THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Rotary Hoes to the Rescue

Inexpensive tool saves expensive replanting

When adverse conditions threaten crops, producers are bound to look for ways to improve emergence, control seed loss, and avoid replanting. Even in the ever-changing world of agriculture, traditional tools can offer solutions.

The rotary hoe is a traditional tool that has adapted well to today's conservation tillage and time- sensitive operations. This multipurpose hoe has become a must-have for many producers because it handles a range of tasks well. The rotary hoe has helped prevent the headache and expense of replanting of thousands of acres. This versatile tool can be used to save seed after a heavy rain, facilitate soil warm-up, control weeds, and stop blowing sand.

Keep Ground Cover Intact While Making Pre-Plant Preparations

Although typically utilized after planting, using a rotary hoe before planting has benefits—it has proven itself to be an excellent way to dry and warm up damp spring soils that would otherwise prevent

A rotary hoe can redistribute

no-till farmers from entering the field. residue, helping soil to warm-up and dry out.

Rotary hoe tines are designed for shallow action and gently flip soil without significantly disturbing residue. The lifting and redistributing is advantageous, allowing warm spring air to dry residue, warm soil, and advance the planting date.

Different from one-function tools like rotary harrows, rotary hoes do not flatten residue, which would make it harder for planter residue managers to operate effectively. The rotary hoe's shallow penetration also means moisture in the seed zone is preserved.

Manage Soil After Rains With the Rotary Hoe

Heavy rains can lead to soil crusting, especially in soils with high silt content or conventionally tilled fields. When raindrops impact soil, a thick layer forms. Rapid drying cements this layer; reduced oxygen supply to seed 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. Soybeans are less equipped to deal with crusted soil than corn.

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. Scout to determine when the crusted field's moisture level is just above capacity. Test by crumpling a handful of soil—it should require minimal pressure and leave a trace of moisture in your palm.

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.

Hoeing with the right moisture conditions will control seedling damage and compaction, but a small percentage of the seedlings could be lost (1 to 2% in corn, according to Iowa State University's Integrated Crop Management News). However, seedling loss is minimal compared to the negative impact of replanting due to failed emergence throughout the majority of the field, and rotary hoeing will have little long-term effect on plant stand or yield.

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.

This 60-foot rotary hoe is a time-saving solution.

The Right Rotary Hoe for the Job

Newer toolbar-style rotary hoes work well in min-till and no-till operations because they handle tougher residue situations. Most new rotary hoes have wheels spaced to encourage self-cleaning, and the staggering of each wheel assures maximum soil coverage.

Purchasing a used rotary hoe with worn teeth will negatively impact the tool's effectiveness because the spoon-bill at the end of each tooth is what engages the soil to break crusting.

Rotary hoes should be operated at the relatively high speed of 7 to 10 miles per hour.

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.
- Operate the hoe at a shallow depth.

- 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 being knocked off.
- Unlike other equipment, 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. Although a glance across the field after hoeing at this speed may cause alarm, a return visit to the field in a week should reveal improved emergence, stronger stands, and fewer weeds.
- To limit compaction, use a small tractor and consider removing any extra weights from the tires and tractor.

The Rotary Hoe Revival

The rotary hoe is a tool that will 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.

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