Weed Seed "Terminator" Designed For Deere Combines

By Jim Ruen, Contributing Editor

A new Seed Control Unit (SCU) from Redekop Mfg. reduces germination in weed seeds passing through Deere combines by 98 percent, according to Trevor Thiessen, Redekop Mfg. "We started working on this in 2015 after seeing what was happening in Australia with weed seed control systems. Our business partner is an engineer who designed a simpler, more efficient system."

What Redekop now offers is a weed seed "devitalization" system that doesn't require chopping, shearing or grinding the seed. Their research showed that when seeds are hit at least 4 times at high velocity, germination is reduced 98 percent.

Fully integrated with Redekop and Deere straw choppers, seeds and chaff are separated from the straw ahead of the chopper and directed to the SCU. They enter 2 side-by-side impact mills composed of a rotor and stator. The rotor includes 2 rings of round pins and center fan blades. The fan blades accelerate seed entering a mill against U-shaped stator elements.

The 2 impact mills spin in opposite directions, discharging material in the middle of the assembly and blasting it into the straw stream. This ensures the devitalized seeds, chaff and dust are well distributed in the field and away from the combine, reducing air filter maintenance and the risk of fire.

The side-by-side design involves mirror image components that are fully reversible. As they wear down on one side of the mill, they can be flipped, doubling their effective life and reducing costs.

The SCU drive is incorporated with the chopper driveline. This allows the SCU to be quickly disengaged when weed seed is not a concern. Internal guide walls in the chopper are folded back to allow chaff and straw into the chopper.

After multiple years of testing and refinement, the SCU has now been brought to market. However, Thiessen is quick to emphasize that it is not likely in its final form since they continue to run extensive field tests.

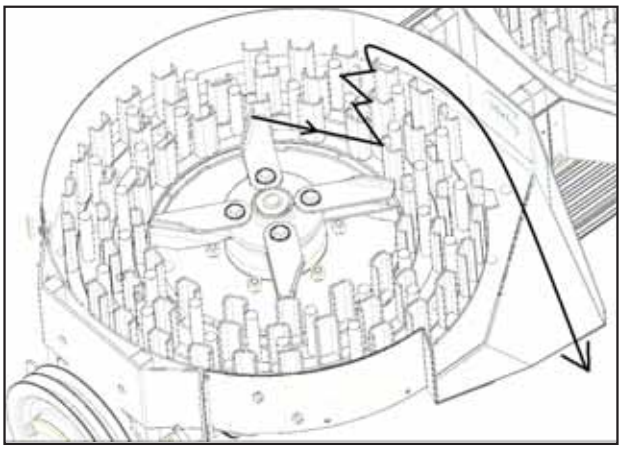
"We still have room to improve as we introduce the next generation," says Thiessen. "We are constantly trying to improve and make it more efficient."

Redekop is selling the SCU on the company's MAV straw choppers adapted for Deere combines, as well as on Deere straw choppers. The company plans to launch it for use on Case and other brand combines soon. It is also available as a retrofit kit for use with MAV and Deere straw choppers.

In June, Deere announced that SCU retrofit kits for 2017 and newer combines will be available from Deere dealers. Starting with the 2021 model year, Deere customers will be able to order the SCU as an option on new combines equipped with straw choppers. Redekop will continue offering the retrofit kit for older Deere combines equipped with straw choppers. In all cases, the SCU sensors and operations are fully integrated in the Deere terminals. No separate screen or controls are needed.

While the SCU is well-adapted to northern small grains, canola and beans, it is also being evaluated in corn-on-corn and corn/soybean rotations.

"The straw choppers can handle the residue of corn, but the increase in chopping headers mean there is less material coming out the back end of the combine," points out Thiessen. "However, volunteer corn is a problem and needs to be controlled. Whether that is enough of an economic benefit hasn't been fully tested."



Seeds and chaff enter 2 side-by-side impact mills composed of a rotor and stator. Center fan blades accelerate seed entering each mill against U-shaped stator elements (top). The 2 mills spin in opposite directions, discharging material into the straw stream.

