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Custom Pollination Used To Boost Row Crop Yields

PowerPollen application services from Accelerated Ag Technology are boosting seed corn yields by as much as 44 percent. The process was previously limited to high-value crops with longer lasting pollen, but PowerPollen has started bringing custom pollination to row crops.

"We have developed an efficient process to collect and then deliver corn pollen on demand," says Jason Cope, Accelerated Ag Technology co-founder. "Corn pollen typically dies within 30 min. of being shed. We collect and then refrigerate it, preserving mass amounts of pollen until the female corn plants are ready to be fertilized."

Currently PowerPollen services are targeted at seed corn producers and the companies they grow for. However, the company plans to bring their products to commodity producers in the near future.

"We hope to make our services available to commercial corn producers in the next 3 to 5 years," says Cope.

The goal is to reduce the potential impacts of heat, wind and rain on crop pollination, all of which can reduce yield significantly.

Likewise, any delay between the male's optimum pollen release date and the female's optimum silk receptivity can reduce kernel formation.

Benefits for seed corn producers include planting entire fields to the desired female line instead of a mix of male and female. This increases the yield per acre of the final cross. Precisely timed pollination increases yield per plant.

"Controlled pollination also allows crossing lines, even if both lines don't naturally pollinate at the same time," says Cope. "Seed companies now have the opportunity to introduce new hybrids by taking lines that previously couldn't cross pollinate."

Cope describes the ability to introduce male dominant traits carried through pollen, such as insect resistance, drought tolerance or oil content. "We can even make adjustments during season, depending on field conditions or the marketplace," he says.

Cope points to the current problems with ethanol production as an opportunity to adjust on the fly. While a producer might have



Precisely timed pollination increases yield per plant, says Cope. Photos show drought-impacted corn. Photo at left was not treated with PowerPollen while the corn on the right was treated.

planned to apply pollen that added value to the ethanol process, they could substitute different pollen. It might add value to another process or simply be higher yielding.

"If the area entered a long-term drought period, the preferred pollen might be more drought tolerant," says Cope. "Our process gives seed companies and their growers greater control and flexibility."

Cope, an engineer, and his geneticist co-founder Todd Krone, started PowerPollen out of a garage after brainstorming ways to reduce production risks and pitfalls.

"We are using a licensing approach with

our patented pollen protection system," says Cope. "We will share in their increased profitability per unit of ground. While we are still working on a formula for servicing farmers, I can't imagine it would be much different."

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Power Starter Fits Any Chainsaw

Recoil starters on chainsaws and other equipment can be difficult to use, but not if you do it Carman Fedele's way. He uses a power drill to start his chainsaw.

"I remove the recoil unit from the flywheel and attach a flange with a short length of notched pipe," explains Fedele. "The flange has 2 bolt holes that match holes in the original starter. A shank with a pin in the end matches the notches."

He points out that the notches angle away from the drive direction of the flywheel. To start his chainsaw, Fedele mounts the shank in a battery-powered drill and slips the pin into the notches.

"You have to hold the drill pretty solid, as there is pretty good resistance until the flywheel comes up to compression," says Fedele. "Once it does, the drill with the bolt and pin automatically kicks out."

The only other modification Fedele made on his Dolmar chainsaw was to drill an access hole in the plastic plate that once enclosed the recoil unit. It provides access for the notched pipe.

At age 83, Fedele doesn't use the chainsaw that much but when he does it's an easy start. This is one of many ideas he has had over the years to do things a better way (Vol. 39, No. 1).

"I have muscles in my shoulder that are giving me problems," he says. "When I have trouble sleeping, I think about ideas that will make it easier to do things like this."

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Fedele removes the recoil unit from chainsaw's flywheel and attaches a flange with a short notched pipe (above). Flange has 2 bolt holes that match holes in saw's starter. A shank with a pin in one end matches the notches. To start saw, he mounts shank in a cordless drill and slips pin into notches.





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