

Growing Together

» 2Q | 2018

# thrive<sup>®</sup>

## Grow Strong

Solatenol<sup>®</sup> Fungicides,  
Teamwork Help Fight  
Costly Diseases

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EXPERT ADVICE  
HELPS GROWERS  
KEEP INSECTS  
IN CHECK

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DEMONSTRATION SITES  
SHARE LOCAL INSIGHTS,  
NEW TECHNOLOGIES



syngenta<sup>®</sup>



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ON THE COVER Grower Bryan Gover (left) and Syngenta Rep Matthew Wells (right) confer on the 2018 growing season at Gover's farm in Stanford, Kentucky. Photo: Tim Webb

This no-till field is nestled in a landscape of rolling hills near Stanford, Kentucky. Photo: Tim Webb



Even if you love your print edition of *Thrive*, you'll still want to check out the magazine's website. You'll find more content and links to important resources to help you succeed in today's marketplace. The online version also makes it easy to share specific articles with others.



Scan this QR code to take the fast track to the *Thrive* website, or go to [www.syngentathrive.com](http://www.syngentathrive.com).



**We welcome your story suggestions and comments about *Thrive*.**

Please send them to [thrive@syngenta.com](mailto:thrive@syngenta.com). For more information, visit the Syngenta U.S. website at [www.syngenta-us.com](http://www.syngenta-us.com), or call the Syngenta Customer Center at 1-866-SYNGENT(A) (796-4368).

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*Thrive* is produced quarterly for a nationwide agricultural audience. Its purposes are to update readers on Syngenta products, research, services and solutions, and to provide them with the information they need to succeed in today's complex marketplace.



# Customer-First

As the 2018 season gets underway, Syngenta stands with you to develop strategies that will help growers succeed.

Today, “customer-first” is not just a slogan for agribusinesses. It’s a necessity. Lower commodity prices and market volatility are pressuring growers to make hard choices about farming inputs. As a result, they need more of your time and expertise to help them discern the value of every purchase they make. Syngenta is poised to help by being a consistent, reliable partner for you. We’re committed to continue delivering exceptional products that clearly demonstrate a return on investment and contribute to a grower’s bottom line.

As this issue of *Thrive* reflects, the breadth and depth of our portfolio are positively impacting a wide variety of crops, including Trivapro<sup>®</sup> fungicide in corn, soybeans and wheat and Minecto<sup>®</sup> Pro insecticide in citrus, vegetables and potatoes.

But it’s our people who are bringing our brands to life. Whether they are collaborating in one of our state-of-the-art laboratories or riding with you in your truck, the men and women of Syngenta are engaged in meaningful discussions that go beyond a single product or pest. Our sales and agronomy teams in the field always welcome the opportunity to work directly with you and participate in as many conversations as it takes to make sure growers put the right product on the right acre at the right time. As you’ll see on the pages that follow, some of these conversations are taking place at our Grow More™ Experience sites—unique learning environments that enable you to see firsthand how our products perform under local growing conditions. Others may involve simpler, more direct talks in your office or at a grower’s kitchen table.

Regardless of the venue, our partnership with you is invaluable. We understand that placing our technologies on individual farms is possible because of you. You understand the limits of a one-size-fits-all approach and the benefits of tailoring solutions to meet each farm’s unique needs. You have the ability to transform a complex problem into a simple answer. And the respect it takes to inspire growers to listen.

You also have our respect—and support. As you work harder to service your customers, we, in turn, will work harder to serve you, by giving you the tools and information you need to thrive. Together, we can bring value to farms across the country—throughout 2018 and beyond. 🌱



LISA MORICLE

“We’re committed to continue delivering exceptional products that clearly demonstrate a return on investment and contribute to a grower’s bottom line.”

*Lisa Moricle*

**LISA MORICLE**

Head of Fungicides and Insecticides  
Product Marketing  
Syngenta, North America



**WATCH NEW VIDEO** For an in-depth interview with Lisa Moricle, check out the new video posted to the *Thrive* website ([www.syngentathrive.com](http://www.syngentathrive.com)).





# What's in Store

Stay up to date on new products, the latest news and the upcoming #RootedinAg contest.

## PRODUCT UPDATES

### Syngenta Soybean and Cotton Herbicides Cleared for Tank Mixes

Soybean and cotton growers will have more weed-management options in 2018, because the U.S. Environmental Protection Agency (EPA) recently cleared several Syngenta herbicide tank-mix options for inclusion with both XtendiMax® with VaporGrip® Technology and Engenia® herbicides. Syngenta herbicide tank-mix options\* will be available for use on Roundup Ready 2 Xtend® soybeans and Bollgard II® XtendFlex® cotton traits, once listed on [www.engeniatankmix.com](http://www.engeniatankmix.com) and [www.xtendimaxapplicationrequirements.com](http://www.xtendimaxapplicationrequirements.com), and will include the following products:

Boundary®  
BroadAxe® XC  
Caparol®  
Dual Magnum®  
Flexstar®  
(currently for XtendiMax only)  
Prefix®  
Reflex®  
Sequence®

"The Syngenta soybean and cotton portfolios provide the most effective dicamba spray programs through





AgriPro wheat varieties consistently rank in the top yield group in every crop region across North America.

overlapping residual applications and multiple effective sites of action,” says John Appel, herbicide product lead at Syngenta. “Unless dicamba is used responsibly in combination with other pre- and post-emergence herbicides, the technology will be overextended and eventually fail, and we can’t afford to put the kind of selection pressure on dicamba as was done to glyphosate.”

Syngenta herbicides cleared for tank mixing with XtendiMax and Engenia may be used only after they are listed on the following websites: [www.engeniatankmix.com](http://www.engeniatankmix.com) and [www.xtendimaxapplicationrequirements.com](http://www.xtendimaxapplicationrequirements.com). The listings will happen within 90 days of EPA clearance. Syngenta does not recommend using any dicamba herbicide tank mixes until they are posted on these websites.

For more information about the Syngenta herbicide portfolio, go to [www.syngenta-us.com/crop-protection/herbicides/products](http://www.syngenta-us.com/crop-protection/herbicides/products).

\*Check [www.xtendimaxapplicationrequirements.com](http://www.xtendimaxapplicationrequirements.com) and [www.engeniatankmix.com](http://www.engeniatankmix.com) for approved drift reduction agents.

## NEW PRODUCTS

### U.S. Senator Is Namesake for New AgriPro Wheat Variety

Syngenta and the Kansas Wheat Commission have announced a new AgriPro® brand wheat variety for the Central Plains, named in honor of Bob Dole, former state legislator and U.S. senator from the heartland. The Bob Dole variety will be available for fall planting, thanks to a public-private partnership between Syngenta and Kansas wheat farmers through the Kansas Wheat Commission and Kansas Wheat Alliance. Growers can expect excellent end-use quality, and a good grain and forage yield in central Kansas and Oklahoma. For more information on AgriPro wheat varieties, go to [www.agriproheat.com](http://www.agriproheat.com).

### New AgriPro Spring Wheat Variety

Syngenta has introduced a new AgriPro® brand wheat variety for the 2018 season. Specifically developed for the Western wheat acre, SY Rockford, a hard red spring variety, is a strong performer that handles drought and stress well, with very good foliar disease resistance and large leaves that cover rows quickly. SY Rockford is a medium-late maturity, semi-dwarf variety and is well-suited for the Northern Plains, including Montana and Western North Dakota. For more information, go to [www.agriproheat.com](http://www.agriproheat.com).





## NEWS AND EVENTS

### New Vegetable Seed E-Newsletter Now Available

Syngenta Vegetable Seeds is dedicated to supplying its customers and partners with innovative vegetable varieties. These varieties not only deliver the flavor, appeal and convenience today's value chain demands, but they also can help increase marketable yield for growers and give consumers access to nutritious, delicious produce year-round. To share important information about its latest vegetable seed offerings, Syngenta has launched Syngenta Variety Preview, a quarterly e-newsletter. To subscribe, visit [www.syngenta-us.com/vegetables](http://www.syngenta-us.com/vegetables).



### Join the FarmHer Journey

In 2013, Marji Guyler-Alaniz founded FarmHer to show through photographs and storytelling that women hold leading roles in agriculture. Today, FarmHer is not only changing the industry's image. It's also creating a community of women at the forefront of agriculture. People can get involved in this community through a variety of Syngenta-sponsored programs:

- > FarmHer designed "Grow by FarmHer" events to inspire, encourage and educate young women ages 16 to 22, with a goal of helping them pursue future careers in ag. These ongoing events take place in various cities across the U.S.
- > "I am FarmHer" is an annual, national event that brings together women in agriculture—both producers and other professionals—for an engaging, educational experience. FarmHer will hold the 2018 event in Kansas City, Missouri, June 25 to 27.
- > New television episodes of "FarmHer on RFD-TV" returned earlier this spring. Viewers can tune in to meet former #RootedinAg winners Shelby Watson-Hampton and Tori Streitmatter on May 4 and 11 respectively at 9:30 p.m. Eastern.

Go to [www.FarmHer.com](http://www.FarmHer.com) to register for an event. You also can find out more by visiting [www.syngentathrive.com/farmher](http://www.syngentathrive.com/farmher).

Top: Marji Guyler-Alaniz (far left) leads a "Find Your Passion" panel discussion at a FarmHer Grow event at North Carolina State University (NCU). The other panelists, each with their own FarmHer episode, were (from second left to right) Beth Tucker, Meredith Bernard and NCSU's April Shaeffer.

### IDENTIFY FIELD ISSUES WITH NEW TOOL

Syngenta has announced an addition to its Digital Agriculture Solutions suite of tools. In February, Syngenta acquired FarmShots, a leader in high-resolution satellite and drone imagery analysis. The available imagery will enhance scouting, saving time and increasing accuracy. More importantly, it will empower advisers and growers to take action in the field more quickly and confidently to improve yields, profits and efficiency.

