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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.

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Enogen corn enzyme technology can benefit growers, ethanol plants and consumers. Illustration: Ryan Etter

THIS PAGE A strong fungicide is a key defense against diseases when crops experience damp growing conditions. Photo: Agstock Images

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.



Wise Investments

Crop inputs, such as fungicides, are often a winning proposition, even during a period of low commodity prices.

Like all complex industries, agriculture sometimes defies logic. Saving more and investing less in crop inputs may seem to make the most sense for growers when commodity prices are low. But at the end of the season, the opposite approach may generate more revenue on farms.

Take disease management for example. Once considered optional for many crops outside fruits and vegetables, fungicides—particularly the most recent technologies—can give corn, soybean and cereal growers a potential three-to-one return on investment. Given today's market environment, maximizing yield is core for growers, and the right fungicide can help them do just that.

“Given today's market environment, maximizing yield is core for growers, and the right fungicide can help them do just that.”

—CHRISTIAN LIPPUNER

At Syngenta, our deep-rooted passion for agriculture and knowledge of crop-protection chemistry are driving an unprecedented wave of disease-control innovations—many of which are showcased in this issue of *Thrive*. The Solatenol[®] fungicides—including Trivapro[®] in row crops and Elatus[®] in peanuts and potatoes—made their full-season debuts in 2016. On farms across the country, these products, which are like nothing growers have seen before, are demonstrating their exceptional, long-lasting value in managing yield-reducing diseases. Syngenta simultaneously debuted the Orondis[®] fungicides, which offer a new mode of action for controlling oomycete-caused diseases in vegetables, potatoes and tobacco.

With disease pressure expected to remain high and premix formulations now available for most of our key brands, the value and convenience of the Syngenta fungicide portfolio have never been greater. And neither has the potency of our pipeline. As you'll see on the pages that follow, our 2017 Grow More™ Experience sites will give visitors an in-field preview of our next step in disease control—Adepidyn[®] fungicide. Upon registration, Syngenta will market the formulations of this remarkable new active ingredient under the Miravis[®] fungicide product line.

Other articles in this issue cover topics beyond fungicides that could greatly affect you and your business. Always keeping a pulse on the future, we're exploring how the alpha-amylase enzyme of Enogen[®] corn will impact the biofuel and animal feed markets, why the 2016 election will likely influence agricultural policy moving forward, and what life on the farm is expected to look like in 30 years.

Of course, the outlook for 2017 is more settled. We already know that the low prices for crops, including corn, soybeans and wheat, are headwinds growers and resellers like you will continue to face this season. But we at Syngenta are ready to support you and your customers with the products, services and solutions that can lead to a more productive and successful tomorrow. 🌱

CHRISTIAN LIPPUNER

Head of Fungicides and Insecticides
Product Marketing
Syngenta, North America



CHRISTIAN LIPPUNER



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



What's in Store

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

NEW PRODUCTS

Now Available, Minecto Pro Offers Residual Insect Control

Minecto® Pro insecticide has received federal registration from the U.S. Environmental Protection Agency for use in specialty and vegetable crops. The new Syngenta insecticide helps control lepidopteran pests, as well as sucking, rasping and chewing pests, including mites, whiteflies, psyllids, thrips and Colorado potato beetles.

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 to standalone products.

Upon receipt of individual state registrations, Minecto Pro will be commercially available for the 2017 growing season. For more information, go to www.syngenta.com/minectopro.



Oranges and other citrus crops may benefit from applications of Minecto Pro insecticide.



NEWS AND EVENTS

Calling for Farm Manager of the Year Nominations

Since 1986, the American Society of Farm Managers and Rural Appraisers, *AgProfessional* magazine, and Syngenta have teamed up to present the Professional Farm Manager of the Year Award. Each year, this award recognizes a farm manager whose dedication and commitment to agriculture have benefited his or her clients, the American consumer and our most precious commodity—the land.

If you'd like to nominate someone for this honor, please submit your nomination between May 1 and May 26, 2017, at www.farmmanageroftheyear.com.



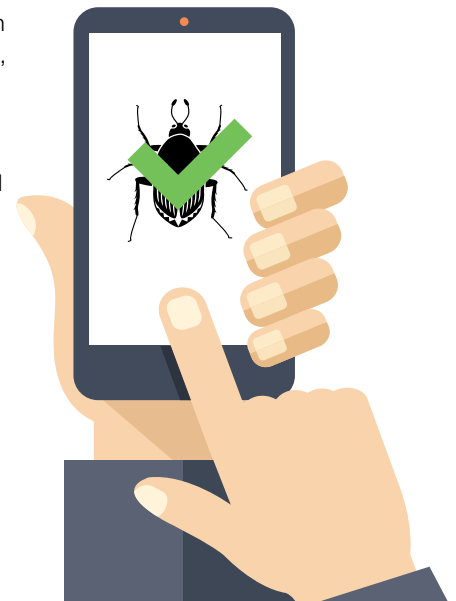
Pest Patrol Redesigned for 2017

Trying to stay a step ahead of pests in the South? The redesigned Syngenta Pest Patrol website now lets visitors access updates about current and anticipated pest pressures more easily than ever before. The new streamlined mobile and desktop versions deliver tips and advice from leading experts across 10 Southern states.

Simply select a state to view expert profiles and pest updates for your local area. Want to be notified when these updates are happening? Just sign up to receive text-message alerts to be among the first to receive this information.

Pest Patrol reports on current pest threat levels, local outbreak predictions and treatment recommendations. In its ninth season, Pest Patrol helps growers, consultants and retailers customize their pest-management plans with some of today's most effective solutions, including Endigo® ZC insecticide, Boundary® 6.5 EC herbicide and Quadris® fungicide.

To find out more, go to www.syngentaus.com/pestpatrol.



#ROOTEDINAG ENTER TO WIN!

**Thrive #RootedinAg Contest
NOW Accepting Entries**

A parent, grandparent, teacher or friend—so many people can positively impact the direction we choose to take in life. At Syngenta, we're grateful to everyone who has helped us firmly establish our agricultural roots, which extend to farms across the country and around the world. Now, we want to hear your story about who inspired you to be #RootedinAg. In exchange, you could honor that person by being one of five finalists whose stories will be featured online in *Thrive*. **Each finalist also will receive a mini touch-screen tablet.** And if you're our **grand prizewinner, we'll send you a \$500 gift card** that you can share with the person who has inspired you the most. We'll also give you a chance to pay it forward within your community by **donating \$1,000 to a local charity or civic organization of your choice.** Here's how to enter:

- 1** Go to www.syngentathrive.com to review eligibility and fill out the easy-to-use #RootedinAg entry form.

- 2** In about 200 words, describe who inspired you to be #RootedinAg.

- 3** Using the simple instructions provided, upload a photograph or video that visually supports your written entry.

The deadline for entering is June 30, 2017. Shortly after this date, a panel of judges will choose five finalists. Syngenta will then post all finalists' entries on the *Thrive* website and ask visitors to help choose the grand prizewinner by voting for their favorite. These votes, along with the judges' scores, will determine the winner. Online voting ends Sept. 15, 2017, with Syngenta announcing the grand prizewinner in October.

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



Shelby Watson Hampton from Brandywine, Maryland, was the 2016 #RootedinAg contest winner. Her family includes (back row, from left) Trent Watson, Rusty Watson, Bob White, Wade Hampton; (middle row, from left) Rosa Suarez, Beth Watson, Susan Watson White, Shirley Watson, Shelby Watson Hampton, Sydney Hardy, Connie Watson Garner; (seated on crates, from left) Lynn Watson, Robert Watson; (seated on grass, from left) Patsy Suarez, Gio Suarez, Wendy Suarez.



The FarmHer Journey Continues

New episodes of the television series “FarmHer on RFD-TV,” sponsored by Syngenta, returned earlier this spring. In the coming months, the series will feature women whose work is making a positive difference on farms throughout the country.

One episode will star three women who played integral roles in bringing Acuron® corn herbicide to market: Cheryl Dunne, R&D group leader at the Syngenta Vero Beach Research Center in Vero Beach, Florida; Xinyun Wen, Ph.D., formulation chemist in Greensboro, North Carolina; and Katie Oshige, formulation engineer, also in Greensboro. Another episode will feature Syngenta retail representative Ashley Bandoni, whose story will highlight her career at Syngenta and life on her family’s almond farm in Merced, California.

Each week, the series also includes a Syngenta “#RootedinAg Spotlight.” Through vivid photography, these 30-second segments highlight women from across the agricultural community.

“We are proud to continue our support of the FarmHer movement,” says Wendell Calhoun, Syngenta communications manager. “The television show is a great way to showcase some of the amazing women in our industry and the impactful ways they are shaping agriculture and our world.”

Watch the series live on RFD-TV on Fridays at 9:30 p.m. EST, and go to www.syngentathrive.com/community every week to view the latest “#RootedinAg Spotlight.”

“The television show is a great way to showcase some of the amazing women in our industry and the impactful ways they are shaping agriculture and our world.”

—WENDELL CALHOUN

Cheryl Dunne, R&D group leader at Syngenta, conducts an experiment in the lab at the Vero Beach Research Center in Florida.



Rx for Resistance

Growers need a multifaceted approach to help prevent and manage the costly challenges posed by weeds.

