

INTERVIEW

KIRAN SHETTY,

technical development lead, Syngenta

By Joe Kertzman, managing editor, *Badger Common'Tater*

All photos by Martin Brown, Patrick Priest, and Syngenta

NAME: Kiran Shetty

TITLE: Technical development lead

COMPANY: Syngenta

LOCATION: Greensboro, North Carolina

HOMETOWN: Durham, New Hampshire

YEARS IN PRESENT POSITION: 11

PREVIOUS EMPLOYMENT: Technical product development in seed care for Syngenta North America (14 years)

SCHOOLING: University of Idaho, Ph.D. in plant sciences, specializing in plant pathology, and post-harvest packaging, delivery, and distribution of potatoes

ACTIVITIES/ORGANIZATIONS: The Potato Association of America and American Society of Horticultural Science

AWARDS/HONORS: United Nations Development Program Fellowship for Graduate Studies, and Syngenta Ambassador and Grower Service Awards in Technical Services to the Agriculture Industry

FAMILY: Lives in New Hampshire with his wife and one daughter

HOBBIES: World travel to learn and understand the diversity in agriculture, and owns a tropical hobby farm where he and his crew experiment in plant propagation, rain harvesting and soil conservation

The seed was planted as a young boy, and not only did Kiran Shetty, technical development lead for Syngenta, recognize it, he embraced it.

Growing up on his grandfather's farm in India, there was no electrical power or running water.

"As a kid, I created little irrigation systems, breaking small pipes and building channels to water my plants," Shetty is quoted as saying in a Syngenta *Thrive* magazine article written by Chris Harrell.

"Knowing I'd helped the plants produce fruit gave me a sense of accomplishment," Shetty adds. "The fruit, as well as the brownie points it earned me at home, were nice, too."

From those humble beginnings, Shetty spread his wings, attending the University of Agricultural Sciences in Bangalore, India, and eventually earning a master's degree in plant sciences from the University of Idaho.

As noted in the *Thrive* article, Shetty's father sold crop protection equipment and taught his son how the machines worked, triggering an understanding that technology could



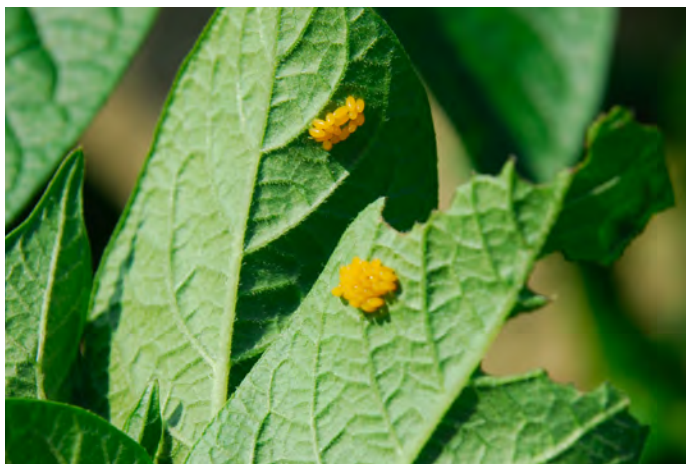
improve agriculture.

The demand for potatoes that the fast-food industry spurred caught the young Shetty's attention, and his teachers encouraged him to look at educational opportunities outside of India.

How did growing up on your grandfather's farm in southwest India shape who you are today?

My grandpa's farm was in a remote area and power wasn't available at that time, and no running water, but people were creative. Even though there was no running water, there

Above: Kiran Shetty, technical development lead for Syngenta, was seemingly born to work with potatoes, something he's done for more than 30 years, with his dad involved in the crop protection business and having grown up on his grandfather's farm in India.



was gravity, and we were able to rig up something and send produce to market. All of that existed back then.

It was the mid-1960's and living was somewhat different at that time, not difficult, but rooted in agriculture. Agriculture is still one of the main occupations in India, with about 80 percent of working people indirectly or directly connected to agriculture.

Growing up there in days when the seeds were sown, no pun intended, the intrigue of generating a lot of volume from one single seed fascinated me. It started a process.

Luckily for me, as I grew up, my dad was involved in the crop protection business. By this time, we'd moved into a more urban area where the business was located. Helping him in crop protection was my link to agribusiness activities.

Then, as I progressed in school and

ag schools through colleges and universities, it prepared me for this profession and career.