FarmShots, available on all computers, tablets and smartphones, provides exportable data by a seamless integration into Land.db®, the software for growers enrolled in the AgriEdge Excelsior® whole-farm management program. Retailers and advisers will be able to customize FarmShots with unique imagery and insights to help build a trusting relationship with their grower customers.

"At Syngenta, we are committed to becoming the retailers' digital partner of choice to support growth and innovation in ag," says Andrew Fisher, digital ag solutions marketing manager. "The addition of FarmShots to our offering gives us another opportunity to demonstrate this commitment."



Contact your AgriEdge® specialist or Syngenta sales representative for more information.



Tori Streitmatter (left), the 2017 #RootedinAg contest winner, credits her dad Dave (right) with helping to firmly establish her agricultural roots. They pose for a photo on their farm in Sparland, Illinois, with Clutch the dog.



**ENTER TO WIN!**

## Honor Your Ag Mentor Through #RootedinAg Contest

A farmer's love of agriculture ignited the same passion in his daughter. A crop scientist's fervor to feed the world deeply touched a gifted young colleague. A teacher's keen perception prompted a future farm broadcaster to discover his voice.

People who have helped others establish enduring agricultural roots fill our industry. This spring, we at Syngenta want to hear about the person who most inspired you to become #RootedinAg. In exchange, you could honor that person by being one of five finalists whose stories are featured in *Thrive*. As a finalist, you'll also receive a mini touch-screen tablet. And if you're our grand prizewinner, we'll send you a \$500 gift card that you can share with your mentor. We'll also give you a chance to benefit others in your community, by donating \$1,000 in your name to a local charity or civic organization of your choice. Here's how to enter:

- 1** Go to [www.syngentathrive.com](http://www.syngentathrive.com) to review eligibility and fill out the brief #RootedinAg entry form online.
- 2** In about 200 words, describe the person **who most inspired you to be #RootedinAg.**
- 3** Using the simple instructions provided, **upload a photograph or video** that visually supports your written entry.

The deadline for entering is June 30, 2018. Shortly after this date, a panel of judges will choose five finalists. Syngenta will then post all finalists' entries on the *Thrive* website and ask visitors to help choose the grand prizewinner by voting for their favorite. These votes, along with the judges' scores, will determine the winner. Online voting ends Sept. 15, 2018, with Syngenta announcing the grand prizewinner the following month.

For more information on the contest and to read stories about others who are #RootedinAg, visit [www.syngentathrive.com/community](http://www.syngentathrive.com/community).

# Investing in the Future

Despite market uncertainties, Syngenta leaders are optimistic about the long-term prospects for agriculture.



**VERN HAWKINS**  
President of Syngenta Crop Protection, LLC  
Region Director, Syngenta North America

**Q. What are the greatest challenges and opportunities facing agriculture today?**

**A. David Hollinrake, president of Syngenta Seeds, LLC:** Hands down, the greatest challenge we currently face in agriculture is the overall economy.



“Bottom line, our customers can confidently count on the continuity of our people, products and strategy to help them navigate the market’s ups and downs.”

—VERN HAWKINS

Commodity supply exceeds demand; therefore, farm income is low. The primary goal of many growers has switched from optimizing their crop yields to achieving the greatest return on investment. Understandably, they evaluate every input decision through that lens, because minimizing loss may be the only way some growers can preserve their operations for another year.

In the long term, though, agriculture is a vital industry because people have to eat. By 2050, we’ll have about 2 billion more mouths to feed on roughly the same footprint we have today. That means growers will need to improve their farms’ productivity by 60 to 70 percent. For those in our industry who accept the role of converging

discoveries in biotechnology, breeding, chemistry and digitization to achieve greater success on the farm, the opportunity is massive.

**A. Vern Hawkins, president of Syngenta Crop Protection, LLC:** Unpredictable market dynamics continue to be a challenge for agriculture. Global trade agreements are somewhat in flux, creating more uncertainty for U.S. agriculture. Continued consolidation of major agrochemical and seed companies is another source of market disruption. “What are my supplier’s future strategies, and will someone new replace my trusted sales representative?” are questions many growers and resellers are asking themselves as this growing season gets underway.

Not surprisingly, agriculture’s greatest opportunity revolves around our responsibility to fulfill one of humanity’s most basic needs—food. Over the next few years, we’ll have the chance to improve food availability, quality and choice through an ever-growing toolbox of advanced technologies that the innovators of our industry are relentlessly pursuing.

**Q. How will Syngenta help growers and resellers manage the highs and lows?**

**A. Hollinrake:** Given today’s tough economic times, many of our competitors are trying to figure out ways to preserve their profitability through consolidation of



resources and contraction of investment. We're not doing that. We're looking at ways we can innovate to create a greater output for the long term. As a result, we're investing \$1.35 billion annually in research and development across our different businesses. Additionally, we're doubling down in the U.S. seeds business by investing another \$400 million over the next five years. Part of that investment will go toward acquiring more great talent in the areas of breeding, agronomy and other customer-facing positions. But ultimately, it's about adding new products to our already strong portfolio of genetics and traits, so that we can better help growers solve crop challenges.

**A. Hawkins:** The breadth and depth of the Syngenta portfolio backed by our experts in the lab and field are key. With return on investment being such a driver, we understand the importance of making the right recommendation on a given acre. That's why our local reps are always available to talk through practical crop solutions with individual reseller partners and growers. For additional support, we also offer our AgriEdge Excelsior® whole-farm management platform. It gives growers access to information about their operations that can help them make the best input decisions possible. Bottom line, our customers can confidently count on the continuity of our people, products and strategy to help them navigate the market's ups and downs.

**Q. Looking ahead, what excites you the most about agriculture?**

**A. Hollinrake:** Nothing excites and energizes me more than the new era of innovation that all of us in agriculture are experiencing together. Fueled by the need to grow more from less, the technological horsepower driving our scientists at Syngenta is powerful. New breakthroughs in seed breeding, such as gene editing, combined with our development of more targeted crop protection products, are already making a difference on farms. We're also fine-tuning our ability to connect an increasing number of digital devices, so that intelligent software systems can help map out an agronomic plan for every acre a grower plants. The nearly simultaneous arrival of these innovations is unleashing capabilities we didn't have just a few years ago. Together, their combined impact will enable growers around the world—no matter how large or small—to make step changes in their farms' productivity.

**A. Hawkins:** After more than 30 years in this business, I've never been more excited about the road ahead for agriculture and Syngenta. Yes, there will be a few bumps along the way, but we're living in an age of incredible scientific discovery that will lead to unprecedented yields. Better chemistries and seeds will help get us there, and so will our improved ability to use farm-level data to grow crops more efficiently, sustainably and transparently. Of course, partnerships built on genuine trust and mutual respect will be the engines that truly propel us forward. At Syngenta, we're committed to continuing our leadership in all these areas and look forward to sharing this exciting journey with each of our customers. 🌱

INTERVIEWS BY SUSAN FISHER



**“New breakthroughs in seed breeding, such as gene editing, combined with our development of more targeted crop protection products, are already making a difference on farms.”**

— DAVID HOLLINRAKE



**DAVID HOLLINRAKE**

President of Syngenta Seeds, LLC  
Region Director, Syngenta North America

Opposite page, inset photo: An aerial applicator sprays a cornfield. This page, inset photo: Syngenta researchers at the Seedcare Institute in Stanton, Minnesota, perfect the science of treating seed.

# Advantages of Scale

Public-private partnerships are an impactful approach to protecting natural resources.

Conserving natural resources is a never-ending goal—one that becomes even more important as the population grows and every use of soil, water and air comes under increased scrutiny. Because farmland occupies about 40 percent of the U.S., agriculture is essential to the conservation discussion. But with tens of thousands of individual farmers working that land, the question soon becomes: How can changes happen on a large scale?

Public-private collaborations are one answer. They bring together multiple players across a region to finance and implement conservation efforts for the benefit of all parties.

## A Greater Impact

These collaborations help take conservation from smaller, farm-sized projects to larger, regional ones. “We need to move beyond a small-project basis, because you are talking about millions of individual actors in the system whose behavior we need to both enable and incentivize in order to change,” says Josette

Lewis, associate vice president of the Environmental Defense Fund. “Policy is an important scalable driver, as is the market.”

Currently, a major policy driver is the Regional Conservation Partnership Program (RCPP), a new program from the last farm bill for large-scale conservation efforts. It provides matching grants for funding from other public and private nonfederal sources. “RCPP is a signal from the federal government that this is a direction for conservation in farming,” says Jonathan Coppess, director of the University of Illinois’ Gardner Agricultural Policy Program. “This is the first big federal effort with a regional focus and a focus on private partnership.”

By requiring a match for federal contributions, RCPP stretches the government’s dollar. “That adds up to a lot of money, technical expertise and resources,” says Laura Peterson, head of federal government relations for Syngenta. “This approach can package different in-kind contributions to get the most conservation on the ground.”

The idea of public-private collaborations may be poised to gain some additional momentum. In late 2017, Peterson participated in a Farm Foundation Forum, which examined how public-private

collaboration might help achieve more comprehensive conservation results. One of the key goals of the forum was to promote better understanding of this kind of collaborative approach, so that it can be part of discussions surrounding the next farm bill.

Syngenta has been recently recognized for the company’s collaboration with farmers, Kellogg and The Nature Conservancy. (See “A Winning Team,” page 32.) The multiyear collaboration has been helping farmers demonstrate how conservation practices enhance natural resource management in Michigan’s Saginaw Bay region. “Society as a whole benefits from cleaner water and our ecosystems being valued, and we can help the farmer benefit financially,” Peterson says.

“We need to move beyond a small-project basis, because you are talking about millions of individual actors in the system whose behavior we need to both enable and incentivize in order to change.”

