

Growing Together

> 1Q | 2017

thrive[®]

A GREAT BEGINNING

New Seedcare Institute[™]
Helps Growers Boost Yields

**PROACTIVE STEPS
MAKE WEEDS AN
EMPTY THREAT**

**MILLENNIALS
COLLABORATE
FOR SUCCESS**

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 A seed treatment helps a young corn seedling get off to a strong start in Beaver Crossing, Nebraska. Photo: Bob Ervin

THIS PAGE Left to right: Syngenta rep Trent Rowland, grower Rob DeFauw and farm owner Rock Katschnig discuss this year's corn crop at the K Ranch Farm in Geneseo, Illinois. Photo: Mark Tade

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.



A Culture of Collaboration

Like most of you, I believe that working in agriculture is more than what I do. It's a big part of who I am. Growing up on my family's farm in Illinois, I learned at an early age that self-reliance and hard work are the engines that drive success. But I also learned that teamwork and partnership are what it truly takes to sustain that success.

As the new year begins, these life lessons resonate strongly. Even though technical and regulatory complexities are making the delivery of new products increasingly difficult, the collaborative culture of Syngenta is yielding a continual stream of innovations. A we'll-figure-it-out-together mentality permeates throughout our teams—from our scientists around the world to our sales representatives down the road.

This issue of *Thrive* introduces you to some of these people and the solutions they are championing.

In one article, you'll meet the experts at the new Syngenta Seedcare Institute™, a state-of-the-art research and training facility in Stanton, Minnesota. In another, you'll go on the road with our Harvest Chasers, who have discovered 2016's top-performing hybrids and varieties. You'll also meet growers from across the Corn Belt who are proactively managing weed resistance with some of our newest herbicide technologies.

Of course, resellers like you play a lead role in placing these innovations on farms, where they can make a real difference. You have the ability to take the complex and make it simple—and the respect it takes to inspire growers to listen. We, too, are getting back to the basics and renewing our intensity on agronomy. With our think-like-a-grower focus and your help, we can address some of the most difficult challenges on the farm.

Solving problems together is what we in agriculture do best. As our most valued partners, you can count on Syngenta to be by your side throughout 2017 and beyond. After all, this industry that we share is the foundation of who we are today and who we'll continue to be tomorrow. 🌱



JEFF ROWE
President of Global Seeds and North America
Syngenta

“A we'll-figure-it-out-together mentality permeates throughout our teams—from our scientists around the world to our sales representatives down the road.”



JEFF ROWE

About Jeff Rowe

Jeff Rowe joined Syngenta in 2016 as president of the company's global seeds business and North America region, bringing with him more than 20 years of industry experience. Based in Minnetonka, Minnesota, he is responsible for the seeds strategy and execution, and leads the North American business across seeds and crop protection. Rowe holds a bachelor's degree in agricultural economics from Iowa State University, a doctorate in law from Drake Law School, and a Global Executive MBA from the NYU Stern School of Business and the London School of Economics. Married with four children, he grew up on an Illinois row-crop and livestock farm.

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



What's in Store

Discover the latest news, events and product developments, including new winter wheat varieties and a new fungicide in the development pipeline.

NEW PRODUCTS

New Vibrance Product Available in Potatoes

New to the Syngenta Seedcare™ portfolio, CruiserMaxx® Vibrance® Potato insecticide/fungicide seed treatment is now available. The seed treatment combines three industry-leading fungicides, including Vibrance seed treatment fungicide for *Rhizoctonia*, *Helminthosporium* and *Fusarium* protection. Additionally, Cruiser® seed treatment insecticide provides exceptional protection against key insects, such as Colorado potato beetles and leaf miners.

“The unique combination of four active ingredients helps establish stronger, more vigorous roots in potatoes,” says Kris Pauna, Seedcare commercial product lead at Syngenta. “CruiserMaxx Vibrance Potato also protects against seedborne diseases and early soilborne infections, and helps improve sizing and



These russet potatoes are part of a healthy harvest in Yakima County, Washington.



tuber distribution for maximum yield potential. It's the most comprehensive disease and insect protection available for young potato crops.”



A New Tool for Controlling Weeds in Cereals

Talinor™ herbicide has received federal registration from the Environmental Protection Agency, giving wheat and barley growers a new option for managing weed resistance and controlling damaging broadleaf weeds in 2017, pending state registrations. The new herbicide combines bicyclopyrone, the company's latest active ingredient for managing weeds in cereals, with bromoxynil.

With its two active ingredients and two modes of action, Talinor delivers excellent standalone control of resistant and other difficult-to-control broadleaf weeds, including kochia, mayweed chamomile, Russian thistle and wild buckwheat. In addition to flexible crop rotation and a wide application window, the new herbicide provides excellent tank-mix flexibility and is an ideal mix partner with Axial® brand herbicides for one-pass grass and broadleaf weed control. Talinor also is conveniently packaged with CoAct™ additive to deliver optimum performance.



PRODUCT UPDATES

Halex GT Celebrates 10 Years of Reliable Performance

Because weed pressures often shift, new herbicide introductions and adjustments are common to farm management practices. But even as it reaches its 10th year on the market, Halex® GT corn herbicide continues to deliver excellent weed control year after year. Specifically designed for glyphosate-tolerant corn, Halex GT is an integral part of weed-resistance management programs. That's why nine out of 10 growers who try Halex GT say they will use it again.*

Syngenta has created a new video featuring a longtime Halex GT user. To view the video or to learn more about the herbicide's reliable performance, visit www.halexgt-herbicide.com.

*2014 Syngenta market research

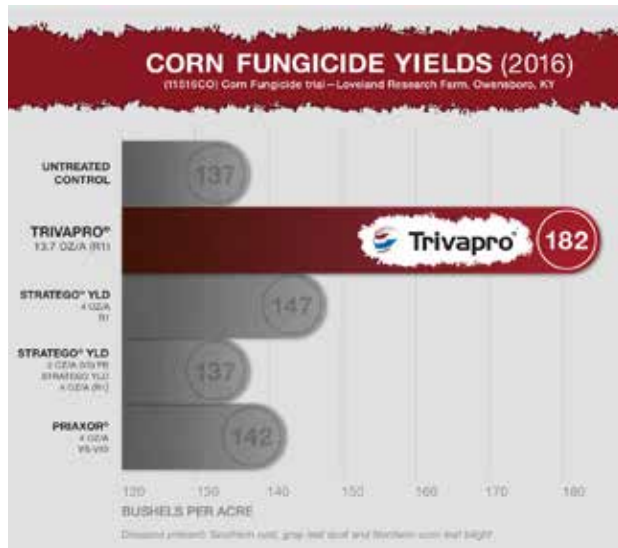


Trivapro Performs in 2016

Yield results from 2016 on-farm trials with Trivapro® fungicide are now available. Some of the highlights include:

- > In a trial conducted at Loveland Research Farm in Owensboro, Kentucky, where cornfields were infested with Southern rust, Northern corn leaf blight and gray leaf spot, an R1 application of Trivapro fungicide provided an average of 40 more bushels per acre compared with the following competitive programs:
 - >> Single-pass programs of Stratego® YLD and Priaxor® fungicides
 - >> Two-pass program of Stratego YLD
- > Arty Harber, a crop adviser with the McGregor Company in Dayton, Washington, reported a 14.8 bushel-per-acre bump in wheat treated with Trivapro, compared with acres treated with Priaxor + AgriStar® Propi-Star® EC fungicide, when applied between Feekes 3.0 and 5.0.
- > Additionally, Midwest soybeans treated with Trivapro showed a 10 to 15 bushel-per-acre increase.

Syngenta debuted Trivapro for use on corn, soybeans and wheat in 2016. This year, Syngenta anticipates registration of the fungicide as a premix, making it available in shuttles, bulk tanks and jugs. Registration on U.S. barley is anticipated in 2017, which will also expand its use this season. For more information, visit www.syngenta.com/trivapro or contact your Syngenta representative.



A young soybean crop flourishes because the grower carefully selected the right variety—a decision that analytics can make easier.





NEWS

2017 Syngenta Crop Challenge in Analytics

Syngenta has partnered with the Institute for Operations Research and the Management Sciences (INFORMS) to host the second annual Syngenta Crop Challenge in Analytics, a competition that focuses on using analytics to address the problem of world hunger.

While the inaugural challenge explored how analytics could help a grower select soybean seed varieties, this year's challenge focuses on a different decision maker—the seed retailer. Using provided data sets, participants are asked to predict which seed varieties a seed retailer should stock one year in advance of planting soybean crops to maximize yield across a given region. The

judges will evaluate entries based on the rigor and validity of the process used to determine which variety or varieties are selected for planting.

“Syngenta strives to modernize agriculture and make sure the industry’s practices are as advanced and efficient as possible,” says Joseph Byrum, Ph.D., MBA, PMP, who is a senior R&D strategic marketing executive with Syngenta. “We value the talents and skills of those who do not necessarily have an agriculture industry background. The Syngenta Crop Challenge is the epitome of collaboration and crowdsourced problem-solving.”

The winner of the Syngenta Crop Challenge will receive \$5,000, while the runner-up and third-place finisher will receive \$2,500 and \$1,000 respectively. Syngenta will announce the finalists on Feb. 24, 2017. For more information, go to www.ideaconnection.com/syngenta-crop-challenge.