Q. Why has herbicide resistance become such a threat?

A. Dane Bowers, technical product lead, Syngenta, North America: I've watched herbicide resistance evolve, and the threat has often been ignored. We seem to think it's a problem that happens to someone else in another area. In reality, resistance is a biological process that doesn't have geographic boundaries. We've often taken the approach that if it isn't obviously broken, we don't need to fix it. But with herbicide resistance, taking action now is the right approach. If weed-management programs are not properly designed, herbicide resistance will eventually become an issue.

Q. What are some practices unintentionally contributing to the breakdown of current herbicides?

A. The practice most responsible for resistance is repeated use of the same active ingredient or mode of action. This puts tremendous selection pressure in the field. The herbicide controls susceptible weeds, but plants that carry resistant genes escape. Because these escapes are often allowed to go to seed, the field can have high populations of resistant biotypes in fairly short order—in a matter of two to three years.

Another practice contributing to resistance development is applying post-emergence herbicides to weeds that are too large. Some of these large weeds may have low levels of resistance, and application at an earlier growth stage would have killed them. But repeating the process

of spraying large weeds will, over time, build higher levels of resistance in the weed population. When growers begin to see that the herbicide rate they've been using is less effective and they must increase the rate, it's a pretty good sign they're developing a problem.

Q. How can resellers and growers help preserve the technologies available to them?

A. I recommend growers plant into clean fields by either using an effective burndown herbicide or tillage. Also, consider adding more diversity into weed-management programs to decrease dependency on herbicides by removing weeds mechanically, rotating crops and planting cover crops. It's important that weed-management programs include multiple effective modes of action on the target weed. Using mixtures has been shown to be the most effective resistance-management strategy. Know what modes of action are in the herbicides being used, and make sure the target weed is susceptible. Many premix herbicides do contain multiple modes of action; however, target weeds, like waterhemp or Palmer amaranth, may be resistant or not controlled by one or more of the ingredients. This isn't effective resistance management.

Two-pass programs are also important. Select a pre-emergence herbicide with multiple effective modes of action. This will lessen selection pressure on the post-emergence herbicide and help keep it viable. Where possible, use multiple effective modes of action in the



PRESERVING HERBICIDE TECHNOLOGIES

1 Start by planting into clean fields after using an effective burndown herbicide or tillage.

2 Apply a pre-emergence herbicide with multiple modes of action.

post-emergence trip. Always apply the labeled rate at the correct time. I also recommend overlapping residual herbicides. Apply the post-emergent herbicide early, before most weeds emerge, for additional residual control. Controlling weeds before they emerge will help reduce selection pressure on the post-emergence herbicide.

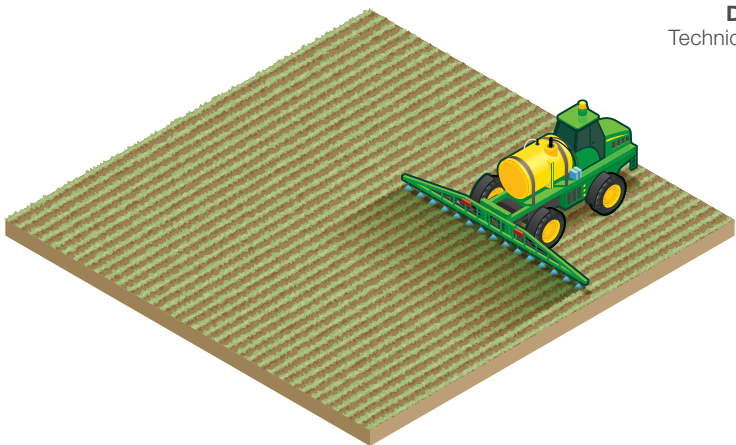
Q. What steps is Syngenta taking to keep today's weed-control solutions viable?

A. Syngenta, both internally and in external collaborations, has research efforts underway to understand mechanisms of resistance and to monitor the development of resistance across the U.S. Our team is focused on education as well as the delivery of sound recommendations and herbicide mixtures to help customers manage herbicide-resistant weeds. We design our herbicide premixes to include robust rates, multiple effective modes of action and strong residual activity. When applied in a two-pass program, these herbicides will provide overlapping residual activity to help protect today's weed-management tools.

Through our Resistance Fighter® campaign efforts, the Syngenta Agronomy Service Team has developed local recommendations to provide good resistance-management strategies to our customers. We also have an educational component as part of Resistance Fighter. It includes hosting local meetings throughout the year and sharing information through collateral to help growers and resellers understand how resistance develops and what practices can help manage or prevent resistance.

“We’ve often taken the approach that if it isn’t obviously broken, we don’t need to fix it. But with herbicide resistance, taking action now is the right approach.”


DANE BOWERS
Technical Product Lead
Syngenta
North America



3 Apply a post-emergence herbicide early, before most weeds emerge.

Q. What new technologies does Syngenta have in its pipeline?

A. Syngenta invests more than \$1.3 billion globally each year in an effort to bring new solutions to farmers' unmet needs. As a result of this focus, our current pipeline of technologies is stronger than ever. In the U.S. pipeline alone, we have more than 50 innovations. Specific to herbicides, we have new chemistries, premixes and traits in development. One example is HPPD-tolerant soybeans, which will allow in-crop applications of HPPD-inhibitors—a class of herbicides that offer exceptional residual control of grass and broadleaf weeds. Syngenta is also actively evaluating various dicamba technology options, including volatility reduction agents. While we have not submitted any dicamba products to be registered for over-the-top use on cotton or soybeans, we will continue to monitor the regulatory environment for auxin technology.

Our search for new solutions that can help growers manage resistance is never-ending. We look forward to continuing our partnership with resellers to bring these much-needed tools to farms.  INTERVIEW BY MIRIAM PAULSON



Steps in the Journey

Get set for a new immersive trade-show experience that goes from seed to harvest.

As an agronomist, Doug Kirkbride has a deep and abiding affection for dirt. He's also a go-the-extra-mile kind of guy. As a Syngenta employee, each of these traits has an opportunity to shine.

After working a trade show in 2016 and processing the breadth and depth of the questions that growers tossed his way, Kirkbride wondered if a roots-up approach might help him provide better answers.

Soon he was tinkering in his Pana, Illinois, shop, constructing a 6-foot-tall panel display engineered to show off nine sets of corn roots. The 6-foot-tall panel features nine holes in a grid through which a variety of root systems can be easily showcased. Penetrating, modified and fibrous roots are visible, labeled by the types of soil in which they were grown—coarse, medium and fine.

The project has proven to be a hit so far at 2017 trade shows. Growers can instantly capture an idea of which Golden Harvest® and NK® Corn hybrids are best suited for their soils.

"It really piques people's interest as they travel through our trade-show experience," says Kirkbride, a Syngenta product

"We want to tell our story in a relatable way. And growers want to visualize, touch and feel, and connect the dots."

—MELISSA LORD

development agronomy manager. "It's a visual that helps start the conversation with the grower."

For Syngenta, those conversations are key to the success of any trade show. And Kirkbride's display is just one piece of a significant overhaul of the way Syngenta approaches these public-facing events.

"We want to tell our story in a relatable way," says Melissa Lord, Syngenta trade show and customer event lead. "And growers want to visualize, touch and feel, and connect the dots."

Informative and Entertaining

The National Farm Machinery Show (NFMS) didn't earn the nickname "Farmer Mardi Gras" because it has a scholarly, no-nonsense vibe. But trade shows are more than social events. People from around the country descend on these big shows to learn about the latest innovations. They expect companies to deliver.

Each year, NFMS is the first stop on the Syngenta big-four circuit of trade shows, which also includes Commodity Classic, Farm Progress Show and Husker Harvest Days. Syngenta has long had a significant presence at each. Starting in August 2016

Opposite page: A visitor to the Syngenta trade-show booth at the National Farm Machinery Show in Louisville, Kentucky, takes the "Trivapro Fungicide 360 Virtual Field Tour" using virtual-reality goggles.

with Farm Progress, the company unveiled a completely transformed trade-show experience. Visitors pass through a single entryway and begin a multistep journey that follows the natural progression of

the growing season, from planting through harvest.

Syngenta experts are stationed along the way to provide product insight and advice, and to answer grower-specific questions. Designed for inclusivity, the experience touches on a wide range of crops and products, and it's engineered to reach the greatest possible audience.

At one stop, growers can calculate the potential return on their investment when planting Enogen[®] corn enzyme technology, a unique in-seed innovation that enhances ethanol production. (See "A Growing Opportunity," page 18.) At another, the benefits of Trivapro[®] fungicide—a disease-control breakthrough in corn, soybeans and wheat—are brought to life through an interactive digital kiosk. (See "Power Up," page 14.) Live plants exemplify the benefits of Syngenta seed versus competitors' seed.

An incentivized map activity encourages visitors to complete the journey. At each station they visit, participants receive a token. If they earn enough tokens after completing the journey, they can exchange them for a small gift. For example, at the 2016 Farm Progress Show, participants could receive a free drink ticket.


The new approach has been such a success that Syngenta will implement it for all of the larger shows in 2017. Booths at smaller regional shows also will reflect elements of the approach. The concept allows for fluidity; as new products are launched, Syngenta can reconfigure segments of the journey to encourage additional connections with growers.

