

Growing Together

1Q | 2018

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Support Systems

Branded Products
Deliver Innovation,
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SCOUTING
INTERNSHIPS
BENEFIT
AGRICULTURE

AN INTEGRATED
STRATEGY HELPS
COUNTER WEED
RESISTANCE

syngenta[®]

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thrive

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.

ON THE COVER Syngenta Seedcare Application Specialist John Wells helps lead a customer training session at the Syngenta Seedcare Institute in Stanton, Minnesota. Photo: Tim Pearson

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Charlie Sanders (left) and Ed Sanders (right) work closely with Syngenta rep Aaron Smith (center) in their roles as growers and ag retailers. Photo: Harold Lee Miller

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

Please send them to thrive@syngenta.com. For more information, visit the Syngenta U.S. website at 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.



Lifelong Learning

To prescribe the best crop solutions, Syngenta focuses on generating field force excellence and earning sustained partnerships.

As the dawn of a new year breaks, agricultural communities across the country are reinvigorated with hope. Despite the distraction of mergers, acquisitions and other shifting market dynamics, the spirit of the American farmer rises above the noise and holds firm to the belief that today will shine brighter than yesterday and tomorrow's potential is limitless.

This never-give-up optimism that's so prevalent among the men and women of agriculture is what motivates Syngenta to offer you our best—starting with our people. We understand that to effectively meet your unique needs, we must “walk in your boots” and see firsthand the challenges you and your customers face.

Our local sales representatives, who call your communities home, have that vantage point. To transform their seeing into your believing in them, Syngenta realizes it takes more than offering a diverse line of innovative products. It also requires in-depth knowledge of those brands, so reps can recommend the right solution on the right acre, with the end goal of maximizing a grower's return on investment. Our regional training experts work with our agronomic and technical specialists to provide reps with the ongoing foundational support they need to do just that.

As this issue of *Thrive* reflects, we weave our commitment to develop sustained partnerships built on trust into the fabric of everything we do. In one article, a retailer credits his Syngenta rep with helping him save a grower's field from an unexpected waterhemp outbreak. The rep's quick, insightful advice is something, the retailer says, he'd never get from generic competitors. Another article tells the story of a 28-year-old Syngenta internship program that provides a much-needed service to growers, while preparing entry-level job candidates for positions at area agribusinesses. Other Syngenta partnerships featured in *Thrive* include alliances with industry associations to better market U.S. commodities globally, a joint effort with Discovery Education to help FFA students explore careers in ag and collaborations with regional pest experts to anticipate threats before they damage crops.

Like every year before it, 2018 marks a new beginning for agriculture. Because Syngenta is dedicated to lifelong learning, we'll take the lessons from our past and combine them with today's opportunities to create a better, more vibrant tomorrow. After all, you deserve nothing less than our best. 🌱



GIL STRADER

“We understand that to effectively meet your unique needs, we must ‘walk in your boots’ and see firsthand the challenges you and your customers face.”

GIL STRADER

Head
Field Force Excellence and Training
Syngenta Crop Protection



WATCH NEW VIDEO For an in-depth interview with Gil Strader, check out the new video posted to the *Thrive* website (www.syngentathrive.com).



What's in Store

Find out the latest on products, marketing opportunities and upcoming trade shows and conferences.

PRODUCT UPDATES

Minecto Pro Approved for California Use

The California Department of Pesticide Regulation has approved Minecto® Pro insecticide for use in specialty and vegetable crops to control difficult-to-manage pests, including thrips, mites, worms, psyllids and whiteflies.

Minecto Pro combines cyantraniliprole, a second-generation diamide that provides a broader spectrum of control, and abamectin, the global standard for mite control, into one convenient premix formulation. Its complementary modes of action broaden the activity spectrum, compared with other stand-alone products. While new products in many markets target a narrow pest spectrum, Minecto Pro is specifically formulated to provide superior control of a broad range of lepidopteran and sucking insect pests. For more information, visit www.syngenta.com/minecto.



Almonds flourish in
Woodland, California.



Golden Harvest Corn and Soybeans Yield Strong in 2017

Despite another year of less-than-ideal conditions across the Corn Belt in 2017, harvest reports indicate Golden Harvest® corn and soybeans were resilient and ended the season strong.

Golden Harvest corn is bred to perform well in a range of environments, with Agrisure® traits and technologies protecting genetic potential through proven insect control and water optimization.

Ranging in relative maturity from 0.6 to 4.8, the Golden Harvest portfolio of performance-class soybean varieties protects against many of today's toughest challenges.

Golden Harvest hybrids and varieties are available exclusively from independent Golden Harvest Seed Advisors, whose local expertise helps identify the best seed-to-field matches to maximize performance. To see how Golden Harvest yield performance stacked up in your area in 2017, go to www.goldenharvestseeds.com/yield-results.



 **GoldenHarvest®**

Elatus Fungicide Receives 2(ee) on Potatoes

Already shown to provide excellent control of soilborne *Rhizoctonia* in potatoes, Elatus® fungicide from Syngenta is now a tool growers can use in their fight against Verticillium wilt under a 2(ee) recommendation. As the only in-furrow technology that contains a proven strobilurin and third-generation SDHI fungicide, Elatus provides built-in resistance management. The disease control offered by Elatus can help improve emergence, establish a more uniform crop stand, enhance crop health and optimize distribution of tuber size, ultimately resulting in higher yields and optimal quality at harvest. For more information, visit www.syngenta.com/elatus.

 **Elatus®**

NEWS AND EVENTS

Grain Marketing Opportunities Expand in 2018

For the 2018 planting season, Syngenta is simplifying and expanding marketing opportunities for growers planting hybrids with the Agrisure Duracade® trait. Growers must sign a simple grain-use marketing agreement, indicating they will either deliver it to an accepting location or use it as feed.

Working with Gavilon Grain, LLC, Syngenta will provide services to help growers identify accepting locations in their local geography via an expanded list of elevators, ethanol plants, feedlots, feed mills and livestock feeders. To learn more, visit www.agrisureduracade.com.



UPCOMING TRADE SHOWS AND CONFERENCES

With a new year comes a new schedule of agricultural trade shows and conferences. Syngenta representatives look forward to talking with you about our latest line of innovations and tried-and-true brands. Please stop by our booth at any of the events below for more information on our products, services and support.

FEBRUARY 2018

14–17 **National Farm Machinery Show**
Louisville, Kentucky

27–March 1 **Commodity Classic**
Anaheim, California

MARCH 2018

2–3 **Mid-South Farm & Gin Show**
Memphis, Tennessee

Left to right: The Syngenta trade-show booth features a display demonstrating that corn genetics respond differently to planting populations; a booth visitor experiences a virtual field tour using virtual-reality goggles.





Introducing the Syngenta Virtual Trade Show

Syngenta is introducing a new way to preview its trade-show experience. A short highlight reel showcasing the energy and excitement of the Syngenta trade-show exhibit is now available on the *Thrive* website.

The video ushers viewers through a variety of engaging, highly visual Syngenta displays that include plant roots, corn ears, virtual reality goggles and more. The video also features glimpses of the exhibit's interactive tour, in which visitors receive tokens in exchange for exploring the various stations.

To check out the video, look for the article "Syngenta Launches Virtual Trade-Show Experience" at www.syngentathrive.com/news.



A Digital Tour de Force

Students across the U.S. learned about careers in agriculture through a livestreamed broadcast at Syngenta.

More than 45,000 students recently toured the Syngenta Innovation Center and Advanced Crop Lab in Research Triangle Park (RTP), North Carolina, without setting foot in the facility. By tapping into livestreaming technology and the real-time capabilities of social media, Syngenta hosted a “virtual field trip” that gave students a chance to learn about the company—and the diverse career options it offers—without leaving their classrooms.

“This is an exciting time in agriculture, especially for innovators like Syngenta, because we have new tools to develop better seeds and crop protection products, as well as digital solutions to help farmers be more productive,” says Ian Jepson, Ph.D., head of trait research and developmental biology and RTP site business head at Syngenta. “We encourage students to think about the wide range of challenging and rewarding careers in companies like ours to help develop and deliver what farmers need to feed the world.”

Interactive Learning

The virtual field trip was livestreamed to nearly 1,400 classrooms

through AgExplorer®, an online career resource developed by the National FFA and Discovery Education, a leader in digital content for grades K–12. The program set out to educate students about the many opportunities in the industry and help them understand that working in agriculture doesn’t always mean working on a farm. In fact, of the estimated 60,000 positions available in the industry over the next five years, nearly 40 percent of them need graduates in science, engineering and other highly skilled areas, according to the U.S. Department of Agriculture.

Two Syngenta experts—Gil Strader, head of field force excellence and training, and Hope Hart, scientist in product safety—joined hosts from Discovery Education and FFA for the live broadcast, “Technology in Agriculture: Feeding the Growing Globe Virtual Field Trip.”