—JOSETTE LEWIS



Last year, the Farm Foundation held a discussion on public-private collaborations in conservation. From left, Laura Peterson, head of federal government relations for Syngenta; Constance Cullman, Farm Foundation president; Jonathan Coppess, president and CEO of American Farmland Trust; and Josette Lewis, associate vice president of the Environmental Defense Fund.



### Finding Funding and Synergy

Funding is a crucial element, but private partners also bring other resources to the table, Coppess says. “Companies like Syngenta have contacts and capabilities that do not exist in the federal agency. They bring a level of capability that stretches conservation even further, and they help reach the farmers.”

Private industry can also wield significant cultural influence, he adds. “If you see companies like Syngenta working on this issue and putting their dollars into it, that elevates the issue.”

Ideally, a unique synergy arises when diverse participants work toward a common goal, and that can help push the envelope in terms of outcomes, says John Piotti, president and CEO of American Farmland Trust. “When you have all these players, you have to be more disciplined and strive to have real results. Having that diversity of players ultimately leads to not only a more robust project, but also one where people hold each other accountable for outcomes.”

### Large-Project Challenges

By definition, these public-private projects aim to create positive economic and environmental results. “That, in essence, is what good conservation practices are about,” Piotti says. “You want to simultaneously do what’s right by the land and help everyone who is part of that value chain have the economic incentive to keep doing that.” But finding those areas of mutual benefit can sometimes present a challenge.

Because farmers usually have a large role in implementation, the conservation practices proposed must be workable for the participating operators. “They often can’t try something different without putting their existing operation in jeopardy,” Piotti says. “If they change a tilling system and their productivity goes down by 50 percent, they could go out of business.” In the successful projects he’s seen, the other partners minimize the farmer’s risk, and the farmer drives a lot of the project’s programming.

Measuring results can be another challenge—can the conservation benefit be assessed, and how soon? “With changes in farm practice, such as cover cropping, you get one shot a year, and it’s very weather dependent, so assessing it isn’t the same as a lab experiment. And then measuring some of the environmental factors, like nutrient loss, is difficult because it’s water and it’s moving,” Coppess says. The long time frame of collaborations is a challenge, too, but it is also a benefit: It can take time to build trust among collaborators and see the benefits, but the results can be lasting.

As is often true, these challenges also offer opportunities and provide a chance for agriculture to take the lead on conservation, Lewis adds. “With these public-private projects, farmers can become leaders in moving their community in a new direction,” she says. “They can help find a positive way forward.” 🌱 STORY BY SUZANNE BOPP



## LOOK OUT, PESTS. MINECTO PRO DOESN'T MISS.

Minecto® Pro insecticide delivers exceptional control of difficult-to-manage pests in your crops. With its premix formulation of two powerful modes of actions, Minecto Pro offers extended residual control of pests including psyllids, mites, whiteflies, thrips, beetles and worms. Minecto Pro is designed to protect specialty crops including citrus, tree nuts, pome and vegetables. When you have difficult-to-control pests in your crops, make sure your insecticide doesn't miss.

To learn how Minecto Pro can help protect your crops from pests, visit [SyngentaUS.com/MinectoPro](http://SyngentaUS.com/MinectoPro)

 **Minecto® Pro**

 syngenta®

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# Conserving Soil

The 2012 Census of Agriculture provides a snapshot of soil conservation in the U.S. While the methods vary, collectively these statistics show that agriculture is strongly committed to preserving one of its most valuable resources, the soil. Future public-private conservation projects (see “Advantages of Scale,” page 8) could offer expanded opportunities for large-scale soil conservation projects, while sharing the cost between all stakeholders, including growers and public and private sources.

*Illustration by Anton Egorov*



\* This does not include land in the U.S. Department of Agriculture's Conservation Reserve.

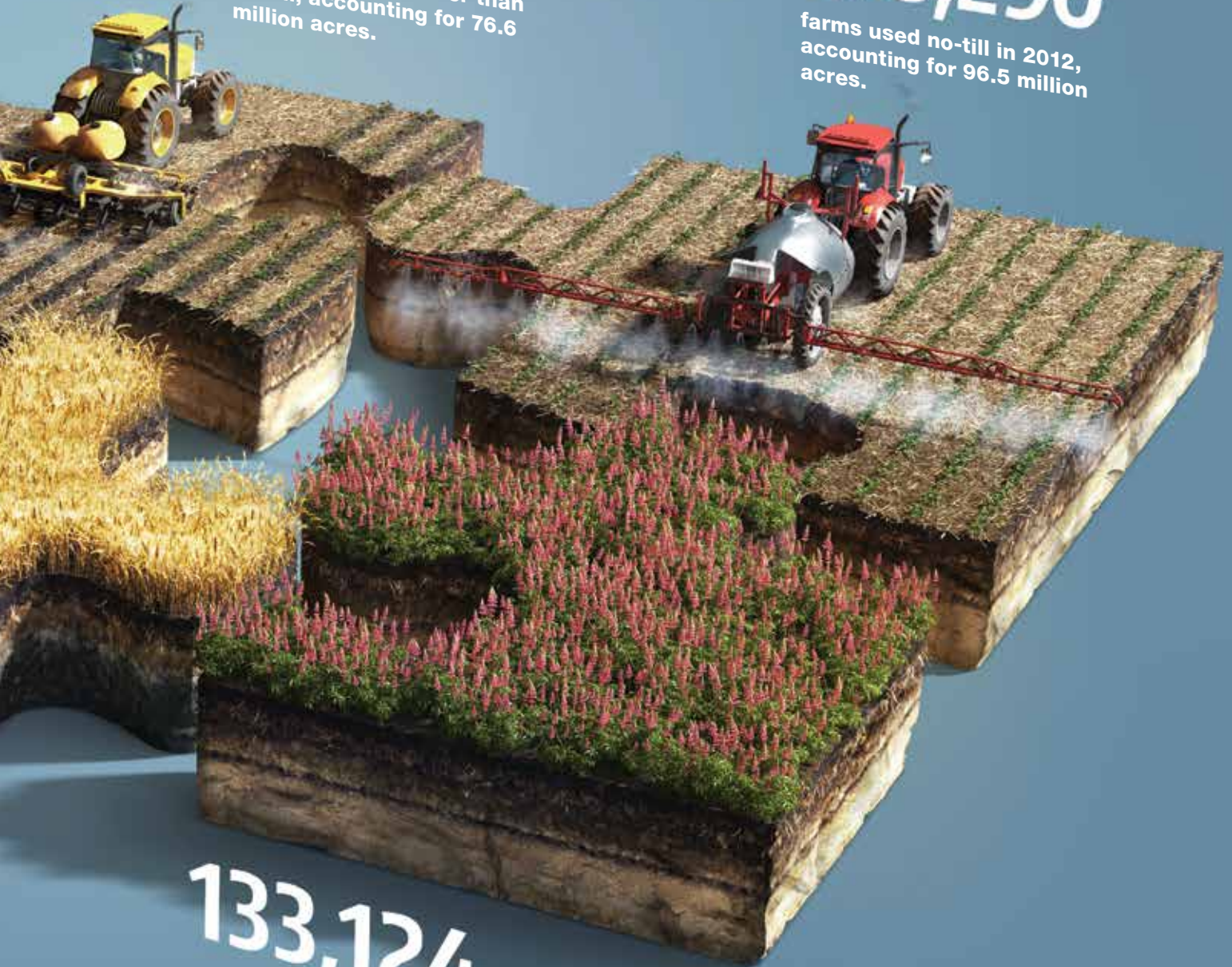


**195,738**

farms used conservation tillage practices other than no-till, accounting for 76.6 million acres.

**278,290**

farms used no-till in 2012, accounting for 96.5 million acres.



**133,124**

farms planted cover crops, accounting for 10.3 million acres.\*

# BEST DEFENSE

Solatenol fungicide pays off for growers with consistent, long-lasting protection.

By Darcy Maulsby

Left to right: Elatus fungicide helps control destructive diseases, including white mold in peanuts; harvesting disease-free peanuts at the end of the season is the ultimate goal for growers as they plant their 2018 crop.



**C**lay Sellers never underestimates the importance of controlling fungal diseases in his fields. He also demands results and sticks with solutions that work.

“White mold can be a big challenge around here in peanuts,” says Sellers, who raises peanuts, cotton, cabbage, green beans and cattle near Hartsfield, Georgia. “You need to protect the crop if you want to make the yield.”

Fortunately, Sellers’ crop consultant, Bubba Lambreth, recommended Elatus® fungicide from Syngenta, which is designed for peanut and potato production, for the 2016 growing season. The product contains Solatenol®, a powerful succinate dehydrogenase inhibitor (SDHI) fungicide. It also offers two modes of action and excellent rainfastness for broader, more consistent disease control. This all sounded promising to Sellers, who tried Elatus on a portion of his acres that year.

“I want a fungicide that controls problems before they get started,” says Sellers, who applied Elatus early in the spring of 2016. “We used it 35 days after planting, and Elatus absolutely stopped white mold in its tracks.”

With its long-lasting residual control, Elatus offered such a vast improvement that Sellers had no reservations using the fungicide again in 2017. “We went whole hog with it, because it protects your yield, which helps you make a profit,” he says.

## Trivapro Helps Corn Grower Reach New Yields

Consistent disease control is critical for maximizing both yield and return on investment (ROI) with any fungicide. “The economic environment is very challenging for a lot of growers right now, and they’re looking for a fungicide that can deliver that ROI year in and year out,” says Steve Eury, product marketing manager for fungicides at Syngenta. Eury points to Trivapro® fungicide, which contains Solatenol—the same robust, long-lasting chemistry in Elatus—to help control yield-robbing fungal diseases in corn, soybeans and wheat. “Growers have seen that Trivapro can provide a consistent yield increase, compared with the competition, across crops and across geographies.”