"We like to implement an experience," says Kent Jones, an account executive with 3D Exhibits, which played a significant role in the redesign. "We want growers to fully understand the benefit of Syngenta products."

Positive Interactions

Brad Schmidt of Kamrar, Iowa, is one of those growers who definitely understands. He walked the Syngenta journey last year during Farm Progress. "It's always nice to see the newest stuff," says Schmidt, who farms about 1,400 acres of corn and soybeans. "You get a taste of what's to come."

Schmidt has been planting Syngenta seed for the last several years and pays close attention to the products offered by each of the major seed players. "Everything in the technology sector is advancing so rapidly," he says, noting that competition drives product innovation.

"It's good to know that Syngenta is investing in R&D," he adds. "The trade-show experience can help growers like me see that we're getting what we pay for when we purchase a Syngenta product. The company isn't just pocketing the money; it's putting it back onto the farm."  STORY BY MATT EHLERS

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

After experiencing exceptional control over 90 of the toughest weeds and grasses, farmers agree Halex[®] GT is one of the best post-emergence herbicides available for glyphosate-tolerant corn. Designed to work all season long, Halex GT saves time and money while allowing crops to achieve their highest potential. So it's no surprise 9 out of 10 farmers¹ who try Halex GT continue to use it. Raise your hand and type HalexGT-Herbicide.com or contact a Syngenta retailer to learn more.



 Halex[®]GT



¹2014 Syngenta Market Research

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Trending 2050

Based on current developments, experts predict dramatic changes in agriculture by 2050.

By the year 2050, U.S. growers will need to reach an impressive level of food production to help feed a growing world population. Fewer in number, they will operate multifaceted businesses with stunning new technology to increase efficiency on farms.

These predictions come from experts who study food and farming trends. Here's a look at what they think life on the farm will look like in 33 years.

Food Demand Increases

The two big drivers of food demand—population and income—are on the rise. The world's population is expected to reach 9.1 billion people in 2050, up from 7.4 billion in 2016. Farmers globally must increase food production 70 percent compared to 2007 levels to meet the needs of the larger population, according to a report from the Food and Agriculture Organization of the United Nations.¹

Also driving food demand is an increase in global income levels, especially those in developing countries. As a result, these countries will be able to expand diets with more protein.

"As incomes rise, consumer preference moves from wheat and grains to legumes, and then to meat, including chicken, pork and beef," says David Widmar, Purdue University ag economist.

"As incomes rise, consumer preference moves from wheat and grains to legumes, and then to meat, including chicken, pork and beef."

—DAVID WIDMAR

A different trend is emerging in highly developed countries with more health-conscious populations. The focus on starch-based crops like corn will shift to more plant-based proteins like soybeans and other legumes, says Derek Norman, head of Corporate Venture Capital at Syngenta Ventures, which

helps support other companies that share its vision of producing more crops with fewer resources.

Consolidation Accelerates

The 2012 ag census revealed a big shift in farmer ages that holds major implications for the future, says Widmar. For the first time, growers who are older than 65 outnumber farmers who are younger than 45. The difference is substantial, with 2.1 older growers for every farmer younger than 45.²

When older growers exit the business, there are fewer younger growers to replace them. As a result, farm consolidation will be significant and quick, says Widmar. The consolidation will change farm dynamics to larger, more managerial complexities.

Farming will go "from a one-man show to something resembling a medium- to large-size business," he says. "As a farmer, it will be very complicated, with a mix of multigenerational family members and hired employees."

High-Tech Solutions Evolve

Farm consolidation will drive the need for more outside labor. Expect high-tech solutions like robotics to come to the rescue.

"If you have a robot, it can help manage labor issues," Widmar says. Already, dairy farmers use robotic milkers as a substitute for labor. And farm equipment manufacturers are testing prototypes of robotic tractors and sprayers to handle fieldwork without human drivers.

The leap from prototype to commercial operation of robotic machinery may be short. Many new machines are currently equipped with the electronics to control operations with very little human interaction. However, the legal and regulatory issues surrounding robots must be bridged first.

With its regulations already in place, drone technology is poised for a boom in farm usage. In the next 10 years, the agricultural drone industry will generate 100,000 jobs in the U.S. and \$82 billion in economic activity, according to a Bank of America Merrill Lynch Global Research report. Potential use of on-farm drones by 2050 is huge, from imagery and product application to transporting supplies and jobs not yet imagined.

As farming relies more on complex equipment with lots of electronics, data collection will play an increasingly larger role in farm management. Programs like AgriEdge Excelsior® from Syngenta help growers learn to use data for whole-farm management. In the future, farms will have an increased need for data and information technology specialists, Widmar says.

Gene Editing Booms

"By 2050, there will be gene-edited crops, and it will trigger a much wider variety of crops being grown," says Norman.



Blue River Technology's LettuceBot, a precision thinning machine, visually assesses each plant in a Salinas, California, lettuce field and decides which ones to keep to optimize yield.

This new technology allows scientists to precisely edit genes in DNA with the goal of creating a better crop variety. In the future, gene editing should enable farmers to select specific crop varieties that have features like resistance to different diseases, drought tolerance or more desirable oil content. Gene editing will provide a greater variety of crops that can be grown by editing out traits hampering widespread production.

By-the-Plant Crop Management

Water availability, environmental impacts and soil health will continue to challenge growers in the future. But new technologies will help them deal with these issues more efficiently, says Norman.

For example, the Israeli company Phytex, which is collaborating with Syngenta, has developed a monitoring system that features continuous plant-growth sensors, soil-moisture sensors and a microclimate unit. Monitoring data is then accessible on mobile devices and computers for immediate action, if needed.

"The technology to measure soil health, as well as satellite and aerial imagery to monitor crop growth, will be

mainstream," Norman says. He also expects widespread adoption of precision technology that reaches down to the plant level. Blue River Technology, another Syngenta collaborator, has developed a precision-smart implement that does just that. Called a LettuceBot, the implement uses cameras, processors, computers and quarter-inch sprayers to thin lettuce plants in the fields. This type of technology results in less chemical use and a lower environmental impact, which will be very important in 2050.

A Clue to the Future

While predictions can shed light on the future, we are still 33 years away from 2050. A whole new generation of growers, who are not yet born, will be farming midcentury, and much will happen between now and then that we cannot predict.

But if the past is a clue to the future, U.S. growers will continue to seek better ways to produce crops by embracing innovation. 🌱 STORY BY KAREN MCMAHON

1. "Global Agriculture Towards 2050," www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf
2. "Farm Demographics—U.S. Farmers by Gender, Age, Race, Ethnicity, and More," www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Farm_Demographics

Scope It Out

The twin factors of population growth and urbanization will create serious challenges for agriculture in the upcoming decades. Given these two factors, what will agriculture look like in 2050? Based on current trends, experts anticipate a range of developments that will help agriculture keep pace with the world population's rapidly expanding dietary needs.

2050 BY THE NUMBERS

9

billion people will live on Earth—an increase of 1.7 billion over the current global population.

70

percent increase in global food production will be required to feed the world's population, compared to 2007 levels.

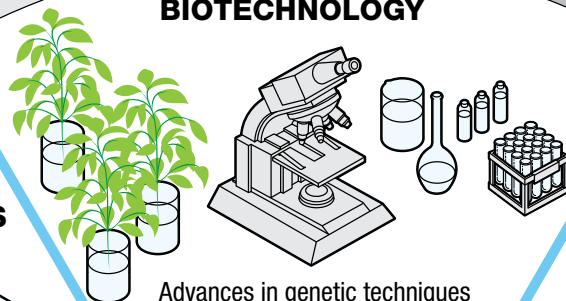
70

percent of people will live in cities and many will have higher incomes, resulting in a change in consumption patterns toward a more varied diet.



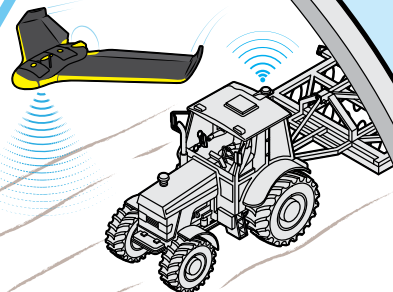
HOW AGRICULTURE PLANS TO BOOST PRODUCTIVITY

BIOTECHNOLOGY



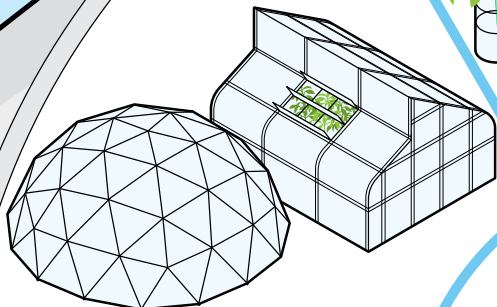
Advances in genetic techniques will allow breeders to improve nutrition and raise yields.

HIGH-TECH MACHINERY



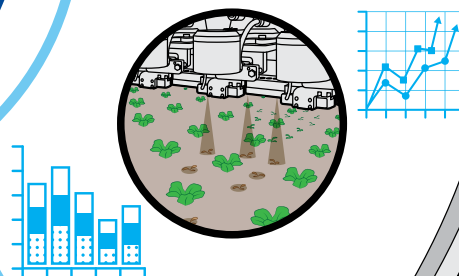
Robotic machinery will help improve efficiency by performing routine tasks in the field.

