THE FUTURE OF PLANT BREEDING

Faster delivery of higher-performing seed varieties is possible with Syngenta Seeds HI-Edit process.

Maintaining a Viable Toolbox with Atrazine

Tell Your Sustainability Story
Maintaining a Viable Toolbox

Loss of atrazine would be costly to row-crop farmers, who face increasing weed resistance pressures.

By Vicky Boyd

Tell Your Sustainability Story

Data plays an important role in sustainability throughout agriculture’s supply chain.

By Christina Beckett

The Future of Plant Breeding

Syngenta Seeds HI-Edit process aims to increase delivery of higher-performing commercial seed varieties faster.

By Dana M. Anthony, Barb Baylor Anderson, Anna Boisseau

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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.

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Science Supports Sustainability

Listening is one of the most important things we can do. We can learn so much about others’ perspectives and how we can improve as communicators when we listen to one another. In agriculture, we are often so passionate about our solutions and contributions that we need to pause and listen from time to time to really know how to explain our work and the benefits we bring to society.

Meaningful conversations with consumers are one of the most important things we can do as agriculture professionals and advocates. We must point to sound science and data-based outcomes when having discussions, but also lean into consumers’ perspectives and adapt our discussions to better engage them. Our agricultural solutions contribute greatly to society, but we need to take the time to tell those stories with science in a way that makes sense to audiences outside of agriculture.

Atrazine is an excellent example of working through a rigorous scientific process to achieve measurably better environmental outcomes — a story that needs to be told. Atrazine helps corn growers, among others, increase the benefits of conservation tillage to build healthy soils on their farms, improve air and water quality, and boost profit potential. Conservation tillage can decrease soil erosion by 34%. These are all great sustainable agriculture outcomes that ultimately benefit society as a whole.

To help farmers track their efforts and measure greater sustainability outcomes, Syngenta created the Cropwise™ Sustainability app and the Sustainable Outcomes in Agriculture Standard. You can read about it on page 12. The mobile phone app helps farmers track practices from their farms quickly and easily to document their sustainability leadership while identifying opportunities for continuous improvement of their operations. Aligning tools like these with the needs of farmers and their individual agronomic practices will ensure future success and provide a consistent language to showcase sustainable agriculture on their farm.

While sustainability is often interpreted in many ways, it must always be grounded in an equal balance of economic, environmental and societal outcomes — and science can help us better define sustainability. Syngenta is committed to accelerating innovation for farmers and nature while improving productivity, all in service of meeting the needs of an ever-growing world.

“We must point to sound science and data-based outcomes when having discussions, but also lean into consumers’ perspectives and adapt our discussions to better engage them.”

Val Dolcini
Head, Business Sustainability and Government Affairs, North America at Syngenta
They Find the Fit in the Field

Working alone and without fanfare, field development scientists test active ingredients and teach agriculture – within and outside the industry.

By Amy Campbell

Steve, David and Jeannette come from different backgrounds, live in different regions of the country, and work with different plant varieties as crop protection field development (CPFD) scientists for Syngenta. But they have something in common: nobody understands their job.

“Syngenta is an enormous company, and I’m sure there are many people there who don’t know what we do,” says Steve Mroczkiewicz, Indiana’s CPFD territory scientist.

To those outside agriculture, CPFD jobs are even more of a mystery. David Black, a senior research development scientist, works with crops in Arkansas. Black says friends are often surprised to learn that plants get diseases and that a Ph.D. in weed science is a real thing.

However, CPFD scientists are a crucial link between the development of Syngenta products and getting them on the market, running trials to see whether active ingredients that look promising in the lab will work in the field. It’s a big job, and there’s plenty to do every season — or year-round in Jeannette Rapicavoli’s territory, Southern California and Arizona.

“In the desert, it doesn’t rain much, and it certainly doesn’t snow or get very cold, so there are always crops going into the ground,” says Rapicavoli, CPFD research and development scientist. “It keeps us very busy out here.”

In the Midwest, if CPFD scientists aren’t planting, they’re planning. Early in the year Mroczkiewicz, who primarily works with corn and soybeans, is prepping his summer trials, doing the paperwork and stocking up on supplies.

“I’ll have somewhere from 30 to 35 field trials in a typical year, usually in several different locations,” he says. “I initiate those, make all the applications, and spend my very hectic spring and early summer keeping up with them. Weekends really don’t have much meaning for us during that time.”

From there, he’s occupied with establishing trials, and then managing them so he can collect performance data.

From Lab to Land

CPFDs are essential in ensuring prospective agronomic solutions have on-farm viability. Syngenta chemists in Basel, Switzerland, and the United Kingdom screen thousands of active ingredients for their agricultural potential. CPFDs around the globe then test these compounds on crops.

“The chemists narrow active ingredients down by looking at the products in greenhouses and growth chambers, but that’s not the real world,” Black says. “We’re the first step in looking at products in a living biological environment — soils, direct sunlight, rainfall.”

Once the field trials are underway, the chemists and other colleagues often tour the trial plots, in what Mroczkiewicz described as a kind of internal outreach.

“I spoke to a Rotary club, and they were one of my most enthusiastic audiences because everything I told them was new information.”

—STEVE MROCZKIEWICZ
Syngenta Crop Protection Field Development Scientist
For Rapicavoli, the tours are an opportunity to be an ambassador for desert agriculture.

“It’s fun when we have our global colleagues from our headquarters out, because some of them have never been to the desert,” she says. “It’s exciting to show them how much production there is in that environment, and all the different crops and diseases we can work on.”

Being ambassadors for agriculture is something else the scientists have in common. When not in the field, they’re available to schools, community organizations and local projects. Mroczkiewicz, for example, writes a column for his local paper and gives guest lectures to college ag classes and at a high school’s FFA® club. He enjoys talking to non-ag groups, too.

“I spoke to a Rotary club, and they were one of my most enthusiastic audiences because everything I told them was new information,” he says. “I was able to dispel a lot of myths they’d heard about what exactly a genetically modified organism, or GMO crop is, and they got it directly from somebody who has helped develop GMO crops, versus something they saw on Facebook or CNN.”

Nancy Bell, a high school ag science teacher and FFA advisor, has known Mroczkiewicz for more than 20 years and helps with his research alongside her farmer-husband Devon Bell, who has worked with Mroczkiewicz since 2001.

“Steve has a passion for education,” Nancy Bell says, noting that his support of ag in the community includes providing 20 dozen eggs for her FFA poultry unit every year.

Black, who at one time wanted to be a college professor, also enjoys speaking to university students and offering insight on ag as a career.

“A lot of times students just know they like ag and are curious about jobs,” Black says. “We can provide information on what roles in agriculture really entail.”

Rapicavoli, who lives about four hours from her primary research site in Yuma, Arizona, is becoming a community resource there.