“The Syngenta Crop Challenge is the epitome of collaboration and crowdsourced problem-solving.”
—JOSEPH BYRUM

TRADE SHOWS AND CONFERENCES



Join Syngenta at one of the upcoming events below to preview 2017’s newest technologies and solutions.

FEBRUARY 2017

15–18 National Farm Machinery Show
Louisville, Kentucky

MARCH 2017

2–4 Commodity Classic
San Antonio, Texas

3–4 Mid-South Farm & Gin Show
Memphis, Tennessee

Yield Revealed

Despite facing production challenges in 2016, many corn and soybean growers across the Midwest had abundant harvests.

To cross the finish line to a successful season, growers often must clear a few agronomic hurdles along the way. Common obstacles include excessively wet or dry conditions, crop diseases, and pest pressures. In 2016, however, many growers using Syngenta corn and soybean products noted success even in the face of in-season challenges.

The Syngenta Harvest Chasers, an annual initiative that helps single out the top-performing corn hybrids and soybean varieties, sought out these positive experiences across the country and reported them on the *Know More, Grow More* agronomy blog this past fall. Each field experienced the growing season a little differently. But with products from Syngenta—such as Golden Harvest® Corn, NK® Corn, NK Soybeans and Enogen® Corn, and advanced traits and technologies, including Agrisure Artesian®, Agrisure Duracade® and Agrisure Viptera®—many growers were able to achieve exceptional yields, no matter the cards the growing season dealt them.

Disease Tolerance in Action

Disease proved to be one of the toughest challenges for soybean growers in many parts of Wisconsin in 2016. With a cool spring followed by a wet summer, white mold and sudden death syndrome (SDS) popped up in many soybean fields throughout the state. But growers who had SDS and white mold protection built into the genetics of their soybean varieties were able to get

through the season not just with stronger, healthier crops, but with increased yields as well.

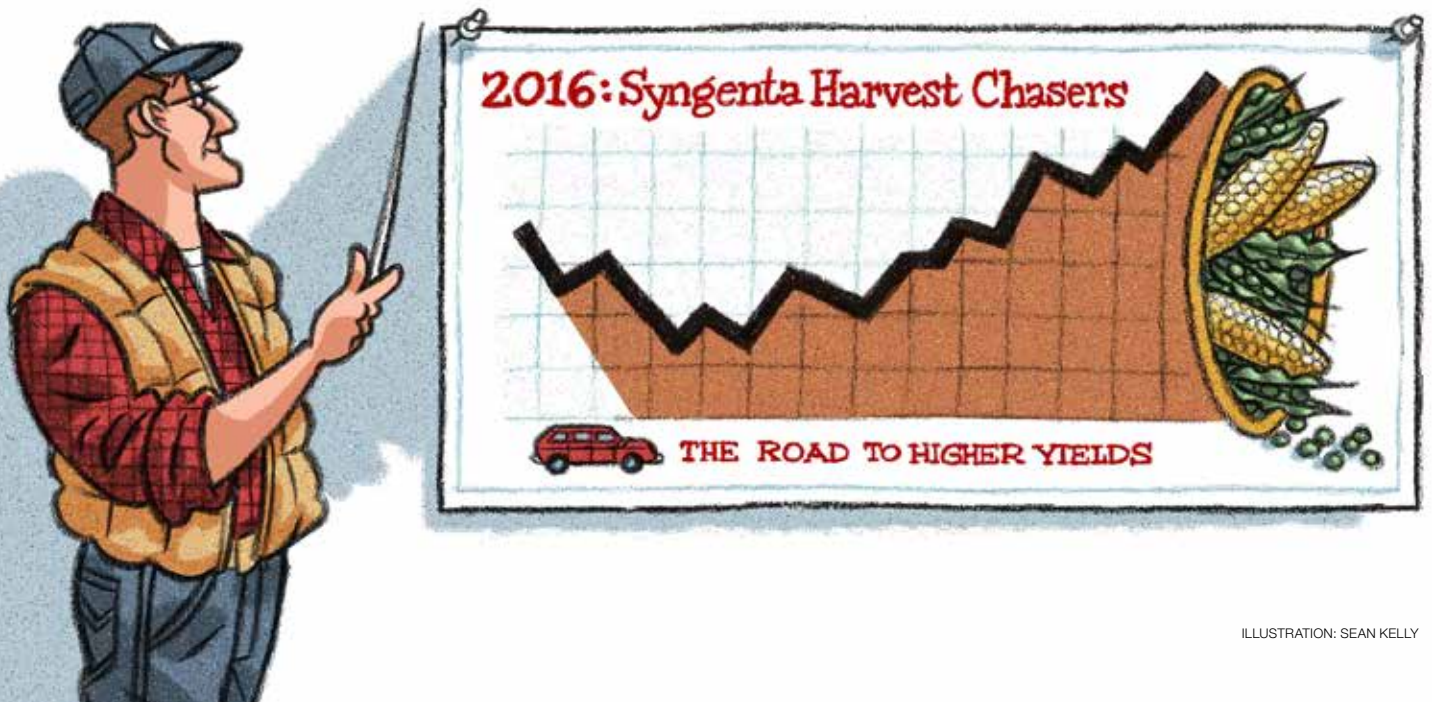
For Scott and Dustin McGinnis, Golden Harvest Seed Advisors™ from Avalon, Wisconsin, one particular NK Soybean variety, which is a grower favorite known for its strong resistance to SDS and industry-leading resistance to *Sclerotinia* white mold, proved to be a top performer. While other growers felt the sting of white mold decreasing their soybean yields, the McGinnises' NK Soybeans S20-T6 brand reached up to 70 bushels per acre (bu/A).

"Syngenta just has the best beans in the business," says Dustin McGinnis. And given NK Soybeans S20-T6 brand's above-average disease tolerance, he plans to keep planting it.

High Yields Despite Drought

Drought-like weather was a challenge for several regions, and in some areas, it had a significant impact on corn and soybean yields. Grower Joe Shivers from Coleman, Georgia, says his region was hit hard, but he was still able to report high yields with his NK Corn.

"NK Corn hybrids N83D-3000GT and N78S-3111 brands were the best corn I had," Shivers says. With corn yields averaging up to 265 bu/A, which was approximately 30 bu/A more than the competitor brand hybrid he planted, the NK hybrids showcased their adaptability to drought-prone conditions.



This year, Shivers says that he will plant more NK Corn, and he recommends that other growers check with their retailers for advice on which hybrids will best suit their fields. He also plans on planting more NK Soybeans based on 2016 results. “Last year, my NK Soybeans yielded on average more than 15 bu/A better than competitors,” says Shivers, whose soybean acreage isn’t irrigated. Even if the drought continues, he feels confident that NK hybrids and varieties will help him achieve above-average yields.

Pest Control Prowess

For some growers in southern Illinois, above-ground pests, such as corn earworm, cutworm and armyworm, are well-known nuisances. In fact, according to the University of Illinois Extension, two generations of corn earworm infest Illinois cornfields each year.

Fortunately for grower and Golden Harvest Seed Advisor Mike Laux, the protection offered by the trait in his corn hybrids helped keep insect pressure at bay in 2016. By growing hybrids with above-ground insect control built in, Laux reports that his yields just keep getting better every year. Golden Harvest hybrid G10S30-3220 E-Z-Refuge® brand, which features the Agrisure Viptera trait, is one of his favorites.

“This hybrid is yielding in the 200 to 220 bu/A range,” Laux says. “With the Agrisure Viptera trait, I didn’t have any earworm issues, so I didn’t need to worry about molds, either.”

Laux says he can clearly see that his crops are more resilient to the pest pressure the rest of the region has been experiencing.

Looking Ahead to Harvest 2017

With the 2016 harvest season in the rearview mirror, Syngenta is already looking ahead to making harvest 2017 even better. Growers know they will face many unknowns throughout the season, but having products they can trust to withstand whatever the growing season throws their way is key.

“Year after year, we make it our mission to help growers confidently face the challenges of their region with our best-in-class genetics and industry-leading traits,” says Eric Boersma, corn seed product marketing manager at Syngenta. “We want to help make sure our customers have a safety net no matter what the season may bring.”

With the assistance of their trusted Golden Harvest Seed Advisors and NK retailers, growers are never alone at any point during the season, Boersma says. “From seed selection until the last corn and soybeans are in the bin, Seed Advisors and NK retailers are there to help growers make the right decisions for their fields, overcome challenges and maximize yield on every acre.” 🌱 STORY BY RAVEN CARPENTER

FOR MORE HIGHLIGHTS from the Harvest Chasers’ 2016 search for corn and soybean agronomic superstars, visit www.knowmoregrowmore.com.

Know More, Grow More

A Syngenta Agronomy Blog

The latest agronomic insights and production advice



Visit KnowMoreGrowMore.com for expert crop management advice to help maximize each field’s potential—regardless of crop or region.

syngenta®

Partnership Power

Syngenta sales leaders agree product value, training and partnerships are paramount in 2017.

Q. How will partnering with Syngenta change in 2017?

A. Michael Boden, head of sales for crop protection, Syngenta, North America: In crop protection, we will continue to think like a grower and work through and with our resellers in meeting growers' needs. But our intensity to execute that strategy will increase in 2017. As we launch more new products and evolve our portfolio, we'll continue to focus on delivering those technologies to growers through our strong retail partners. After all, those channel relationships help connect our products and services to farms across the country, so that we can continue to differentiate our brands, leverage our reputation, outperform the competition and innovate through our investment in R&D.