Caleb Ragland, a corn grower from LaRue County, Kentucky, gave Trivapro a try at the R1 stage of growth after planting in his area was delayed until June a couple of years ago, due to wet conditions. “Trivapro was an absolute home run,” says Ragland. “We had a 40- to 50-bushel difference





Left to right: Ricky Sloan with Helena Agri-Enterprises, LLC, Syngenta Sales Rep Brent Harbour, grower Clay Sellers and Syngenta AgriEdge Specialist Max DeMott work together to help Sellers produce healthy peanuts on his farm in Hartsfield, Georgia.



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Left to right: Trivapro fungicide is becoming a staple for grower Bryan Gover of Stanford, Kentucky, because of its effectiveness against southern rust in his corn acreage; the power of Trivapro is evident in this image of treated (left) and untreated (right) corn leaves.

**“When Trivapro first came to the market in 2016, a lot of growers didn’t commit their whole field. When they saw the benefits by having the untreated check right next to the treated acres, the results spoke for themselves.”**

—ERIC TEDFORD

across the board where we applied Trivapro, versus our untreated acreage.”

These results prompted Ragland to apply Trivapro on all his corn acres in 2017. “We’re in a yield environment we’d never reached before,” he says. “Our farm average was above 230 bushels an acre for our whole farm. Trivapro played a big part, and I believe it’s the best product offered in the industry right now, hands down.”

### Long-Lasting Effectiveness

Seeing is believing, says Eric Tedford, Ph.D., technical product lead for fungicides at Syngenta. “When Trivapro first came to the market in 2016, a lot of growers didn’t commit their whole field. When they saw the benefits by having the untreated check right next to the treated acres, the results spoke for themselves.”

Corn trials from 2016 and 2017 across the country continued to support these results. When Trivapro was applied at the critical R1 growth stage, it produced an 18.5-bushel-per-acre increase, on average, compared with untreated acres.\* Overall, 79 percent of field trials showed a positive return on investment for acres treated with Trivapro.

Trivapro controls gray leaf spot, northern corn leaf blight, southern rust, common rust, northern corn leaf spot, southern corn leaf spot, anthracnose leaf blight, eye spot and a host of other fungal diseases. “Trivapro contains three active ingredients that all provide broad-spectrum control of many diseases and improve plant health,” Tedford says.

Along with a strobilurin (a preventive fungicide) and a triazole (a curative fungicide that shuts down existing fungal lesions and

keeps them from spreading), Trivapro includes Solatenol, which took 15 years and millions of dollars of research to bring to market. While Solatenol is part of the carboxamide fungicide family, which first debuted decades ago, Syngenta researchers

found new ways to optimize this existing chemistry for longer-lasting, more powerful control.

“Discoveries of new modes of action are rare,” says Craig Austin, Ph.D., an agronomic service representative at Syngenta. “Since there’s only about one new mode of action discovered every 10 years or so, it’s important to find ways to deliver greater potency and persistence with these chemistries.”

Solatenol in Trivapro is 10 times more potent than the next most effective SDHI fungicide available today, Tedford notes. Solatenol has a strong affinity to the receptor site of the pathogen, which translates into higher potency and disease control. Solatenol kills the fungus by inhibiting respiration. “It essentially starves the fungus,” says James Hadden, Ph.D., technical product lead for fungicides at Syngenta.

Solatenol also has an affinity for the waxy lipid layer (cuticle) on plant leaves. This prevents the fungicide from being metabolized rapidly, allowing Trivapro to work harder and longer. “It doesn’t punch out early like the competition,” Eury says.

Long-lasting effectiveness is especially important for controlling rust diseases, which rip open the plant’s cuticle and allow fungal spores to spread. “This causes the plant to die down instead of dry down,” Tedford says. “By preventing damage, plants stay green longer, allowing them to continue using the sun’s energy through photosynthesis and to better recognize their genetic yield potential.”

This contributes to other benefits that go beyond higher yield potential. Tedford shares the example of gray leaf spot in corn.





“Under extremely high disease pressure, the leaves can be severely compromised by lesions and almost look like they have been shot by a machine gun. Each lesion or bullet hole marks a place where the nutrient and water delivery train in the plant has derailed. With the plant’s ability to photosynthesize compromised, the plant will start digesting starch in the stalk to feed the nutrient sink ear.”

By controlling this destructive process, Trivapro contributes to improved stalk strength and harvestability. “When you minimize lodging, our studies have found that you can combine 1.7 miles per hour faster in treated corn versus untreated corn,” Tedford says. “That equates to a \$16-per-acre advantage to the grower from harvest efficiency and less volunteer corn competing with next year’s crop.”

This resonates with Bryan Gover, a corn grower from Stanford, Kentucky. When southern rust was prevalent in his area in 2016, Trivapro delivered a 20-bushel yield advantage. It also helped protect stalk strength.

“We’ve had standability issues in the past, because sometimes our harvest goes late into the fall,” Gover says. “We applied Trivapro fungicide on all of our corn acres in 2017 and saw much better standability.”

### Proven Results Provide Peace of Mind

Consistent results from modern SDHI mode of action fungicides like Trivapro and Elatus equate to confidence at many levels. “Long-lasting residual control offers growers peace of mind, even under heavy disease pressure,” Hadden says.

The assurance of good standability, along with improved plant health, is good insurance year in and year out, adds Ragland. “When it comes to applying a fungicide like Trivapro, it’s just sound economics,” he says. “It’s something we include in our budget at the start of every year.” 🌱

\*Based on 138 nonreplicated trials in the U.S. in 2016 to 2017.

## FIGHT RESISTANCE AND FUNGUS AT THE SAME TIME

Potency and persistence are invaluable traits for a fungicide, whether it’s designed for row crops, fruits or vegetables. Aprovia® and Aprovia® Top fungicides from Syngenta not only offer strong levels of protection. They also help growers manage resistance challenges, too.

“If you overuse one mode of action, you’re begging for resistance,” says Craig Austin, Ph.D., an agronomic service representative for Syngenta.

Aprovia and Aprovia Top fungicides from Syngenta, which help control fungal diseases in a wide range of specialty and vegetable crops, contain Solatenol, the most potent SDHI fungicide on the market.

“There’s zero tolerance for apple scab in fresh-market apples, and Aprovia is a game-changer,” says Austin, who adds that Aprovia also controls powdery mildew and cedar apple rust. “Solatenol is the warhead that’s incredibly potent and persistent in Aprovia, which you apply at bloom to get your crop off to a good start.”

Aprovia Top combines two different modes of action, including Solatenol and difenconazole, one of the best triazole chemistries available, says James Hadden, Ph.D., technical product lead for fungicides at Syngenta. “Aprovia Top is an effective resistance-management tool, plus it gives a one-two punch to fungal diseases like gummy stem blight, which can be devastating in watermelon production.”

Last year’s weather in certain regions across the country tested the strength of crop disease-control programs, Austin notes. “Growers who struggled with wet conditions in many areas in 2017 saw the value of fungicides,” Austin says. “The Syngenta portfolio of fungicides allows retailers and growers to mix and match the best solutions for their needs while managing for resistance.”



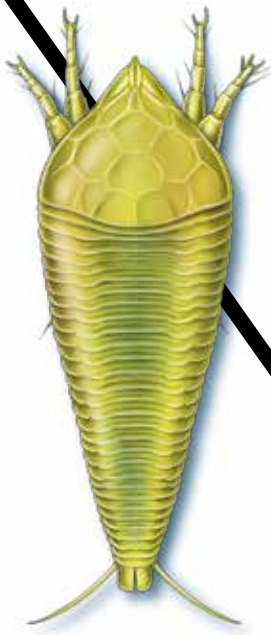
These images demonstrate the effectiveness of Aprovia on apple scab.

INSIDE

*Soybean aphid*



INSIDE



*Citrus rust mite*



# ELECT

*Soybean looper*



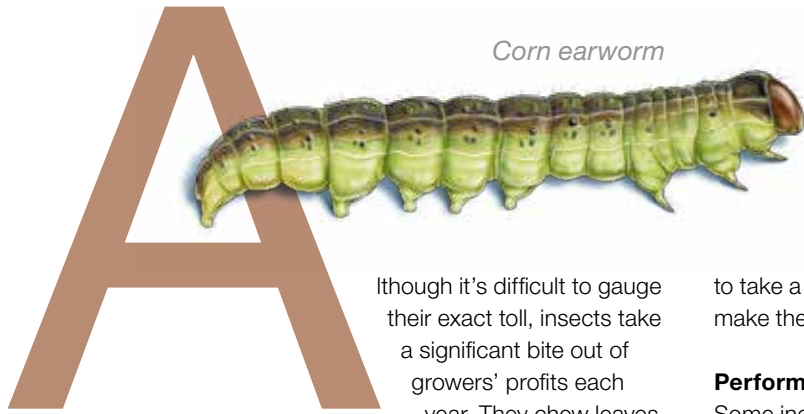
# RIGHTS



*Potato psyllid*

Knowing which insects to look out for—and how to combat them—can give growers the upper hand in defending their fields.

By Daniel Vivencio | Illustrations by Alison Schroeer



Corn earworm

bore into plants, suck out juices and spread pathogens across millions of U.S. crop acres.

Although it's difficult to gauge their exact toll, insects take a significant bite out of growers' profits each year. They chew leaves, bore into plants, suck out juices and spread pathogens across millions of U.S. crop acres. As the 2018 season gets underway, many growers are asking, "Which insects have the greatest potential to negatively impact my bottom line?" Experts share their predictions, along with some of the key factors to consider when developing management strategies.

### 2018 Watch List

Meade McDonald has spent most of his 23-year career in agriculture seeing the damage insects can cause to crops. As a Syngenta insecticide product lead, he confers with growers, resellers and university entomologists across the country each year about the causes of and solutions for these pervasive threats.