“I’m always out there attending local meetings, connecting with growers and university cooperators,” she says. “It’s important to me that I establish myself as a reliable, knowledgeable point of contact.”

Rapicavoli is in year six of her career, while Mroczkiewicz and Black have done the job for 24 and 27, respectively. While they may feel anonymous sometimes, it’s clear they love their CPFD positions.

“It’s such a privilege to work in this role,” Rapicavoli says. “There are only about 30 of us around the country, and sometimes I think, ‘Wow, I get to be one of these people.’ It’s an honor. And it’s never boring, that’s for sure.”

**LEFT:** Steve Mroczkiewicz, a Syngenta crop protection field development scientist, sprays a new herbicide formulation for evaluation on corn.

**BELOW:** Corn rootworm eggs are inoculated into the root zone of young corn plants to test products under heavy pest pressure.
**ASK THE EXPERTS**

# All Hands on Deck

Kellogg’s and Syngenta unite to help rice growers reduce methane emissions.

*by Laura Froggatt*

**Q:** What are the details of *Kellogg’s InGrained™* program?

A. Meryl Kennedy, CEO of 4Sisters Rice and Kennedy Rice Mill: *Kellogg’s InGrained™* program will invest $2 million over five years to provide farmers in my area — Louisiana and the Lower Mississippi River basin, what we call the Delta — with training in irrigation management, nutrient management and soil health. Kellogg is providing farmers with a financial incentive for every ton of greenhouse gases (GHG) their new practices help reduce. But *Kellogg’s InGrained™* is more than that, it’s a collaboration between Syngenta, Kellogg Co., Regrow Ag and Kennedy Rice Mill to bring this program to life.

A. Stacey Shaw, senior sustainability lead at Syngenta: Through the program, Kellogg wanted to partner with growers to help them adopt new practices for GHG reduction, especially methane, but also to take off a little bit of the sting of implementing a new practice. For the program’s 2022 pilot year, the company offered growers $20 per ton of GHG reduction — plus agronomic support, GHG quantification, and other resources at no additional cost to farmers — to remove some of the risk of trying something new on the farm. Kellogg’s intention is to help growers get started, knowing that positive changes on the farm can be risky in the beginning.

**Q:** What was the impetus for developing a methane reduction program for rice specifically?

A. Shaw: Rice is a major contributor to methane emissions and that makes it an easy target¹. Opportunities and methods that reduce methane also have other positive effects such as water reduction. Not very many people have adopted methane reduction yet, but it is very doable.

A. Kennedy: Over half of the world’s population relies on rice as a primary source of nourishment². Also, this is a really important grain for Kellogg. They rely on rice for their iconic brands like Rice Krispies® and Special K® cereals. Many of these rice products and these varieties come from the Mississippi Delta. So, when we thought about how we can make a really big difference specifically for rice production, we thought about how to reduce methane.

**Q:** Why is methane reduction an important sustainability issue?

A. Kennedy: The impacts of climate change affect us all. But these impacts are of particular concern to farmers, like me, who grow crops to produce the food we eat. Rice production is responsible for an estimated 12% of the total global methane emissions, and methane is a GHG that’s 20 times more potent than carbon dioxide². As rice farmers and stewards of the land, it’s our responsibility to address these concerns.

A. Shaw: Methane is one of the bigger contributors to global GHG emissions. Methane with nitrous oxide and other emissions contribute to the greenhouse gas issue.

**Q:** What are the desired results from *Kellogg’s InGrained™*? How does it help growers — who are already focused on land stewardship?

"We’re being asked, as farmers, to focus on so many things: soil erosion, reducing chemicals and fertilizers, conserving water. However, reducing methane gas is particularly important for rice."

— MERYL KENNEDY
CEO of 4Sisters Rice and Kennedy Rice Mill

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². Over half of the world’s population relies on rice as a primary source of nourishment. Also, this is a really important grain for Kellogg. They rely on rice for their iconic brands like Rice Krispies® and Special K® cereals. Many of these rice products and these varieties come from the Mississippi Delta. So, when we thought about how we can make a really big difference specifically for rice production, we thought about how to reduce methane.

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PHOTO: COURTESY OF MERYL KENNEDY
A. **Shaw:** The desired result is the adoption of methane reduction practices and reduction of emissions. Kellogg also wants the program to be scalable, ideally across more of their rice draw area. But before spreading the program, we all have to make sure that it works as intended and that farmers see value in it. By piloting the program this crop year with Kennedy, a trusted Kellogg supplier and very large and prominent grower in Mer Rouge, Louisiana, Kellogg hopes to show other growers in that area that they can be successful in reducing methane by implementing these practices. Some rice growers are already doing a lot of the methane-reduction practices that we’re promoting. However, adoption has been slow and many growers only do it on parts of their farms. So, this might be an incentive to them to add additional acres and adopt more practices.

A. **Kennedy:** From Kellogg’s perspective, the goal would be to help educate and train farmers on how to reduce greenhouse gas emissions. At Kennedy, a vertically integrated agricultural business, we take rice from the farm to the finished food. So, we feel like we’re stewards of the land; this is who we are, and this is part of what we do already. We’re being asked, as farmers, to focus on so many things: soil erosion, reducing chemicals and fertilizers, conserving water. However, reducing methane gas is particularly important for rice. It can truly help create a greener supply chain from seed to package, and so that, to me, is the real benefit from the farmer perspective.

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"The desired result is the adoption of methane reduction practices and reduction of emissions. Kellogg also wants the program to be scalable, ideally across more of their rice draw area.”

— **STACEY SHAW**
Senior Sustainability Lead
at Syngenta

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"https://ricepedia.org/rice-as-food/the-global-staple-rice-consumers#:~:text=Rice%20is%20the%20staple%20food,20%25%20of%20their%20daily%20calories

2 https://www.epa.gov/ghgemissions/understanding-global-warming-potentials
It all starts with conversations with farmers. Researchers consider issues growers face on their farms and focus on discovering new modes of action that can help. At this point, scientists have several potential concepts for a new A.I. They develop chemical analogs to find those that show the most promise and evaluate if they are a fit in the marketplace. Researchers continue to study a number of analogs in the laboratory, taking into consideration their efficacy, cost and potential registrability to narrow down leads. They also study the dosing necessary for growers to effectively use the A.I. Researchers compare options and choose an A.I. well-suited to continue through the development process.
For a new active ingredient (A.I.), the path from idea to application often takes more than 15 years. And that’s for the A.I.s that complete the journey.

**EARLY DEVELOPMENT**
1-2 YEARS

After confirming that an A.I. could be useful for growers, scientists work the product concepts. They evaluate formulation types and further study the crops and use patterns for which the A.I. and products are best suited. Scientists initiate additional product safety studies in support of regulatory requirements.