The field trip began with a tour of the Advanced Crop Lab, a state-of-the-art greenhouse where Syngenta scientists study multiple crops in different growth environments simultaneously. The tour ended in one of the greenhouse’s propagation labs to show where scientists are working daily to improve crop productivity. The hosts encouraged participation by chatting with

viewers in real time and answering questions posed by students following along on social media.

Unexpected Paths

During the broadcast, a scientist and four FFA students performed a live demonstration of a DNA precipitation, giving viewers a basic exercise that they can accomplish in their own classrooms with easy-to-use materials. In addition, the students made a crude plant extract to test for the presence of a trait in their corn leaf sample.

The scientist behind the experiment, Chris Fleming, Ph.D.,



A production crew from Discover Education films a live virtual field trip at the Syngenta Innovation Center and Advanced Crop Lab in Research Triangle Park, North Carolina.

a senior researcher at Syngenta, is an example of someone who didn't know working in agriculture was an option. He studied biochemistry in college and assumed it would lead to a position at a pharmaceutical company, where he would develop technologies for the human body, not plants.

"I didn't put farming and protein biochemistry together until I got into the ag industry," he says.

Katelyn Honeycutt from Benson, North Carolina, is a past FFA state officer and one of the students who participated in the live

demonstration. She grew up on a farm and knew she wanted a career in agriculture, but she knows many people her age don't have the insight she gained from her farming experience.

"It's not just about being a farmer. There are researchers, scientists and marketers, and all of those people play a key role in agriculture."

—KATELYN HONEYCUTT

"It's not just about being a farmer," she says. "There are researchers, scientists and marketers, and all of those people play a key role in agriculture."

She's now a junior at North Carolina State University, majoring in agriculture business and education, and hopes to work in ag lending after graduation.


Career Diversity at Syngenta

Prerecorded videos transported students to different areas of Syngenta, from the office of a computational biologist to a research lab focused on genotyping to a cornfield with an agronomist. The employees highlighted in the segments explained how they were able to apply their degrees in analytics, biology, entomology and marketing to a career in agriculture, even though they may not have thought they'd end up in the industry.

One of the hosts from AgExplorer, Abrah Meyer, is a past FFA national officer who grew up on a farm in Readlyn, Iowa, but she didn't know if her passion for agriculture could lead to a job.

"For me, the biggest question in high school was, 'I love agriculture, but what's my place in it?'" says Meyer, who is now studying agricultural business and supply chain management at Iowa State University. "Where do I want to end up having a career?"

Experiences like the virtual field trip can help students answer that question by exposing them to the different ways people are working in the industry—without being limited by location. Students in large urban environments who have never been on a farm can see how the math and science they are learning can be applied to help develop better seeds for a farmer in the Midwest.

Go to www.syngentathrive.com/community to experience the virtual field trip. The virtual field trip is also archived at www.AgExplorer.com/virtual-field-trip.  STORY BY CINDY WHITT

Syngenta Agricultural Scholarship

We are committed to rewarding tomorrow's ag leaders who are **#RootedinAg**.

To learn more about collegiate scholarship opportunities from Syngenta, visit www.SyngentaUS.com/scholarships.



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Countering the Counterfeiters

Fake agricultural products and similar intellectual property infringements pose serious risks worldwide.

Rarely, if ever, do growers in North America consider the possibility that a pesticide or seed they just purchased is a cheap knockoff or a counterfeit product. But in some parts of the world, illegal pesticides make up a significant market share.

“We have external data that indicate the problem exists on a significant scale,” says Marcel Raecker, product security specialist for Syngenta.

“Third-party estimates indicate the global average for illegal products in the market range from 5 percent to 10 percent. In very high-risk markets, illegal products may even peak at 25 percent. These figures include all kinds of regulatory or intellectual property (IP) infringements, not just full-scale copies of Syngenta or legal competitor products.”

The Syngenta Security team investigates different types of activities, such as counterfeiting and trademark or patent infringement, that may violate the company's IP rights. Raecker and two other specialists work from Basel, Switzerland. Syngenta has another 20 security professionals located around the world.

There are plenty of cases to keep the security team busy. Figures from Syngenta show that there were 752 product security cases globally in 2016.

Several high-profile cases involving Syngenta products have been solved, including:

- > An illegal factory in Colombia produced fake Syngenta packaging for trade within the country and internationally. The illegal supply chain was disrupted when local law enforcement raided and dismantled the factory.
- > A counterfeiting ring in Brazil produced a large amount of fake Syngenta Crop Protection products. The Brazilian authorities prosecuted and sentenced the defendants in the case to a combined 206 years of prison time.
- > Since 2014, authorities in the Port of Hamburg have seized more than 100 tons of active ingredient that violated Syngenta IP rights. Syngenta IP/legal and security staff supported these activities.

Investigating the Crimes

The Syngenta Security team investigates leads reported from the field by customers, sales staff and local authorities. The team trains salespeople to be aware of counterfeit or illegal products and report anything suspicious to security professionals. The training is through the company's Detect and Report Program, which is being taught around the globe, including in North America. (See “Building Awareness,” page 9.)

“It's important that we have eyes on the ground,” Raecker says. “The sales staff is in touch with local markets. They are the first to see illegal or counterfeit products.”

Reports of suspected counterfeiting or illegal crimes also come from government authorities, who are required to seize infringing goods and inform Syngenta if an IP infringement may have occurred. “Through industry associations, we work with the port authorities in Europe

Left to right: The differences in design of a counterfeit jug (left) become obvious when compared to the authentic Syngenta item (right); a policeman in Bogota, Columbia, presents a mold that counterfeiters used in an illegal workshop to produce fake pesticide packaging material.



“It's important that we have eyes on the ground. The sales staff is in touch with local markets. They are the first to see illegal or counterfeit products.”

—MARCEL RAECKER



to train them on the risk profile of agrochemicals,” Raecker adds. “Some already are very efficient and successful in detecting these materials.”

Some of the suspect products are tested in a Syngenta lab. “We test products frequently to get certainty on the origin of a product,” Raecker explains. “Another aspect of illegal products is the uncontrolled conditions they are produced under, potentially causing health, safety and environmental risks.”

Typically, criminal networks purchase machines and then set up crude workshops within warehouses to assemble their illegal products. They import chemicals and then illegally mix and package them in their workshops, creating a dangerous situation.

“This is why it is so important to fight these activities,” Raecker adds.

North America Cases

While all types of IP infringement cases occur around the globe, countries with more regulations and responsive law enforcement see fewer cases of illegal products in their markets. “In North America, we have not found large-scale counterfeiting cases related to pesticides or seeds that other regions have seen,” says Tony Bense, Syngenta regional security manager for North America. Instead, criminals attempt to import counterfeited products into the U.S. to sell.

“U.S. Customs and Border Protection is a great supporter of our industry and helps prevent counterfeit items from making it into the U.S.,” he explains. “Syngenta works with that agency to review who is importing chemicals that we are the only ones authorized to import. It helps identify and prevent illegal sales.”

Bense and his team along with Syngenta legal experts see cases of people who sell products with a similar name to a Syngenta product, but with one letter changed. Or they find products that are broken down from an original container and sold in smaller containers, without proper authorization. “There also are cases where people illegally or legally obtain a legitimate product and then sell it online, through advertising or in a manner not compliant with regulations,” he says.

Remain Vigilant

Illegal or counterfeit agrochemical products negatively affect the industry and public, from the manufacturer and reseller to the grower and consumer. The potential impact can be very significant.

“That’s why we will continue to run Detect and Report, a component of the Product Security Program, to help protect Syngenta, farmers and people in general,” Bense says. 🍃 STORY BY KAREN MCMAHON



BUILDING AWARENESS

The Syngenta Product Security team operates the Detect and Report Program to build awareness of potential intellectual property infringement cases.

“We are educating our sales teams and farmers that if they see someone selling a product or seed that doesn’t look right or is priced below market value, to tell us so we can investigate,” says Tony Bense, Syngenta regional security manager for North America.

“If we all are on the lookout for suspicious activities, sales and counterfeit products, then we can prevent loss of profits and stop someone from having exposure to a chemical that is harmful to them,” he adds.

Suspicious should be reported to the North America Security team at product.security@syngenta.com.



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PRODUCT SECURITY CASES GLOBALLY IN 2016

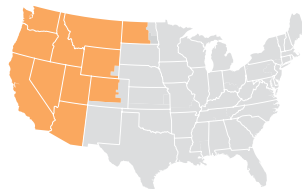
Ready for the Challenges

Syngenta regional experts shed light on the top crop threats facing growers in their areas—and the solutions that will help keep local farms productive.

