



Thinking outside the row

Corteva Agriscience Research Scientist Sara Lira is working on products that will help benefit farmers



Sara Lira spent 15 years of her career as a corn breeder and “that’s still how I describe myself,” she said. But about three years ago, her work turned in a slightly different direction, toward the sustainability efforts at Corteva Agriscience. Instead of focusing on row crops like corn, soybeans, cotton and sorghum, Lira began working in the area of cropping systems breeding, a catch-all term for what she calls “the other stuff” farmers can grow, including cover crops.

While Lira’s work has a long timeline (she estimates any new products she’s working on are about 10 years away from commercialization), cover crops are an area where many farmers have an interest and a need. In fact, Corteva’s research into cover crops was spurred by what R&D was hearing from the field. “Our sales and agronomy teams were telling us: Farmers are interested in cover crops,” she said. “They’re asking us to help them manage their cover crops and to sell them cover crop seed.” Lira said, “Farmers would like to have another crop to turn to, outside of row crops, something they can get premium prices for, like high-oil canola or white corn,” she noted. “Farmers want to diversify their income, so Corteva Agriscience has been thinking: What additional opportunities do we have to innovate and help farmers even more?”

Maximizing the whole year and the whole farm

For Lira, any new products developed — cover crops or otherwise — have to fit into the entire cropping system of a farm. “We’re thinking about the whole year, multiple years in a row, all the things that are part of a cropping system to see if we can pack more into the season,” she said.

“The foundation of my research is thinking about intensifying agriculture,” she explained. “In the Midwest, we say we have a growing season from mid-April to mid-October, but we have pretty warm days in other parts of the year. How can we use that time to grow more?” Lira refers to these times as “tails of the season” and noted that these may end up being ideal for overwintering cover crops like peas, canola or wheat.

Lira also looks at ways to maximize land use for planting. In her research, she’s asking, “What if you have empty ground during the season? What could you use in turnaround rows? How do you optimize the use of the ground on a farm?” Lira expects the answers to these questions will lead to more inter-cropping in the future, where there are two crops planted in the same field. Lira and her colleagues are also looking at how to maximize profitability beyond adding bushels. For example, a product that doesn’t necessarily yield more bushels but contains more protein in every grain could garner a premium on the market. “Through breeding, you can do magical things,” Lira said.

Cover crop considerations

Lira said the “holy grail” of cover crops would be something farmers can

harvest and market. Beyond cover crops just being something green on the field, "We're thinking about crops that could be used for protein, oil or anything that could be turned into fuel," she said.

While products like these are years off, Lira noted there are plenty of benefits to planting cover crops today. "Cover crops do a lot to build soil health in addition to sequestering carbon." Going no-till as much as possible will preserve the most carbon, Lira noted, which can pay gains with programs like the Corteva Carbon Initiative. She also acknowledged that getting started with cover crops can be daunting, and many farmers worry about the increased nitrogen input required in their first few seasons. "Eventually, that cover crop starts to break down and

contribute to nitrogen and you can back off or even use lower nitrogen rates, but it takes a couple of years to get acclimated," Lira said. "It's hard to know how much more to put on." She advised, "If you're starting with cover crops, lean on your agronomist, your sales rep, do soil testing and get some data for yourself. Your Corteva Agriscience team can help you with nitrogen recommendations and placement recommendations."

Keeping a farmer focus

Lira sees a lot of potential and enthusiasm for efforts like these that contribute to agricultural sustainability. "Farmers are willing to change if you give them options that make sense." Lira continued, "Both the growers and the researchers are willing and they're

excited about it. In the end, it comes down to what value we can bring to the grower?" Lira hopes that the market will increasingly reward farmers for more than the harvest they bring to market.

To help ensure Corteva continues to deliver innovations with growers in mind, Lira works with farmers to help guide research efforts. "That farmer connection is my favorite part of the job," Lira said. "I get to speak to farmers, they work with me on our research trials, and they help me at the end of the year by saying, 'That didn't work,' or 'That was great—do more of that!'" she said. "We love it when farmers want to try something with us. We value their input."

"The 'holy grail' would be a cover crop you can also harvest," Lira said.