**DEVELOPMENT**
5-7 YEARS

With deeper understanding of the new A.I., the product development team focuses on bringing it to market. This includes conducting additional field studies to refine use patterns and define resistance management options, as well as developing the registration package for the U.S. Environmental Protection Agency (EPA). Once submitted, it takes two to three years for the agency to complete the review and approve a product.

**COMMERCIALIZATION**

After an A.I. receives EPA approval, individual states also will require registrations. Once these are granted, the new product is ready for the marketplace. Researchers continue to study the A.I. to see how it can be used on other crops. They also conduct additional stewardship and product safety studies as needed to support continued registration.

It takes around 12 to 17 years, and about $280 million, to develop a new A.I. The research and development team’s steps along the way ensure the A.I. is safe, effective and registerable — turning a problem on the farm into a solution in your hands. And once it hits the market, Syngenta continues to be involved with the A.I. for years to come, making sure it remains registered and available to growers.
MAINTAINING A VIABLE TOOLBOX

Loss of atrazine would be costly to row-crop farmers, who face increasing weed resistance pressures.

By Vicky Boyd
With few new active ingredients coming to market, industry leaders say maintaining registrations of existing pesticides, such as atrazine, is paramount.

“We need to have multiple tools available to our farmers,” says Bill Johnson, Ph.D., Purdue University extension weed specialist. “This is especially important in a year like this one where there are supply-chain issues. And when you think about the wide variety of pests and environmental conditions, we need to have multiple tools at our disposal as conditions dictate.”

In Arkansas, where at least one population of Palmer amaranth has resistance to six different herbicide modes of action, keeping atrazine critical, says Tom Barber, Ph.D., University of Arkansas extension weed scientist.

“We’ve got a lot of five-way resistant populations in the state that are pretty widespread, and atrazine is still one of the only herbicides that is highly effective on those populations,” he says.

**A Potentially Costly Loss**

Because atrazine is applied mostly to corn, sorghum and sugar cane, its unique mode of action also can benefit weed control in rotational crops such as cotton and soybeans, where it isn’t used.

“It’s part of an integrated approach with crop rotation to help manage our Palmer amaranth,” Barber says. “Taking that away would mean more applications of multiple residual herbicides. We would probably have to make at least three applications just to overlap residuals. A lot of times that would mean two applications more than we’re making now.”

Johnson says the loss of atrazine would make weed control more costly and difficult for Indiana corn and sorghum producers without a guarantee of environmental benefits.

“I think we would really struggle with control of some weeds, like morning glory, waterhemp, giant ragweed, and newly germinated annual grasses that are common in cornfields,” he says. “We’d have to pick up those weeds with other herbicides that aren’t as effective and are more expensive. And we would be replacing one product with another product that may not put us at a better place environmentally.”

Having fewer weed-control options also could increase resistance selection pressure on the remaining herbicides, Johnson says. Already, Indiana has waterhemp populations resistant to four different modes of action, and testing is underway on suspected resistance to a fifth mode. A number of other weeds, including Palmer amaranth, marestail and giant ragweed, have confirmed resistance to multiple modes of action.

Arkansas’ Barber agrees, saying growers in his state would likely apply more pounds of herbicide active ingredient per acre if atrazine weren’t available. It also could confound weed control for growers of non-GMO corn hybrids.

Atrazine allows them to successfully grow a crop using conventional seed, “and they’re getting excellent yields,” he says. “It would possibly make growers move to a technology that has glufosinate.”

But that technology has its own set of challenges as Barber and fellow University of Arkansas weed scientists have identified three Palmer amaranth populations with tolerance to glufosinate.

**Benefits to No-Till**

In Indiana, about half the acres that receive atrazine are farmed conventionally and half are in some form of no-till or conservation tillage. In those systems, growers keep plant residue on the surface and minimize soil disturbance to significantly reduce soil erosion, Johnson says.

In recent years, no-till production also has been praised for helping store carbon in the soil — benefiting soil health and global warming. The loss of the herbicide could prompt some growers to return to tillage, potentially increasing soil carbon releases, says Mark White, Syngenta senior stewardship and regulatory portfolio manager.

**Industry Support**

Barber and Johnson were among eight Weed Science Society of America (WSSA) members who submitted letters to the EPA in 2021 supporting the current uses and rates of atrazine. Their comments were in response to EPA’s draft Endangered Species Act biological evaluations for triazine herbicides, which include atrazine, simazine and propazine.

The evaluations are part of the agency’s pesticide registration review, conducted at least every 15 years on each crop protection product or group of products.

The review is just the latest of many that atrazine has undergone since it was initially registered in 1958. Over the years, EPA made several label changes — including designating it a restricted-use material — to better protect workers, the environment and nearby crops.

Caydee Savinelli, Ph.D., Syngenta stewardship team and pollinator lead, says the company continues to support pesticides like atrazine because they are highly effective. They also make sound business sense for both the farmer and the registrant.

As part of that effort, Syngenta updated its atrazine.com website in 2020 to better reflect key safety information, studies and the herbicide’s benefits.

“We know that the public is interested in the safety of their food,” says Chris Tutino, Syngenta senior communications manager. “So, we redesigned the site to help people understand and share the science behind atrazine’s safety that ultimately leads to higher crop production in an increasingly food-insecure world.”

In addition, Savinelli says, safeguarding domestic food production moved into the public spotlight during the pandemic as imports were disrupted — creating supply-chain issues.

“I think it’s important for us to support the American farmer,” she says. “Farmers are business people. They have to make a profit, and the margins on commodity crops are not that high.”

Researchers have conducted more than 7,000 studies on atrazine over the years, making it likely the most-researched pesticide in history.
From a weed-control standpoint, Mark White, Syngenta senior stewardship and regulatory portfolio manager, says atrazine continues to perform after more than 60 years of commercial use.

In fact, researchers have conducted more than 7,000 studies on atrazine over the years, making it likely the most-researched pesticide in history.

“The overwhelming scientific consensus points to the safety of atrazine both to human health and ecological health,” White says.

Savinelli and White say Syngenta remains a strong supporter of proactive and regulatory stewardship of its products, including the triazines.

**Clarify Public Value**

Genevieve O’Sullivan, vice president of communications and marketing for Crop Life America, says one challenge with communicating these types of issues to the public is the frequent use of industry terms, such as no-till or cover crops.

Instead, O’Sullivan likes to demystify the terms. Take sustainability, for example. She defines it as “simply using technology to produce more using less.”

To start the conversation, O’Sullivan says industry representatives need to first listen to the public’s concerns. These approaches are based on consumer research Crop Life conducted during the past three years.

“We actually went out and listened,” she says. “What questions do you have? What are your concerns? That’s how we started the real conversation.”