“Our goal is to help our resellers make recommendations that instill grower confidence, so they can be the grower’s go-to source for expert advice and support.”

—DAVID ELSER

DAVID ELSER
Head of Sales
for Seeds,
Syngenta,
North America



Left to right: Chuck Burlison of Helena Chemical Company, Cory Gilbert of Syngenta and grower David Coates examine a cornfield on the Coates' family farm in Weakley County, Tennessee.

A. David Elser, head of sales for seeds, Syngenta, North America:

In 2017, we'll be more focused on helping our Seed Advisors™ and retailers grow their seed businesses. To accomplish this goal, it's absolutely essential that we help them determine how our products, in conjunction with their agronomic services, will give growers the most value. Growers are at the center of everything we do, but we realize our resellers are the people who work with them day in and day out. To this end, we want to sharpen our agronomic focus and give our channel partners the best possible training on our products, so that they can place those products on the farm even more effectively.

Q. What are your teams' primary objectives for 2017?

- A. Boden:** We assume that commodity prices will continue to be low, so our teams will focus on bringing growers value through our technologies. Those technologies include our more recent product launches—Trivapro® and Orondis® fungicides and Acuron® herbicide, for example—as well as our tried-and-true brands. We're also preparing for more product launches this year. But the underlying factor in everything we offer in 2017 is bringing a greater return on investment to growers.
- A. Elser:** First and foremost, we will be even more customer-focused, improving the quality of the time we spend with our reseller and grower customers. Second, we want to make sure we place the very best products on farms with our channel partners. And third, we want to continue developing our people, so that when they're in front of customers, they're best-in-class in making the most of opportunities and overcoming challenges. At the heart of all these objectives is what's best for the grower.



confidence, so they can be the grower's go-to source for expert advice and support.

Q. What excites you most about working with resellers in 2017?

A. Boden: To be successful in a challenging market, people need to perform at the top of their game. Success in 2017 will require the Syngenta sales team and our resellers to be very focused and hands-on to understand what the real needs of the grower are. At the same time, we'll continue to have several product launches started in 2016 that will carry forward into 2017 with even more new products. It's an exciting time in which great technologies are intersecting with a heightened need to focus on what's best for the grower's bottom line. We're so thankful that we'll be sharing the ride with our reseller partners.

A. Elser: Our Seed Advisors and retailers are our eyes and ears in the marketplace. They see and hear things that we might otherwise miss. Because they are local, they share common ground—schools, churches, communities—with growers. Their ability to see things firsthand, build relationships with growers and connect with opportunities on the farm is very important and energizing. Syngenta is not going away, and neither is our loyalty and gratitude to our resellers. Together, we can make 2017 a year of growth, opportunity and success. 🌱

INTERVIEWS BY SUSAN FISHER

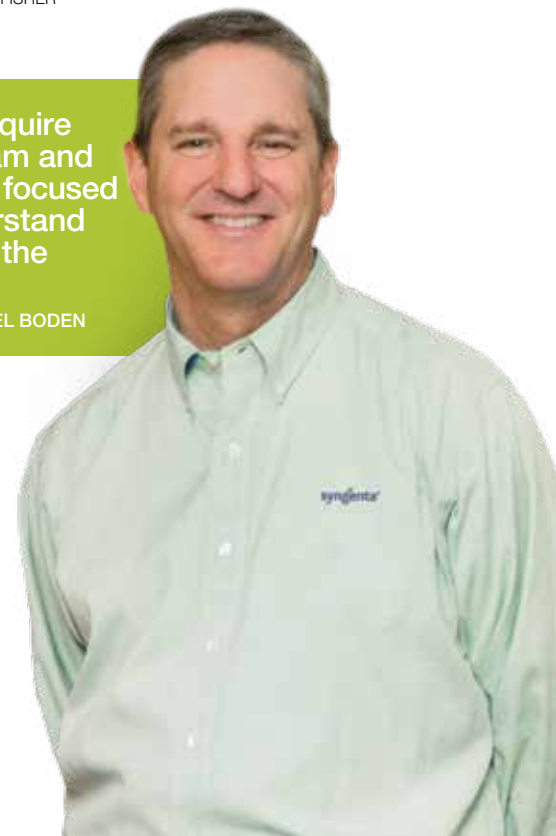
Q. How are you preparing your teams and resellers for 2017?

A. Boden: In crop protection, we embed trainers with our sales teams to help facilitate such initiatives as R4—placing the right product with the right grower on the right acre at the right time. We'll also continue to invite resellers and growers to visit our Grow More™ Experience Sites, where they can see for themselves how our products are working under local growing conditions. For our seed treatment partners, we've just opened up a new Seedcare Institute™ facility on our Stanton, Minnesota, campus, which includes more training space and capabilities. (See "Beyond Seedcare," page 20.) So it's a lot of different elements working together to give us the ability to educate people inside and outside Syngenta about our current and future technologies.

A. Elser: In seeds, we're getting back to the basics. Agronomy is at the core of everything we do. We're learning more about the relationship between our genetics and basic agronomic factors associated with how growers raise a crop each year, including soil types, environmental factors and other management variables like fertility and tillage. And then through our AgroCore training program, we're sharing these insights with our Seed Advisors and retailers to help increase their success at properly placing the best hybrid or variety on a specific grower's farm. Our goal is to help our resellers make recommendations that instill grower

"Success in 2017 will require the Syngenta sales team and our resellers to be very focused and hands-on to understand what the real needs of the grower are."

—MICHAEL BODEN



MICHAEL BODEN
Head of Sales for
Crop Protection,
Syngenta,
North America



The Cuba Factor

A new era of U.S.-Cuba relations has begun, which presents opportunities and challenges for U.S. agriculture.

Last summer, a team of U.S. Department of Agriculture (USDA) employees stepped off a plane in Havana, Cuba. Unremarkable at first glance, this moment signaled a profound change in U.S.-Cuba relations.

The last time a USDA employee was stationed in Cuba on official business was in 1961. But with diplomatic relations restored, U.S. government agencies will once again have the opportunity to set up offices on the island.

Restrictions barring U.S. citizens from traveling to Cuba had been in place for more than half a century, until President Barack Obama eased some of them in late 2014 with the restoration of diplomatic relations. With new policies in place, the number of Americans traveling to Cuba has risen sharply, up 38 percent in 2016 from the previous year.

The U.S. trade embargo against Cuba remains, however, much to the chagrin of some U.S. growers and agribusinesses. The U.S. government relaxed trade restrictions in 2000 for food exports and medicine for humanitarian reasons, but Cuba has to pay for those shipments on delivery with cash. While Cuba does buy some U.S. food today, it purchases more from countries that provide credit terms to the cash-strapped nation.

The inability to fully compete in the Cuban market continues to frustrate many

in the U.S. ag industry. But until Congress repeals the Cuban trade embargo, the rules for agricultural exports remain in place.

Ag Trade Potential

In recent years, the U.S. agricultural community has looked at Cuba with a great deal of interest. After all, the island, just 90 miles from Miami, is home to 11 million residents, and in 2008 U.S. agricultural sales to Cuba peaked at \$700 million. The U.S. could have a big trade advantage selling to Cuba because of its geographic proximity, and plenty of U.S. products are in demand there.

“Many in agriculture are looking for ways to expand market access for our U.S. agriculture products in Cuba,” says Laura Peterson, head of federal government relations at Syngenta.

In addition, Cuba’s agriculture industry desperately needs inputs, equipment and technical know-how. The dissolution of the Soviet Union in 1991 left Cuba’s government-run farms in disarray, says University of Havana economics professor Jorge Mario Sanchez Egozcue. It is estimated Cuba lost \$6 billion in Soviet subsidies, and Sanchez says the country lost 90 percent of its energy supplies and nearly all of its fertilizer imports.

“The impact was equal to a tsunami or a war,” he continues. “No one in the world anticipated it. Still to this day, we are living that shock.”

“Much of the farm equipment [in Cuba] is very old. It’s not uncommon for a cooperative to cannibalize older tractors and equipment for parts. Mechanization is far below what it was in the late 1980s.”

—WILLIAM MESSINA JR.



Without money to invest in domestic production, food shortages ensued. The government enacted farm reforms, transferring some land to cooperatives, reports Amando Nova Gonzalez, economics research, University of Havana. But without government inputs, crop production stagnated. About 60 percent of Cuba's farmland was abandoned, he adds, with much of the soils degraded from abuse by machinery and chemicals under the socialist model.

During this difficult period, the University of Florida began working with Cuban economists and agricultural scientists. The university's ag economist William Messina Jr. is among those who have travelled extensively to Cuba.

"Keep in mind that Cuba has tremendous potential to be a food producer," Messina says. "Its agriculture is very heavily based on cooperatives. The problem is they can't get the inputs they need, or if they get them, it's often not when they need them."

In particular, Cuban farms lack fertilizer, which is only available in limited quantities, Messina adds. And Cuban farms can only buy from the government; no private sources of farm inputs are available.

"Much of the farm equipment is very old," Messina says. "It's not uncommon for a cooperative to cannibalize older tractors and equipment for parts. Mechanization is far below what it was in the late 1980s."

Since 2008, Cuba has undertaken substantial economic reforms. The largest changes occurred in agriculture, where 3.7 million acres of unused land was transferred in usufruct—which gives individuals the rights to use the property of another—to 156,000 individual producers, according to Gonzalez. Acreage transfers ranged from less than 33 acres to 168 acres. Growers may farm the land themselves or enter into a cooperative arrangement.

