

## **Fires Scorch No-Till Profits**

As a no-tiller, you know crop residue is crucial to the success of the system. It protects the soil against the forces of wind and water erosion, provides food for earthworms and microorganisms, and holds valuable nutrients.

Yet, it's hard to assign a monetary value to crop residue. Hopefully, you'll never have to. However, field fires are a regular occurrence for no-tillers, says Purdue University agronomist Pete Hill.

"It's a regular situation in spring," he told attendees at last winter's National No-Tillage Conference.

As the number of no-till acres increase, so do the number of fields at risk for fire, according to Hill. People who leave backyard-burning barrels unattended or by roadside ditch fires commonly cause the fires. It doesn't take much for a no-till field to go up in smoke, especially a cornfield.

"Residue is a tremendous fuel," Hill says, "especially in dry periods or when there's low relative humidity."

In the fall of 1995, which was very dry throughout the Midwest, there were 15 field fires reported in Hill's local newspaper during a 2-day period.

"That crop residue is worth a lot of money," he says. "Think about how it conserves the soil and improves the soil's physical properties. It really does have a dollar value, but we're at a stage where we just don't know enough about it so you see anywhere from \$30 to \$150 an acre being asked by farmers who file an insurance claim."

**125 Bushels On The Ground.** Hill gives the example of a fire started last fall in White County, Ind., that burned 800 acres and traveled nearly 7 miles before anybody got it under control.

"The dynamics of this fire were incredible," Hill says. "The corn husks burned back and could no longer support the weight of the ear. The ears dropped straight down to the ground."

"To say the farmer had to worry about volunteer weed control would be an understatement. There were over a million kernels per acre on the ground."

Hill explains that the sandy soil was so dry that the fire literally burned the corncobs from end to end and left little piles of kernels laying in the field. In situations where the fire left the soil completely bare, Hill says it's probably best just to leave the field alone rather than discing or plowing it.

"Burying it would probably promote volunteer corn," he says. "There were 125 bushels of corn on the ground and nothing else. Winds were gusting up to 40 mph and all the ash was blown off site. The farmer was left with the soil surface prone to wind erosion with absolutely no protection whatsoever."

**Left With Nothing.** What was the true impact of this field fire?

"First of all, the residue cover is gone," Hill explains. "You've lost your soil surface protection, organic matter and all the carbon in the organic matter has gone up in the atmosphere."

"You've most likely lost all the nitrogen in the residue. You may have lost all the potassium and phosphorus in the soil if you've lost the ash."

However, if the ash is still left on the surface, the phosphorus and potassium will actually become more available for plant growth, according to Hill.

"You've also lost the food source for earthworms and microorganisms," he adds. "When you remove their food source, it will impact them."

Weed control is also affected by a field fire.

"In almost every situation, there is always poor weed control," he says. "Whether herbicides were applied before or after the burn, it's almost always havoc as far as weed control."

**Managing Scorched Fields.** If a field burns up in the fall, Hill recommends getting it covered.

"Plant a cover crop that establishes quickly to get that organic matter replaced," he suggests.

"Or spread a straw-type manure on the surface to get that organic matter back and get the soil surface protected."

Crusting problems are also likely.

"Give me a heavy rainfall and a bare soil surface and I now have crusting problems," he explains. "That crust can get very thick and hard and seriously impact your stands and yield potential."

**File A Claim.** If you have a field fire, Hill recommends explaining to your insurance agency where you lost money.

"Talk about soil quality, reduced yields and the need for additional weed control," he says.

"I don't have a known economic value. You can replace the lost nutrients and that's fair to ask of your insurance people."

There are also short- and long-term effects on yields, says Hill, who recommends doing yield checks for 2 or 3 years after the fire to monitor what's happening in the system.

Hill adds that in the short term, the corn yield may actually increase. However, the long-term impact won't be good because the organic matter and nutrient cycle have been disturbed.

Most insurance companies will pay between \$30 and \$150 an acre for a no-till field fire claim, Hill says.

"Most are centered between a range of \$50 and \$80," he reports. "Filing an insurance claim is a wonderful thing. I applaud the farmer that is thinking of the true value of crop residue."

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