CONTROLLED ENVIRONMENTS



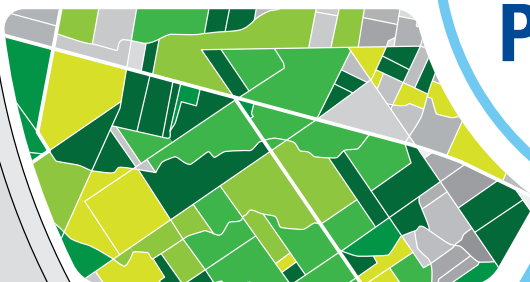
Farming in controlled environments, such as greenhouses, will increase, so fresh produce is more readily available.

PRECISION FARMING



Data from sensors will power advanced analytics and provide early detection of potential problems.

LARGER FARMS



Farms will become larger, which will result in more complex business operations.

IMPROVED CROP INPUTS



More advanced crop protection products will help boost yields and improve overall crop quality.

Predictions are based on interviews for "Trending 2050," page 10, and agricultural developments discussed in the following articles:

- > "The Future of Farming," www.economist.com/technology-quarterly/2016-06-09/factory-fresh
- > "Global Agriculture Towards 2050," www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf
- > "Integrated Pest Management," www.croplife.org/wp-content/uploads/pdf_files/Integrated-pest-management.pdf
- > Isaacson, Betsy. "Farms of the Future Today," www.newsweek.com/2015/10/30/feed-humankind-we-need-farms-future-today-385933.html
- > Widmar, David A. "The Aging American Farmer," www.ageconomists.com/2015/01/20/the-aging-american-farmer

POW UP

Trivapro fungicide is positioned to become a staple in many growers' disease-control programs, because it offers powerful, long-lasting protection.

By LaCresha Styles



SEE MORE PHOTOS.
www.syngentathrive.com/farmproduction.



VEER

Retailer and grower Ryan Larson had excellent results using Trivapro® fungicide on his fields in Blooming Prairie, Minnesota.



First available to U.S. corn, soybean and wheat growers in 2016, Trivapro® fungicide has quickly become a market leader, according to a recent Stratus market research survey.

First-year users participating in the 2016 survey rated Trivapro No. 1 in 17 different fungicide categories, including overall brand preference, higher yields, long-lasting preventive and curative disease control, and improved stalk strength and harvestability.

What accounts for the fungicide's fast-paced race to the top? Its unique chemistry, says Andrew Fisher, fungicide brand manager at Syngenta.

Step-Change in Fungicide Technology

"Trivapro is a powerful fungicide with three active ingredients—Solatenol® fungicide, azoxystrobin and propiconazole—and three noncross-resistant modes of action," says Fisher. "But what makes Trivapro truly unique is the Solatenol component."

Research shows that Solatenol, a succinate dehydrogenase inhibitor (SDHI) fungicide, is 10 times more potent than any other SDHI on the market today and that lends to the increased length

of residual disease control that Trivapro provides throughout the season.

"Solatenol is a breakthrough active ingredient because it binds tightly to the waxy layer of the leaf, preventing the plant from metabolizing Trivapro as quickly as other brands," says

"Despite the adverse weather and other bad conditions we experienced, Trivapro fungicide kept our corn green and healthy."

—LUKE LAURITSEN

Eric Tedford, Ph.D., technical product lead at Syngenta. "When an active ingredient like Solatenol binds this well on the plant, it stands up better against wind, rain, sunlight and other elements that wash off or degrade fungicides over time, allowing Trivapro to work harder and last longer than other fungicides."

Additionally, Fisher notes that Trivapro provides several crop-enhancement benefits that help boost yield and profitability. These benefits include improving water-use efficiency during dry periods; protecting stalk and pod integrity to reduce lodging and improve pod retention; and sustaining green-leaf tissue for optimum photosynthesis and maximum grain-fill.

"When you have the combination of excellent disease control and proven crop-enhancement benefits in a single product like Trivapro, that product is going to help add on bushels and more than pay for itself by the end of the season," Fisher says.

The Proof Is in the Fields

Syngenta field trials and growers' side-by-side comparisons in 2016 showed the following:

- > In corn, Trivapro increased yields by an average of 27 bushels per acre (bu/A) over untreated acres.¹
- > In soybeans, Trivapro increased yields by an average of 8 bu/A over untreated acres.²
- > In wheat, Trivapro-treated acres produced yields between 11 and 27 bu/A more than untreated acres and those treated with competitive brands.³

Across thousands of corn, soybean and wheat acres, Trivapro controlled key diseases—gray leaf spot, Northern corn leaf blight, frogeye leaf spot and rusts—and helped growers' crops withstand severe weather events. As a result, users report that their Trivapro-treated crops were greener, stronger and visually superior to untreated crops and those treated with competitive brands. Here are a few of their stories.

Boosting Yields in Corn, Despite the Weather

Like many corn growers throughout the South and Midwest, Luke Lauritsen from Arlington, Nebraska, experienced the long-lasting, potent effects of Trivapro firsthand. Also a Golden Harvest® Seed Advisor™, Lauritsen says the fungicide's length of control and its ability to help his corn withstand inconsistent periods of rain and 70 mph winds were key benefits in 2016.

"Despite the adverse weather and other bad conditions we experienced, Trivapro fungicide kept our corn green and healthy," he says. "We were very happy with its 45-day residual control."

That extended residual control combined with the crop-enhancement benefits from Trivapro resulted in a significant yield increase and improved harvestability when it was time to combine his corn.

"We're seeing really good results in late plant health with Trivapro," Lauritsen says. "The drydown is still good, and we're seeing a 10 to 20 bu/A increase on our Trivapro-treated acres, compared to untreated fields."

Extending the Soybean Pod-Fill Window

As in corn, Trivapro helps maximize soybean yield potential by protecting the plant from several sources of stress, including disease. With preventive and curative disease control, Trivapro helps plants maximize pod-fill by putting more energy toward producing yield, instead of fighting disease.

One of the primary soybean diseases Trivapro defends against is frogeye leaf spot. This disease, present throughout the South and in the Midwest, thrives in humid conditions and can overwinter in crop residue. If soybean fields are soggy due to excessive rains, like the upper Midwest experienced last season, frogeye leaf spot can become a serious threat. However, that wasn't the case for Ryan Larson, retailer and grower in Blooming Prairie, Minnesota.

"Frogeye leaf spot control with Trivapro was very good last season," he says. "With the wet, saturated conditions we had, it did a good job of keeping the soybeans clean and disease-free."

Larson says he would definitely recommend Trivapro to other growers in the area, based on his experience, and adds, “Looking at the different fungicides, Trivapro gives you your best chance of maximizing yield potential.”

Seeing is Believing in Wheat

Like many wheat growers, Randy James in Dayton, Washington, was hesitant about replacing an established product with a new one—until he tested Trivapro on his farm.

James trialed Trivapro specifically to test the fungicide’s efficacy against stripe rust—a long-standing problem for his operation. He compared Trivapro to his typical go-to treatment combination of Priaxor® and Propi-Star® fungicides. The difference he saw between the two treatments was impressive.

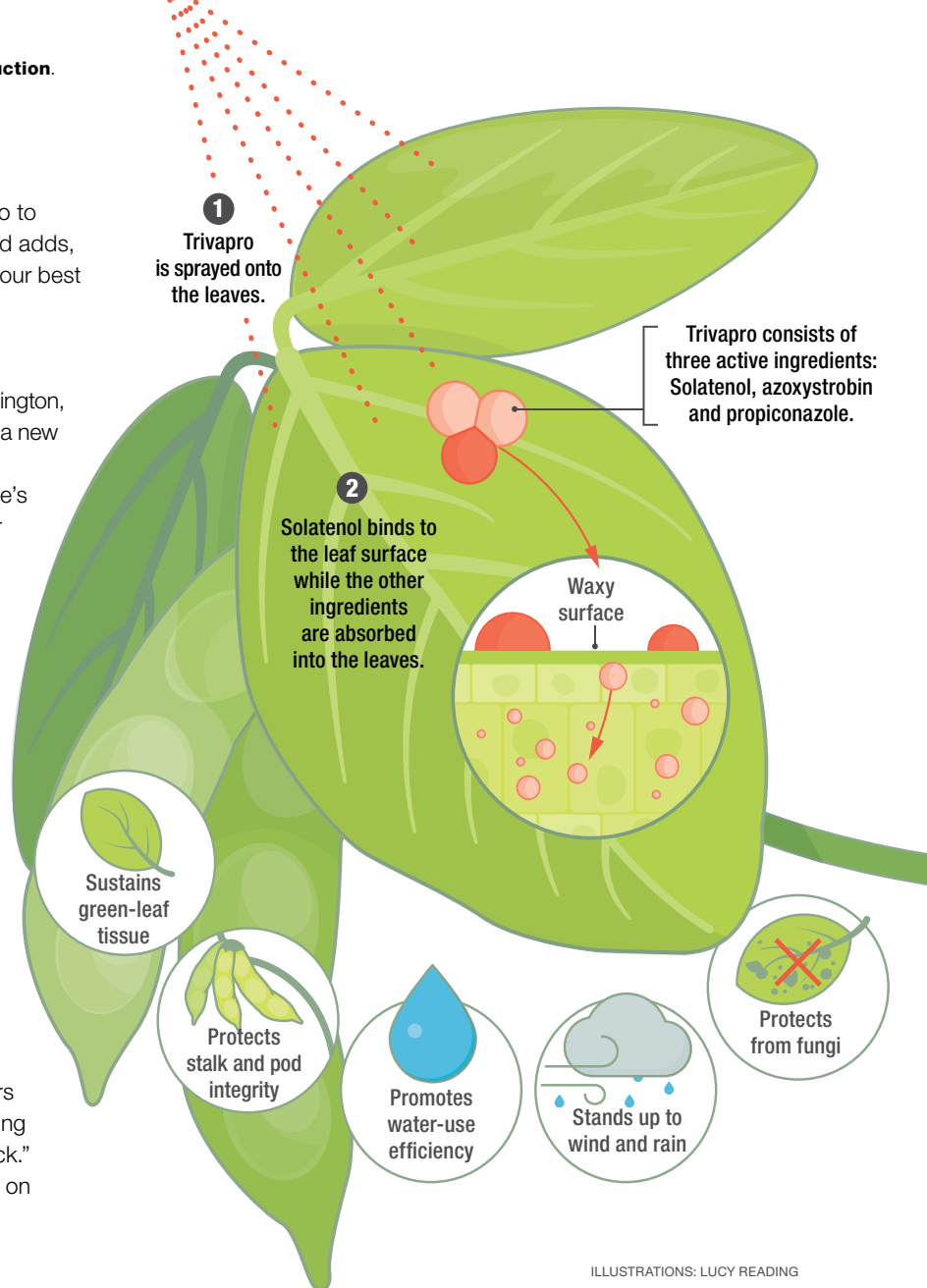
“We didn’t expect to see a visual difference at all,” he says. “Usually, it takes a combine and a weigh wagon to see what’s going on. When we saw the visual, we knew that Trivapro was something special. It was just like night and day. It helped keep the plants healthy and took care of the stripe rust as well.”