"When it comes to insects and the vast number of crops they affect each year, the numbers can be pretty overwhelming," McDonald says. "That's why Syngenta literally takes a 'seeing is believing' approach. By getting out in the field and talking directly with PCAs, retailers, growers and other ag professionals, we are much better equipped to not only understand the problems, but to also develop the best solutions for each farm."

Based on his experiences, McDonald says these are the pests, by crop, that may cause growers the most concern this year:

- > **Corn:** Corn rootworm (CRW)
- > **Soybeans:** Soybean looper and soybean aphids
- > **Cotton:** Cotton bollworm
- > **Citrus:** Citrus rust mites, citrus leafminers, Asian citrus psyllid and citrus thrips
- > **Vegetables:** Diamondback moth, armyworms, melonworms, cabbage loopers, whiteflies and thrips
- > **Potatoes:** Colorado potato beetles and potato psyllids
- > **Tree nuts:** Navel orangeworm, peach twig borer, spider mites and codling moth

McDonald notes that knowing which pests are the greatest threats is just the first step in the journey to protecting crops against them. Obviously, an insecticide can play a huge role in guarding crops against insect pressure and damage. But to choose the right product and develop the best insect-management strategy for their crops, he says growers need

“All my corn acres w problems. We put it

to take a close look at field history and consider other factors that make their challenges unique.

### Performance Under Pressure

Some indicators suggest that pressure for certain insects could be greater in 2018 than in recent years. One of those pests is corn rootworm.

"We've had low corn rootworm pressure for a few years now," McDonald says. "But last summer, adult beetle trap counts in western Corn Belt states, including Iowa and Nebraska, came back at their highest levels since 2012. That's an indication growers could see higher pressure from corn rootworm this year."

To aid growers in the fight against the "billion-dollar bug," Syngenta recently developed Force<sup>®</sup> Evo insecticide, an enhanced liquid formulation with superior CRW control. After testing the formulation in 2017, grower Mike Geurts from Marshall, Minnesota, says it's now part of his annual CRW-control program.

"All my corn acres were treated with Force last year, and I had no bug problems," Geurts says. "We put it on to avoid problems. That's why we use it."

John Koenig, Syngenta insecticide technical lead, says formulations, like Force Evo, are testaments to his company's dedication to working with growers. "Growers have been telling us for years that they want a high-performing liquid insecticide that is compatible with a broad range of starter fertilizers and is essentially hassle-free when applying," he says. "Force Evo has significantly improved cold tolerance and freeze-thaw performance. And we've yet to find a starter fertilizer it doesn't work with."

Neither has Laura, Illinois, grower Bob Wieland. "Normally, I had extreme difficulty getting the starter fertilizer to run through the applicator by itself," he says. "But the Force Evo formulation worked absolutely beautiful. It's just a must-use insecticide, there's no way around it."

### Resistance Management

As with weeds, insects are becoming resistant to certain chemistries, elevating the importance of both new mode-of-action discovery and comprehensive management strategies that will help preserve existing technologies. McDonald cites the Colorado potato beetle as a good example.

"For years, certain modes of action have offered effective control against Colorado potato beetle, but now don't offer the same levels of control, indicating some populations are developing resistance," he says. "Insecticides with new modes of action, such as Minecto Pro, offer great control of neonicotinoid-resistant Colorado potato beetle." Minecto<sup>®</sup> Pro insecticide



## ere treated with Force Evo last year, and I had no bug on to avoid problems. That's why we use it." —MIKE GEURTS

combines cyantraniliprole, a second-generation diamide, and abamectin, the global standard for mite control, into one convenient premix formulation.

"Relying on a single insecticide or a single class of chemically related insecticides as a sole method of keeping populations in check will eventually result in failure," McDonald notes. "That's why it's important to rotate products with different modes of action throughout the growing season. Minecto Pro gives growers another effective tool in their toolboxes."

### Longer Residual, Broader Spectrum

Determining exactly when insect outbreaks are going to occur during the season is far from an exact science. At the same time, protecting crops against multiple pest populations that overlap or occur simultaneously is critical. That's why applying a longer-residual, broader-spectrum insecticide is key, especially in vegetable and specialty crops, where visible pest damage can greatly reduce a grower's bottom line.

Beyond the Colorado potato beetle, Minecto Pro helps control a wide range of lepidopteran pests as well as difficult-to-control sucking insects and mites in potato, citrus, onion, pome fruit, tree nuts and vegetable crops.

"The complementary modes of action in Minecto Pro broaden its activity spectrum and strengthen performance, when compared with other stand-alone products," says Elijah Meck, technical product lead at Syngenta. "In many markets, newer products

typically target a narrow pest spectrum. However, we specifically formulated Minecto Pro to deliver robust rates of both active ingredients that together will provide superior control of a large number of lepidopteran and sucking insect pests as well as mites."

Florida citrus growers who used Minecto Pro in 2017 say they were surprised by just how well the product worked.

"We were impressed by the number of days it controlled mites, leafminers and psyllids," says grower Ned Hancock from Avon Park, Florida. "We really felt like we got a big bang for our buck. Also, the overall tree health was really impressive. It was something we heard about but didn't expect to see for ourselves."

### The Human Touch

Of course, choosing the right product to combat insects is just part of the solution. Growers also need hands-on service and expertise.

Partnering with area retailers, local Syngenta sales and agronomy team members provide growers with the recommendations they need to overcome specific pest threats. In addition, Syngenta has a global network of scientists working to bring new technologies to the field.

"Every year, we're experimenting with new formulations that offer improved performance, added convenience and better resistance management," McDonald says. "We're always listening to growers' concerns and looking for ways to make their lives a little easier." 🌱

## PEST PATROL CELEBRATES 10 YEARS

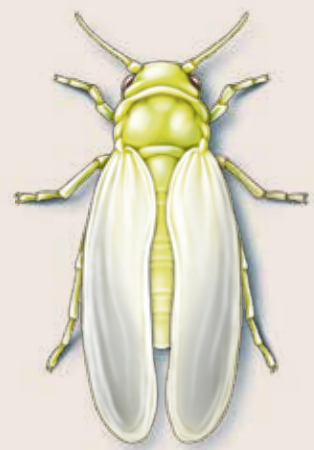
Even though growers know they'll be battling pests each season, they don't always know which ones will attack when. For 10 years, the Syngenta Pest Patrol program has given growers in the South advance warning and allowed them to focus on their fields, without fear of being caught unaware when threats arise.

Pest Patrol offers alerts on current pest threat levels, local area outbreak predictions, treatment recommendations and more from nearby university experts—all accessible via mobile devices and desktop computers. Phillip Roberts, Ph.D., an entomologist with the University of Georgia, says

the program is invaluable to growers in his state.

"This past year gave us a prime example of its benefits," he says. "We weren't expecting silverleaf whitefly to be too much of a problem on cotton. But after two mild winters, their population built up, and Pest Patrol allowed us to make growers aware of the developing problem."

Currently, the program is available in Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia. To sign up for Pest Patrol alerts, visit [www.syngenta-us.com/pest-patrol](http://www.syngenta-us.com/pest-patrol) and click on your state.



Whitefly

# GROWING



# PLACES



Brent Lackey, Syngenta product lead, discusses the benefits of Talinor® wheat herbicide with visitors at the Colfax, Washington, Grow More Experience site.



Grow More Experience sites combine the latest technologies with local agronomic expertise to help customers improve farm management. | By Rachel Mihulka

**A**s agriculture constantly evolves, growers, resellers and others in the industry may find it challenging to keep up with the latest innovations. Through cutting-edge research and local agronomic insights, the Grow More™ Experience sites address this challenge head-on.

Since their inception, these sites—managed by Syngenta agronomists and technical development leads—have acted as local laboratories for thousands of visitors, who have seen firsthand how Syngenta products can help maximize crop productivity. Heading into 2018, nearly 50 Grow More Experience sites, serving prime production areas from Washington to Florida, are maintaining this momentum.

### Research That Matters All Season Long

Research is the foundation of the Grow More Experience sites. Through trials and demonstrations featuring seeds, seed treatments, crop protection chemistries, cover crops and more, visitors have the unique opportunity to walk around, dig up proof and see the performance of plots featuring the Syngenta product portfolio, in comparison with competitor products and untreated crops.

Many of the early-season visitors are focused on seed performance.

“One of the first, most critical decisions growers make each season is seed selection,” says Bruce Battles, head of agronomy for Syngenta Seeds. “At the Grow More Experience sites, visitors view hybrids and varieties side-by-side to see how they perform

against each other. Growers don’t have to make their own investments to test different seed in their fields. We make that investment for them.”

Choosing how to keep the seed protected once it’s in the ground is also important, notes Jim McGill, a sales agronomist at Midwest Farmers Coop in Waverly, Nebraska. The trials he observed at the York, Nebraska, Grow More Experience site in 2017 reinforced this belief.

“Stand establishment is the basis of growers’ success for the whole year,” McGill says.

“For me, the soybean seed treatment trials were eye-opening, because they demonstrated how the right seed treatment can dramatically improve early-season vigor, disease protection and early stand establishment.”

Of course, the work and worry don’t stop for growers after they plant their seed. They rely on effective crop protection products for season-long plant vigor. As Grow More Experience site attendees visit the locations at different times throughout the season, the featured crop protection trials change to highlight the most important pest issues for the region at that time.

“That is what’s so valuable about the Grow More Experience sites,” says Jeff Laufenberg, Syngenta technical development lead. “Early in the season, visitors learn about seed and seed treatments. As they come back for events throughout the season, they can see crop protection trials, receive pest-management education and learn about innovative agronomic

best practices before harvest. No two events are the same, because the topics and technologies are constantly evolving.”

### Local Expertise

Because of the broad range of crops grown across the U.S., an even wider variety of potential pest issues are inevitable. Fortunately, local Syngenta agronomists know how to help mitigate these pest issues and help growers streamline production to maximize yield.

