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Post-planting tillage: What are the options?

Abstract
After planting is finished, it's time to start thinking about possible post-planting tillage, such as cultivation and rotary hoeing. Even in a conservation tillage program, there are sound management reasons to consider tillage after planting, including weed control and crust busting.

Keywords
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Post-planting tillage: What are the options?

After planting is finished, it's time to start thinking about possible post-planting tillage, such as cultivation and rotary hoeing. Even in a conservation tillage program, there are sound management reasons to consider tillage after planting, including weed control and crust busting.

Weed control

Producers should generally seek to minimize tillage and soil disturbance, but should not be expected to endure serious yield and income losses due to weed pressure. When weeds become a problem, post-planting tillage is an option or an alternative to simply applying another round of herbicide. The use of post-planting tillage has its place for controlling weeds, particularly in dry conditions, to minimize competition with crop for soil moisture.

Crust busting

Soil crusting is another significant problem, particularly with soils that have a minimum amount of residue cover. High-intensity rain breaks down soil aggregates into small particles. This breakdown causes the bare soil surface to seal, leading to potential surface runoff and when rapid drying occurs, a hard crust layer is formed on the soil surface (the top 2 inches).

Soil crusts that form above the seed can be a significant challenge for plants as they emerge. In addition, crust creates surface conditions that induce further surface runoff. Post-planting tillage can play an important role in improving both soil surface conditions and surface soil water intake if surface crusting has become a problem.

What are the risks of post-planting tillage?

There are disadvantages of post-planting tillage. Among them are the potential for increased soil erosion, soil compaction (when soils are wet), soil moisture loss when soils are dry, higher fuel bills, more time spent in the fields, and the risk of increased weed problems by pulling deeply buried weed seed to the surface where it can germinate. Also, post-planting tillage reduces crop residues, which are essential in combating soil erosion and maintaining soil moisture.

Post-planting tillage equipment

Rotary hoes offer good weed control both in-row and between rows when the crop is small,

and pose very little risk of compaction and only a limited disturbance of crop residue. Rotary hoeing is one of the best ways to abate soil crusting and enhance crop emergence.

When operating a rotary hoe, the risks are greater in soybean than in corn. Do not knock off the cotyledons (the first two small leaves to appear) in soybean. Corn is often less troublesome to hoe, but stop and make certain the stand is not damaged. Keep the tractor speed high--in the range of 8-10 miles per hour--and run with the rows. Driving over the top of seed (especially corn) after it's planted makes it more difficult for it to emerge.

Work at a shallow depth, just enough to flip the weeds out. To do a good job rotary hoeing, follow this general rule: stir the soil's surface and get weeds just as they emerge. (Look for weeds at the white root hair stage; it's probably too late for larger weeds.) Weather conditions can help the kill. Sun and wind are great for drying and killing exposed weed roots.

When the weeds are too big for the rotary hoe and the crop is tall enough, your best option becomes the row-crop cultivator. Operate it at a depth of 11/2 to 2 inches to destroy and invert weed roots. Keep it shallow to avoid bringing up additional weed seed. When the crop is tall enough, cultivation speeds of 7 miles per hour can help you cover more acres and are not detrimental to weed control.

Set the sweeps as close to the row as practical. A guidance system can help avoid operator fatigue. Focus on scraping the weeds up and out of the soil without disturbing the soil too deeply or turning residues under. For the best soil management, you need to maintain a residue cover until the crop canopy can close the rows. Once the crop canopy has shaded the soil and weed seed germination stops, your crop has gained the edge on weeds and is less vulnerable to competition for nutrients, sunlight, and water.

Make an informed choice

Although good soil conservation plans minimize tillage and manage crop residue, post-planting tillage is sometimes necessary. When properly implemented, post-planting tillage can help producers avoid excessive dependence on herbicides and can be an effective component of weed control.

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