James also experienced a yield bump with Trivapro. “When we looked at the yield, we had a 14-bushel increase compared to Priaxor and Propi-Star.”

At the end of the season, Syngenta understands that growers want to see fuller pods, larger ears and better-quality heads running through their combines. “All farmers want to improve their bottom lines,” Fisher says. “And using Trivapro will help give them the biggest bang for their buck.”

Visit www.notafraidtowork.com for more information on Trivapro fungicide. 🌱

1. Based on 48 nonreplicated trials in the U.S. in 2016
2. Based on nine large plot trials in the U.S. in 2016
3. Based on five trials in the U.S. in 2016



ILLUSTRATIONS: LUCY READING

THE SOLATENOL STORY

In agriculture, the introduction of a new active ingredient is rare. That’s in part because the average time it takes to bring a new crop protection product to market can exceed 10 years and cost more than \$100 million.

On September 1, 2015, the U.S. agriculture industry experienced one of those rare events, when Syngenta announced that Solatenol® fungicide, the company’s newest succinate dehydrogenase inhibitor (SDHI), was available in four separate product offerings: Trivapro®, Aprovia®, Aprovia® Top and Elatus® fungicides. (See “The Peanut Gallery,” page 28.)

During their first full year of use in 2016, the Solatenol brands helped U.S. growers manage diseases across 17 different crops. But the Solatenol journey didn’t begin on American soil. It actually started in Brazil with the Asian soybean rust epidemic.

Faced with a pathogen that had caused an estimated \$20 billion in damage, a global team of Syngenta researchers set out to develop a solution to a problem that existing tools could no longer control. Solatenol, which protects the outer layer of the leaf as well as the inner tissue, emerged as the standout foliar SDHI fungicide.

Even though the U.S. didn’t have the widespread epidemic that Brazil experienced, Syngenta wanted to give U.S. growers access to this remarkable technology, which has outstanding intrinsic activity on many diseases, including rusts, leaf spots, Southern stem rot and apple scab.

“After 15 years of extensive research and development, the Solatenol brands are now making a real difference in crops across the country,” says Andrew Fisher, fungicide brand manager at Syngenta. “These valuable products demonstrate our continued commitment to make American growers more productive and profitable.”





A Growing Opportunity

Enogen corn helps farmers become enzyme suppliers to the ethanol industry, which continues to expand and innovate.

By Ryan Didsbury | Illustration by Ryan Etter

syngenta developed Enogen® corn enzyme technology to help enhance ethanol production. For more than six years, this in-seed innovation also has helped growers earn greater returns on their corn acreage. That's because Enogen gives them the opportunity to add value to their crop by supplying corn seed containing an alpha-amylase enzyme—a key ingredient in ethanol production—to local ethanol plants. For growers, this added revenue can be especially important when commodity prices are low.

Supply and Demand

In recent years, the ethanol industry has been on the rise. The U.S. Department of Agriculture reports that ethanol production uses approximately 40 percent of the U.S. corn crop. In 2015 alone, ethanol biorefineries produced a record 14.7 billion gallons of high-octane renewable fuel.¹

The outlook for ethanol remains bright for the 2017 planting season. In the first week of the year alone, the ethanol industry reported a record-setting production average of 1.049 billion barrels per day.²

Syngenta is helping to meet the growing demand for ethanol with Enogen corn. The alpha-amylase enzyme found in Enogen corn hybrids helps ethanol plants dramatically reduce the viscosity of their corn mash, eliminating the need to add a liquid form of the enzyme.

"Enogen corn provides growers with the opportunity to be enzyme suppliers for their local ethanol plants, because the enzyme is in the corn itself," says Ron Wulfskuhle, head of Enogen at Syngenta. "In return, growers receive a per-bushel premium for Enogen corn delivered to participating plants."

Licensed growers supply Enogen grain to ethanol plants from Arizona to Ohio, with a combined capacity to produce nearly 2 billion gallons of ethanol. In 2017, Syngenta plans to continue expanding the footprint of Enogen and offering growers an advantage.

"We anticipate total premiums earned by Enogen growers to be approximately \$32 million in 2017, creating real advantages for them and their rural economies," says Marcos Castro, Enogen marketing manager at Syngenta.

Advantages for Growers

Since 2011, Enogen corn has emerged as a key benefit for Golden Harvest® and NK® Corn growers in ethanol communities. For Roger Unruh of Garden City, Kansas, the decision to plant Enogen corn was a no-brainer. As

a Golden Harvest grower, Unruh says the transition to plant Enogen corn hybrids was easy.

"My Enogen hybrid E113N8-3000GT brand yielded up to 270 bushels per acre, while my E116K4-3000GT brand yielded up to 240 bushels per acre," he says. "I was very pleased with both of my Enogen hybrids."

Other growers have noted that the opportunity to support their local ethanol plants helped drive them to produce Enogen corn. Jeff Sack of Saint Paul, Nebraska, has been growing corn for ethanol for the past three years. "We decided to plant Enogen corn for the ethanol factor," says Sack. "Rather than depending on overseas oil for fuel, we try to raise the raw material for fuel right here. And the per-bushel premium we receive helps a bunch with low commodity prices."

To boost the potential for an even better return on investment, Syngenta offers the Ethanol Grower Advantage Program. It not only can help growers increase profitability, but it also can help plants produce more ethanol per bushel.

"The Ethanol Grower Advantage program incentivizes and rewards agronomic best practices, helping growers achieve consistently higher yields and earn premiums," Castro says. "Participating growers are eligible to receive up to a 10-cent premium for each bushel of Golden Harvest, NK and/or Enogen corn delivered to a participating ethanol

plant. This complements the existing premiums Enogen growers can earn."

Industry Support

Syngenta understands the positive impact the renewable-fuels industry has on rural America. By supporting partnerships like the Prime the Pump Fund, Syngenta is helping high-volume, progressive-minded retailers fuel the market with higher ethanol blends, such as E15.

The Prime the Pump Fund helps make E15—a blend of 15 percent ethanol and 85 percent gasoline by volume—more accessible to consumers. Many steps have been taken to increase ethanol's availability in the U.S. market. One of the most notable was in 2001, when the Environmental Protection Agency (EPA) allowed the use of gasoline blends containing as much as 15 percent ethanol in vehicle models from that year and newer. Following this initial step, Prime the Pump was formed to help advance the industry.

"Earth-friendly American ethanol has become an important success story," says Kelly Manning, vice president for

“
Growers receive
a per-bushel
premium for
Enogen corn
delivered to
participating
plants.”

—RON WULFSKUHLE

SYNGENTA EXPANDS ENZYME TECHNOLOGY INTO FEED MARKET

While the alpha-amylase enzyme of Enogen® corn was originally developed for use in the ethanol production process, continued research in the animal feed market has indicated benefits in livestock production as well.

In livestock feed, grain or silage, the enzyme may improve the digestibility and ultimate value of corn as feed for dairy or beef cattle, by helping to break down starch more effectively, resulting in the potential for a more digestible feed ration.¹

In 2017, producers in select geographies who grow and feed their own corn as grain or silage for beef or dairy production have planted Enogen Feed hybrids.