As market disruptors, including mergers and lower commodity prices, threaten to prolong uncertainty, growers and resellers can continue to count on Syngenta to develop cutting-edge crop solutions, backed by highly trained technical experts. A key differentiator for the company is the Syngenta agronomy team. It consists of five regional agronomy service managers who oversee more than 40 agronomic service representatives—all living in the agricultural communities they serve.

Their local perspective gives the team members keen insight into what 2018 may bring. In the sections that follow, the agronomy service managers predict which field challenges will pose the greatest risks to growers in their regions this year and what solutions they recommend.

WESTERN REGION



In the Western region, we sell crop protection and Seedcare™ products into more than 100 crops, so it's difficult to cite a single greatest risk in the West. In California, leafy vegetable growers need more options to control thrips and downy mildew. In North Dakota, kochia in cereals is now resistant to multiple herbicides. In the Pacific Northwest, fire blight in pome fruit has been difficult to control for the past two years, and the long-term forecast shows a wetter trend into mid-year 2018.



“In California, Minecto Pro insecticide has received registration in leafy vegetables as well as several other crops. It will bring two modes of action and an affordable solution for growers on the coast.”

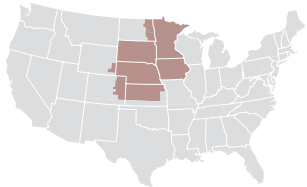
CHRIS CLEMENS, PH.D.
Agronomy Service Manager



A grower plants grain corn in a conventionally tilled and bedded field near England, Arkansas.

Fortunately for growers in my area, Syngenta has new technologies to address each of these challenges. In California, Minecto® Pro insecticide has received registration in leafy vegetables as well as several other crops. It will bring two modes of action and an affordable solution for growers on the coast. Orondis® Ultra fungicide, containing oxathiapiprolin, will bring a new mode of action to coastal growers fighting downy mildew. In North Dakota, we launched Talinor™ herbicide last spring, and growers were impressed with the speed of kill against kochia, even at the low-labeled rate. In the Pacific Northwest pome market, the use of Actigard® plant activator is increasing, with more growers successfully using it in a program with antibiotics at bloom.

WESTERN CORN BELT REGION



In the western Corn Belt, herbicide resistance and overall weed management are most growers' largest production issues after profitability. The rapid expansion of waterhemp and giant ragweed populations that are resistant to three to five herbicide classes has changed the way growers and resellers think about traditional weed management. From Kansas to northern Minnesota, these weeds, plus kochia and Palmer amaranth, are causing growers to aggressively question their typical management tools and decisions. Specifically in Kansas and Nebraska, Palmer amaranth has become the single weed species that is driving crop, trait and herbicide choice.

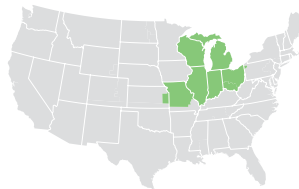
First and foremost, herbicide recommendations throughout the Corn Belt start with using at least three effective MOAs, all of which should have soil residual in two to three passes. In corn, the anchor herbicide is typically Acuron®. With four active ingredients and three effective MOAs, it's the perfect choice as the basis of



“First and foremost, herbicide recommendations throughout the Corn Belt start with using at least three effective MOAs, all of which should have soil residual in two to three passes.”

MIKE LEETCH
Agronomy Service Manager

EASTERN CORN BELT REGION



As we look to 2018 in the eastern Corn Belt, growers should continue to implement weed-management plans to minimize the spread of weed resistance to various herbicides. We continue to answer calls about how to manage waterhemp and marehail and effectively reduce the seedbank for subsequent years. Resistant Palmer amaranth weed management is an increasing concern for growers in southern Illinois and Missouri. Additionally, growers in northern Illinois continue to ask about the potential for corn rootworm (CRW) resurgence.

To effectively manage resistant weed biotypes, growers should employ a multifaceted approach. This includes starting with a clean field through tillage or the application of a burndown plus pre-emergence residual herbicide. Making at least two, sometimes three, herbicide applications per season with overlapping effective MOAs is critical to combatting resistant weeds. Herbicide choice is also paramount in the battle against resistant weeds. Selecting products with multiple—ideally three—effective MOAs is the foundation. Additionally, growers should remove any escapes early, so weeds do not go to seed and add to the seedbank. They also should use good agronomic practices, such as



“Growers should continue to implement weed-management plans to minimize the spread of weed resistance to various herbicides.”

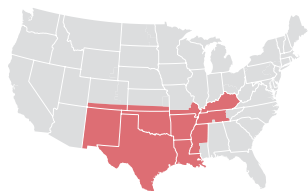
LEON HUNTER
Agronomy Service Manager

ASK the EXPERTS

establishing narrow rows and increasing plant populations, to promote crop growth and competitive ability.

For growers in northern Illinois with CRW concerns, proactive integrated pest management should be the focus. The current year's beetle numbers forecast the next year's CRW larval threat, so monitoring is critical to good decision-making. Under high CRW pressure, rotation to a nonhost crop is the first line of defense. Syngenta also provides multiple CRW traits and insecticide options, including Force® insecticide, which offers broad-spectrum control of soil insects, proven performance in high-pressure situations and no reported resistance after 25 years of use.

MID-SOUTH AND SOUTHWEST OF THE SOUTHERN AND EAST COAST REGION



One of our biggest threats will be the continuation of a problem that surfaced last year. Cotton bollworms (CBW) have become tolerant to the *Bt* gene, resulting in high, damaging populations in cotton. These same insects, also called corn earworms, infest corn and build populations throughout the growing season. All corn contains the *Bt* gene as well, so some worms from these early populations mature, pupate and emerge as adult moths that move into the more lush cotton crop to lay their eggs, when the corn matures. This part of CBW's life cycle takes place low in the plant canopy, making the eggs hard to find when scouting and then difficult to control with insecticides, due to lack of spray coverage and canopy penetration.

Mid-South university entomologists have done a great job alerting the industry about this issue. The best recommendation is to scout the cotton crop often, looking low in the plant canopy for eggs, and apply insecticides in a timely manner as worms are emerging from eggs. Most universities also monitor moth pheromone traps that can

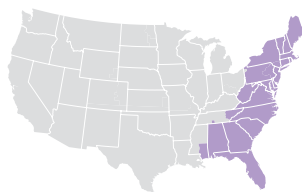


“Cotton bollworms have become tolerant to the *Bt* gene, resulting in high, damaging populations in cotton.”

JEFF MINK, PH.D.
Agronomy Service Manager

help alert everyone when moth flights are occurring—an early indicator that growers need to intensify scouting efforts. When applying insecticides, incorporate practices that help get better spray coverage and canopy penetration. These practices include choosing the right spray nozzle, calibrating sprayers properly, increasing water carrier volume and using adjuvants.

EAST COAST OF THE SOUTHERN AND EAST COAST REGION



In my geography, which extends from Maine to Florida, I have an extremely diverse crop mix. The challenges vary from crop to crop. However, the one commonality of all the areas is the challenge of low crop and commodity prices and producing the maximum profit per acre in order to stay in business, especially in areas recently hit by tropical storms. Some growers have had two to three years of disastrous weather, and they simply need to produce a good crop to retain enough credit to move to the next season.

In challenging times, the best agricultural products can elevate a grower's opportunity to maximize return on investment. That normally equates to yields exceeding the area's average, although in some crops, it is the maintenance of quality plus above-average yields. Syngenta has the product portfolio that allows such returns on investment. With the introduction of innovative products, including the Solatenol-containing brands (Trivapro®, Aprovia®, Aprovia Top and Elatus® fungicides), we continue to assist the grower in delivering yields and quality above the average in 2017. As we move into 2018, we'll continue to introduce new products, such as the Miravis® brand family of fungicides, which, upon registration, will allow us to meet growers' needs and further enhance their ability to produce the best crops possible. 🌱

“In challenging times, the best agricultural products can elevate a grower's opportunity to maximize return on investment.”

MARTIN WIGGLESWORTH, PH.D.
Agronomy Service Manager

INTERVIEWS BY SUSAN FISHER



THE NAME OF THE GAME

At Syngenta, brand names are backed by \$1.3 billion in annual research and development and a steadfast dedication to customer service.

By Matt Ehlers

Wheat seedlings treated with CruiserMaxx Vibrance Cereals seed treatment grow in an inoculated rhizotron display at the Syngenta Seedcare Institute in Stanton, Minnesota.



nyone who has ever earned his or her own money can appreciate the power of saving a dollar. When it comes time to buying a can of kidney beans, which do you pluck off the shelf—the name brand, which costs a little more, or the generic? Does it really matter if the facial tissue you purchase in the next aisle carries a certain ubiquitous brand name? Probably not.

But all products are not created equal. This is particularly true when it comes to production agriculture. Syngenta can spend \$300 million and 10 years or more developing a proprietary active ingredient. Then when that ingredient goes off patent, companies often crowd the market with lower-priced alternatives, angling for shelf space and hoping to sever longtime customer loyalties.

