and they manage to achieve that. Despite the challenges faced with no-till, there are no shortcuts. No-till residue management should be executed in a system approach and given time to work, bearing in mind that it is a long-term commitment.

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**Insects and Mites**

**Bean leaf beetles return—with a vengeance**

by Jeffrey D. Bradshaw, Marlin E. Rice, and David Dorhout, Department of Entomology

We started detecting bean leaf beetles on April 19 this year as part of our annual bean leaf beetle monitoring program in central Iowa. As noted last week, bean leaf beetle mortality was predicted to be low, and based on last year’s low numbers, we expected a slight increase in their numbers this year. However, we were surprised by the numbers we have found this past week!

We are finding about 340 bean leaf beetles per 50 sweeps in alfalfa. This average is only 84 beetles less than the early-season high (in alfalfa) from 2002 (our most abundant year to date). With these numbers, some growers may exceed the early-season economic threshold for bean leaf beetle injury (see tables).

Palle Pedersen, extension soybean specialist, reported a 400-acre field near Grand Junction that averaged 3 beetles per seedling plant, so large populations can be found in Iowa this spring.

So what can farmers do now? Follow our current recommendations (see flowchart) for soybean management and choose the approach that best fits the end use of the soybeans (see graph).

**Delayed planting**

Planting from this date on could be considered as delayed, but planting in mid to late May still could yield near optimum yields without the beetle pressure. With high beetle pressure, late April and early May planting dates are at risk for sustaining large bean leaf beetle populations, pod damage, and poor seed quality.