Enogen Feed hybrids offer strong agronomic characteristics in the field, including excellent yield potential across a variety of soil types, greater standability and genetic resistance to common corn diseases. Numerous trials have shown that Enogen corn hybrids perform equal to or better than other high-performing corn hybrids.²

“We’re excited about the potential benefits that Enogen Feed corn brings to the cattle livestock market,” says Duane Martin, Ph.D., Syngenta commercial traits product lead. “Enogen Feed corn offers producers excellent yield potential and standability, while providing the potential for enhanced feed digestibility for their beef or dairy cattle.”

For more information on Enogen Feed hybrids, please contact your Syngenta sales representative.

1. Research, which was conducted by recognized experts in ruminant nutrition at the University of Nebraska–Lincoln and a contractor for laboratory research, found benefits from Enogen corn when included as a component of beef cattle feed and dairy cattle silage, respectively. To learn more about the University of Nebraska research and read the reports on enhanced digestibility, refer to the finishing section of the 2016 Nebraska beef report and look for studies on Syngenta Enhanced Feed Corn.

2. Syngenta production data from more than 350,000 acres, 2012–2015.



development at Growth Energy. “We have vehicles capable of using ethanol blends higher than E10, but consumers need greater access to stations capable of providing them. Retail partnerships like the Prime the Pump Fund are helping to make that access a reality.”

Earlier this year, Syngenta announced a donation of \$340,000 to the Prime the Pump Fund to help make higher ethanol blends more widely available and grow demand for American ethanol. The Syngenta donation is part of a broader, ongoing commitment to support the ethanol industry, with contributions to ethanol groups totaling more than \$700,000 to date.

The Next Move

“At the heart of our ongoing commitment to the ethanol industry is developing new technologies that will enhance ethanol production,” Wulfschle says.

Cellerate™ process technology, for example, is designed to give dry-grind ethanol plants the ability to convert corn-kernel fiber into cellulosic ethanol. When combined

with Enogen corn, this technology can help processing plants produce more ethanol from the same kernel of corn, increase total yield of distillers corn oil and improve the protein content of feed coproducts. Trials at Quad County Corn Processors demonstrated as much as a 26 percent increase in production, when it used Cellerate process technology with Enogen corn.³

“Ethanol is helping reduce our country’s dependence on foreign oil,” says Wulfschle. “It’s also helping to lower prices at the pump, improve the environment with lower emissions and grow the economy with jobs that can’t be outsourced. We’re proud to partner with corn growers and the ethanol industry to help provide consumers with the choice to purchase a superior, higher-octane fuel at a lower cost.”

For more information on Enogen corn enzyme technology, visit www.enogencorn.com. 🌱

1. Renewable Fuels Association Study

2. U.S. Energy Information Administration

3. Based on third-party verification procedures performed by Christianson & Associates PLLP, a firm of certified public accountants and consultants



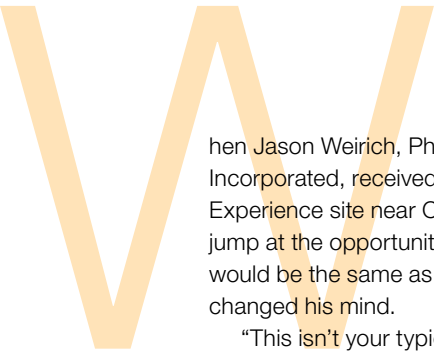
A SITE TO SEE

A Grow More Experience demonstration plot offers expert agronomic knowledge tailored to local growing conditions.

By Darcy Maulsby

Opposite page, clockwise from top: A pepper trial at the Grow More™ Experience site in Gilroy, California; a soybean trial in Arlington, Wisconsin; an Operation Pollinator trial in Gilroy; a sweet corn trial in Gilroy. This page: Brad Schindler (left) with Syngenta and Jeremy Galles (right) from Remsen, Iowa, examine soybean foliage at the Carroll, Iowa, site.





When Jason Weirich, Ph.D., director of agronomy with MFA Incorporated, received an invitation to visit the Grow More™ Experience site near Columbia, Missouri, in 2016, he didn't jump at the opportunity, because he assumed that the site would be the same as the year before. But he's glad he changed his mind.

"This isn't your typical field day," says Weirich. "Syngenta team members do a great job of sticking to the agronomic message and avoiding the same old sales pitch year in and year out. As a fellow agronomist, I find this very valuable."

In addition to tweeting updates as he toured the Grow More Experience site, Weirich coordinated a special tour of the site for MFA Incorporated's crop consulting team. "The team found this to be very beneficial," Weirich says. "Not only does the site include Syngenta technologies, but it showcases local agronomic production practices geared to help improve farmers' productivity."

The diverse learning opportunities at each Grow More Experience site offer practical insights, along with hands-on agronomic training and demonstrations, to help local growers be more successful. The sites evolve and offer new insights each year, Weirich notes.

"Most field days you attend are the same. Not at the Grow More Experience sites, where you are in the middle of the plot looking at the weeds, diseases and other agronomic issues currently affecting the crop. The message is spot-on, and I find this to be a great asset for my team of agronomists."

Let's Go Local

Syngenta is offering more than 60 Grow More Experience site locations across North America in 2017. Each site focuses on the latest developments related to local crops, including corn and soybeans in the Midwest, cotton and rice in the South, vegetables in the East, and specialty crops in the western U.S.

"There are no cookie-cutter Grow More Experience sites," says Michael Moss, Ph.D., head of technical development for Syngenta. "Each site focuses on real-world topics that are important to local growers, who can put information that's immediately relevant into practice on their farms."

Since the first Grow More Experience prototype debuted in 2013, the program has progressed to include more agronomic trials, Syngenta genetics, Seedcare™ solutions and crop protection products focused on the local geographical area. For example, the 2017 Grow More Experience site south of Alexandria, Louisiana, will include sugar cane—an important crop for that particular area of the state.

"We'll be testing a variety of crop protection products, including a mesotrione/S-metolachlor/atrazine formulation for weed control in sugar cane," says Keith Burnell, Ph.D., agronomic service representative for Syngenta, who has helped develop sites in Louisiana. He notes that the

formulation, which is still pending EPA approval and is currently registered in corn and sorghum, is showing promise in sugar cane as well. The sites will also address herbicide sensitivity shifts in weeds growing in rice and soybean fields; an azoxystrobin fungicide formulation in rice and cotton, with registration in both crops pending; demonstrations of Syngenta Seedcare technologies, including Clariva® Complete Beans and Avicta® Elite Cotton Plus with Vibrance®—both nematocide/insecticide/fungicide seed treatments and combinations of separately registered products; and much more.

The specific trials featured at each Grow More Experience site reflect feedback from growers and retailers. "We ask people what they'd like to see and listen to their input," Burnell says. "Our goal is to offer the most value to them."

Experience the Value

Providing value is essential, since growers have a lot of choices in the marketplace, Moss says. Grow More Experience sites help visitors:

- 1. See the big picture.** An integrated agronomic approach is essential to improve crop performance. Growers who work with Vicky Shaffer, owner of Blacklog Ag Services in Lakewood, Illinois, enjoy seeing firsthand how various corn hybrids perform in a variety of settings. They also like learning how the timing of planting can impact their crops, how different crop protection products influence weed control and how insect pressure affects crops. "Growers don't always notice these things in their own fields, because they don't have anything to compare them to," she says. "The Grow More Experience site is all about knowledge."
- 2. Discover what's new.** Grow More Experience attendees have a front-row seat to see the best new Syngenta technologies that can bring maximum value to farmers' fields. For example, many 2017 sites will feature Adepidyn® fungicide, a promising new active ingredient—currently under regulatory review—for treating foliar diseases, including leaf spots and blights, in row crops and specialty crops. Upon registration, products containing Adepidyn fungicide will be marketed under the Miravis® fungicide brand product line. "The Grow More Experience sites demonstrate how to use Syngenta products most effectively—even those that are still in the pipeline and not currently available on farms," Burnell says. "When you show side-by-side comparisons, people's eyes light up as they get the full effect and discover the 'wow' factor."
- 3. Maximize return on investment.** In addition to featuring new Syngenta technologies, each Grow More Experience site shows how to incorporate existing Syngenta products for best results. "The Syngenta folks

The Pana, Illinois, site demonstrates the agronomic performance of corn hybrids, so farmers can see how they perform under local growing conditions.



do a fabulous job of explaining detailed scenarios that happen in everyday crop production,” Shaffer says. “By showing firsthand why A impacts B, they motivate growers to consider different ways to increase their productivity and boost return on investment.”

4. Benefit from individualized learning. The small-group setting of most Grow More Experience site events promotes interaction among participants and Syngenta representatives. In 2017, Syngenta will encourage more food-processing company representatives to participate in Grow More Experience sites focused on potatoes and other specialty crops, where quality is as important as yield. “Grow More Experience sites not only benefit participants, but they offer an excellent way for our team members to learn,” says Kiran Shetty, Ph.D., technical development lead for specialty crops at Syngenta. To keep the momentum going, Syngenta plans to create additional Grow More Experience sites in Colorado and Michigan, Shetty notes.

5. Continue the conversation. As the growing season progresses, there’s a new story to be told at each Grow More Experience site each week. Syngenta relies on time-lapse photography, multiple field days and follow-up resources to help tell the complete story. “Growers are always interested in year-end results,” says Doug Kirkbride, product development agronomy manager for Syngenta. “It’s important to close the loop and share this information through winter meetings and more.”