“Members of our agronomy team are rooted in agriculture,” says Mike Moss, Ph.D., Syngenta head, technical development. “Many grew up on farms, hold advanced degrees in agriculture and have experience managing farm operations. The agronomists not only have the training and education to help combat these pests, but they also have the hands-on knowledge to help growers improve farm performance.”

**FOR EVERY  
EMAIL  
ADDRESS,  
SYNGENTA  
WILL MAKE  
A DONATION**



➤➤ This summer, Syngenta is partnering with local chapters of the National FFA Organization (FFA) to help support the next generation of ag leaders. For every visitor who registers with a valid email address at one of the Grow More™ Experience sites, Syngenta will make a donation to that site’s local FFA chapter, with a maximum total donation across all sites of \$20,000.

“Each visitor to the Grow More Experience sites this year can make a difference in his or her community,” says Melissa Lord, Syngenta customer event and trade show lead. “These sites are designed as an educational experience, and we want to extend our support of agricultural education to local students, who are the future of agriculture.”

The National FFA Organization has been inspiring middle school and high school students to develop careers in agriculture for more than 90 years. To learn more about this Grow More Experience partnership, contact your Syngenta representative.



“As visitors come back for events throughout the season, they can see crop protection trials, receive pest-management education and learn about innovative agronomic best practices before harvest.”

—JEFF LAUFENBERG

Agronomists scout soybeans for pests, including this Japanese beetle spotted at the Kinston, North Carolina, Grow More Experience site.



SEE MORE PHOTOS.  
[www.syngentathrive.com/research](http://www.syngentathrive.com/research)



Their local expertise makes Grow More Experience sites valuable resources for visitors. Each year, Syngenta hosts internal training days for its agronomists, so they can stay up to date on the latest agronomic techniques and technologies. The agronomists, in turn, share these insights with their customers during events.

Jason Baumberger, a Crop Production Services lead in Moses Lake, Washington, says he appreciates the insights he gained from Syngenta agronomist Don Drader at the Ephrata, Washington, Grow More Experience site.

“Potato psyllids and aphids are a problem in our area, and Don is in tune with what’s going on in our region,” Baumberger says. “During the last few years, he has invited growers and consultants to the Ephrata site. He had us pull out the leaves and look at them to see how different product applications and agronomic practices help combat these pest problems.”

Each agronomist’s knowledge of his or her region’s pest issues helps visitors navigate these growing season challenges year after year.

### Business Impact

The Grow More Experience sites also aim to support local agribusinesses in the communities where they’re located. This means helping resellers become better resources for their growers by providing product recommendations and agronomic solutions that are backed by results.

“Growers can be very apprehensive about switching crop protection products,” Baumberger says. “The sites are a great

opportunity for us to bring growers out and look at the demonstrations together to develop a plan for using different products that can help boost crop performance on their farms. When growers see the results for themselves, it helps them overcome the apprehension of changing products.”

While the sites provide a platform to educate growers, they also provide hands-on training opportunities for resellers’ internal sales teams. McGill brought his sales staff to the York, Nebraska, Grow More Experience site because it offered a unique learning environment that encouraged participation.

“We’ve visited the site as a smaller group with our agronomy staff, rather than having three busloads of people there,” he explains. “When you’re in smaller groups at the site, you get to ask more questions, which provides a more personalized experience for our staff.”

### A Look at 2018

In 2018, the Grow More Experience sites will continue to invest in research, education and local businesses, with the ultimate goal of improving the agricultural communities they serve.

“I appreciate Syngenta making the investment in our local community and the individuals who are in agriculture,” Baumberger says. “When they invite me to a Grow More Experience event, it means something. Not a lot of companies do that anymore.”

For more information about the Grow More Experience sites, contact your Syngenta representative by visiting [www.syngenta-us.com/rep-finder](http://www.syngenta-us.com/rep-finder). 🍀

# On the Safe Side

Awareness of safety best practices helps save lives and prevent accidents.

**F**arming can be a dangerous profession. According to the National Safety Council, the agriculture, forestry, fishing and hunting sector topped the death rates chart in 2015 with 22.6 fatalities per 100,000 workers. In addition to this alarming mortality rate, farmers routinely encounter scores of potential health hazards, such as overexposure to sun and heat as well as injuries resulting from heavy lifting and operating farm machinery.

These statistics point to the critical need for all agriculture-related organizations to have a plan in place to educate employees about safety and emergency procedures.

## Committed to Safety

Syngenta sets an example in this area through programs aimed at protecting its employees and the workers who use its

products. “Safety for us starts at home with our employees,” says Scott Birchfield, a senior regional health, safety and environment manager at Syngenta.

Many of the company’s safety programs reach all of its employees, including training focused on hazard awareness and protocols for contacting emergency support. In addition, the company tailors other safety programs for job-specific risks. For example, field sales representatives, who often interact with growers on farms, receive extensive safety training on operating farm machinery and handling crop protection products properly. Syngenta also provides them with training on such risks as heat stress and sun exposure.

No matter where they work, Syngenta employees can participate in programs that promote their long-term health.





“We’ve integrated health and well-being programs to help employees improve and maintain their health—on the job and in their personal lives,” Birchfield says.

### Helping Customers Stay Safe

Syngenta also works to help agricultural resellers and growers improve safety in the field. The company’s agronomic service representatives, for example, often provide product demonstrations and discuss label instructions, safe application and the use of proper personal protective equipment.

“We ensure that safe use of our products is an integral part of all product discussions with customers,” Birchfield says. “Anyone with a concern or question about the safe use of our products can reach out to their local Syngenta sales representative or access our 24/7 emergency-support system.”

An additional way the company helps growers stay safe is by supporting, sponsoring and funding a number of farm-safety programs.

“We partner with CropLife America, the Pesticide Safety Education Program, FFA, the American Agronomic Stewardship Alliance, the National Agronomic Environmental Health and Safety School, and the Pesticide Stewardship Alliance, to name a few,” Birchfield says. “We also engage with local rescue and response organizations through training and funding to increase their ability to better serve their communities.”

### Keeping Rural America Healthy

Besides Syngenta, farmers can turn to others in their local communities for support and advice when it comes to their safety. Nurses serving rural areas have long realized their role in this area. That realization led to the formation of the AgriSafe Network, a growing group of trained agricultural health and safety professionals who have been providing preventative services for farm families and the agricultural community since 2003. Natalie Roy, the organization’s executive director, explains that farms—many without a medical professional or human resources manager on staff—need resources to care for their families and employees.

AgriSafe Network, one of the first organizations to use online training for rural health professionals, is now providing safety and health training to farmers, agricultural cooperatives and farm organizations, such as local farm bureau groups. “We can customize training for their needs,” Roy says.

The network focuses on occupational health risks, such as skin cancer or heat stroke, and offers a free online health-risk assessment, based on data growers enter about their operation. For instance, a producer with a hog-confinement operation can learn more about related respiratory issues. The organization

“In the grain business, we’re often hurrying to beat bad weather, but it only takes a few more minutes to do things right.”

—NEIL MYLET

can also connect farmers and organizations with specialists in ergonomics, worker protection standards and more.

For additional support, farmers and other agribusiness professionals can subscribe to AgriSafe Network’s webinars, which are available online, live or on demand. Some insurance companies offer incentives to

policyholders and their employees who complete these safety-training sessions, Roy says.

Neil Mylet, a Camden, Indiana, farmer who also serves as chairman of the AgriSafe Network, owns a grain operation with 10 employees. “The subject matter of the safety-training programs is really important,” he says.

For instance, Mylet learned about the importance of using protection devices to help prevent hearing loss while working with loud machinery. He’s also learned safety protocols to reduce the potential for slips and falls. For a few hours every month, he reviews AgriSafe training information with his employees and discusses his operation’s safety protocols. “We can pick and choose what aspects need reinforcement,” he says of the on-demand webinars.

The training also serves as a constant reminder to put health and safety first, he says. “In the grain business, we’re often hurrying to beat bad weather, but it only takes a few more minutes to do things right.”

Birchfield agrees: “Taking steps to keep employees and business partners safe and healthy is core to our business model, and we recognize it’s the most important investment we can make as a company.”

STORY BY LYNN GROOMS

## SAFETY MATTERS

To learn more about safety and health programs and practices in agriculture, visit these websites:

- > AgriSafe Network, [www.agrisafe.org](http://www.agrisafe.org)
- > American Agronomic Stewardship Alliance, [aginspect.com](http://aginspect.com)
- > National Agronomic Environmental Health and Safety School, [www.naehss.org](http://www.naehss.org)
- > National Ag Safety Database, [www.nasdonline.org](http://www.nasdonline.org)
- > National Education Center for Agricultural Safety, [www.necasag.org](http://www.necasag.org)
- > OSHA Agricultural Operations Resources, [www.osha.gov/dsg/topics/agriculturaloperations/generalresources.html](http://www.osha.gov/dsg/topics/agriculturaloperations/generalresources.html)
- > Pesticide Safety Education Program, [www.extension.org/2017/12/07/pesticide-safety-education-grant-application-system-is-live](http://www.extension.org/2017/12/07/pesticide-safety-education-grant-application-system-is-live)
- > The Pesticide Stewardship Alliance, [tpsalliance.org](http://tpsalliance.org)

# Making Tracks

The rapid development of fully automated farm equipment is poised to usher in a new era of agriculture.

**G**rowers, get ready for the next big transformation in farm technology—the driverless tractor. After two decades of building on a precision platform that started with GPS navigation, farm equipment manufacturers are getting close to realizing the much-anticipated milestone of having fully automated tractors on farms.

Right now, the driverless tractor still needs an operator, whose role is to intervene frequently to keep the tractor on task. But the ultimate goal is to offer growers driverless equipment that is smart—or autonomous—so they can perform tasks without human intervention. In other words, the driverless tractor would act as its own operator.