Generics, however, do not always perform up to the level of their original branded counterparts. Among the yield-killing issues that can arise: poor mixtures, equipment breakdowns, pest infestations and crop injury.

Active ingredients don't magically create quality products all by themselves. It is the chemical formulations—those precise blends of active and inert ingredients together—that combine to give growers what they need to overcome challenges in the field. This process takes years of laboratory testing and evaluating, followed by more years of Syngenta and university researchers field testing the formulations to make sure the active ingredient consistently performs as it was originally intended. Generic manufacturers often launch their inferior, knock-off products without any research to back them up. And while the “what” is important, so is the “how.” To develop a formulation, Syngenta uses proprietary formulation technology and specific manufacturing processes that can positively influence a product's stability dramatically. So what can a grower lose by choosing the generic alternative? The cost goes far beyond a can of beans.

Strong Relationships

Charlie and Ed Sanders' job descriptions would take up the entire back of a business card. For starters, they are brothers and growers of 2,000 acres of corn and soybeans. They are also co-owners of Sanders Farm Service LLC, in Charlestown, Indiana. As prominent ag retailers, they have, for decades, sold a variety of seed, fertilizer and chemicals.

When a customer approaches them with questions about generics, "It's usually driven by price," Charlie says. "As it gets harder and harder to earn a living at farming, there will always be growers who are trying to save a few dollars an acre."

There's nothing wrong with that. But the Sanders brothers believe strongly that investing in generics is not the way to go about it.

For them, Syngenta products come with the kind of service a grower will never receive with a generic. In the spring of 2017, Ed received a call from a grower who was battling a vicious outbreak of waterhemp, which is relatively new to southern Indiana.

Ed visited the grower and took photos of the offending weeds. He forwarded them to his Syngenta representative, Aaron Smith, and the two of them talked it out on the phone, as the sun set on the horizon.

"We came up with a solution right then and there," says Ed, who advised the grower to rework the ground and apply Dual II Magnum® herbicide. "With a generic, you don't have the ability to reach out for technical expertise."

The Sanders brothers implicitly trust their Syngenta rep. "Anytime, anyplace, anywhere, if I need something, I know he will be there," Ed says. "I'm not going to sell out that loyalty for a penny or two."

Breakthrough Science

Matthew Cottle is obsessed by formulation science. Armed with a bachelor's degree in chemical engineering and a doctorate in polymer chemistry, Cottle

Opposite page: Grower and ag retailer Ed Sanders (left) and Syngenta rep Aaron Smith (right) examine an ear of corn at Sanders Farm Service in Charlestown, Indiana. This page: Seedcare Platform Specialist Joe Kuznia (right) discusses application best practices with customers during introductory application training at the Seedcare Institute in Stanton, Minnesota.



is the group leader for herbicide formulation development at Syngenta.

“Formulation science appeals to me because I get to pair the research and development side with the opportunity to directly impact customers,” Cottle says. “We make all our formulations with the end user in mind.”

And that means the world to retailers and growers when talking about an active ingredient like mesotrione, which came off patent in recent years. Syngenta introduced mesotrione, an active ingredient in Acuron® and Halex® GT herbicides, to the market in 2001, when it launched the Callisto® family of herbicide technologies.

Today, a grower can walk into a local ag supply shop and buy a jug of generic mesotrione. But unless that grower

has Cottle’s educational background and a state-of-the-art formulation lab at his disposal, creating a generic that equals Acuron or Halex GT is impossible.

A Syngenta-branded mesotrione product contains specifically designed surfactants that enhance

Left to right: Top-quality crop protection products can help growers produce higher-yielding soybeans; Shelby Stark, a Syngenta quality assurance technician, documents seed-flow test results during application training at the Seedcare Institute in Stanton, Minnesota.

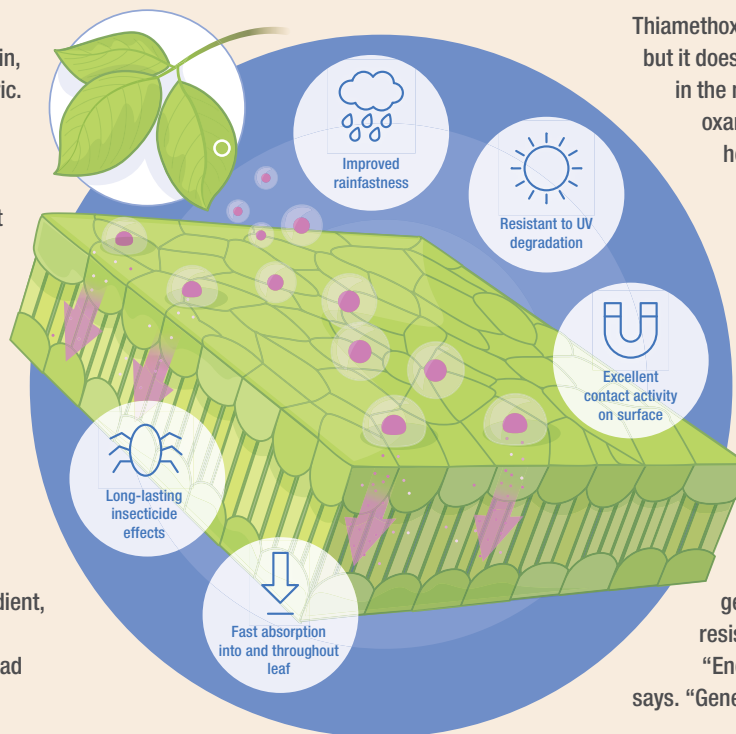


Technology Wins the Insect War

Endigo® ZC insecticide contains an active ingredient, lambda-cyhalothrin, which is widely available as a generic. So why would a grower looking for foliar insect control choose to buy the Syngenta-branded product?

“Endigo ZC is a premix that can’t be replicated by generics,” says John Koenig, insecticide technical product lead at Syngenta. “No one else has Zeon Technology.”

Zeon® Technology encapsulation, a Syngenta proprietary formulation technology, protects the active ingredient for a prolonged period and allows it to adhere to the plant surface better than its generic counterpart. When paired with the second active ingredient, thiamethoxam, Endigo ZC provides exceptional protection against a broad spectrum of insect pests.



Thiamethoxam is not available as a generic, but it does have a nonbranded competitor in the marketplace. In trials, thiamethoxam penetrates the leaf within 72 hours, much more quickly than its competition. Add it all up and Endigo ZC can’t be beaten, Koenig says.

But you don’t have to take a Syngenta employee’s word for it. Over the past couple of years, soybean aphids in southern Minnesota have demonstrated resistance to two pyrethroids, lambda-cyhalothrin and bifenthrin. At University of Minnesota trials, Endigo ZC has outperformed its generic counterparts against these resistant soybean aphids.*

“Endigo ZC is the real deal,” Koenig says. “Generics can’t touch it.”

*University of Minnesota, Extension, “Foliar-applied insecticide control of the soybean aphid.”



people are expecting. In a post-patent world, quality is what sets us apart. We hang our hat on that.”

Innovative Seed Treatments

The soybean seed-treating season lasts between four to eight weeks each year. Dealers cannot afford any disruption due to mechanical malfunctions or problems with their products.

“The last thing you want to do is shut down your operation in the middle of the season,” says Ravi Ramachandran, Ph.D., head of the Syngenta Seedcare Institute in Stanton, Minnesota. “Downtime means lost sales. Growers are not going to wait around.”

But Ramachandran has seen it time and time again,

when dealers use generic products. Often, the product ends up sticky, and seeds then clump together or attach themselves to the side of the treater drum.

In comparison, “Our products are of high quality and work without operational disruption.

Every drop of our products delivers the correct dose of treatment on the seed,”

Ramachandran says.

For instance, CruiserMaxx® Vibrance® Beans seed treatment

is a combination of separately registered products, featuring three fungicides and an insecticide. The RootingPower of Vibrance fungicide protects the entire root system, while unique polymers bind active ingredients to the seed coat, reducing fugitive dust and improving seed flow.

Having seed treatments that work in the field the way they are supposed to is important not only to growers, but to equipment manufacturers as well, says Chris Bursiek, manager of product safety standards for John Deere. He has visited the Seedcare Institute in Minnesota, where the treatments are developed and put through their paces.

“We receive great insight from companies like Syngenta that participate in the development of ag equipment standards,” Bursiek says. “We need to know that when we put that equipment in the marketplace, it will work well with the plant protection product.”

Relationships with partners outside Syngenta are integral to the company’s success.

“We have a very strong pipeline of technology. We have the best scientists, chemists and engineers in the industry,” Ramachandran says. “But creating top-tier products means working outside the laboratory. Collaborating with equipment manufacturers helps ensure our products—and customers—are set up for success.” 🌱

“We [Syngenta] can produce the quality that people are expecting. In a post-patent world, quality is what sets us apart. We hang our hat on that.”