Today, 70 percent of Cuba's farmland is held in various types of what the government calls private ownership, although titles to the land remain with the state in most instances. In an effort to boost productivity, new reforms go even further, and efforts are underway

to shift some decision-making from the government to a more local municipal level, Gonzalez adds.

Embargo Politics

American growers and ag businesses

in favor of repealing the embargo

welcomed the support of the Obama administration. In March 2016, the president visited Cuba with a government contingent that included then-U.S. Secretary of Agriculture Tom Vilsack.

During the visit, Vilsack met with Cuba's Minister of Agriculture Gustavo Rodriguez Rollero. The two signed a memorandum of understanding that paved the way for USDA to post staff at the U.S. Embassy in Cuba and exchange information with Cuban officials. The goal is to learn more about the country's animal and plant health, climate change and farming methods.

Despite these recent policy shifts, sectors of the U.S. ag community, including some growers in Florida, remain wary of lifting the embargo.

"Cuba produces the same crops and commodities as we do in Florida," Messina says. "So there is a lot of concern about invasive pests and diseases."

Another concern is the subsidized competition. The Cuban government leases the land to farmers at no cost to grow crops.

For their part, Cuban trade officials have stated that the embargo should be repealed and free trade allowed. Some analysts have also said open trade with the U.S. with credit terms will help Cuba rebuild its agriculture industry. Today, Cuba imports nearly \$2 billion in agricultural products, including rice, wheat, corn, soybeans, soy products, poultry and nonfat dry milk.

But in the end, the decision to repeal the embargo lies with the U.S. Congress. And until Congress takes action, supporters and opponents can only speculate on trade potential and challenges. 🍀

STORY BY KAREN MCMAHON

From left to right: The Cuban flag; a worker tends to lettuce at Organoponico Vivero Alamar, a successful farm cooperative; an old tractor tows a large trailer alongside a sugar cane field; Organoponico Vivero Alamar sells produce at the farm's market.

NO ESCAPES

Given the pervasive threat of resistance, corn growers should take a strong, proactive approach to managing weeds on the farm.

By Chelsea Richardson / Illustrations by Lucy Reading





W

eed resistance is creeping across the Corn Belt, making it essential for growers to continually evaluate their weed control needs. From learning about the latest herbicide technologies to closely monitoring fields for unexpected breakouts, staying ahead of resistant weeds can feel like a full-time job.

Fortunately, the right weed-management strategy can lift much of the burden off of growers' shoulders, helping them save time, money and worry. But to find the best management solution, they must first understand the problem weeds in their fields.

Getting to Know Tough Weeds

Broadleaf weeds like giant ragweed, waterhemp and Palmer amaranth continue to make headlines as they invade cornfields and reduce yields. Each weed has its own story, including the reasons why it's so difficult to control.

Giant ragweed can germinate deep in the soil and emerge below the treated zone in the soil profile.

Waterhemp and Palmer amaranth, both species of pigweed, can deposit up to 1 million seeds per plant into the soil. As a result, weed populations can increase rapidly and take over crops, thereby reducing yields.

But these species aren't the only yield-robbing weeds plaguing growers' fields. For example, marestail, one of the first glyphosate-resistant weeds identified in U.S. row crops, produces seeds that can be transported by wind, which results in the weed spreading rapidly. Morningglory seeds, on the other hand, have extremely hard coats, allowing them to remain viable in the soil for more than 50 years.

The Dangers of Maintaining the Status Quo

Tough weeds, combined with reduced tillage programs that growers have adopted to sustain their soil, put a lot of pressure on herbicides to deliver effective, complete control. But overusing these same herbicides without a programmed approach may eventually lead to resistance, which oftentimes isn't easy to detect in the early stages of development.

"It's important for growers to always monitor their weed-management practices, because subtle weed escapes in a field can be a signal that there may be resistant weeds emerging," says Dane Bowers, Syngenta technical product lead. (See "Getting off the Merry-Go-Round," page 15.)

While a few escaped weeds won't cause significant problems initially, the plants continue to produce seeds each year, Bowers points out. "In the second year, those plants become more visible; and by year three, the grower will have a major issue," he says. "Escaped weeds produce seed, contributing to the weed seed bank and leading to a long-term weed control problem for growers."

Taking a Proactive Approach

Even though glyphosate resistance is expanding, managing resistant weeds in corn is achievable when growers, such as Philip Nelson in Windom, Kansas, are proactive about their weed-management strategy. "Pigweeds have greatly affected our herbicide choices," Nelson says. "In fact, we now apply herbicides ahead of time to keep the weeds from growing. It's getting really hard to kill a pigweed at any stage of growth, but you can still kill the sprout and keep it from becoming a problem."

The need to control tough weeds is one reason growers use a powerhouse product like Acuron® brand herbicide. First introduced to growers in 2015, Acuron contains three effective modes of action and four active ingredients, including a new chemistry at the time of its launch—bicyclopyrone. Together, these ingredients work together to control weeds before they emerge.

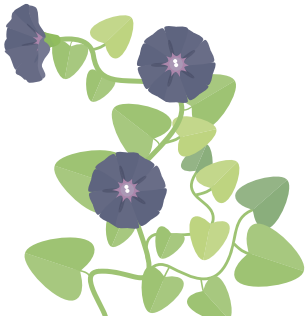
DID YOU KNOW?



Waterhemp and Palmer amaranth, both species of pigweed, can deposit **10,000 to 1 million seeds per plant** into the soil.



Marestail, one of the first glyphosate-resistant weeds identified in U.S. row crops, produces seeds that can be **transported by the wind.**



Morningglory seeds have extremely hard coats allowing them to remain **viable in the soil for more than 50 years.**



“My toughest weed to control is giant ragweed,” says Ken Kurtenbach, a corn grower from Lindsay, Nebraska. “It grows fast, is mostly glyphosate-resistant and just gets out of hand with no-till. Acuron has performed exceptionally well on giant ragweed. There is absolutely no comparison between Acuron and other things I have applied before.”

Independent research trials also show a clear Acuron advantage. In six 2015 university trials across four different states, Acuron consistently outperformed other competitive herbicide products. “We saw a notable yield advantage over competitive herbicides in these trials, including SureStart®, Verdict® and Corvus®,” says Gordon Vail, Ph.D., Syngenta technical product lead. “While we’re still finalizing the results of 2016 trials and on-farm use, the weed control from Acuron continues to be best-in-class.”*

Becoming More Flexible

In 2016, Syngenta introduced Acuron Flexi herbicide to give growers effective weed control with added flexibility. With three active ingredients, including bicyclopyrone, and two effective modes of action, Acuron Flexi delivers a multi-targeted approach to weed control. Although Acuron Flexi doesn’t contain atrazine or glyphosate, it can be tank mixed with these herbicides, making it a valuable solution for growers whose use of atrazine is limited.

“I use Acuron Flexi in areas where I cannot use atrazine,” says Tony Bomkamp, a grower whose farm is located along the Lower Wisconsin Riverway, where the use of atrazine is prohibited. “It has done a wonderful job controlling weeds, especially giant ragweed. Acuron Flexi keeps all the weeds out of my fields, and I only have to apply it one time.”

Managing tough weeds is a dynamic problem that’s always shifting and evolving. Weeds continue to invade non-native areas, developing resistance to different herbicides along the way. Fortunately, companies like Syngenta are developing the tools and technologies that can help growers manage problem weeds.

“Globally, Syngenta invests \$4 million every day in research geared to solve growers’ toughest challenges,” Vail says. “Weed resistance is certainly one of those challenges that we, along with our reseller partners in the field, will continue to help growers manage.”

Look for additional weed-management solutions that Syngenta will introduce in other crops, including soybeans, in upcoming issues of *Thrive*. See page 3 of this issue for information on a new Syngenta herbicide in cereals. 🌱

*Trial Information: Locations—Rowher, Arizona; Ames, Iowa; Dekalb, Illinois; Perry, Illinois; Rochester, Minnesota; Waseca, Minnesota. Universities involved—University of Arkansas, Iowa State University, University of Illinois and University of Minnesota. Plot size—minimum of 10 feet by 30 feet. Application rates and timing—Acuron @ 2.5 to 3 qt/A, Surestart II @ 1 to 1.5 qt/A, Verdict @ 16 to 18 oz/A and Corvus @ 5.6 oz/A as pre-emergence herbicides with or without atrazine. Weeds present—ivyleaf, morningglory, cocklebur, common and giant ragweed, common lambsquarters, and giant foxtail.

Getting off the Merry-Go-Round

For growers, controlling weeds is sometimes like riding a merry-go-round. They hop on one horse or chemistry for a while; and then when problems start occurring, they select another one for the next ride.

To keep the herbicides growers still have in their toolboxes, we need to help them step off the merry-go-round and adopt the following best weed-management practices:

IN THE FIELDS

- **Start with clean fields.** Help control emerged weeds before planting by applying a burndown herbicide plus a pre-emergence residual herbicide.
- **Employ crop rotation.** This practice will extend the range of available herbicides and agronomic practices.
- **Rotate herbicide-tolerant traits.** Alternate herbicide-tolerant traits or use herbicide-tolerant trait stacks for more efficient rotation. This approach enables growers to rotate their herbicide applications and reduce selection pressure on resistant biotypes.

