Yetter FARM EQUIPMENT

Leading Edge

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Take Advantage of the Rotary Hoe

Heavy rains and weeds are no match for this versatile tool

Rotary hoeing can prevent costly replanting.

When heavy rains cause crusting on fields and prevent seeds from emerging, your choices are not limited to replanting or yield loss—you can also try the rotary hoe. This traditional tool offers a multitude of benefits for today's farmers, especially in conservation tillage and time-sensitive operations.

In addition to busting the crust, preventing the headache and expense of replanting, the rotary hoe can be used to facilitate soil warm-up, control weeds, and stop blowing sand.

Manage soil after rains

Heavy rains can lead to soil crusting, especially in soils with high silt content or conventionally tilled fields with little residue cover. Raindrops pack soil in a thick layer near the surface, and rapid drying cements this layer. Reduced oxygen supply to seeds and water infiltration interference follow, leading to poor emergence. Seeds struggling to push through this crust will continue to grow under the crust only until they run out of stored energy. The warmer the weather, the faster the seeds will emerge and the sooner the crust should be dealt with.

The decision to use a rotary hoe on crusted fields should be based on management, not emotion, according to Missy Bauer, a Farm Journal associate field agronomist.[1] The key question to answer is whether using a rotary hoe will save more plants than it kills. Bauer suggests setting up colored flags in a small area of the field—place one color next to each plant that has emerged and one color next to those still under the surface. If the number that have emerged or soon will emerge outweigh those under the surface that could benefit from the rotary hoe, using the rotary hoe would be counter-productive.

The timing of rotary hoe use is also key, notes Bauer. It should be done before too many plants emerge to be damaged and also before the ground gets too hard for the hoe to work. If you can crumple soil easily, and it leaves a trace of moisture in your hand, it's time to break out the rotary hoe. "When we think we need to use it, we should have done it yesterday," says Bauer.

A pass with a rotary hoe through fields affected by crusting is an efficient way to break up the soil around the seed and re-energize emergence as long as the pass is properly timed.

In soybeans or corn, the best style of rotary hoe for crust breaking is a spring-tooth with straight-set teeth. The goal should be only to crack the crust into small pieces, moving them slightly to allow air and light into underlying soil.

Rain can have a different negative impact in sandy soils. As soils dry after a rain and wind picks up, sand can be blown through the field, destroying the emerging crop. A quick pass with the rotary hoe creates divots to catch the sand and protect young plants.

Use the rotary hoe for weed control

In no-till operations, residue increases and so does time for weed germination. Populations of weeds in no-till shift: large-seeded, deep-rooted weeds decrease and small-seeded, shallow-rooted ones increase. These factors make no-till operations and rotary hoeing for weed control a good match.

Another situation appropriate for rotary hoeing occurs when the amount of rainfall is not sufficient to activate and incorporate certain herbicides. Rotary hoeing will incorporate some of the herbicide, activating it and controlling weeds before they emerge. This mechanical approach to weed management is a much less expensive solution than a second herbicide application.

Rotary hoeing for weed control should be done when weeds are in the "white stage"—before they become easily visible above ground. Normally this window occurs

within 5 to 14 days after planting, but timing depends on multiple factors such as when the last tillage pass occurred, seed properties, and weather. Determining the right time will require careful field scouting—dig into soil to gauge weed emergence progress and then hoe accordingly.

For optimum effectiveness when hoeing for weed control, enter the field to hoe during the hottest part of the day. Windy days are the best days to hoe—sun and wind speed the drying of uprooted weeds and ensure that they will not re-root. Avoid hoeing when the soil is damp since weeds are resilient and may be able to re-root in this weather.

Next planting season, keep the rotary hoe in mind for another use—to help dry spring soil. Rotary hoes do not flatten residue. Their shallow penetration redistributes residue, allowing warm air to penetrate, while preserving moisture in the seed zone.

Proper rotary hoe operation is key

The effectiveness of rotary hoeing depends largely upon the operator. When possible, drive in the same wheel tracks as your planter to reduce compaction, and operate the hoe at a shallow depth.

The rotary hoe works best when operated at the relatively high ground speed of 7 to 10 miles per hour. The speed of operation adds the benefit of quick response to seedling needs—days are not lost from the plant's growing cycle.

Rotary hoes can be operated at high speeds of 7 to 10 miles per hour.

In soybeans, extra care must be taken when hoeing. It's best to hoe soybeans in the afternoon when the emerging seedlings are limber and more flexible to prevent snapping off the plants. Check frequently while hoeing to ensure the cotyledons (the first two small leaves to appear) are not being knocked off.

The rotary hoe revival

Although a glance across the field after hoeing at high speeds may cause alarm, a return visit to the field in a week should reveal improved emergence, stronger stands, and fewer weeds. The rotary hoe can achieve results for today's producers even when conditions are not optimal. For crust busting, weed control, sand fighting, residue management, and pre-planting preparation, the modern rotary hoe is the answer.

Endnotes

[1] http://www.agweb.com/article/when_to_bust_the_crust_with_a_rotary_hoe/

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