This goal requires equipment with sensors and cameras to relay data to onboard computers, which need artificial intelligence, so they can instantly respond to anything affecting the equipment’s current task. The technology will require minimal outside help.

## Race to Autonomy

While the farm equipment industry has spent a couple of decades moving toward developing autonomous equipment, the race to commercially market that equipment has recently moved into high gear.

“Key farm manufacturers are all working in some way on autonomy,” says Dan Halliday, global product manager of precision land management at New Holland Agriculture. Niche companies and after-market suppliers also are developing autonomous solutions, which adds pressure across the industry to keep moving ahead, he says.

In 2016, both New Holland and Case IH introduced autonomous tractor prototypes, which the companies are still testing in the field.

“We’ve done a lot of work since then,” Halliday says. “We are working on sensor technology to make the driverless operation viable. And we launched smart auto-turn features last year.”

But there’s still work to be done, he adds. “There are applications that will need more work before we can fully automate them. If you want to till a field, it’s relatively easy to automate. However, if you’re combining, there’s a lot more going on.”

John Deere signaled its commitment to autonomous machinery when it acquired Blue River Technology. Blue River specializes in computer vision and machine learning, which are key technologies for developing task-oriented autonomous equipment.

“Frankly, we know that the move toward autonomy is about more than just a tractor driving across the field,” says



Driverless tractors will allow growers to monitor field operations remotely from their computers.

Than Hartsock, manager of production system solutions at John Deere. “The quality of the job that the implement is doing matters, because that’s what ultimately impacts the crop that’s being grown. It’s not just the combine, but also the header that really matters. We are focusing our efforts on sensing, controlling and automating those functions.”

Blue River’s work on an advanced sprayer system illustrates the potential of automated technology. Computer vision allows the sprayer to sense the environment around it and look for weeds. The machine learns through artificial intelligence to identify weeds from soybeans, and then it precisely sprays individual weeds. This labor-free operation uses a minimum of chemicals and captures crop data to document the entire process.

## The Digital Component

The ability to capture data from autonomous machinery will benefit farmers, according to Dan Burdett, global head of digital agriculture at Syngenta.

“The driverless tractor and automated farm equipment will be able to record any field event, which is important for developing insights, such as calculating return on investment [ROI],” he says.





“Capturing timely and accurate data to document field applications for reports and stewardship requirements will also be possible.”

Because various sensors, tools and artificial intelligence will automate data collection, Burdett says the data will “enable a whole new level of decision-making capabilities. Growers will benefit from all of it.” He says the adoption of digital technologies in the ag industry is inevitable and moving fast.

“It’s escalating, and that’s driven partly by farm economics,” he says. “It’s very important for farmers to know their numbers. Digital tools and information technology can help farmers be better business people.”

Also driving the move to digital is a demographic change. “There are younger growers coming back on the farm who have a different way of doing things, including how they make decisions for the farm,” Burdett adds. “They do much more online research and consume a lot more information than previous generations.”

### **The Future of Autonomy**

For many years, the high cost of components needed for autonomous vehicles was partially responsible for ag manufacturers not bringing the vehicles to market. But that is changing.

Uber, Google and Tesla have made big investments in technology for their self-driving cars. This development has substantially lowered the cost of some components that are also used in automated farm equipment.

“We are seeing tremendous progress and innovation in cameras that are more capable and less expensive,” Hartsock says. “The sensors they use to look for obstacles in the road are becoming more effective and less expensive, too.”

As more industries use these components, prices will further drop, making autonomy within reach of farmers.

“We continue to see farmers who want products that make them money in a safe environment and that make fieldwork easier,” Hartsock says. “And as circumstances continue to compromise viable labor in our industry, farmers will need this help. All of these technologies make things easier and often have a substantial ROI for farmers.”

Autonomous and semi-autonomous equipment also may do the job better. “Autonomy takes out potential human error and gives the user a choice to operate overnight or for 24 hours,” says Halliday. “Clearly growers can benefit from increased efficiency on their farms utilizing these technologies.” ■ STORY BY KAREN MCMAHON

# Data by the Bushel

A commercial partnership brings combined analysis of financial records and field productivity to Syngenta growers.

**M**ark Stelford understands the need to provide growers and retailers with a solution to what he and his colleagues refer to as the Missouri Challenge—an allusion to the state’s nickname, the “Show-Me State.”

“There is a lot of agronomic research out there,” Stelford says. “But when you present it to growers, they’ll have varying degrees of doubt. It’s only when you show them in their own fields that they’ll appreciate what each input can do for them.”

Stelford is the general manager of Premier Crop Systems®, LLC, an early developer of digital agriculture tools like Prove It in My Fields, a suite of agronomic analysis tools enabling local, infield testing programs.

Last year, Syngenta entered a commercial partnership with Premier to offer the industry’s first customized, variable-cost-per-bushel analysis maps, currently available for wheat, corn and soybean growers in the Midwest. Through the whole-farm management program AgriEdge Excelsior®, growers have access to Land.db®, the secure, cloud-based software that allows growers to digitally organize their data. Integrating Premier’s data-driven agronomic recommendations into that software gives growers the capability to make highly specific agronomic decisions, based on cost and profit implications.

“We’re combining whole-field economics with precision agronomy,” says Aaron Deardorff, head of digital agriculture solutions at Syngenta.

“We can see cost-per-bushel at a subfield level, so growers know where the opportunities exist and can drive productivity through strategic investments.”

## Zoning In

It’s no surprise to growers that certain areas of their fields are more productive than others as a result of varying factors, including soil type and moisture

**“Precision ag has helped us make better recommendations, but putting dollars and cents to the data is really going to make our recommendations and insights a lot more valuable.”**

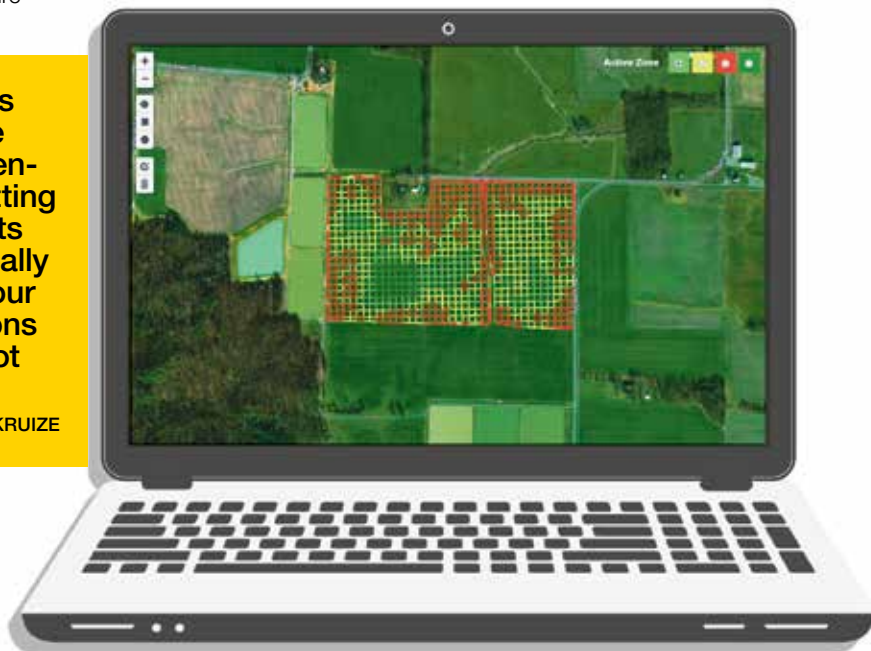
—KEVIN KRUIZE

levels. With a larger focus on managing their costs and access to more advanced precision ag tools, growers are paying closer attention to these variances in field productivity.

Many trusted Syngenta and Premier advisers help their grower customers build management zones within a field. Together, they develop higher-investment management plans in A zones, for example, where more aggressive strategies will further improve their bottom line. On the other hand, they are more conservative with the C zones, cutting rates and managing costs to eliminate risk.

Kevin Kruize, precision ag manager at Central Advantage GS (CFS) in Owatonna, Minnesota, says that managing these zones differently delivers better yields in all parts of the field and significant improvements in overall return on investment. With this integration, Kruize will be able to pinpoint where those improvements come from and why on a cost-per-bushel rate. This information will help his customers understand their cost of production and how their input decisions are impacting their profitability.

“One of the toughest things in the industry is showing what is actually providing the grower value or profit,” Kruize says. “Precision ag has helped us make better recommendations, but putting dollars and cents to the data is really going to make our recommendations and insights a lot more valuable.”



A digital map shows management zones within a grower’s field; the grower uses different management strategies in each zone, based on productivity variances.



For his customers, Kruize has used Premier Crops Systems for 15 years and is going into his sixth year with AgriEdge Excelsior.

“We have found great value in using the tools separately,” Kruize says. “Now, with the integration, we cannot be more excited. People get excited about bells and whistles of maps and apps. But with the integration of these two programs, we will far exceed any program offered in the precision ag/decision ag marketplace.”

### In the Know

The software integration creates a unique opportunity to create localized field trials and address the Missouri Challenge. Whether it's a new product or a varied seeding rate, growers or retailers can conduct comprehensive analyses on their own farms. They can learn exactly where and how products are performing—down to a 60-by-60-foot level.

“Traditional research is rather difficult to show on-farm without technology,” Stelford says. “But using this integration, growers or retailers can leverage the technology we have to conduct an experiment. After developing a plan, the operator uses a specific prescription. They then have access to field analytics on hundreds and hundreds of different agronomic factors.”

Syngenta and Premier refer to this as “research at the speed of farming.” Dearthoff says it will help growers and their advisers make practical decisions.

“When they understand exactly what's happening on their farms, growers can make faster decisions with confidence,” he says. “For example, when they aren't absolutely clear on what their costs are, growers may miss opportunistic windows in the grain market. But if they have accurate data in front of them quickly, they can make profitable decisions.”