—MATTHEW COTTLE



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its performance. These enhancements include protecting the active ingredient from degradation, stabilizing the formulation as it moves through the supply chain and improving formulation stability in the spray tank.

“Surfactants are the beating heart of a formulation chemist,” Cottle says, and he’s not alone in that feeling. “When you come into Syngenta as a new chemist, you’re building off the achievements of a team with 40 years of experience.”

As such, Syngenta mesotrione products feature proprietary stabilizers and compatibility aids, which allow them to perform in a variety of conditions and with all types of equipment. Syngenta scientists continuously test samples from bulk terminals in all regions to help ensure the company’s strict quality standards.

“We have the manpower to put our products through the ringer,” Cottle says. “We can produce the quality that





BURNING THE MIDNIGHT OIL

WEED MANAGEMENT IS 24/7, AND IT REQUIRES
AN INTEGRATED STRATEGY TO ENSURE
CONTINUED SUCCESS.

By Darcy Maulsby



While deposits in the bank are great when it comes to money, they're a disaster when it comes to the weed seed bank, especially as weed resistance continues to threaten soybean, corn, cereal and cotton crops.

"Selection pressure is a numbers game, and it's influenced by the seed bank," says Stanley Culpepper, Ph.D., an Extension agronomist of weed science at the University of Georgia. "You can't let weeds go to seed, especially those that cost you money."

No one knows this better than farmers in the South who have been battling glyphosate-resistant Palmer amaranth for 15 years. "This weed has cost Georgia's cotton industry well over a billion dollars," Culpepper says. "That's why you hear stories like the father and son who were on their way to church, saw a pigweed in their field and stopped to pull it, even though they were wearing their good clothes."

Sobering statistics also help tell the story. According to the International Survey of Herbicide Resistant Weeds, weeds have developed resistance to 23 of the 26 known herbicide modes of action (MOAs).^{*} In the South, Palmer amaranth tops the list of most

“ We need to tap into practices that have historically worked well and integrate them into a program that includes today's best herbicide technologies. ”

—DANE BOWERS

problematic resistant weeds. In the Corn Belt, the biggest threats include marestail, waterhemp, Palmer amaranth and giant ragweed.

"We don't have a plethora of new tools coming onto the market to control these weeds," says Bill Johnson, Ph.D., a professor of weed science at Purdue University. Johnson and many of his colleagues agree that the days of easy weed control are over.

"In some ways, it's back to the future with weed control," says Dane Bowers, technical product lead for herbicides at Syngenta. "There are no silver bullets on the horizon, so for a better future, we need to tap into practices that have historically worked well and integrate them into a program that includes today's best herbicide technologies."

Field-Tested Tips for Success

Aaron Hager, Ph.D., an associate professor of weed science at the University of Illinois, agrees that it's more important than ever for growers to follow integrated weed-management (IWM) practices and prevent weeds from adding to the seed bank. "No seed, no weed," he says.

Proven IWM practices include:

- > **Crop scouting.** Basic weed identification is step one to knowing what weeds are invading your fields, Hager says.
- > **Starting clean.** An effective pre-emergence herbicide helps control weeds before they take root. Boundary[®] 6.5 EC herbicide from Syngenta contains two modes of action and controls weeds, such as waterhemp and Palmer pigweed that are resistant to glyphosate, PPOs and ALS inhibitors. "This is one of the best products available to deliver proven early-season grass and broadleaf control in soybeans in part because it contains two non-glyphosate, non-PPO and non-ALS modes of action," says John Appel, product marketing lead for herbicides at Syngenta.

> Incorporating multiple effective modes of action.

Diversifying herbicide MOAs provides effective weed control and helps preserve the effectiveness of herbicides for future growing seasons. Field research shows that a tank mix can be more effective than rotating herbicides from season to season or within the same season. "When using an average of 2.5 MOAs per application, you are 83 times less likely to have resistance, compared to using only 1.5 MOAs per application," Hager says. Tests show that Prefix[®] residual herbicide from Syngenta, which provides pre-emergence weed control in soybeans, works well with a tank mix for post-emergence spraying. "Prefix is all about flexibility," Appel says. "With two modes of action, Prefix controls glyphosate- and ALS-resistant weeds. This helps maintain clean fields and increase yield potential throughout the season."

- > **Knowing the group numbers.** The Weed Science Society of America has adopted a herbicide-group numbering system to help growers select the right herbicide program for their farms. The system allocates



a unique group number to each herbicide MOA. For example, Acuron® corn herbicide from Syngenta contains four active ingredients and three effective MOAs (Group 5, 15 and 27) for multitargeted control of the most difficult weeds in corn. “You don’t need to remember which herbicide belongs to which mode of action,” Johnson says. “Use the classification numbering system that’s listed on the labels of herbicide crop protection products.” This numbering system also shows the benefits of incorporating BroadAxe® XC herbicide from Syngenta into a soybean weed-resistance-management program. Classified as both a Group 14 and 15 herbicide, BroadAxe XC helps maximize soybean yield potential through early-season weed management and long-lasting residual control. “BroadAxe XC combines multiple modes of action and is especially strong on Palmer amaranth, waterhemp, morningglory and kochia,” Appel says.

➤ **Using good stewardship.** Following proper application timing, using full rates and acknowledging the importance of residual herbicides, regardless of the trait platform, are the keys to effective weed management in corn, soybeans and cereals. “Don’t pick weed-control strategies just because they’re cheap,” Johnson says. Managing resistant weeds is a “pay me now or pay me later” situation, Bowers adds. “It may cost a little more now to take action, but you can save yourself a lot of money, time and frustration later.”

➤ **Adding diversified weed-management strategies.** Time-honored practices like mechanical weed control and crop rotation can improve weed management. Additionally, agronomic practices—from narrow rows to increased plant populations—that help crops out-compete weeds can play a role. Culpepper also notes that cover crops can be part of an effective, diversified weed-control strategy.

Modeling Longevity

Responsible weed resistance-management practices also extend to a proprietary resistance model from Syngenta that’s designed to predict the sustainability of a specific weed-control program in the face of *Amaranthus* species with resistance to multiple herbicide MOAs.

“No one has ever taken this approach before,” says Joe Wuerffel, Ph.D., a research and development scientist in the weed-control group at the Syngenta Vero Beach Research Center in Florida. He is collaborating with full-time herbicide resistance modeler Chun Liu, who works at the Syngenta Jealott’s Hill research facility in the United Kingdom, on this computer model to assess how long it will take for resistance to develop.

“By incorporating field and greenhouse data, the system can mimic the full life cycle of every single weed seed in the model,” Wuerffel says.

Resistance Fighter Promotes Sustained Herbicide Performance, Past and Present

In the late 1990s, Syngenta weed-control experts began hearing puzzling reports of marestail surviving herbicides.

“We recognized a significant issue was brewing,” says Dane Bowers, technical product lead of herbicides at Syngenta. “That’s when Syngenta founded the Resistance Fighter® program.”

Syngenta began sharing resistance-management strategies with growers, although not everyone embraced the program. “We took a lot of criticism from people who said glyphosate resistance would never be a problem,” Bowers says.

Syngenta persisted, though, and teamed up in 2005 with Stephen Powles, Ph.D., director of the Australian Herbicide Resistance Initiative at the University of Western Australia, to help resellers and growers learn more about managing resistance.

“Exclusive reliance on one product like glyphosate is a recipe for resistance,” says Powles, a world-renowned expert who has traveled the globe studying weed resistance. “Conversely, wherever there’s diversity in the ways weeds are controlled, resistance is not an issue.”

The Resistance Fighter program continues to promote this message by sharing the latest research, local recommendations and a comprehensive herbicide portfolio to help growers and resellers effectively manage resistant weeds in their areas. “Good weed control can still be achieved,” Powles says. “It just requires attention and creative solutions.”

Syngenta has developed regional herbicide recommendation sheets as a starting point for tailoring the optimal weed-management program for each unique operation. “Resistance Fighter is ingrained into everything we do with regard to weed management,” Bowers says. “The goal is to protect the viability of our herbicides, so growers can continue to have tools to effectively and economically manage weeds.”

To view regional recommendations and find out more about the Resistance Fighter program, go to www.resistancefighter.com.

The model simulates growers’ fields and focuses on soybeans and *Amaranthus* resistance. “It evaluates whether there’s low, medium or high risk of herbicide failure,” Wuerffel says. “It’s helping us predict the longevity of active ingredients in Syngenta crop protection products.”

The model shows that Syngenta residual herbicides, including Boundary 6.5 EC, BroadAxe XC and Prefix, have important roles to play in controlling the *Amaranthus* species and helping to maintain the viability of Roundup Ready 2 Xtend® soybeans and dicamba herbicide in weed-management programs.