In addition, the industry needs to take an informational approach, O’Sullivan says, instead of a persuasive one.

“Don’t try to convince anybody of anything,” she says. “It’s important to create shared values.”

**Update**

On June 30, 2022, EPA announced that it was adopting a new aquatic ecosystem concentration equivalent level of concern (LOC) for atrazine at 3.4 parts per billion (ppb), down from 15 ppb. The scientific and regulatory record completely and categorically refutes this new LOC, says Tutino. For additional information and updates, please visit atrazine.com.
Tell Your Sustainability Story
Farmers have always been dedicated stewards of the land and invested in the sustainability of their operations, but they haven’t always successfully shared these stories with the public.

In an increasingly digital world, consumers expect increased access to and transparency from companies. It’s no different when it comes to the food they purchase. People are more eager than ever to understand the ingredients in their food, how those ingredients were cultivated, and the environmental impact of it all.

The consumer’s quest for knowledge seeps through the agriculture supply chain, trickling all the way down to the growers whose crops are processed into grocery store offerings. How can the agriculture industry understand and share its sustainability story? Data, both quantitative and qualitative, plays an important role.

Data plays an important role in sustainability throughout agriculture’s supply chain.

By Christina Beckett

Read articles online at syngentathrive.com
KEY FEATURES

• Data capture plays an important role in a farm’s sustainability story.
• Tracking their practices can help farmers quantify their sustainability results.
• A newly released app from Syngenta helps farmers efficiently track on-farm sustainability data.

All About the Data
Agricultural sustainability encompasses environmental, financial and social sustainability. No matter which facet is examined, Jeff Lail, senior data analyst at Syngenta, says understanding sustainability at the farm level begins with gathering data points to set a baseline and support future tracking efforts.

“Data tracking on farm is similar to maintaining a household budget,” Lail says. “It’s easier to save money when you’re keeping track of what you’re spending. Similarly, having a good understanding of where your farm resources go will help you manage those resources better.”

Daniel Olson, a sugarbeet, pinto bean and wheat farmer from North Dakota, agrees that taking stock of your current sustainability efforts is important.

“You have to take inventory of where you’re at to establish if you’re headed in a positive or negative direction,” Olson says. “This baseline will also help you determine down the road if the practices you think are helping you actually are.”

While setting a baseline is a crucial first step in calculating sustainability, Lail says the real benefit is in the change that comes from that measurement. To help growers achieve both measurement and change, Syngenta created the Cropwise™ Sustainability app.

One Size Doesn’t Fit All
The Cropwise Sustainability app experience begins with a quick self-assessment called the Sustainable Outcomes in Agriculture (SOA) standard that gathers qualitative and quantitative information in six key areas: crop production, water impact, soil health, biodiversity and habitat, human and animal well-being, and community leadership. After completing the assessment, an intuitive digital dashboard populates with sustainability scores in each area, recommendations for improvement, and the opportunity to see how scores compare to other app users in a specified geography.

“The process of measuring and tracking sustainability followed by figuring out what to do with that data has been a real pain point for growers,” Lail says. “With the Cropwise Sustainability app, we tried to lower that difficulty level by identifying where a grower can improve the most and offering recommendations that don’t require overhauling farm operations.”

Olson, who completed the SOA standard, appreciated the diversity of sustainability practices considered by the assessment in addition to the geographical insights.

“’There is no ‘one size fits all’ approach to sustainability.’”

Daniel Olson
North Dakota-based grower
“There is no ‘one size fits all’ approach to sustainability,” Olson says. “How I manage sustainability in North Dakota will be very different from someone in another geography.”

As helpful as this app is at the farm level, its impact extends deep into the agriculture supply chain.

**Building Bridges Between Growers and Consumers**

Trent Wimmer, key account sustainable solutions lead at Syngenta, helps growers and other agriculture industry partners tell their sustainability story with tools such as the Cropwise Sustainability app.

“Let’s say you’re a consumer packaged goods company, and you’re trying to understand your greenhouse gas footprint and communicate it to end consumers,” Wimmer says. “You can only manage what you have in front of you, which is the manufacturing of the products — you don’t have direct access to what went into the ingredients that you’re processing. That’s where Syngenta can help connect the dots between manufacturers and growers.”

For instance, Syngenta partnered with United Sugars, a sugar supplier, to help bridge the gap between growers and consumer packaged goods companies by implementing the SOA standard self-assessment with a group of sugarbeet farmers, including Olson, in Minnesota’s Red River Valley.

The assessment was mutually beneficial. Growers received sustainability insights and actionable recommendations as a result of the SOA standard, and United Sugars provided the anonymized data to their customers to help complete the sustainability picture for the foods they produce.

According to Wimmer, Cropwise allows Syngenta to “collect meaningful data from growers and in turn provide valuable sustainability insights.”

“Partners like United Sugars can take the data from the SOA standard and tell a much more unique sustainability story to their own customers,” he says.

Growers also benefit from these sustainability tools. “Syngenta is a grower-centric company that is also committed to regenerative agriculture,” Wimmer adds. “Helping growers understand and share their sustainability story is a way that we add value to growers beyond just yield.”

Donna Isakson, sales and marketing manager at United Sugars, values the partnership with Syngenta and the leadership they’ve provided in calculating sustainability efforts.

“The goal of our partnership with Syngenta is to be more transparent with our customers and show them what United Sugars is doing from a sustainability perspective,” Isakson says. “Syngenta has been so helpful in navigating this as they have expertise in both working with growers and in ag technology and data.”

“Helping growers understand and share their sustainability story is a way that we add value to growers beyond just yield.”

— TRENT WIMMER
Syngenta Key Account Sustainable Solutions Lead
Consider your smartphone. It places more computing power at your fingertips than people 20 years ago could imagine, and it’s right there in your pocket. The first computers were the size of entire rooms, immensely expensive, and required specialized training to operate. Computer technology wasn’t widely distributed, but thanks to the invention of the microchip and other technological improvements, smartphones are commonplace. The smartphone is amazing because of what it can do, but also because it’s right there in your pocket.

Tim Kelliher suspects HI-Edit™ technology will revolutionize seed production in a similar way.

“HI-Edit is basically a faster way to bring biotech to farmers,” says Kelliher, Ph.D., science fellow with Syngenta Seeds and one of the inventors of the HI-Edit technique. “It allows us to make genetic changes to commercial varieties without a lot of lab costs and time.”
THE FUTURE OF PLANT BREEDING

Faster delivery of higher-performing seed varieties is possible with Syngenta Seeds HI-Edit process.

By Dana M. Anthony
HI-Edit technology quickly introduces genetic changes in crop varieties. The goal is to deliver better seeds to growers, faster. The process is currently focused on corn, but it can be expanded to other crops.