### Relationships Matter

According to Dearthoff, the integration is an opportunity to strengthen the connection between growers and their trusted advisers, retailers and crop consultants.

“Retailers can differentiate themselves from others,” he says. “In the world of digital ag, there's lots of common understanding. But with this offering, they're able to clearly define cost-per-bushel at a subfield level; and they can combine precision agronomy with farm-management software to make it simpler for the grower. This enables retailers to reduce the focus on price and increase the focus on profitability for the grower.”

Kruize says he appreciates the commitment of Syngenta to his relationships with growers.

“There are other companies boasting they have the best program,” Kruize says. “They go directly to farmers, but then realize it's failing because they don't have the support in the field. With the Premier and AgriEdge Excelsior integration, we feel completely supported to enhance our relationship with our producers and are able to bring them tools that are actually making a difference on their operations.” 🌱

STORY BY MIRIAM PAULSON

## Everyone who's planning on using Halex GT again this year, raise your hand.

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# Ripple Effect

Syngenta honors no-till innovators, enhances ethanol production and participates in an award-winning collaboration.

## ENERGY INNOVATIONS

### Expanding the Enogen Footprint

Since its introduction, Enogen<sup>®</sup> corn enzyme technology has provided corn growers with the opportunity to be enzyme suppliers for participating ethanol plants and earn a per-bushel premium. Syngenta reports that premiums-to-date paid to Enogen corn growers are expected to surpass \$100 million during 2018.

Nearly 40 percent of U.S. corn goes toward ethanol production. According to Chris Tingle, head of commercial operations for Enogen at Syngenta, providing alpha amylase enzyme to ethanol plants as Enogen grain is helping corn growers maximize return on investment for their ethanol acres. He adds that this unique business model supports rural America by keeping enzyme dollars local and helping ethanol plants be more successful.

“With Enogen, ethanol producers can redirect the money they previously used to buy liquid alpha amylase to local farmers instead, in the form of a premium valued up to 40 cents per bushel,” Tingle says. “This is especially significant given today’s commodity prices.”

Syngenta is currently contracting with more than 1,700 corn growers and has marketing agreements with 31 ethanol plants across 12 states. This year’s ethanol production with Enogen corn is expected to be more than 2.5 billion gallons.

“Ethanol has become an important success story,” Tingle says. “It’s helping America reduce its dependence on foreign oil, lowering prices at the pump, improving the environment with lower emissions, and growing the



Quad County Corn Processors lab scientist Nick Ryen demonstrates the positive impact the alpha amylase enzyme, found in Enogen grain, has on the viscosity of corn mash.





economy with jobs that can't be outsourced. Syngenta is proud to partner with corn growers and the ethanol industry to help provide consumers with the choice to purchase a superior, higher octane fuel and pay less."

For more information about Enogen corn hybrids, contact a Golden Harvest® Seed Advisor or NK® retailer, or visit [www.enogencorn.com](http://www.enogencorn.com).



## HONORS AND RECOGNITION

### Innovators Advance the No-Till Industry

Now in its 22nd year, the 2017 No-Till Innovator Awards, sponsored by Syngenta and *No-Till Farmer* magazine, recently honored outstanding leaders of the conservation-tillage industry at the National No-Tillage Conference in Louisville, Kentucky. The awards recognized winners in four categories for their commitment to no-till more effectively, more economically and with better impact on the environment. Their contributions have helped advance no-till farming, regardless of the crop grown or brand of equipment, seed, seed treatment or crop production products used.

The 2017 winners by category are as follows:

- > **Dee River Ranch**, a row crop and cattle operation in Alabama—Crop Production
- > **Cross Slot, USA**, a world-leading developer of no-tillage systems and machines—Business and Service
- > **Conservation Agriculture Systems Innovation Center (CASI)**, a collaboration of grower, academic, public agency, private sector and environmental group members who promote conservation cropping systems in California—Organization
- > **Hans Kok**, an independent conservation expert in Indiana—Research and Education

A committee of leaders representing different sectors of the no-till industry selected the winners. Judges were Darrell Bruggink, editor of *No-Till Farmer*; Darrell Daniels, agronomic service representative from Syngenta; Betsy Bower, agronomist at Ceres Solutions Cooperative in Indiana; and Allen Berry, grower and owner of Allin Farms in Illinois.

For more information on the upcoming 2018 No-Till Innovator Awards, visit [www.syngentaus.com/notill](http://www.syngentaus.com/notill).



Attendees at the No-Till Innovator Awards banquet celebrate the winners. Top row, left to right: Phil Krieg, Chuck Leonard and Derrick LeBeau with Syngenta; Monte Bottens and Michael Crowell, growers affiliated with the Conservation Agriculture Systems Innovation Center (CASI); and Darrell Bruggink with *No-Till Farmer* magazine. Bottom row, left to right: Hans Kok, conservation expert; Annie Dee with Dee River Ranch; Gavin Porter with Cross Slot, USA; and Jeff Mitchell, University of California researcher affiliated with CASI.

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# A Winning Team

Industry leaders collaborate on a conservation project that enhances crop value through transparency in the value chain.

**S**aginaw Bay is an annex of Lake Huron, nestled right between the thumb and fingers of the Michigan “mitt.” For many growers in the region surrounding the bay, sustainable farming is nothing new—rather a tradition, handed down by families in hopes of a more prosperous operation for the next generation. So in 2015, when Syngenta led a collaborative effort to track and highlight those practices while

providing transparency to consumers, wheat growers like Rita Herford were excited to jump on board.

“Everybody wants to know their farmer and put a face to their food providers, but a lot of people can’t,” says Herford, who works her family farm in Minden City, Michigan. “I think it’s great that we have companies wanting to help us tell that story.”

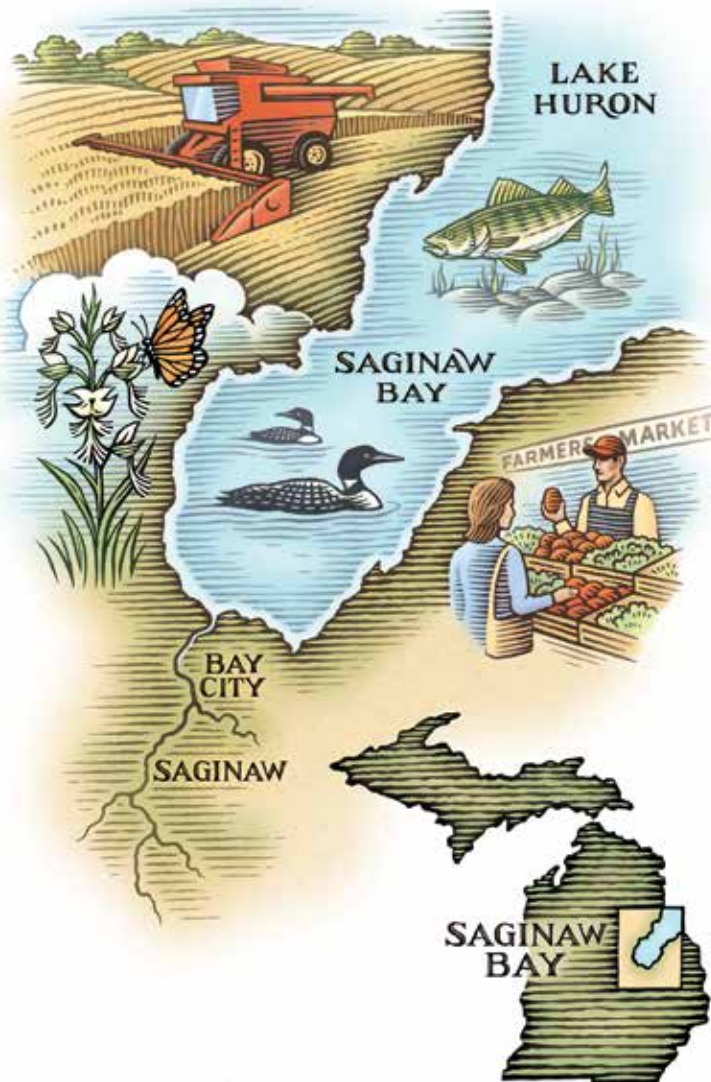
Steered by Syngenta, Kellogg Company and The Nature Conservancy, the program recently received the 2017 Collaboration of the Year Award from Field to Market®: The Alliance for Sustainable Agriculture. As part of that program, Syngenta offered Land.db®, the recordkeeping software included in the AgriEdge Excelsior® whole-farm management program, to growers who sell wheat to Kellogg’s supply chain partner, Star of the West Milling Company. The software, which incorporates the Field to Market Fieldprint® Platform, helps farmers document and demonstrate how their conservation practices enhance natural resource management.

Kellogg passes along that positive message directly to its customers. “Consumers care about where their food comes from—how it’s made, where it’s made and who’s growing it,” says Mary Tate, manager of North America responsible sourcing for Kellogg. “We need to provide that transparency so they can feel confident about the food they’re buying.”

In addition to helping improve water quality in the Saginaw Bay watershed, the project has helped Syngenta introduce new growers to the benefits of the AgriEdge Excelsior platform. AgriEdge and Land.db make improvements possible by translating data into insights, so growers can make more informed decisions.

“The primary goal of the project is to help growers demonstrate sustainable practices through metrics and see the environmental impact of their operations,” says Syngenta Sustainable Solutions Account Manager Liz Hunt. “But it’s also about evaluating the economic returns of sustainable agricultural practices.”

Syngenta and Kellogg are expanding their collaborations to other crops and regions, so more growers can share and build on their commitment to modern agriculture. After all, continuous improvement for everyone involved is what sustainability is all about. ■ STORY BY SHANE NORRIS







Early morning sunlight spills across this Saginaw, Michigan, wheat field.

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