HERBICIDE USE

- **Use multiple effective herbicide modes of action.** Use tank-mix partners and multiple modes of action in each application during the growing season to reduce the selection pressure caused by using a single mode.
- **Keep your fields clean by using residual herbicides whenever possible.** Use a preplant herbicide followed by a pre-emergence or early post-emergence, soil-applied residual herbicide in the spring, so young corn plants can intake sun, water and nutrients without competition from weeds.
- **Always apply herbicides at the full, labeled rate and at the correct growth stage.** This ensures the most effective control of weeds in fields.

WEED WATCH

- **Know your weeds and your fields.** Learn more about the weeds you’re trying to control, and closely monitor problem areas in your fields that experience difficult-to-control weed pressures or dense weed populations.
- **Prevent weed escapes from producing seed.** Consider spot herbicide applications, hand removal of weeds or other techniques to stop weed seed production. Don’t forget to control weeds along ditches, fencerows and tree lines, if possible.
- **Do not tolerate any weeds in the soil bank.** Not allowing surviving weeds to set seed will help decrease annual weed populations and prevent major weed shifts. If you don’t treat weeds, such as Palmer amaranth and waterhemp, at 2 to 3 inches, it’s tough to control them post-emergence.

MAINTENANCE

- **Clean equipment.** Always clean your tillage, seeding and harvest equipment when leaving fields that are infested with herbicide-resistant weeds.

—BY DANE BOWERS, TECHNICAL PRODUCT LEAD AT SYNGENTA

8 Millennial Myths



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

DEBUNKED



Left to right: Grower Rob DeFauw checks his cellphone, while farm owner Rock Katschnig inspects a field during harvest at the K Ranch Farm in Geneseo, Illinois.

Many misconceptions about young growers exist. Learn the truth about how they really approach agriculture.

By Darcy Maulsby

Photography by Mark Tade

THINK everyone in the millennial generation is self-absorbed, lazy, indecisive and addicted to social media? You haven't met Rob DeFauw.

"I want to make the best, most informed decisions I can," says DeFauw, 31, who farms with his father-in-law near Geneseo, Illinois. "I would rather visit with someone over the phone or in person instead of wading through millions of Google search pages to find answers."

DeFauw isn't alone. Millennials (generally defined as people born between 1982 and 2004*) in agriculture are information seekers and decision makers. Consider 28-year-old Josh Miller who makes about 90 percent of the management decisions on his family's corn, soybean and wheat farm near Tamms, Illinois.

"Sometimes I watch YouTube videos or search Google to find answers, but you have to be careful," says Miller, who has been farming full-time with his father for six years. "I still like information from people I know and trust, because their advice is more credible."

As millennials prepare to become the principal operators of many farms during the next decade, surprising new research is shattering myths about what makes them tick.

"Millennials are one of the most talked-about but least understood generations," says Gil Strader, head of field force excellence and training at Syngenta. "We're finding fascinating insights in the latest research that can help bridge this generation gap."

*From *Millennials Rising* by Neil Howe and William Strauss, American historians and business partners who are credited with naming and defining the millennial generation.

MEET THE FARMERS OF THE FUTURE

Much of this research comes from a June 2016 study conducted by Millennium Research of younger row-crop growers from the Midwest who farm at least 500 acres. Among them, 77 percent are preparing to take over the family farm.

“These young farmers are serious decision makers who crave connection and communication,” says Lynn Sandlin, lead of market research and insight at Syngenta. “They want to have great business relationships with the people they work with.”

These relationships are evolving as agriculture transitions from one generation to the next. While most principal operators are 55 and older, as noted in the 2012 U.S. Census of Agriculture, younger growers are making more farm-management decisions.

Research reveals that these millennials are:

1 High-tech/high-touch.

Although young growers are more innovative and take more risks than their older counterparts, personal relationships are just as important as the latest

technology to millennials. Miller values his close relationships with his local ag retailer. “Sometimes we communicate every day, depending on the season, especially at planting and spraying,” he says. DeFauw also relies on his advisers, including his Syngenta reps. “I’m comfortable with them,” says DeFauw, who prefers to call them or meet in person. “I trust them, because they don’t feed me a line of crap.”

2 Educated.

More than half (57 percent) of young growers have a bachelor’s degree, while 11 percent have a master’s degree or

“Millennials are trained to be professional business people.”

3 Decision makers.

The increased complexity of farming has thrust younger growers into significant decision-making roles at a younger age than their predecessors. “These young people are making hundreds of thousands of dollars’ worth of decisions,” Sandlin says. The Millennium Research survey showed that two-thirds of millennial growers are the primary decision maker for their operation. The majority of them make the final decision on seed/genetics (86 percent), fertilizer (83 percent), grain



57 percent of young growers have a bachelor’s degree, while 11 percent have a master’s degree or higher.

higher. DeFauw earned his applied science degree in construction/design management from Parkland College in Champaign, Illinois; Miller earned his bachelor’s degree in wildlife and conservation management from Southeast Missouri State University. Among the general population, only 33 percent of people 35 to 44 have a bachelor’s degree. “This is the first time the level of education has ever been this high among American farmers,” Sandlin says.

marketing and computer/technology (82 percent), and precision ag and crop protection (79 percent).

4 Information seekers.

All the millennials in the survey use smartphones. “Millennials are information-hungry,” says Sandlin, who notes that they gather information from diverse sources. DeFauw favors apps, Twitter, farm magazine articles and AM radio. He also appreciates insights from his Syngenta representative. “He’s very knowledgeable and shares answers that help me learn,” says DeFauw. “I’m relying on him more and more to help fine-tune my management decisions.” Millennials not only want to know how to do something, but they want to know the reasoning behind it, Strader says. “Information is no longer power; application is power. Young farmers want to apply information to make smart business decisions.”

5 Business-savvy.

Business management tops millennials’ list of the most important skills needed for future success in ag, followed by crop marketing. “Young farmers are asking



Left to right: Grower Rob DeFauw, farm owner Rock Katschnig and Syngenta rep Trent Rowland confer on the harvest’s progress at the K Ranch Farm in Geneseo, Illinois.

66

percent of millennials are the primary decision makers for their operation.

retailers to do something different,” Sandlin says. “They’re not saying, ‘Don’t host a traditional summer plot tour,’ but instead are suggesting, ‘Maybe offer a secondary meeting geared toward millennials that provides marketing insights or financial-management tips.’”

6 Anti-social media.

While there’s a lot of talk about using social media in business settings, social media is not young farmers’ preferred method of communication. “Many millennials are anti-social media and consider it a waste of time,” Sandlin says. While Miller occasionally scrolls through his friends’ Facebook posts, he rarely posts any of his own content. If millennial growers use social media, they tend to prefer sites like YouTube that can teach them how to do something, such as repairing a planter or replacing a fuel pump. Of the survey respondents, 88 percent said they visited ag forums for farm use in the past six months. Sites like www.tractorhouse.com are useful for researching equipment availability and prices, while AgWeb and AgChat let growers share stories and network. “Young farmers want to



Grower Rob DeFauw harvests corn on the K Ranch Farm.

have coffee-shop chats, but the local coffee shop is often gone,” Sandlin says. “Online forums allow farmers to connect.”

7 Loyal.

Millennials focus on connections to foster long-term relationships. “Millennials are loyal to those who are loyal to them,” Sandlin says.

8 Purpose-driven.

Millennials view farming as a business and a lifestyle. “These young people are very serious about what they’re trying to accomplish on the job, but they also want to have a high quality of life,” Sandlin says. In addition, millennials embrace a larger purpose earlier in life compared with previous generations. “These young people have a broad, worldly view,” says Strader, who notes this fits with The Good Growth Plan, which Syngenta launched more than three years ago to help address global food security by 2020. “They are purpose-driven and want to connect on a larger scale.”

DeFauw appreciates advisers like those from Syngenta, who understand young growers and want to help them reach their goals. “They work with me to find the right solutions and support the decisions I make to help our business succeed,” he says. 🍀

Making Sense of Millennials: How Syngenta is Leading the Way

Millennials are preparing to become agriculture’s next generation of leaders, and companies like Syngenta are getting ready for the transition.

“We’ve been bombarded with requests to help people better understand our millennial customers and coworkers,” says Gil Strader, head of field force excellence and training at Syngenta. “We’ve implemented a major initiative to train our internal teams who interact the most with retailers and growers to build trust, improve service and strengthen partnerships.”

THIS TRAINING INCLUDES:

- > **Learning.** Separating fact from fiction is essential to understanding the unique traits of millennial growers.
- > **Listening.** Acknowledging millennials’ needs and insights is invaluable. “We want growers to consider Syngenta as a source of the most trusted information that they can apply to their operations,” Strader says.
- > **Mentoring.** Sharing knowledge helps connect older and younger generations, both within the company and in the field. “It’s fun to take this journey that will ultimately make our people and agriculture better,” Strader says.



“Young farmers want to have coffee-shop chats, but the local coffee shop is often gone. Online forums allow farmers to connect.”

—Lynn Sandlin



Beyond Seedcare

The new North America Seedcare Institute™ keeps customers' needs top-of-mind.