There’s no time like now to get involved with a local Grow More Experience site, says Weirich. “Be sure to check out one of these sites for yourself. It will help you become a better agronomist or producer.” 🌱

TAKEAWAY KNOWLEDGE

Want to upset Vicky Shaffer’s clients? Don’t invite them to a Syngenta field day at the local Grow More™ Experience site in Pana, Illinois.

“I’ve had customers get upset when they weren’t included on a tour,” says Shaffer, owner of Blacklog Ag Services in Lakewood, Illinois. “That’s how well the Grow More Experience site has gone over with local growers.”

Each Grow More Experience site focuses on timely, local agronomic information to help retailers and growers make the best management decisions. Each site offers memorable learning experiences that go far beyond a slide presentation or traditional field day.

In Pana, Illinois, for example, the 2017 Grow More Experience site will feature a stress wheel. “Think of the spokes in a wheel,” says Doug Kirkbride, product development agronomy manager for Syngenta. “Each spoke runs all the way across the wheel and has a hybrid that’s been hand-planted.”

Approximately four to six NK® and Golden Harvest® Corn hybrids in the wheel will show the effects of plant populations, nitrogen or fungicide applications, in addition to the impact of narrow-row spacing. The wheel clearly shows the effects of nitrogen applications, for example, since extra nitrogen is applied to half of the wheel. “The stress wheel provides a unique visual,” says Kirkbride, who noted that the Syngenta team is also adding cover crop trials at the Grow More Experience site near Pana.

Seeing is believing, Shaffer says. “Folks love this Grow More Experience site, because there’s so much takeaway knowledge. You just can’t make one visit, because there’s so much to learn.”

Change Comes to Washington

The Trump administration may embrace a range of policies that will have far-reaching effects on the ag industry.



Elections that decide who leads the executive branch of our federal government can have major impacts on agriculture, particularly from a regulatory, trade and tax perspective. It's still the early days of the new Trump administration, but industry insiders have thoughts about how the political turnover might impact the professional lives of ag resellers and growers.

On Taxes

There's hope for beneficial tax changes to come, thanks to talk about a coming tax reform package, says Bruce Knight, founder of Strategic Conservation Solutions. "At the top of agriculture's agenda will be meaningful clarity on estate taxes; expect that to be in any sort of tax package. Less clear is what happens with the tax advantages that support renewable fuels development.

Given the interest in agriculture around those, I would expect that to continue to be a top issue for dialogue."

Consultant John Gilliland adds there's a possibility of lower personal tax rates for farmers, but points out the tax cuts come with a price that is still being scrutinized by U.S. agribusiness experts. "One of the most significant elements of the reform package is a new border-adjustment measure, which would tax goods based on the country where they are sold rather than where they are produced," he says. Under this destination-based approach, imports into the U.S. would be taxed while U.S. exports to foreign markets would be exempt. Industry analysts expect the border adjustment could provide a short-term boost to U.S. exports, but it would also mean higher taxes, at least in the short-term, for companies that must import necessary inputs from abroad. Many opponents worry it would translate into higher prices for U.S. consumers.

"The border-adjustment measure is a crucial part of the congressional tax reform package, because it's expected to raise approximately \$1 trillion in tax revenue for the U.S. government," Gilliland adds. "The bill's sponsors on Capitol Hill need this tax revenue to offset the cost of other reforms in the package."

On Trade

Trade is an area where the president is apparently not in step with Congress, but that may soon change, says Knight. "Having watched many administrations, what I see is that every administration, as it comes in, becomes more positive toward trade and more understanding of its importance for the economy," Knight says. "NAFTA [North American Free Trade Agreement] was unequivocally positive for agriculture in the U.S. and for agriculture in Mexico and Canada as well. But it makes sense to look at NAFTA and see if what has been unresolved in the last two decades can be resolved."

He's encouraged that he's already seeing a new emphasis on trade agreement enforcement. "Most of the anti-trade agreement rhetoric really is frustration at the lack of enforcement of agreements," Knight says. "When China or Russia impose nontariff trade barriers on beef or something like that, it fosters criticism of the trade agreement, but it's really frustration with implementation. The new administration could press reset on the enforcement of trade agreements and make sure these disputes get resolved."

But for the Trans-Pacific Partnership [TPP], Transatlantic Trade and Investment Partnership [T-TIP], and Bilateral Investment Treaty [BIT], the outlook is grim, says Laura Peterson, head of federal

government relations at Syngenta. “TPP and the BIT are pretty much gone, and Brexit further challenges T-TIP,” she says. “Renegotiating NAFTA seems to be on the table for this administration.”

How we review our tax issues will have ramifications in trade negotiations. “At the end of the day, Americans are always the best producers, early adopters of technologies and do more with less,” she says. “We need export markets. We’re looking to the administration to provide leadership to push for them.”

On Regulation

During the campaign, many promises were made about reducing regulation, so expectations here are high. “There will hopefully be a more favorable atmosphere with the EPA [Environmental Protection Agency], and there’s a significant change from the previous administrator to the individual who is now in charge, Scott Pruitt,” says Richard Gupton, senior vice president of public policy and counsel for the Agricultural Retailers Association. “The environment at EPA has seemed like a constant assault on the ag industry, from the WOTUS [Waters of the United States] rules to trying to take products out of the marketplace. Pruitt has fought the federal government on those issues. Hopefully, there will be a reset on how that agency looks at scientific data when it is making decisions.”

Gupton also hopes that regulatory reform won’t stop with repealing specific regulations, but that there is a hard look throughout government at the expense of regulation generally. Knight agrees and says, “The overreach is real and needs to be curtailed, but it’s also about how many times you have to visit the farm service agency to file your crop report and how much paperwork you have to do at NRCS [National Resources Conservation Service].”

The president has signed an executive order on reducing regulation and controlling regulatory costs, Peterson says. This includes repealing at least two existing regulations when promulgating a new regulation.

“As we review all of the executive actions and laws moving through Congress, the priorities for Syngenta will remain grounded in the importance of a science-based, risk-based, transparent review process at all agencies here and abroad,” says Peterson. “I think agriculture appreciates the importance of smart regulation, as we bring innovative products to market that are reviewed for health, safety and environmental effects. Our company has made commitments on sustainability and The Good Growth Plan, and that’s going to remain important.”

As always, the best advice for approaching the coming changes is to watch what is happening and to stay involved. “Are you weighing in? Are you making sure the appointees understand your concerns and the stories from your farms and ranches?” Peterson says. “It’s not too soon.” 🍀 STORY BY SUZANNE BOPP

Note: This article reflects the status of policies at the time of this writing in March 2017. Opinions expressed herein are those of the speaker and do not necessarily reflect the view of Syngenta.

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The Peanut Gallery

A breakthrough fungicide is helping growers of one of America’s favorite foods combat tough diseases, even in challenging conditions.

The U.S. has a passion for peanuts, according to the Department of Agriculture’s latest data. The average American consumes roughly 6 pounds of peanut products each year. With growers in 13 states producing more than 4 million metric tons of peanuts annually, the protein-rich crop is also critical to the nation’s agriculture industry. Peanut exports alone generate close to \$250 million a year.

Given that this important crop is grown in warm, oftentimes humid environments, diseases are a constant threat to its economic outlook. It’s no wonder that the 2016 introduction of Elatus® fungicide was big news for peanut growers, who have

quickly adopted it as a significant tool for managing white mold and other diseases, while protecting yield.

“What we saw in 2016 was the start of a switch from the market standard to an Elatus program,” says Lyle Stewart, district sales manager for Syngenta.

Powered by two active ingredients, Solatenol® fungicide—the latest succinate dehydrogenase inhibitor (SDHI) mode of action from Syngenta—and azoxystrobin, Elatus offers peanut growers broad-spectrum disease control with long-lasting residual power. It has excellent preventive activity against tough peanut diseases, including white mold, early and late leaf spot, *Rhizoctonia* and rust.

Wide Window of Opportunity

The long residual activity of Elatus gives peanut growers more application flexibility to work around weather and farm schedules. Wilson Faircloth, Ph.D., agronomy service representative for Syngenta, finds this attribute to be one of the biggest benefits of the fungicide.

“You’re not locked into dedicated spray schedules with Elatus,” says Faircloth. “It also helps with managing unpredictable weather events. If you miss a spray, now you have a little flexibility, and you’re not caught in a bind. You have the option to go a little longer, because you get more residual activity from Elatus than other peanut fungicides.”



“You’re not locked into dedicated spray schedules with Elatus. If you miss a spray, now you have a little flexibility, and you’re not caught in a bind.”

—WILSON FAIRCLOTH



Eddie Bunch, a consultant with Virginia Carolina Agricultural Services, recommended Elatus throughout 2016 and noticed that his growers were able to spray less often and still see excellent disease control.

“Instead of spraying every two weeks like clockwork, now they’re spraying more along the lines of once every three weeks,” says Bunch. “They’re letting me scout to see what kind of disease pressure there is and then going from there. That’s one of the biggest factors I like about Elatus—it’s doing a great job of controlling disease, and we’re getting some longevity out of it.”