How HI-Edit Helps
HI-Edit, or Haploid Induction EDITing, introduces genetic changes in crop varieties quickly. This new biotechnology cuts the genome-editing process down to one step by installing CRISPR, a protein enzyme that allows researchers to precisely alter DNA sequences and modify gene function, in a haploid induction line. Researchers then cross the HI-Edit line to commercial crop varieties, and the CRISPR makes a precise modification in the DNA sequence of those varieties. Because it’s in a haploid inducer line, the CRISPR enzyme and the haploid inducer DNA are eliminated from the resulting seed, which contains only the original crop variety’s genetic material with the modified genetic sequence.

Rather than inserting CRISPR to edit all commercial varieties or making edits and breeding them into commercial varieties, a CRISPR insertion to a HI-Edit line need only be made once. The researchers then use that line to fertilize plants from the commercial varieties. The resulting embryos inside the seeds match the original commercial varieties except for the desired trait. This process removes the need for generations of selection and backcrossing or making individual CRISPR edits to many commercial varieties, saving vast amounts of time and resources.

“Where HI-Edit comes in is when we want to make specific changes to a bunch of different varieties,” Kelliher says. “If we tried to use CRISPR on all commercial varieties it would take too much time, money, technology and expertise. So instead of making the edit in a donor line and crossing it in, we make it in the haploid inducer line, cross it once and put the edit directly into those commercial varieties.”

HI-Edit cuts down the time of introducing new traits by years and significantly lowers the cost. It will potentially offer growers quicker access to commercial seed varieties with traits like better protein, drought tolerance, disease resistance and more. The goal is to deliver better seeds to growers, faster, through innovation.

“This is good news because growers are going to get the latest and greatest traits by a simple change in the genetic sequence years sooner than they would otherwise,” Kelliher says.

Genome Editing vs. GMOs
Genetically modified organisms (GMOs), according to traditional thinking, are organisms that have had a foreign piece of DNA, a piece that’s totally different from what’s in the natural organism, inserted into them. A well-known example is Bt11 corn, which uses a gene from Bacillus thuringiensis (Bt), a common soil bacterium that produces several insecticidal proteins.

The Bt gene is responsible for producing a protein toxic to European corn borer. The Bt11 corn, now producing this protein, kills European corn borer larva when they feed on the plant. This sort of modification, the insertion of a completely foreign bacterium gene into the corn genome, is a traditional GMO.

Genome editing, on the other hand, is when scientists make slight alterations to a genetic sequence already within the organism. The HI-Edit process falls under the genome editing category, rather than GMO.

The U.S. Department of Agriculture (USDA) issued regulatory guidance on genome editing that establishes exemptions for plants modified by genetic engineering where the modification could otherwise have been made through conventional breeding. At this time, regulatory guidance on HI-Edit will depend on the type and size of the edits. This guidance is currently evolving as the USDA’s Animal and Plant Health Inspection Service (APHIS) replaces the current review process. Under the new process, developers voluntarily submit information on genetically modified plants to APHIS, which then determines if the modified plant requires USDA approval.

Exportation of genome-edited products is also influenced by the fact that regulations vary from country to country.
Plant Breeding 101

In the context of plant breeding, a trait is a characteristic exhibited by a plant. It could be something like drought tolerance, stalk strength, resistance to a specific disease, or increased yield. The ag science community constantly researches which genetic sequences impact traits that bring value to farmers. Scientists usually learn about the genetic sequence responsible for a desirable trait while studying one specific variety. The challenge becomes how to transfer that desirable trait into many varieties.

Traditionally, the variety with a desirable trait is bred with other varieties in which scientists also want it to appear. Plant breeders carefully select and backcross the offspring of those varieties that exhibit that trait and then repeat that process with each generation until eventually a stable variety with the trait emerges. That process typically takes six or seven plant generations, requiring a significant investment over several years.

Syngenta currently invests about $1.5 billion in research and development each year.

If Syngenta discovered a genetic sequence that improved drought tolerance and decided to add that trait into the many existing varieties optimized for specific geographies, the traditional process would require breeding and backcrossing each existing commercial variety.

HI-Edit, however, makes it possible to move those lines more efficiently. The HI-Edit process leans into the basics of sexual reproduction: When a sperm with its male chromosomes fertilizes an egg with its female chromosomes, together they form a zygote, which contains chromosomes from each parent. The sperm or the egg is a haploid, containing only a single set of chromosomes. The zygote is a diploid, containing a complete set of chromosomes from each parent.

But some plants are haploid inducers. Haploid inducers cause female plants to produce seeds containing embryos that include only one parent’s genetic material, or a haploid embryo.

That’s where HI-Edit goes to work.

“...leadership role at the global level, we must ensure that USDA works closely with the Food and Drug Administration and the Environmental Protection Agency to ensure consistent, science-and risk-based policies across the U.S. government, while continuing to take a leadership role in working towards alignment at the international level,” says Mary Kay Thatcher, senior manager, federal government and industry relations at Syngenta.

The HI-Edit process is currently focused on corn but can be used on other crops like rice and wheat. Syngenta hopes to expand the process for use on other crops. The anticipated release date for gene-edited seeds using this process is still a few years away, but Syngenta sees the promise a biotechnology like this has for helping farmers get the most from their land. Kelliher says he is hopeful that in the not-too-distant future, this exciting biotechnology will deliver the latest and greatest seed traits to farmers on a larger scale than ever before.

Kelliher believes new technology is wonderful. Distributing it widely to those it benefits is even better.
Geography Lessons

Seed selection for unique conditions is a pathway to higher profit potential.

By Barb Baylor Anderson

Those who ask Tim Main about challenging decisions on his farm today can expect a conversation on seed selection. He and his brother, Todd, maintain a 50-50 corn and soybean rotation in a no-till production system in Altona, Illinois.

“Seed selection for both crops has changed so much over the years,” says Main, who has farmed for more than 35 years. “I used to sell seed, and that meant meeting with farmers after harvest to take orders for the next year. Now, with traited seed that works with specific herbicides and insecticides, we are choosing systems and seed for the following year well before harvest.”

Expert Insights

Main increasingly relies on local seed representatives to learn which hybrids and varieties are mostly likely to perform well in his fields. He counts on their first-hand knowledge of seed performance in company trials.

“They know what will work geographically and has the right traits to help us increase yield potential, reduce input use, and add to our profitability,” Main says.

Wesley Hancock, Ph.D., Syngenta soybean breeding project lead, says his teams analyze data from test plots to determine which growing environments and geographies work best for each variety. They evaluate seed for two seasons and match varieties to the specific conditions the seed is most likely to face — for example, disease pressures in the Midwest versus those in the Southeast.