By Matt Lail / Photography by Tim Pearson





Top, left to right: Inside the facility in Stanton, Minnesota, Syngenta has incorporated casual meeting spaces for employees and visitors; Syngenta Seedcare experts evaluate the application performance of a seed treatment recipe using a lab batch treater; the new Seedcare Institute facility in Stanton, Minnesota, opened its doors in September 2016; Wanderson Oliveira, Seedcare platform specialist, evaluates planter performance of treated seeds. Bottom: Jars of seeds treated with Syngenta Seedcare brands represent a rainbow of colors.

At first glance, Stanton, Minnesota, with a population of 1,130 residents, seems to be an unlikely place to serve as the epicenter of North American seed treatment innovation. After all, the bustling, tech-savvy Twin Cities are just an hour's drive to the north. And three hours to the south is Des Moines, an area known for its agricultural acumen. But with the recent grand opening of the new Syngenta Seedcare Institute™, Stanton is now *the* global place for innovation in seed treatment technology. This 38,000-square-foot, state-of-the-art research and training facility not only builds on the Seedcare™ product legacy of Syngenta, it also demonstrates the company's thought leadership in this area.

“As the seed treatment industry continues to evolve, we strive to consistently offer more sophisticated products and best-in-class service to our customers,” says Ravi Ramachandran, Ph.D., head of the North America Seedcare Institute.

The Stanton facility is one of a dozen Syngenta Seedcare Institutes around the world, including locations in Switzerland, Brazil, France and China. The original structure in Stanton opened in 1995; however, with seed treatment in North America accounting for more than 30 percent of the global market, building a new, larger institute became a top priority for Syngenta.





“This facility can provide the intensive training needed by our seed company customers, ag retailers, applicators and farmers to fully realize the value of our seed-applied technologies, best-management practices and stewardship.”

—RAVI RAMACHANDRAN

Lahcen Grass (top), Seedcare technology lead, and Asmeret Tewolde, seed biology technician, work together to evaluate root health of plants grown in the rhizotron.

Improving the Customer Experience

Located in the heart of the Corn Belt and Minnesota’s agriculture breadbasket, the Seedcare Institute gives visitors the opportunity to see and experience the latest innovations in seed treatment technology.

Within the new structure is a large-scale commercial application and performance area. Syngenta Seedcare experts in Stanton can tailor seed-treatment recipes for individual customers and their specific geographic needs, and then scale up the recipes from the lab to commercial-size treaters. They can also simulate various climate conditions at the time of treatment and adjust recipes for different crops and seed-treating equipment. These tailor-made recipes often translate into more efficient treatments with more effective performance.

When customers visit Stanton, they actively participate in the experience. An integral part of the new design is space for modern classroom facilities and a customer interaction center, which features multimedia demonstrations about Seedcare products and services.

“We educate our customers through application training at the Seedcare Institute, where they can learn both basic and advanced levels of seed treatment application, including recipe customization, hands-on application techniques and equipment automation training,” says Ramachandran.

Stewarding Seed Treatments

Syngenta is also a strong proponent of seed treatment stewardship. To this end, education at Stanton includes making sure customers understand best practices in handling and applying products, as well as maintaining safety standards for themselves and the environment.

“Training and education are areas where Syngenta has really excelled through the years,” says Ramachandran. “This facility can provide the intensive training needed by our seed company customers, ag retailers, applicators and farmers to fully realize the value of our seed-applied technologies, best-management practices and stewardship.”

Even before the new facility opened, customers were increasingly making the pilgrimage to Stanton for the latest in seed treatment training. In 2015, the Seedcare Institute in Stanton trained 1,170 customers—an increase of 368 percent more than the 250 trained there in 2013.

Five-times larger than the former Seedcare Institute in Stanton, the new facility houses:

- > Research and development laboratories
- > Laboratories for application, plantability, dust-off and quality-assurance testing
- > Climate-controlled application and planter-testing laboratories
- > A large-scale commercial application and performance area to simulate real-life experiences for customers
- > Modern classroom facilities
- > A seed warehouse
- > Offices and meeting spaces

“This \$20 million investment in the Stanton Seedcare Institute will help U.S. farmers grow more, while using fewer resources and protecting the environment,” says Vern Hawkins, president of Syngenta Crop Protection in North America.

Today, the staff at Stanton is gearing up for a busy 2017—the first full year Syngenta customers can experience the new facility. “Our customers have expressed a great desire to get trained at our institute,” Ramachandran says. “Collaborating with major equipment technology providers, the Syngenta Seedcare Institute showcases and trains our customers in the latest application technology. They need to know how to apply and service, how to calibrate equipment, and how to deliver the right dose on the seed. The Seedcare Institute addresses these needs and enhances the whole customer experience.”

A Heritage of Seed Treatment Innovation

Time and time again, Syngenta has illustrated its commitment to Seedcare via the seed treatment offerings it has provided for more than 36 years, beginning with the introduction of Concep® seed safener for sorghum in 1979. That commitment continues today with treatments that protect seeds across a wide variety of crops against a plethora of diseases, insects and nematodes.

“In 2008, only 40 percent of soybean seeds were treated,” says Jamie Eichorn, head of Syngenta Seedcare for North

America. “Today, an estimated 80 percent of the crop is treated.”

This rise in treatment reflects the devastating losses growers have experienced from underground pests. For example, soybean cyst nematodes (SCN) cost the U.S. soybean market an estimated \$1 billion each year. Because seed treatments offer in-the-soil protection at planting, visitors to Stanton want to learn more about technologies—such as Clariva® Complete Beans seed treatment, a combination of separately registered products—that can help growers manage SCN. The Stanton facility, which houses the ag world’s most sophisticated laboratories and most knowledgeable seed treatment experts, can help visitors understand how specific seed treatments can positively impact crops in their local areas.

“When our customers first step foot into the Seedcare Institute in Stanton, they immediately know that they’re in a one-of-a-kind facility,” says Palle Pedersen, Ph.D., head of Seedcare product marketing at Syngenta. “But it’s not just the newness of the building that impresses them. It’s also the level of expertise, knowledge and accessibility of our employees. There’s nothing else like it on the continent.”



The Syngenta Seedcare Institute in Stanton, Minnesota, has state-of-the-art equipment to evaluate application performance of seed treatment products at commercial scale.



SEE MORE PHOTOS.

www.syngentathrive.com/research.

A GREAT PLACE TO TEACH—AND WORK

The needs and interests of customers and seed treaters are paramount to the North America Seedcare Institute™ in Stanton, Minnesota. After all, improved training facilities are among the highlights of the new 38,000-square-foot facility.

“We now have so much more capability to teach,” says Joe Kuznia, Seedcare platform specialist and a 21-year seed treatment veteran at Syngenta and its legacy companies. “From classrooms to scalable equipment, we’ve stepped up our game. Now, we can address customers’ concerns and questions on a more realistic scale. They may come to us with problems, but we can offer them solutions through our products and services.”

While customer service definitely takes top billing at the new Seedcare Institute, Syngenta focused on another key population when it created and designed this new facility: its employees.

“We built the facility with our employees in mind, so they can continue to do the great work they’ve done for years,” says Palle Pedersen, Ph.D., head of Seedcare product marketing at Syngenta. “Their work will help keep Syngenta at the forefront of seed treatment technology for years to come.”

Kris Pauna, Seedcare product lead at Syngenta, credits the improved ability to exchange ideas with his colleagues at the new facility as a major asset. The location is now large enough to house more Syngenta Seedcare™

experts under one roof, with plenty of space for the whole team to participate in brainstorming sessions.

Stanton is also a diverse workplace with employees hailing from Mexico, France, Morocco, India, Brazil, the U.S. and the tiny African nation of Eritrea. “That diversity tells me that we’re looking at the ways things are done around the world to maximize the opportunities that exist for U.S. growers and customers,” Pauna says. “We’re taking into consideration the challenges growers are facing across the country, and we’re making sure our products and formulations can operate in actual field environments.”

One of those challenges is the current economic climate, where every input a grower considers needs to offer a return. “Our investment in this facility demonstrates our commitment to advancing seed treatments and helping growers better understand and realize the return on investment effective seed treatments can offer,” Pauna says. “That’s important for our customers who are providing the treatments or treating the seed, as well as for growers who will benefit from superior products and service that maximize the yield potential of their acreage.”

The Stanton, Minnesota, Seedcare team gathers in the lobby of the new facility. Standing from left to right: Emily Noll, Joe Kuznia, Asmeret Tewolde, Jim Lillemoen, Ravi Ramachandran, Christophe Lupfer, Palle Pedersen. Sitting from left to right: Kris Pauna, Cesareo Ramirez, Wanderson Oliveira, Shelby Stark, Lahcen Grass.

The All-Star of Agriculture

Many growers rely on atrazine, a herbicide supported by thousands of scientific studies, as a mainstay of their crop production practices.

For more than 50 years, U.S. corn, sorghum and sugar cane growers have depended on atrazine herbicide to produce food sustainably. They trust that its safety and efficacy are well documented, as are its environmental, economic and production benefits.

In fact, atrazine is one of the most closely examined herbicides in the world. “This herbicide has gone through a tremendous amount of scientific testing, both with regard to managing its risks and measuring its benefits,” says Jay Vroom, president and CEO of CropLife America. “I doubt there is any compound used in agriculture—or anywhere else in society—that has been more thoroughly evaluated on its presence in surface and groundwater and its potential effects on wildlife.”

Toxicologist Timothy Pastoor, Ph.D., who spent much of his career at Syngenta studying atrazine, agrees. “When I talk about the science behind atrazine, I talk about the more than 7,000 studies that support the registration, which is far more than any other active ingredient on the market,” he says. “Atrazine is inexpensive, and it works.”