All these resources play a role in managing weed resistance. “The ability to manage resistance is in your control,” Bowers says. “The sooner you start, the better off you’ll be.” 🌱

*Note: Site of action is the more proper term, but mode of action may be more familiar terminology. Mode of action is the series of events that lead to plant death, while site of action describes the actual target site in the plant where the herbicide acts.




Scout's

“THIS is a real job with responsibilities, customers and deliverables,” says John Taylor, agronomic service representative for Syngenta, “If you’re not ready for that, then don’t sign up.”

That’s what Taylor tells applicants to the annual Syngenta Citrus Scouting Internship Program, but he knows the interns’ actions speak louder than his words. In 2017, they sampled more than 35,000 trees, helping to provide scouting services for growers whose groves make up about 28 percent of the citrus acreage in Florida.

The internship program is an offshoot of two Syngenta legacy company programs. The Citrus Scouting Program, started in 1990, provided scouting services to growers who used Agri-Mek® insecticide. Data collected from participating growers’ groves demonstrated the revolutionary control of citrus rust mites that Agri-Mek provided.

The second predecessor was the Citrus Soil Assay Program, which began in 1992. This program used soil sampling to demonstrate Ridomil Gold® fungicide’s efficacy on *Phytophthora* root rot.

A man wearing a white and black baseball cap and a blue and white plaid shirt is smiling and holding a green orange. He is standing in an orange grove with many trees full of oranges. The background is bright and sunny.

Four former Citrus Scouting Internship Program participants enjoy each others' company as they walk down an orange grove middle in Labelle, Florida; (left to right) Zach Langford, Syngenta sales rep; Morgan McKenna, Syngenta sales rep; Cody Hoffman, CPS sales rep, and Matt Yeomans, harvesting supervisor at A. Duda and Sons, Inc.

The Syngenta **Citrus** Scouting Internship Program is beneficial for the students, the industry and the growers it serves.

By Chris Harrell

S Honor

How the Program Works Today

Built on these two initiatives, the current program continues to evolve based on growers' needs, available technology and interns' suggestions. Syngenta hires seven interns, who work from May until August in the Sunshine State. Four scouting interns are each aligned with a Syngenta sales representative's territory. They scout each block they are assigned within their territory every two weeks, monitoring for citrus rust mites, Asian citrus psyllids and leaf miners. The interns generate reports for their

growers and sales representative in near-real time. (See "The Power of Reports," page 24.)

Two of the interns pull soil samples throughout Florida. The demand for these samples grew, as citrus greening spread across the state and growers became more interested in their trees' root health. Several years ago, interns pulled 300 or 400 samples in a busy summer. That number is now closer to 2,000.

Finally, one lab intern, located at the Syngenta Vero Beach Research Center, is responsible for processing



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The Power of Reports

For participants in the annual Syngenta Citrus Scouting Internship Program, the tablets and smartphones that the company provides come with far-reaching responsibilities. The interns use them to generate critical pest reports for Florida citrus growers, by tapping into the Land.db® farm-management software that's accessible to them. Land.db is the same platform available to Syngenta AgriEdge Excelsior® growers.

"Before interns begin scouting, they save information about the blocks they will cover from Land.db directly to their devices," says Morgan McKenna, the Syngenta sales representative who manages the interns' data. "That way they don't lose the pest data they collect if signal service drops, and they can synchronize with the software whenever service is available."

Each intern generates reports by block or field and emails them to the grower and the appropriate Syngenta sales representative. They can generate the reports with various degrees of detail, depending on grower preference and level of pest activity occurring in the grove. They can also create graphs with specific date ranges that show the peaks and valleys of pest populations within a block.

"This information allows growers to see when pest populations rise and fall, providing an excellent overview for when they need to apply a pesticide or gauge how well a particular treatment is performing," says McKenna.

Above: In Labelle, Florida, Morgan McKenna (right), Syngenta sales rep, checks an orange for citrus rust mites, while Zach Langford (left), Syngenta sales rep, records the data using Land.db farm-management software.

soil samples. That includes calculating root mass, testing for *Phytophthora*, running resistance screens and building reports.

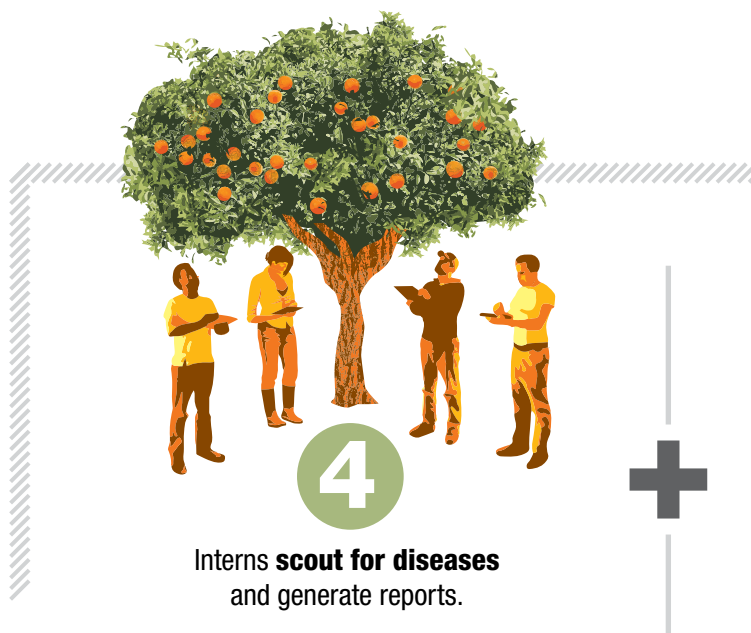
Zach Langford is a sales representative for Syngenta and former intern. He's now in charge of the program and says it enables more productive conversations and builds confidence with growers. "We like being able to show a grower data pre- and post-application of our products," he says. "We know the thresholds going into the application, so we can actually track length of control."

Minecto® Pro insecticide, launched in 2017, is a great example of this process. Data the interns generated in 2017 showed growers how well it worked in their groves. "We brought Minecto Pro to the citrus market last year, and the citrus intern program provided great support," Langford says. "The interns were out in the same blocks every two weeks, generating reports before and after Minecto Pro was applied, so growers saw how long and how well it controlled leafminers, mites and psyllids."

Helping the Best Get Better

Many students sign up for summer internships with excitement, then find the experience they receive is mostly organizing filing cabinets or sweeping warehouse floors. The Citrus Scouting Internship Program is different. The program is competitive, and with more than 30 applicants competing for seven positions last year, only a few are accepted. Asked if the program instills a good work ethic in the interns, Taylor laughs, "They have that when they start. We wouldn't pick them if they didn't."

The program positions students for a successful future by cultivating independence, time management and



networking abilities. Interns often go on to become leaders in the industry. Some stay with Syngenta, others become growers or partners in retail or academia, and a few go to work for competitors.

What truly sets this program apart is the amount of independence and responsibility Syngenta gives the interns. They work directly with the growers in their territory, providing scouting reports and follow-up if there are additional questions. The interns' supervisors are available to answer questions, but they don't tell the interns how to do their jobs.

Cody Hoffman, now a sales representative with CPS in Immokalee, Florida, joined the intern program in 2006. He learned how growers operated their businesses and how to talk to them—skills he uses today. “No one told me where to be every day, because that wasn't the point,” says Hoffman. “I learned to be efficient and organize my territory. It was hard work, but it was very rewarding.”

The program demands the interns develop good time-management skills. The size of the territories they cover, along with variables like weather and spray schedules, require organization and flexibility. For many, this is an empowering experience.

Morgan McKenna, who grew up in a citrus farming family, interned in 2012 and 2013. Now she's a sales representative with Syngenta and manages the data the interns collect. She enjoyed the internship's structure so much that she returned for a second summer and then took a full-time position with Syngenta. “It was the first time in my life that I didn't have a parent, teacher or somebody telling me how to accomplish my tasks, and I loved it,” says McKenna.

The most tangible benefit the internship provides is the opportunity to network in the industry. Interns meet a lot of people—Syngenta employees, growers and other industry leaders—who are valuable contacts for students about to begin their careers.

Matt Yeomans, citrus harvesting supervisor with A. Duda & Sons, Inc., interned in 2002. He says the internship broadened his view of the citrus industry beyond what he'd seen locally and helped him mature. “If we have an applicant we don't already know and they went through the internship program, it carries some weight if John or Morgan says that applicant would be a good hire.”

A Grower Service

When growers place their trust in a company's products, there's an understanding that the company will stand behind those products. The Citrus Scouting Internship Program is a manifestation of that understanding, and growers seem to appreciate it.