“We always look ahead to assure we breed for changes in pest resistance and other production factors,” Hancock says. “Soybean growers currently have two main soybean herbicide trait choices from Syngenta, Enlist E3® soybeans and XtendFlex® soybeans. We aim to be a provider of choice by testing each trait in the same geography to match genetics for each environment. With performance-based testing, nothing that fails is released.”

Selection Scenarios

As is the case with soybeans, selecting corn seed well-suited to a specific geography helps farmers maximize yield potential and take advantage of growing-season length.

Judd Maxwell, Syngenta corn product placement head, says his team broadly tests seed products as they move through the pipeline, determining where products best fit. Nationwide testing and local weather adaptation provide regional performance data.

“We expand the geographic footprint for seed as it goes through testing. We determine what works and share that data with our seed partners so they can help each farmer rank seed on performance and tweak product selections for their fields,” Maxwell says. “Each hybrid in our broad-based portfolio has two years of genetic and trait combination evaluation, just like soybeans.”

Maxwell agrees with Main that while yield potential is critical to seed selection, potential return on investment is the broader, and more significant, consideration.

“Seed is priced on yield potential. A farmer that uses a lot of inputs may want to spend more on seed with a higher-yield starting value to generate top yields, while farmers with a less intensive management style should choose seed based on potential for consistent return,” Maxwell says.

Main sets high profit goals. “Traited seed costs are higher, but we find the bigger investment has a bigger impact on success,” Main says. “It all trickles down — ultimately — to a better bottom line.”

Product Performance Factors

In addition to geography, Maxwell advises farmers evaluating corn seed to consider trait technology needs that fit their management practices, such as crop rotation, or insect and disease pressure.

“Every trait has a different impact on product performance,” he says. “For example, if corn rootworm is a problem, select seed with traits to manage underground insects. If a specific disease is a
challenge, look for hybrids with protection from that specific disease."

Products from Syngenta can address several corn challenges. Duracade™ trait stacks offered in elite genetics provide multiple modes of action to battle corn rootworm. DuracadeViptera™ trait stack, on the other hand, controls above-ground insects, including western bean cutworm and corn earworm. Combining both traits provides control of 16 above- and below-ground pests.

“Farmers can select traits based on the geographic need and past history of their fields,” says Tim O’Brian, Ph.D., Syngenta traits product manager. “Genetics provide the yield potential while traits protect that yield potential. And in the case of corn rootworm, which has been on the rise in some regions for the last two seasons, farmers should have a multi-year plan using different control methods in different years that includes not only Duracade trait stacks, but also crop rotation, soil-applied insecticides and adult beetle monitoring.”

Artesian™ trait stacks offer another geographic opportunity when combined with elite corn genetics. The technology optimizes water use to help maintain yield despite drought or water restrictions.

“At Syngenta, seed work is never complete,” Maxwell says. “We seek farmer feedback on what works and what does not so we can make adjustments and maximize return on every seed. We never stop learning about our products, even after they are available commercially.”

Give the Gene Light

Brent Delzer’s research in corn breeding led to the invention of the HI-Edit genome-editing technique.

By Anna Boisseau

Brent Delzer, Ph.D., worked seven years to develop a line of corn that was both genetically transformable and contained a haploid-induction trait. Both characteristics were necessary to invent HI-Edit™, the revolutionary genome-editing technique for crops.

It is easier to control the genes of haploids because they only contain maternal genes — meaning genes of the mother plant (although paternal haploid systems that only contain paternal genes also exist). “When we identified the matrilineal gene that causes haploid induction, it enabled us to use the gene in a new way in HI-Edit,” Delzer says.

That work is what sets Delzer apart from others in his field, says Tim Kelliher, Ph.D., head of technology development and science fellow with Syngenta Seeds Research. “It’s challenging to develop those technologies on our own: We need input from breeders,” he says. “Brent is a really successful breeder who also has side-project interest in breeding technologies.”

Delzer’s line of corn was the foundational step toward developing HI-Edit technology. It pushed the research forward and made the difference between the work at Syngenta and what other researchers were trying to do.

Competitors who tried to invent a similar technique didn’t have access to a transformable haploid inducer line, Kelliher says, as it’s extremely difficult and time-consuming to create. Delzer’s work jumpstarted the research process and set Kelliher’s team up for success.

By using Delzer’s transformable corn line, Kelliher says his team obtained the data they needed to get a patent on HI-Edit. “We were able to show results,” he says.

Delzer retired this spring after 31 years with Syngenta. Looking back, he never imagined the scientific mountains he would climb when he left the family dairy to study agriculture at University of Wisconsin-River Falls.

“Agriculture’s been my passion all along,” Delzer says. “But my mom convinced me to go to college, and I thought walking away from milking cows was an okay idea.”

Delzer’s career in plant breeding actually started with a college internship at Northrup-King Seed Co. — now the NK Seeds division of Syngenta. After receiving his Ph.D. from the University of Minnesota, Delzer accepted a breeding job in Janesville, Wisconsin. He worked his way up the ranks, eventually serving as the North corn market segment lead and being recognized as a Syngenta Fellow.

“When I was hired as a corn breeder, the ultimate goal was to develop a commercial hybrid that was successful on the farm,” he says. “But to work on this project in addition to that was exciting because nobody had done gene-editing before in the way that we did it.”

— BRENT DELZER, PH.D.  
North Corn Market Segment Lead & Corn Breeder at Syngenta

PHOTOS: ANNA ROUTH-BARZIN; COURTESY OF BRENT DELZER
What’s in Store

News & Events

See You at the Agronomy Bar

New to the Syngenta booth at the Farm Progress Show this year is an Agronomy Bar — where attendees can discuss key topics, agricultural issues or whatever is on their mind with local agronomists. In-between visiting exhibits, attendees also can enjoy food and beverages at the Syngenta Square.

Join Syngenta at the 2022 show in Boone, Iowa, on Aug. 30–Sept. 1. The annual tradeshow connects farmers with top agricultural companies through exhibitions, field demos and more.

Syngenta will highlight its portfolio of crop protection, seeds, traits and digital ag products. Expect to see new Syngenta brands showcased at the show, including Tendovo® herbicide and CruiserMaxx® APX seed treatment, as well as several educational demonstrations. Experts will also be on-site to help attendees resolve issues on their farms.

“Visitors will be on the road to innovation as they take a road trip through our exhibit,” says Ann Vail, communications and experiential marketing lead at Syngenta. “They can stop at destinations to learn more about relevant agronomic topics and how our brands might fit on their farm. Completing their road map rewards them with a complimentary drink at Syngenta Square.”

Campaign Updates

BeSure! Campaign Encourages Good Neonicotinoid Stewardship

When choosing crop protection tools, farmers and applicators know to consider both effectiveness and potential impact on the environment. Protecting pollinators and other wildlife are key stewardship practices. That’s why the BeSure! campaign by the Growing Matters coalition provides simple steps to accomplish these goals while using neonicotinoid products.