Atrazine Advantages

All of that research has brought to light atrazine’s many benefits. For example, without atrazine, crop yields would potentially diminish, making U.S. growers less competitive compared with other global producers.

“If you significantly reduce yields, you’ll likely drive up production acreage,” says David Bridges, Ph.D., president of Abraham

Baldwin Agricultural College. “Well, there’s not a lot more acreage out there that’s prime farmland, so what do you do? You put marginal acreage that is currently in conservation programs—protecting streams and wildlife habitat—into production, which has negative consequences for the country as a whole.” Research shows that using atrazine helps keep an average of 513,000 acres in a noncrop scenario, allowing for more biodiversity on this acreage.

On farmed acres, atrazine helps reduce soil erosion by enabling no-till farming and conservation tillage. “Atrazine gives growers residual weed control, so they’re not having to do deep plowing every year, reducing soil and pesticide runoff,” says Dennis Kelly, head of state affairs at Syngenta. “Without atrazine, the fields may not be no-till any longer, and that’s going to decrease water quality due to increased sediments, especially in sensitive watersheds.”

According to studies, some 3 million dump trucks worth of soil are kept in place each year because of atrazine. Less plowing also means less petroleum burned, which means less carbon dioxide emitted.

Atrazine is highly selective and inhibits photosynthesis in weeds, while corn is very tolerant. “It tends to make other corn herbicide products even better, leading to more than 60 prepackaged mixtures with other herbicides in the market,” says Bridges.

“When I talk about the science behind atrazine, I talk about the more than 7,000 studies that support the registration, which is far more than any other active ingredient on the market.”

—TIMOTHY PASTOOR

A healthy stand of corn grows in Hereford, Texas.

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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POLICY MATTERS

Economics Upsides, Production Pluses

Atrazine is crucial economically, too. According to studies, the use of atrazine supports 85,000 jobs across the ag industry. It also means a boost of more than 900 million bushels of corn output each year.

Without atrazine in their toolboxes, growers would feel the financial implications quickly. "It makes a \$34 to \$48 positive difference per acre for a corn grower," says Bridges. "When you're talking about farmers with a couple thousand acres, that big difference in weed control and yield protection results in a large increase in their bottom lines."

As one of the few herbicide modes of action available to growers, atrazine offers another benefit to growers, notes Ethan Mathews, director of public policy for the National Corn Growers Association: "It's one of the last lines of defense we have against weeds that are resistant to other herbicides."

It's, therefore, not surprising that growers and herbicide manufacturers alike often turn to atrazine for more effective weed control. It's frequently sold in combination with newer active ingredients, because it makes those products work better. "Other active ingredients might not have the span of weed coverage that's necessary for the farmer; the addition of atrazine gives the product formulation the span of activity farmers are looking for," Pastoor says. "Farmers know that when they apply a product containing atrazine—of which there are more than 60—they're going to get the broad-scale weed control they're looking for."

Strong Grower Support

Given atrazine's central role in the production of corn, sorghum and sugar cane, it's understandable that concerns were raised last June when the Environmental Protection Agency (EPA) released an unfavorable preliminary draft ecological risk assessment on the herbicide. In response, the scientific and agriculture community submitted hundreds of thousands of comments in support of the product.

"The retailer and grower response and support were amazing," Kelly says. "We believe that once EPA reviews the overwhelming evidence on the safety of atrazine, it will make changes to its assessment and farmers will be able to continue to use atrazine."

Although EPA's public comment period for that draft has concluded, the agency's review process is ongoing. Next, EPA will review the provided information, amend the draft report as appropriate and hold a Scientific Advisory Panel meeting. Then the agency will publish a preliminary reregistration decision and ask for further public comment.

In addition to all the public comments, EPA will consider the volume of data that atrazine has on its side. "It's one of the best-studied, most extensively regulated molecules on the planet," Pastoor says. "Thousands of scientific studies have demonstrated that, when used properly at the labeled rate, atrazine has not, will not and, in fact, cannot adversely affect human health." 🍃

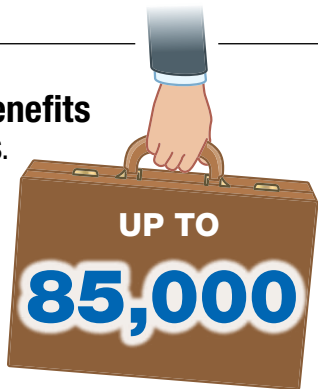
STORY BY SUZANNE BOPP

Producing Food Sustainably

Atrazine, used to control weeds in corn, sorghum and sugar cane in the U.S. and more than 50 countries around the world, has been an essential component in agricultural producers' crop protection toolkit for over 55 years. The U.S. economy benefits from atrazine and other triazine herbicides by an average of \$4.1 billion per year, due to increased crop yields and reduced input costs. As one of the few herbicide modes of action available to growers, atrazine also plays a key role in herbicide-resistant weed-management programs. Additionally, it helps reduce carbon dioxide emissions by enabling no-till, which promotes the storage of about 600 pounds of carbon in an acre of soil each year.

Economic Benefits

The number of U.S. jobs preserved, thanks to the continued use of atrazine.¹

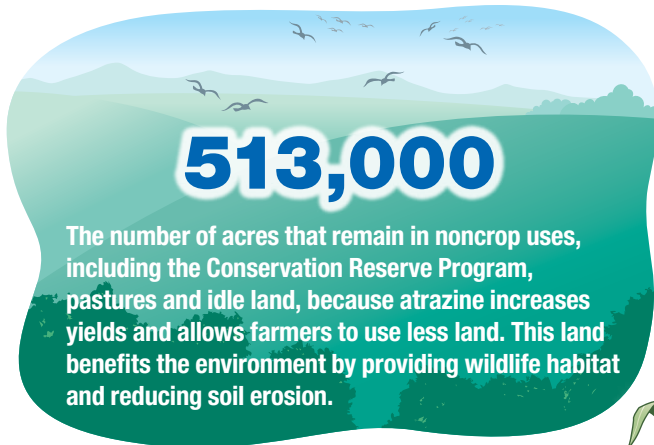


Environmental Benefits

The number of dump trucks that could be filled each year with the reduced aggregate soil erosion (85 million tons), thanks to farmers' use of atrazine.²



The boost (in bushels) in U.S. corn output each year as a result of atrazine use.

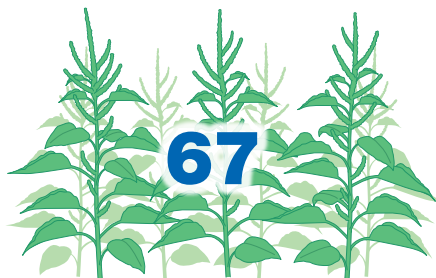


The number of acres that remain in noncrop uses, including the Conservation Reserve Program, pastures and idle land, because atrazine increases yields and allows farmers to use less land. This land benefits the environment by providing wildlife habitat and reducing soil erosion.

Production Benefits



The number of field trials used to determine the benefits of atrazine in corn.



The number of premix herbicides that contain atrazine as a key active ingredient. Atrazine has been the backbone of weed control in the U.S. for more than half a century.

90.6 million

The total number of U.S. crop acres (an area more than twice the size of Missouri) infested with glyphosate-resistant weeds.³ Atrazine provides a different mode of action to help control many of these weeds in corn.



Important: Always read and follow label instructions before buying or using pesticide products. Products containing atrazine are Restricted Use Pesticides.

Unless noted below, all data comes from atrazine evaluation studies from 2013 to 2015.

1. Based on atrazine evaluation studies, 2007 to 2009.

2. Based on atrazine evaluation studies, 2007 to 2009.

3. Stratus Ag Research—2015 Glyphosate Resistance Tracking Study.

From the Ground Up

A Syngenta global leader builds relationships based on values, collaboration and trust.

Unlike many people with long careers in agriculture, Dan Burdett, head of digital agriculture at Syngenta, didn't grow up on a family farm. His father was an aeronautical engineer who worked on jet engines. The family lived in Montgomery, Ohio, just a few miles outside Cincinnati.

Burdett was drawn to agriculture at a young age, though, when he had an opportunity to trade working at a nearby horse farm for riding lessons. Although he started by cleaning out stables, he grew to love working outdoors and being around the farm, which also grew hay and oats for feed. He loved being

around the people. They became his biggest reason for staying in agriculture to this day.

"To me it's about the people—and the values," he says. "Ag people have a strong work ethic. Trust and relationships are important in any business, but even more so in agriculture. They're family people. You can depend on them. I like the collaborative nature of agriculture and the willingness people have to work together."

Earning Acceptance

Burdett kept working with horses throughout his school years, often traveling to horse shows around the country in the

summertime. He majored in agriculture and business administration at The Ohio State University.

After graduation, he interviewed for a couple of positions managing horse stables, but ended up going into a co-op management training program. The co-op placed him, only a few

From left to right: (1964) Dan Burdett poses for his third-grade photo at Montgomery Elementary School near Cincinnati, Ohio; (1969) 13-year-old Burdett practices for his first horse show, sitting atop Bay Rum; (1981) Burdett drives a fertilizer spreader at Custom Farm Service in Hutsonville, Illinois; (2015) Burdett relaxes in the lobby of the Greensboro, North Carolina, Syngenta campus; Burdett (center), who is a strong advocate for women in agriculture, and President of Syngenta Crop Protection Vern Hawkins (right) welcome Marji Guyler-Alaniz (left), founder of FarmHer, to a Syngenta-sponsored media event.