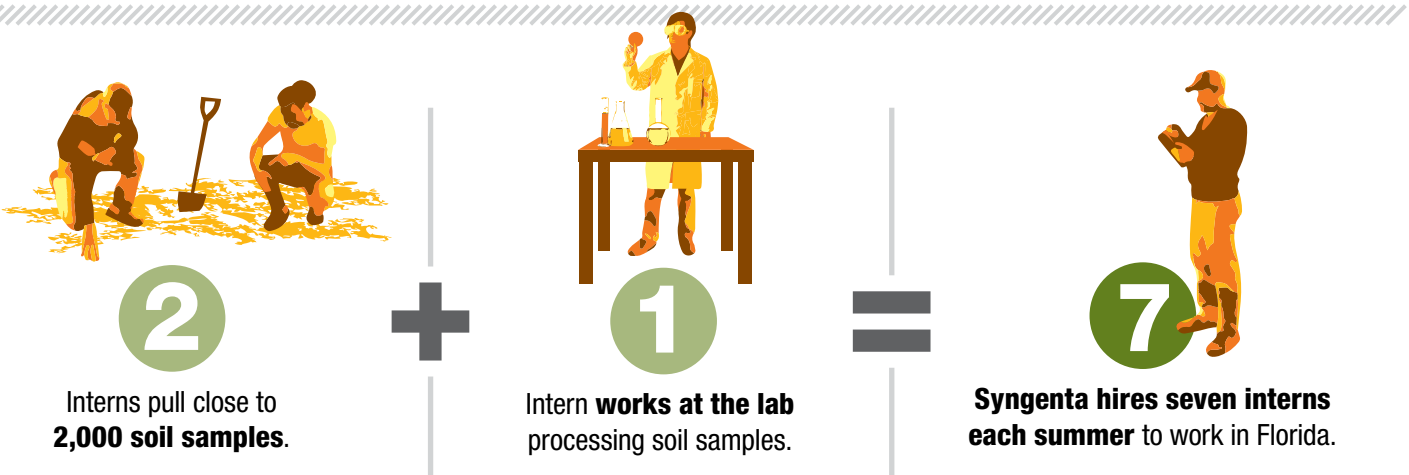
Lindsay Raley, president of the Dundee Citrus Growers Association, knows firsthand the importance of the internship program. Syngenta interns have monitored rust mite populations in his groves for several years. “The interns are very dedicated, and they get me the information I need in a timely manner,” Raley says.

The program is a lot of work for a lot of people. The interns work hard all summer. Syngenta employees spend extra time recruiting and training participants. But in the end, it's citrus growers who give the program purpose.

“I'm no longer working on my family's farm, but I know a grower's dollar is precious,” McKenna says. “My first year as an intern, John taught me that we need to be more than active ingredients. Any company can put a chemical in a jug, but Syngenta provides growers the service they need to be more profitable.”

“Any company can put a chemical in a jug, but Syngenta provides growers the service they need to be more profitable.”
—MORGAN MCKENNA

Note: The opinions of former interns are based solely on their own experiences and do not necessarily represent the opinions of their current employers.



Breaking Down Barriers

Syngenta and its association partners are promoting U.S. crops around the globe.

U.S. farmers are among the most efficient in the world, says Ryan Findlay, industry relations lead for Syngenta. “We have the most abundant, most affordable, safest food supply, because of our technology and the farmers who implement that technology,” he says. “We are able to produce far more than we consume, making global trade crucial for U.S. agriculture.”

But the complexities of selling U.S. commodities internationally are constantly increasing. Staying ahead of it all are many agricultural associations and Syngenta employees who work every day with foreign countries to develop a marketing preference for U.S. commodities.

Negotiating Tariff Barriers

Tariff barriers have long been the impetus for free trade agreements beneficial to agriculture. “After we established NAFTA [North American Free Trade Agreement], we experienced rapid growth in trade with Canada and Mexico in agriculture,” Findlay says. With NAFTA under renegotiation, Syngenta is engaging with U.S. government officials to monitor and discuss the impacts of that renegotiation—and of any other free trade agreement.

“We have partnerships with groups like BIO [Biotechnology Innovation Organization], U.S. Grains Council and others to review proposals, make comments and discuss the impacts on farmers,” Findlay says. “The partnership with U.S. Grains Council is critical, because it is doing a lot of the work in trade agreements that’s going to be extremely beneficial for farmers moving forward.”

Tom Sleight, president and CEO of U.S. Grains Council, points to a current example of concern: a 5 percent tariff inhibiting exports of grain to Vietnam. “Vietnam is the fastest growing feed market in the world,” he says. “That 5 percent tariff was removed under the Transpacific Partnership, but we pulled out of that agreement, so it’s back on the table. We’re always on the lookout for similar tariff barriers. We’ve made a lot of progress, but taking their place have been nontariff barriers.”

Overcoming Nontariff Barriers

Those nontariff barriers encompass a variety of trade impediments. Maximum residue limits (MRLs) on approved pesticides are among the most crucial currently. “MRLs, in the last several months, command much more attention in global trade, almost rivaling biotech,” Sleight says. “Some people say they could become the new biotech in terms of trade barriers.”

A global standard exists for those residues, called Codex Alimentarius, but some countries are establishing their own MRLs. “That becomes a challenge when countries’ MRLs are below Codex,” Findlay says. “MRLs are a trading standard used to ensure the product was used as directed by the label. There is a rise in countries developing their own national MRL lists, instead of using Codex. This lack of acceptance and use of Codex MRLs may create nontariff trade barriers.”

Europe, for example, has effectively created a ban on neonicotinoids, as officials there decide where to set the MRL, a major concern for U.S. farmers, Findlay says. “We’re meeting with the Europeans to explain what the products are, why we use them, their safety and the impact of MRLs on their access to grain.”



Approval of Genetically Engineered Traits

Biotechnology approvals can also present a kind of nontariff barrier and are a key focus for some agricultural associations. “The most important thing we can do for our members is advocate for biotech regulations around the world to be based on the best available science and not factor in issues, such as social or economic considerations,” says Matt O’Mara, vice president of BIO.

China and Europe are the two most significant markets of concern today, he says, where the average approval timeline lasts roughly five years. (The U.S. process typically takes two years or

less.) He describes Chinese approval processes as unpredictable, nontransparent and often asynchronous—meaning technology is approved here, but not there.

“That time gap between approvals in exporting countries and approvals in importing countries represents a very

significant problem for biotech companies,” O’Mara says. “Often a company will decide to restrict the commercialization of that product in the countries where the product has been approved.”

Part of the problem is that China won’t allow companies to even submit a product for review, until it is already approved in the cultivating country, creating an immediate delay of about two years, says Sarah Lukie, managing director of regulatory and multilateral affairs for plant biotechnology at CropLife International. China’s often-unscientific requirements further delay the process.

“In-country field trials are required, for example, for a product that’s simply being brought in for food or feed processing,” Lukie says. “If it is a product intended to just be used for food and feed processing, then obviously the risk assessment should flow from that use.”

Part of CropLife International’s work is coordinating advocacy for change in those processes. “We will work with the exporting countries that are trading with China, and key among those is the U.S., so that they will understand the key advocacy points and communicate them to China,” she says.

Trade will continue to be the lifeblood of U.S. agriculture, given that about 97 percent of the world’s population lives outside its borders. “And 97 percent of anticipated population growth over the next 35 years will take place outside the U.S,” Sleight says. “The international market is where U.S. agriculture needs to be focused—and it is.”

STORY BY SUZANNE BOPP

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To Graduation and Beyond

The 2017 Syngenta Agricultural Scholarship winners are well on their way to joining previous recipients as tomorrow's leaders in agriculture.



Each year, the Syngenta Agricultural Scholarship program recognizes and rewards deserving bachelor's- and master's-level students enrolled in agricultural-related studies. The outstanding young people who receive the scholarships—awarded at both the regional and national level—represent a future generation of leaders, often providing insights about the impact they will make in essays they write for the competition.

The two national winners of the 2017 scholarship award are Aimee Uyehara, a graduate student who plans on becoming a researcher in crop science, and Abigail Han, an undergraduate who hopes to begin her career working for FoodCorps, a program within AmeriCorps.

Both of these scholarship recipients aspire to someday make a significant difference in the lives of yet another generation, as they plan to teach college and grade school students about crop production, respectively.

Regional and national winners each year share in the \$20,000 annual Syngenta scholarship fund. A panel of judges selects eight regional winners, who are awarded \$1,000 each. From the eight regional winners, the judges select two national winners, who receive an additional \$6,000 each.

Fresh Perspectives

Every year, Syngenta chooses an essay topic for scholarship

applicants to address. The assignment serves to stimulate the students' creativity, so they can share their perspectives on a facet of agriculture. The 2017 essay topic prompted applicants to address what diversity meant to them.

"Agriculture connects people and cultures," wrote Uyehara, who will graduate in the spring with a master's degree in tropical plant and soil science from the University of Hawaii. "We've become more connected to each other via a global food network. We are now, more than ever, dependent on each other for survival."