Redekop is selling the MAV SCU for $75,000. The SCU alone for use with a Deere straw chopper is priced at $70,000. Thiessen estimates $5,000 to $7,000 in wear per year.

"The SCU has a high price tag," acknowledges Thiessen. "We are still not making the volume of units needed for efficient production to lower costs."

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Foam System Controls Weeds With Hot Water

As restrictions on chemical weed control become more and more strict, entrepreneurs are coming up with new ways to kill weeds. Foamstream is an herbicide-free solution, developed by Weedingtech in England, that controls unwanted vegetation, including weeds, moss and algae.

"We developed Foamstream to replace traditional herbicides such as glyphosate," says Leo de Montaignac, CEO of Weedingtech. "Our customer base has grown very favorably since we launched it in 2015 and we now have more than 400 machines working worldwide."

Foamstream is a patented low-pressure process that combines hot water with a biodegradable foam made from natural plant oils and sugars. The mixture is a 99.5 percent to 0.5 percent hot water to foam ratio. Hot water kills the plant matter, with the foam acting as a layer of insulation over the hot water to keep the heat working longer.

"The product was initially designed to control unwanted vegetation, but is now also being used for street cleaning and sanitization of public spaces. It's also being used in viticulture, small-scale agriculture and various forms of utility site maintenance. The foam is applied with an ergonomic wand so it's targeted and doesn't drift, which is common with most herbicide methods," de Montaignac says.

Foamstream can be used year around in all types of weather and on any surface. "It's been approved by all necessary accreditation bodies as non-toxic, organic and safe for use in any environment, including around people, animals and waterways," de Montaignac says. "Due to these safety credentials the operator isn't required to wear specialist protective clothing or carry out any ongoing certification or specialist training, saving organizations the usual costs attributed to using herbicides."

The Foamstream L12 is an entry level, operator-driven system offering a 3.2 gal./min flow rate. It can be mounted on pickup trucks, trailers and UTV's.

The Foamstream Municipal Range includes the M600 with a flow rate of 1.8 gal./min. It fits on vehicles similar to the L12 and is well-suited to smaller-scale jobs in noise-sensitive and harder to reach areas. The M1200 has a flow rate of 3.2 gal/min., which is ideal for control, cleaning and sanitization jobs in larger spaces. It has a computer-based diagnostic system to help ensure the operator is using the machine to its full potential.

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Foamstream combines hot water with a biodegradable foam applied by a wand. Hot water kills the plant matter, and the foam insulation keeps the heat working longer.

RootWave "Shocker" Boils Weeds

"The concept of electric weed zappers has been around since the early 1890's when railroads developed the idea. But they're catching on," says Andrew Diprose of RootWave. "The timing is right for this idea now because of chemical resistant weeds and more restrictive use of herbicides. Our product is ideal for organic food production and landscape management."

RootWave technology uses 5 to 10 kilovolts of electricity to efficiently kill targeted weeds. The company produces a handheld weeder for landscape and gardening professionals and is working on a tractor-powered machine for orchards and row crop producers.

"The best way to understand how our product works is to envision the weed and its roots as a light bulb," says Diprose. "When an electric shock is applied at the surface, RootWave's electricide technology turns energy into heat, boiling weeds from the inside out, from the roots up. This electric shock applied to the top and crown of the plant kills the weeds and they naturally decompose in the soil."

RootWave Pro is a hand held weeder powered by a generator that's easily hauled by compact utility vehicles to access difficult to reach locations. The current is applied to the growing weed through a hand held wand with on/off and variable power controls. Interchangeable electrodes size the wand for different weed species.

Diprose says RootWave is a sustainable, safe and chemical-free way to kill weeds that doesn't leave any chemical residue. The company is partnering with machinery manufacturer Steketee to produce a visual recognition system so their crop machine will automatically recognize and treat problem weeds in high value crops.

RootWave technology uses electricity to kill weeds. The company offers a handheld weeder and is working on a tractor-powered machine.

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