1964



1969



1981



2015



months out of school, as the agronomy manager of a location in western Indiana.

“Thinking back, it might seem surprising that they would do that,” he says. “And you have to earn the customers’ acceptance in that situation. You have to earn it with honesty and hard work. Do what you say you will do, follow through, get answers for people and help them solve problems. If you’re going to succeed, you have to be a trusted member of the community.”

Defying Doom and Gloom

Just a few years later, Burdett was putting that same approach to work at a full-service ag retail location in Illinois. The business was growing, a couple of big new farms signed on, and he was gearing up for what he was sure would be a really good growing season.

“It was really clicking,” he says. “Then something hit us.”

It was 1983, and the government created the Payment-In-Kind program, which was designed to reduce grain stockpiles by incentivizing farmers to leave fields unplanted for a year. In Burdett’s area, growers set aside one-third of their acres. For an ag retailer, it was a major blow. The company had about 40 outlets, and management brought in all of the managers for a meeting.

“It was all doom and gloom,” Burdett says. “We were going to have to cut back, lay off people, reduce orders, not fill up our bulk tanks, and so on.”

Driving home, though, he got to thinking: All of his competitors were going to do the same thing—cut back. His location’s business was on a roll, so what if he did the opposite? He met with his boss and laid out his plan to continue the growth he’d been seeing.

“I asked him to commit to my store,” Burdett says. “If other locations had equipment they couldn’t use, people they didn’t

need, I could use them. I wanted to go for it, and my boss supported me.”

The store gained enough new customers to increase its agronomy sales by more than 20 percent, despite growers’ acreage cutbacks.

“It was about building trust, building relationships, being dependable and providing value to our customers,” he says. “To this day, that experience stays with me.”

Value Over and Above

Burdett applied those same fundamentals when he started working for a Syngenta legacy company more than 25 years ago. Today, in his current role at Syngenta, he leads a newly created team that is unlocking the value digital tools and data analytics can bring to customers around the world.

One U.S.-based initiative he’s especially enthusiastic about is AgriEdge Excelsior®, a whole-farm management program for growers. Participating growers get state-of-the-art technology with software that supports management

decisions by tracking crop inputs, costs, yields and profits. The program also offers risk-management features and expertise from AgriEdge® specialists and local resellers. The industry-leading Syngenta portfolio in crop protection, seeds and seed treatment also supports the program.

“It’s great when we can offer growers value over and above the products they buy,” he says. “For most of them, the information is the most powerful feature. They can know their costs, know their break-even yields and prices, and be able to make better decisions for their businesses.”

A remarkable 96 percent of AgriEdge Excelsior growers stay with the program each year. True to Burdett’s view of agriculture, AgriEdge Excelsior builds on strong relationships and collaboration to help customers succeed. 🌱

STORY BY MARK MONROE

“To me it’s about the people—and the values. Ag people have a strong work ethic. Trust and relationships are important in any business, but even more so in agriculture.”
—DAN BURDETT

2016



CHECK OUT MORE #ROOTEDINAG STORIES

This profile on Dan Burdett is part of an ongoing series that features people who have a deep-rooted history and passion for farming. To view more #RootedInAg stories, go to www.syngentathrive.com/community.



Ripple Effect

Syngenta honors the achievements of the 2016 Professional Farm Manager of the Year, the 2016 Syngenta Agricultural Scholarship national winners and this year's winner of the #RootedinAg contest.

SCHOLARSHIP WINNERS AND AWARDS

2016 Farm Manager of the Year Recognized

For Richard "Dick" Pringnitz, a passion for decision-making and analytical work led to a career in farm management. Today, Pringnitz is an accredited farm manager, licensed real estate salesperson, community leader and, most recently, the 2016 Professional Farm Manager of the Year.

At Hertz Farm Management in Nevada, Iowa, Pringnitz currently manages 71 different properties across the state. From helping growers make key financial decisions to assisting landowners transition family farms to the next generation, he offers his clients expert advice on critical farm management decisions. His ability to communicate clearly with his clients through written reports and personal visits has helped him build lasting relationships during his 31-year career. To ensure Pringnitz's legacy of excellence continues into the future, he is actively involved in training new employees through Hertz's mentorship program.

In celebration of Pringnitz's latest honor, Syngenta is making a \$1,000 contribution to the Nevada FFA Chapter. "I am very excited and honored to be selected as the 2016 Farm Manager of the Year," says Pringnitz. "I thank Syngenta, *AgProfessional Magazine*, and the American Society of Farm Managers and Rural Appraisers for sponsoring this award. I'm very grateful for their continued support of the farm management industry."

Visit www.farmmanageroftheyear.com to view the Professional Farm Manager of the Year video honoring Pringnitz.





Richard "Dick" Pringnitz celebrates his recent honor of being named the 2016 Farm Manager of the Year with his wife, Loni (second from left), and daughters, Katelyn (left) and Megan (right).

Syngenta Honors Agricultural Scholarship Winners

Syngenta is proud to announce that students Sharon Perrone from the University of Minnesota and Abigail Arthaud from Oklahoma State University are the 2016 Syngenta Agricultural Scholarship national winners. A distinguished panel of judges selected the students from approximately 200 applicants who are pursuing ag-related degrees at land grant universities. All participants submitted essays about someone in their lives who inspired them to be #RootedInAg. That person for Perrone, the master's level winner, was a teacher and mentor; for Arthaud, the bachelor's level winner, it was her father, who runs their family farm.

"The advancement of agriculture is contingent on its future leaders," says Mary Streett DeMers, senior communications lead at Syngenta. "We're happy to have found two students who have been inspired to pursue careers in the industry and to honor them and those who sparked their passion."

The winners received \$1,000 each in regional awards and \$6,000 each in national awards to assist them financially in realizing their educational and career goals. Syngenta awarded six additional students with \$1,000 regional scholarship prizes. These recipients were Gilma Castillo (University of Florida), Leah Schwinn (The Ohio State University), Clara Ervin (Virginia Tech University), Jonathan Stephens (Pennsylvania State University), Eduardo Garcia (California State Polytechnic University) and Elizabeth Warren (Washington State University).

Visit www.syngenta-us.com/scholarships for more information about the national winners and our 2017 application period.



Vern Hawkins (left), president of Syngenta Crop Protection, LLC, and Dan Burdett (right), head of digital agriculture at Syngenta, congratulate the two national winners of the Syngenta Agricultural Scholarship: bachelor's level winner Abigail Arthaud (second from left) and master's level winner Sharon Perrone (second from right).



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Guiding Light

This year's #RootedinAg contest winner draws on her heritage to reinvent her family farm and better her community.

Shelby Watson Hampton recalls a sage piece of advice from her grandfather, Russell Watson Sr. “Now remember, kids: Anything you do reflects on your grandma and me, and the family as a whole,” he said. “Always remember that.”

Hampton, who recently won *Thrive's* #RootedinAg contest, says, “I remember everything about that moment. It seemed to set the stage for a lot of things to come.”

Hampton won the contest based on the number of online votes she received and the quality of her entry, as determined by a panel of judges. She was one of five finalists, who each received a mini touch-screen tablet. Her winning essay described how her family's agricultural roots have helped four generations of Watsons stay committed to their land and community in Brandywine, Maryland.

From left to right: Bob White, Susan White, Shirley Watson, Wade Hampton and Shelby Watson Hampton represent three generations who work together on Robin Hill Farm and Vineyards; (opposite page) Shelby Watson Hampton examines the farm's grapevines before pruning them.



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

The family business began as a tobacco farm. Today, Hampton; her husband, Wade; and her aunt and uncle, Susan Watson White and Bob White, are business partners in Robin Hill Farm and Vineyards. About 2,000 grapevines grow where tobacco once grew. This spring, the family plans to plant another 1,000 vines. The business partners are also remodeling an old tobacco barn into a winery and tasting room.

For winning the #RootedinAg contest, Hampton received a \$1,000 donation from Syngenta, made in her name to an organization of her choice—the Brandywine-Baden Out of the Darkness Walk, which benefits the American Foundation for Suicide Prevention (AFSP). Hampton chose AFSP in remembrance of her older brother, Russ, who battled depression and anxiety.


“Despite our best efforts, we lost my big brother to the disease of suicide in fall 2003,” she says. “Losing him was like losing a leg; it took me a long time to learn how to stand again.”

For decades, farm families have suffered a higher rate of suicide than the general population, Hampton says, citing a recent *Newsweek* article. The story notes that the exact rates are difficult to determine, because farmer suicides are under-reported.

“Although our small town is one of close-knit families who work hard, play together and protect each other, we have lost six young people to suicide in the past 13 years,” she says.

In response, Hampton and other community members formed an AFSP chapter three years ago and began fundraising with a local walk.

“To date, we have raised almost \$100,000 through the walk and other events,” she says. “The generous donation from Syngenta will help us continue to support the people and their families who are battling this deadly disease, so they can begin to step out of the darkness and into the light.”

For more information on how you can help in the nationwide fight against suicide, go to www.afsp.org. Also, learn how you can enter the 2017 #RootedinAg contest in *Thrive* and on www.syngentathrive.com this spring. 

STORY BY LYNN GROOMS



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