Han, who will graduate in May 2019 with a bachelor's degree in crop and soil science from Virginia Polytechnic Institute and State University, wrote in her winning essay: "Just as in an ecosystem where biodiversity creates stability and resilience in a community, diversity within a field of work creates a positive effect. Food security, one of the most pressing issues in agriculture and the world, in general, is a problem that will require people of all backgrounds, races and disciplines to come together to solve."

Future Goals

After graduation, Uyehara plans to pursue a doctorate in crop science. She will use a portion of the scholarship to apply to Ph.D. programs and the remainder for her doctoral study. "Eventually, I'd like to have my own research laboratory and mentor students," she

says. "I'd like to have a position with a university."

Currently, Uyehara is serving as a graduate research assistant. "I research for the lab and help undergraduates troubleshoot their projects," she explains. "I'm excited about eventually working with students one-on-one and having a broader impact."

At Virginia Tech, Han is a junior focused on classical plant breeding and molecular genetics. She also is pursuing a minor in geospatial information systems and global food and health, a new program at the university.

She's already applied the scholarship money she received from Syngenta to her spring 2018 tuition. "The scholarship means less financial stress on my family," she says.

Han has been an advocate for agriculture by talking to younger students about her studies and the career opportunities in agriculture. And last spring, Han also served as an intern for her local congressional representative.

"With my interest in agriculture, I wrote a brief about perennial-grain research," she explains. "I also attended House Agriculture Committee hearings. To continue learning about agricultural policy, I will be attending a food-security conference in December in South Africa."

Han plans to attend graduate school, and she would like to teach children about agriculture and help start a school garden one day, she says.

Making a Difference

Sharon Perrone, one of the 2016 recipients of a Syngenta Agricultural Scholarship, is working as a teaching assistant in the department of horticulture at the University of Minnesota, while also working toward her master's degree in applied plant sciences. She's also a member of the American Society of Agronomy and the Soil Science Society of America.

After graduating in spring 2018, Perrone said that she would like to integrate science-based conservation practices into national agricultural extension, outreach and policy. An example would be helping farmers connect with funding sources, such as the U.S. Department of Agriculture's Natural Resources Conservation Service.

Perrone said that she'd encourage any student to apply for the Syngenta Agricultural Scholarship. "Be honest with yourself," she recommends. "Examine where you're going and where you've been, and give credit to the people who have helped you along the way."

Of the Syngenta scholarship, Perrone says, "I was honored and grateful to have received the scholarship and the recognition. I felt like part of a professional community working toward addressing the world's grand challenges."


Syngenta is already accepting applications for its 2018 scholarship. Applicants are asked to tell their unique stories of how they are #RootedinAg and how they will become the

"Food security is a problem that will require people of all backgrounds, races and disciplines to come together to solve."

—ABIGAIL HAN



Clockwise from top: Abigail Han, the 2017 undergraduate Syngenta Agricultural Scholarship winner, is studying classical plant breeding and molecular genetics; Aime Uyehara, the 2017 graduate scholarship recipient, plans to pursue a doctorate in crop science; Sharon Perrone was one of the 2016 recipients of the scholarship.

branches growing from their ag roots that will enable them to reach new heights to benefit today's and tomorrow's world. Visit www.syngentaus.com/scholarship for more information on how to apply.  STORY BY LYNN GROOMS



Ripple Effect

Syngenta makes a long-term commitment to the NK seeds brand and honors the 2017 Farm Managers of the Year and #RootedinAg winner.

HONORS & RECOGNITIONS


2017 Farm Managers of the Year Honored

Raised on farms, Allen Hatley and Tim Cobb share a passion for agriculture and a lifelong desire to work in farming. In 2011, they teamed up to form Hatley/Cobb Farmland Management and have been delivering top-notch client service ever since, earning them the title 2017 Professional Farm Managers of the Year.

Today, Hatley and Cobb manage more than 100,000 acres of farmland and work with 75 clients in the Pacific Northwest. Over the past three years, they have earned an impressive 100 percent client retention rate, largely because of their dynamic partnership, which allows them to mix tradition with innovation and provide a unique perspective to help their clients succeed.

The older of the two, Hatley brings a strong sense of tradition to the partnership, including his community ties that span four decades. As the younger partner, Cobb brings a new, innovative way of thinking to the firm and believes there is a huge opportunity in the farm-management industry, especially in terms of technology.

"I'm grateful to work with someone like Allen who brings his own strengths and abilities to the table," Cobb says. "Although he is headed for retirement soon, he has been a great friend, mentor and business partner, whose incredible career should be celebrated."



"I'm grateful to work with someone like Allen who brings his own strengths and abilities to the table."

—TIM COBB

Allen Hatley (left) and Tim Cobb (right), the 2017 Professional Farm Managers of the Year, manage more than 100,000 acres of farmland in the Pacific Northwest.



Both men are accredited farm managers and are active in the Washington state American Society of Farm Managers and Rural Appraisers chapter.

To read more about their story and view a video about their winning partnership, go to www.syngentathrive.com/community. The video is also available at www.farmmanageroftheyear.com.



MILESTONES

Investment in NK Shows Commitment to Retail Seeds Brand

Retailers and growers will have even more choice and greater value through a reinvigorated NK® seeds brand, after Syngenta announced a comprehensive, long-term commitment that includes boosting research and development, expanding staff, and increasing retailer support in the U.S.

As part of the investment, the number of plant breeders will increase by 50 percent and the number of product selection leads will increase by 38 percent. In addition, trialing will expand by 30 percent.

“We expect to develop and deliver game-changing innovations that will keep improving growers’ performance—innovations like NK hybrids featuring Agrisure Duracade® 5222 E-Z Refuge® that offer the ultimate trait stack of premium insect control, choice and simplicity,” says David Hollinrake, president of Syngenta Seeds.

Retailers and growers will also see an expansion of dedicated NK staff already underway: Through 2018, NK sales and agronomy teams will triple in size.

“At a time when many in the industry are consolidating and challenged with cost cutting, we believe that by taking a firm stand on our intentions, we will earn the confidence and support of retailers,” says Quinn Showalter, head of NK sales. “By increasing our investment not only in research and development, but also in our people, we’re able to provide greater local support and enable our retailers to better serve their growers’ needs and deliver greater value.”

To learn more about the science-driven boost to portfolios that NK hybrids and varieties provide, visit www.nk-us.com.

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G&S1238.1 01/2018

SLC 1046W 11-2017

A Lasting Legacy

The 2017 #RootedinAg contest winner recalls the indelible imprint her father has made on her life.

Tori Streitmatter vividly remembers racing her brother and sister home from school during calving season. If she found a calf in the barn, she not only earned a dollar but was also given the opportunity to write the number on the animal's ear tag.

Moments like that from Streitmatter's childhood flood her memory when someone asks about her father or her upbringing in the small town of Sparland, Illinois.

"Looking back, it's hilarious, but those are the little perks that we looked forward to," she says.

Streitmatter recently won *Thrive's* #RootedinAg contest, which asked growers and other ag industry professionals

across the country to describe the person who most nourished their agricultural roots. She chose her father, Dave. Today, he primarily grows corn and soybeans on the family's sixth-generation farm.

Streitmatter says her father is the architect behind her work ethic and devotion to her agricultural community. She recalls no matter how many sports or extracurricular activities she and her siblings took part in, her father made sure they were always in 4-H and FFA.

"Throughout all my schooling, I wanted to be like Dad, always networking, making friends and not knowing a stranger," she says.

That sense of community and networking, central to the agriculture industry, led Streitmatter to her current role at GROWMARK, Inc., in human resources and talent acquisition. She says the connectivity her father preached has come full circle as she helps bring new faces into the industry.

Her contest win will also help Streitmatter benefit others in agriculture. Syngenta has made a \$1,000 donation in her name to the Midland FFA Alumni to help students who are pursuing ag degrees in her local area attend regional and national conferences.

"Students often ask me, 'How do I get where you are?' And I tell them getting involved is key," Streitmatter says. "You can learn a lot in the classroom, but you really connect the dots when you see so many people in one organization taking action."

When she was growing up, Streitmatter's grandparents lived nearby and played active roles in developing her agricultural roots. Her father made sure she knew the history of their family.

"It was important to my dad," Streitmatter says. "Now it's important to me to carry on the legacy that my family members worked so hard to achieve."

Go to www.syngentathrive.com/rootedinag to read other #RootedinAg stories.  STORY BY SHANE NORRIS

The Streitmatter family enjoys a day together on the farm; (left to right) Taylor, Tori, Kaitlyn, baby Reid, Jay, Ann, Dave and Clutch, the dog; (opposite page, left to right) Dave and Tori.



 **SEE MORE PHOTOS.**
www.syngentathrive.com/community

“Throughout all my schooling,
I wanted to be like Dad, always
networking, making friends
and not knowing a stranger.”

—TORI STREITMATTER



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