Discover best management practices when using neonicotinoid products on crops and urban landscapes at https://growingmatters.org/besure.

Upcoming Events

Some folks visit fairs. Some go all in on agricultural events. Here are a few that might interest Thrive readers.

Aug. 30 – Sept. 1
Farm Progress Show
Boone, Iowa

Sept. 13 – 15
Husker Harvest Days
Grand Island, Nebraska

Oct. 26 – 29
National FFA Convention
Indianapolis, Indiana

Visit syngenta-us.com/tradeshows for information on upcoming events.
Avoiding the Trap

Growers who operate grain elevators may help prevent accidents by following key safety practices.

By Tyrell Marchant

Entrapped. Engulfed. Entangled. They’re scary words, and the true terror of their meaning is something that just about every person who’s ever handled grain understands. Most people who enter a grain bin or elevator, shovel in hand, emerge without incident. But such incidents — the ones nobody likes to talk about — are more common than you might think.

A study performed by researchers at Purdue University found that, over the course of 2020 and 2021, there were 120 documented cases of agricultural confined space-related incidents in the United States. Of the 56 cases reported in 2021, 29 were grain entrapments. And while the rate of fatality in these incidents has decreased, the researchers believe that may be due to a growing willingness to report non-fatal incidents.

Of course, these incidents are more than mere statistics. While the numbers are certainly eye-opening, grain elevator accidents can forever change the lives of operators and their loved ones. For varying reasons, at least 29 people last year (likely, dozens more) found themselves instantly plunged from a routine chore into an avalanche of flowing grain ready to swallow them whole.

For Catherine Rylatt, the issue hits close to home. In 2010, her 19-year-old nephew, Alex Pacas, died when he became trapped in a grain bin. Spurred by the tragedy, Rylatt became a driving force and founding member of the Grain Handling Safety Coalition, a large nonprofit organization that educates farmers, co-ops and grain elevator operators on best practices for safer handling of grain. While there are a myriad of safety measures she recommends, Rylatt says one of the most important things producers can do is ensure the quality of grain going into the bin is good — and then maintain that quality.

“Grain quality cannot be improved once it is in storage,” she says. “It can only be maintained. It is key to ensure pre-harvest and harvest activities are conducted in a manner that optimizes grain quality, and producers need to closely monitor grain while it’s in storage.”

“Engulfments and entanglements have one thing in common: They happen quickly,” says Jess McCluer, vice president of safety and regulatory affairs at the National Grain and Feed Association (NGFA). “The newest employees and the most seasoned
employees are the most susceptible to bin hazards due to one group being ignorant to the hazards and the other being too comfortable with them. Employees and employers should never hesitate to review recommended safety practices to ensure that work is completed as safely as possible."

The consensus from people who study such incidents, such as Rylatt and McCluer, is most grain entrapments are preventable. Major progress has been made in the proper training and application of grain handling safety among farmers, employees and emergency personnel. But it’s important the industry doesn’t allow that progress to grind to a halt.

“We need to continue to be conscious of the hazards and continue to raise awareness and provide education, resources and training,” Rylatt says. “As the workforce changes, it is a great opportunity to infuse a stronger culture of safety into the agricultural industry.”

A Life-saving Robot

"Boy, it’d be nice if you could build me a robot to keep me out of the grain bin," a farmer friend told Chad Johnson, CEO of Grain Weevil.

Armed with that germ of an idea, Johnson created the Grain Weevil, a grain bin safety and management robot that accomplishes the tasks farmers have historically done with a shovel: leveling grain, breaking up crusts and bridges, and feeding augers during extraction. The Grain Weevil works because of its auger-based propulsion system, which encourages grain flow by letting gravity do most of the work. This all adds up to help reduce risk of falls, entrapment, entanglement, and long-term health issues, such as farmer’s lung.

On top of these safety benefits, the Grain Weevil also aids in grain quality. The robot operates while grain is loaded, helping disperse fines. It also can map and measure moisture as grain enters the bin — then leveling everything off for long-term storage.

Learn more about the Grain Weevil robot at www.grainweevil.com. For more resources on grain safety, visit www.grainsafety.org or www.ngfa.org/safety.

The National Feed and Grain Association identified seven best practices for handling grain safely.

1. Don’t enter a bin unless absolutely necessary.
2. Isolate all energy by completing lockout/tagout procedures.
3. Make sure everyone working around the bin is aware that someone is working inside it.
4. Never enter a bin alone. Always have at least one additional person on standby outside the bin who can summon help if an accident occurs.
5. Test the air within a bin or silo to assess the presence of combustible and toxic gasses and to determine if there is sufficient oxygen inside the bin.
6. Always use a body harness with a lifeline and ensure that the lifeline is secured before entering the bin.
7. Avoid walking down grain or similar practices.

LEFT: Ben Johnson (left), chief innovation officer, and Zane Zents (right), lead software engineer, created the Grain Weevil robot to help grain bin operators avoid life-threatening accidents.

BELOW: The Grain Weevil robot’s auger-based propulsion system encourages grain flow by letting gravity do most of the work.
Corn Pushes China’s Ag Purchases to Record Levels

China imports more corn than ever as demand rises and domestic production stagnates.

By David Widmar and Brent Gloy

In 2021, China purchased a record $35.9 billion worth of ag products from the United States. This was roughly $7 billion — or 25% higher than 2020 levels ($28.8 billion) — and beat the previous record of $29 billion, which occurred in 2013.

The two biggest sources of change between the previous highs and 2021 were massive corn and beef purchases. Of the $7.1 billion increase, corn alone accounted for 55% of the new purchases. Not only was corn the largest driver of increased activity, but China’s corn purchases also increased from $55 million in 2019 to $5.1 billion last year.

There is no clear answer as to why China has been purchasing U.S. corn, but we can begin to shed some light on the mystery when considering production and consumption trends.

Production, Consumption, and Trade
As the population and incomes have increased, so has China’s consumption of corn (Figure 1). Since 1970, China’s production and consumption have remained mostly in lockstep, increasing roughly 4.4% annually over five decades.

Shown in green is the share of global corn imports that China makes. China is no stranger to corn imports and, since 2009, has been consistently importing a modest amount of corn. For instance, in 2011, China’s activity accounted for 5% of global trade and previously peaked at 6% in 1994.

It’s worth noting, however, that those trends have been interrupted in recent years. China’s corn production has been largely flat since 2015. During that same time China’s domestic consumption, along with its corn import activity, grew higher. In 2020, China bought 16% of the globally traded corn, and in 2021, purchases equaled 13% of global activity.