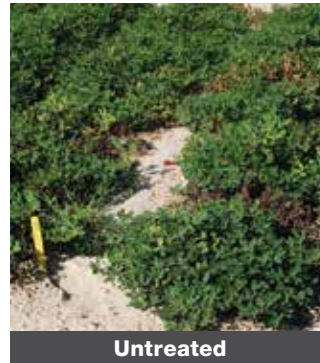
Enhanced White Mold Control

Elatus performed especially well in 2016 because the white mold pressure was unusually high in some areas. Thriving in hot, humid conditions, this yield-robbing disease is a serious concern in the southeastern U.S.

“One of the reasons white mold is such a hard disease to control is because it’s found right at the soil surface,” says Faircloth. “It’s a challenge because you’ve got to get the fungicide down to where the disease is to give the plant the greatest benefit.”

Unlike many fungicides, Elatus does not depend on rain or irrigation to deliver efficacy at the soil level in dryland fields. Even without watering it in, Elatus—through systemic activity and the potency of its SDHI chemistry—provides excellent activity against white mold.

Often the risk of white mold is higher on irrigated land due to moisture, but Faircloth saw similarly positive results in trials comparing the fungicide’s performance on dryland and irrigated fields. “It proves that we don’t have to have irrigation to move the product down into the plant,” he says. “Elatus seems to be getting where it needs to be and doing its job with our regular



Untreated



Treated With Elatus

In peanuts infected with white mold, those treated with Elatus are fuller and exhibit fewer dead plants than the untreated control.

foliar sprays. Growers aren’t having to be so quick on the trigger with irrigation or sit there hoping it’s going to rain.”

Bunch, who scouts almost 10,000 acres of peanuts, most of which are grown on irrigated fields, encouraged his growers to treat all of them with Elatus in 2016.

“It’s normally late July when we really start seeing a lot of white mold, especially on the irrigated peanuts,” he says. “But Elatus did a really good job controlling that disease.”

In addition to irrigation, temperatures also play a big role in white mold development. With more 90°F-plus days in 2016 than he could remember in years past, Stewart noticed an increase in white mold pressure. “Not only did Elatus perform extremely well, but it did so under more difficult conditions than we’ve had in recent years,” he says.

Looking to the Future

“Some growers have told me they grew their best crop ever in 2016 and attributed part of that success to including Elatus in their rotations,” Faircloth says. “I have high expectations for Elatus in 2017.”

After seeing how well it performed in 2016, Bunch plans to continue recommending Elatus to his growers in southeast Virginia and northeast North Carolina. “I’ll be suggesting that everything I scout gets treated with Elatus,” he says.

Growers and consultants like Bunch can look forward to another fungicide innovation, coming soon from Syngenta. Adepidyn® fungicide is a new, potent active ingredient with carboxamide chemistry for treatment of yield-reducing foliar diseases, including leaf spot in peanuts. Upon registration by the Environmental Protection Agency, Adepidyn will be marketed as Miravis® fungicide.

Better disease control translates into better-quality crops, and that’s good news for all Americans, whose penchant for peanuts shows no signs of waning. 🌱 STORY BY MEGHAN McDONALD



A grower sprays a midgrowth peanut crop in a Georgia field.

FOR MORE INFORMATION, go to www.syngenta-us.com/fungicides.



Ripple Effect

Syngenta supports agriculture through awards, programs and partnerships, including the No-Till Innovator Awards, the 2017 Syngenta Wheat Summit and The Bee & Butterfly Habitat Fund.

AWARDS AND INNOVATION

2016 No-Till Innovator Award Recipients Recognized

During the 25th National No-Till Conference, Syngenta and *No-Till Farmer* magazine recognized four innovators who have identified ways to no-till more effectively, more economically and with less impact on the environment.

They all have made important contributions to the conservation movement. A panel of judges chose the winners based on their dedication to the advancement of no-till farming, without regard for the types of crops grown and the kinds of equipment, seed, seed treatment or crop protection products used.

The 2016 No-Till Innovators by category are:

- > **Steve Berger**, a grower in Wellman, Iowa—
Crop Production
- > **David Franzen, Ph.D.**, extension soil specialist with North Dakota State University—
Research and Education
- > **Betsy Bower**, agronomist with Ceres Solutions, LLP, in Lafayette, Indiana—
Business and Service
- > **Champlain Valley Farmer Coalition** in Middlebury, Virginia—
Organization



AgriPro wheat flourishes on Kevin Capistran's family farm in Crookston, Minnesota.

The judges, who represented different sectors of the no-till industry, were Darrell Bruggink, editor of *No-Till Farmer*; Derrick LeBeau, agronomic service representative with Syngenta; Rodney Rulon from Rulon Enterprises in Arcadia, Indiana; and Terry Taylor from Terry N. Taylor Farm in Geff, Illinois.

Syngenta is now accepting nominations for the 2017 No-Till Innovator Awards. The entry deadline is August 1, and winners will be announced in January 2018. For more information, visit www.syngentaus.com/notill.

Syngenta Wheat Summit Showcases Innovation

Syngenta hosted nearly 50 agricultural retailers to discuss innovative new solutions in cereals at the 2017 Syngenta Wheat Summit in Vero Beach, Florida. The event showcased Talinor™ herbicide, AgriPro® brand wheat varieties, Trivapro® fungicide and CruiserMaxx® Vibrance® Cereals fungicide/insecticide seed treatment.

"Syngenta has started an unprecedented wave of innovation that will transform cereal production," says Ross Weikel, head of the Western commercial unit at Syngenta. "This summit gave us a chance to share our excitement with our customers and give them an all-access pass to the people who are helping make these innovations possible."

Syngenta herbicide, fungicide, Seedcare and AgriPro product leads joined scientists from the company's Vero Beach Research Center (VBRC) to inform and interact with attendees during the event.

"The highlight for me was when we took the group to the cereals test plots at our Vero Beach facility, so they could connect what they had just learned in the classroom with how these products perform in the field," says Cheryl Dunne, research and development group leader at VBRC. "Now our customers will be able to go back home and recommend these brands with even greater confidence, since they have seen them firsthand."

Go to www.syngentaus.com/cereals for more information about the Syngenta cereals portfolio.

"Syngenta has started an unprecedented wave of innovation that will transform cereal production. This summit gave us a chance to share our excitement with our customers."

—ROSS WEIKEL



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Bee Positive

A multipartner alliance is creating high-quality habitats for pollinators and other local wildlife.

“If you want to make a significant impact on the landscape, you need to do it in the form of a partnership with a common goal and mission,” says Peter Berthelsen, director of habitat partnerships for Pheasants Forever and Quail Forever.

The Bee & Butterfly Habitat Fund—a collaborative effort of Pheasants Forever, Syngenta, the honey industry and many others—is an example of a growing number of alliances aiming to significantly impact their local landscapes and beyond. The partnership is improving pollinator forage and habitat for honey bees, native bees, butterflies, birds and other pollinators. Pheasants and quail also favor the same highly diverse, high-quality habitats that attract pollinators, Berthelsen says.

Established in 2014, the partnership started as a pilot program with partners working with

landowners in North Dakota and South Dakota to plant pollinator projects. This year, landowners in Nebraska, Minnesota, Iowa and Missouri will also participate in the program.

Partners provide all participating landowners with:

- > Funding for regionally adapted seed mixes to grow pollinator forage and habitat
- > Guidance on managing pollinator plots
- > Expert advice on the best fits for pollinator plots and agricultural crops

“Funding for the program comes from a wide range of partners,” Berthelsen says. “And Syngenta was the first major agricultural industry partner to step up.”

Syngenta also was one of the first agricultural companies to establish its own pollinator health initiative, Operation Pollinator. Launched in Europe more than 15 years ago, Operation Pollinator has since been implemented in 21 countries, including the U.S. This research-based program boosts insect pollinators on commercial farmland, golf courses and a variety of other landscapes by creating essential habitats that contain vegetation tailored to local conditions.

“Honey bee health was the trigger for Operation Pollinator, but it encompasses many other pollinators,” says Caydee Savinelli, Ph.D., pollinator and integrated pest management stewardship lead for Syngenta.

Operation Pollinator also contributes to the company’s commitment in The Good Growth Plan to enhance global biodiversity on 5 million hectares—more than 12 million acres—of farmland by 2020.

The expansion of pollinator habitats has been a quantitative measurement of the initiative’s success. But, Savinelli says, it’s also important to take into account qualitative successes, such as the outstanding partnerships formed among growers, agricultural organizations, beekeepers, the honey industry and conservation groups.

“These partnerships are promoting understanding and awareness among groups that together are making a real difference in pollinator health,” she says. 🌱

STORY BY LYNN GROOMS



Top to bottom: A sign identifies a project of The Bee & Butterfly Habitat Fund; the habitat needs of pollinators and pheasant and quail chicks are the same.





This diverse, high-quality habitat provides forage for pollinators in Jamestown, North Dakota.



It's time to shut down the party in your cornfield.

▶▶ If tough broadleaf weeds like giant ragweed, waterhemp and Palmer amaranth are laughing away at your current corn herbicide, it's time to make a switch. This year load the sprayer with Acuron[®], the newest corn herbicide from Syngenta. With a brand-new active ingredient that herbicide-resistant weeds have never been up against, Acuron can wipe the nutrient-sucking smiles right off their faces. Learn more about Acuron at Acuron-Herbicide.com. And get the last laugh. ◀◀