FIGURE 1

Data Source: USDA’s PSD database and AEI.ag calculations.
Acreage Slips

When thinking about the reasons for China’s stagnation in corn production, there are only two variables behind the math: acres and yields. China’s corn acres, which trended higher over the last several decades, slumped in recent years. Insight on the acreage expansion and sudden stagnation lead to questions about China’s plans.

First, China’s decades-long trend has been fueled in no small part by increased acreage. This has been especially evident since the early 2000s, as acres increased from 60 million annually to more than 100 million.

Second, while China’s corn acreage has paused at various points in the past, one has to wonder if acreage will return to the expansion pace observed throughout the 2000s, will continue to expand but at a slower pace, or will remain stagnant? It’s important to keep in mind total acreage in China has been unchanged since 1990, so any increase in corn acreage is a tradeoff with other crops. There are no clear answers at this point, but keep in mind domestic consumption continued to expand in recent years.

Wrapping it Up

The enthusiasm and uncertainty about China’s recent corn purchases has everyone wondering, “How long will it last?”

On the one hand, weather-related supply shocks — such as floods or drought — would likely result in a short-term uptick in corn imports until domestic production recovers. On the other hand, if China’s future corn needs must be met by imports, it would likely result in China being a significant and growing corn buyer for years to come. The implications are far from clear at this point.

Lastly, keep in mind that China has been rocked by several shocks over the last few years. There was the trade war, African Swine Fever and COVID-19. Concerns about sluggish economic growth stemming from recent COVID-19 shutdowns continue today. Taken altogether, it will likely require a few more years of data to untangle how much of China’s corn purchases in 2020 and 2021 were an interruption in the long-term trends or the emergence of a new one.

Economics of Agronomics with David Widmar and Brent Gloy

Widmar and Gloy are the co-founders of Ag Economic Insights (AEI.ag). Founded in 2014, AEI.ag helps improve decision making for producers, lenders, and agribusiness through: the free Weekly Insights blog, the award-winning AEI.ag Presents podcast featuring Escaping 1980 and Corn Saves America, and the AEI Premium platform, which includes the Ag Forecast Network decision tool. Visit AEI.ag or email Widmar (david@aei.ag) to learn more. Stay curious.
A Look at the Indo-Pacific Economic Framework

President Biden’s initiative offers potential — if agriculture is a priority.

By Mary Kay Thatcher

On his third day in office, former President Trump withdrew the United States from the proposed 12-nation Trans-Pacific Partnership (TPP). Proponents of the TPP argued the partnership would expand U.S. exports, and Farm Bureau estimated that a successful agreement would increase net U.S. agricultural exports by $5.3B.

Since the withdrawal, neither former President Trump nor President Biden re-engaged in free trade agreements in that region. By contrast, China and 14 other Asian countries participate in the Regional Comprehensive Economic Partnership trade agreement. China and other countries also formally requested to accede to the TPP’s successor arrangement, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. The EU also continues advancing new trade agreements in the region.

Many worry that the United States lacks an economic and trade strategy sufficient to counter China’s increasing economic influence in the Indo-Pacific. Our absence from those regional agreements limits our ability to shape trade rules in the region.

Recent action from the Biden Administration may change that.

A New Angle

In late May, the Biden Administration announced intentions to proceed with a U.S.-led Indo-Pacific Economic Framework (IPEF). The initiative will include modules covering fair and resilient trade, supply chain resilience, infrastructure and decarbonization, and tax and anticorruption.

IPEF is not a free trade agreement, and it varies greatly from any other traditional trade agreement. For starters, Congress won’t need to approve it. Instead, the administration will move forward with congressional input. Not requiring congressional approval inherently limits the scope of potential IPEF commitments, given Congress’ constitutional authority to regulate U.S. foreign commerce. Additionally, the administration indicated it will not negotiate changes to market access and tariff reductions.

However, United States Secretary of Agriculture Tom Vilsack and Trade Representative Katherine Tai indicated they will target non-tariff trade barriers as part of the effort to strengthen ties in the region, creating optimism that U.S. ag trade could reap significant benefits. The Indo-Pacific region, with rapidly growing markets and 60% of the world’s population, presents a patchwork of regulatory restrictions and non-tariff trade barriers. We do not know which and how many countries will participate in the negotiations, but it could include India, the Philippines, Japan, Indonesia, Malaysia, Mongolia, New Zealand, Singapore, Taiwan, Thailand and Vietnam.

Vietnam’s trade barriers are particularly difficult as they continue banning common ag pesticides without conducting appropriate risk assessments. Other countries in the region impede U.S. exports under Sanitary and Phytosanitary (SPS) barriers. Numerous obstacles impede biotech crop exports to the region, including: asynchronous approvals that create backlogs of unapproved traits; evaluation procedures not based on international scientific standards; unnecessary testing, labeling and traceability requirements; and even outright bans on genetically modified products.

Ag Imperatives

It is imperative that the administration make agriculture a priority in the IPEF, and U.S. farm groups hope non-tariff trade barriers will be addressed in negotiations:

• Reduce barriers to U.S. ag exports throughout the region and improve trade, starting with participating countries.
• Include high-standard SPS measures to reduce barriers and increase trade, including certification and inspection rules.
• Create mutually agreed-upon regulatory reforms allowing the U.S. reliable and easy export to key markets throughout the Indo-Pacific region. For example, recognizing the strength of the U.S. food safety and plant and animal health oversight systems and removing or streamlining certification or registration requirements for timely results.
Participating in Indo-Pacific trade agreements is a U.S. strategy to counter China’s increasing influence.

President Biden announced the Indo-Pacific Economic Framework to promote fair and resilient trade.

Reduced barriers and science-based standards could increase American ag export opportunity.

Address tariffs on U.S. agricultural exports to improve our competitiveness in the region. While IPEF will not initially be a comprehensive trade agreement with tariff negotiations, this should not preclude efforts to increase agricultural market access by reducing our trading partners’ tariffs.

Several U.S. business associations recently urged the Administration to conclude IPEF modules this year — and include binding commitments, such as on market access — and provisions for future expansion of commitments and participants.

Editor’s Note: Information included in this article is reflective of the status as of June 2022.

Policy Matters with Mary Kay Thatcher

Mary Kay Thatcher joined the Government Relations team for Syngenta in February 2018. Prior to that, she was a lobbyist for the American Farm Bureau Federation for 31 years. Mary Kay also served in the first Bush Administration as the director of congressional and public affairs of the Farm Credit Administration. She is a graduate of Iowa State University where she earned degrees in animal science and agricultural economics.
We value bushels over bundles.

There's a world of deals out there. Rebates. Bundles. Upfront savings. But while season-long “deals” can be tempting, they can actually limit your crop protection options and compromise your yield potential at harvest.

At Syngenta, we know that Better Yield is the Better Deal. Talk to your local Syngenta sales rep or visit Syngenta-US.com/BetterYield to learn more.