After attending the University of Agricultural Sciences in Bangalore, you earned a Ph.D. in plant sciences from the University of Idaho. Was it difficult for you to leave India to start a new life in the United States?

Agriculture has been a mainstay in my life, past, present, and looking into the future. Ag continues to adapt and evolve, and I had the luxury of comparing what we had then to what it is now, and what it can be in the future. I chose the right profession.

The biggest challenge for me was family separation. Culturally, we grew up in different conditions, thousands of miles away, but I couldn't have picked a better place to embark on my career than in Idaho and the United States. The tradeoff was good.

I get back to India every now and

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 **Endigo**® **ZCX**

Above: A Colorado potato beetle (CPB) and CPB eggs are shown on potato plants, complete with feeding damage to the leaves. Kiran Shetty says Syngenta offers excellent products for controlling colonizing insects, such as Minecto Pro®, CruiserMaxx Potato/Platinum, Endigo ZCX, and Besiege, to name a few, that can knock down a population quickly.

then. I do have my own farm, sort of a hobby farm, where we grow tropical crops—fruits and vegetables. That keeps me busy and engaged.

I make frequent trips to get things going and tend to the crops. Mango is one of the main crops grown in that region, a heavy rainfall area.

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The monsoons are starting to come in, which is ideal for tree crops.

How did you end up at Syngenta and in what capacity? I'm a researcher by training. Then, as now, Idaho provided opportunities to innovate and find solutions for growers. There were opportunities for research.

The Syngenta legacy company is rooted in agriculture. To me, it was an obvious fit. I was hired as a technical product lead, in 1997, in the seed treatment business. We call it seed

care now as it involves more than just treatment.

I was a researcher in the R&D (research and development) division, eventually transitioning into development and marketing, and held several other roles up to my current position as development lead in technical services, mainly working with the potato industry.

We work with our R&D teams to take products that are being marketed and introduce them to

growers, seed producers, and other customers in the potato world. We are a link between pure R&D and the marketing group.

I love it. It gives me the opportunity to connect with the industry daily, and when you do that, every day is different. It can be good, sometimes difficult, but we continue to learn, and if you're listening, it's the best position to be in. That's why I enjoy it.

Through the Syngenta pipeline, my team and I brought in several products that are in common use today throughout the world.

Above: Kiran Shetty explains that managing potato diseases continues to be challenging and a very integral part of crop protection. "If you're staying put," he notes, "you are going backwards."

Left: A healthy crop treated with Quadris in furrow followed by Elatus, both Syngenta products, is shown at left, as compared to the same crop at right treated with Quadris in furrow followed by Proline.



Quadris in furrow fb
Elatus banded



Quadris in furrow fb Proline

What contributions to the potato industry are you most proud of?

I've worked in potatoes for more than 30 years now. On this journey, I have been fortuitous to work not just in potatoes, but also with other crops, particularly in seed care, and most importantly with people of diverse backgrounds and expertise.

In research capacities, I've worked with several organizations and individuals in extension services, as well as with potato researchers in Idaho on storage issues, marketability of potatoes and consumer packaging.

When you pick up a shrink-wrapped potato or vegetables at the grocery store, that goes back to my early days of research, a contribution of my Ph.D. work now being used in the marketplace.

My research program also developed transport parameters in shipping of fresh potatoes. With Syngenta, I led the development of liquid seed treatments, which was a first. It had never been done before. I think of that as a major contribution to this day.

Subsequently, we developed a nematicide seed treatment, which is clearly a tribute to Syngenta providing us with resources to come up with this product. It's making a difference in the world.

Was learning to manage disease in potatoes a priority, and if so, why?

Like everything else in agriculture, disease control or suppression is a dynamic area.

The environment is unpredictable, pathogens change, regulations we deal with are not stationary or static, and consumers remain watchful on what is applied to produce.

So, managing potato diseases continues to be challenging and a very integral part of crop protection. If you're staying put, you are going backwards.

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"It is one of best crops that turns natural resources into food, so if talking food security and conservation in the same breath, you have a candidate, and it is the potato."

– Kiran Shetty

technical development lead, Syngenta

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What are the biggest challenges as far as crop protection that potato and vegetable growers, specifically in Wisconsin and the Midwest, face today? The potato business is very diversified. What matters to a seed grower may or may not be applicable to the fresh or process market, and the need to produce quality potatoes will always remain.

So, quality seed production, innovative solutions to manage crop health, digital applications, all this, while keeping the end user in mind, is in play in Wisconsin.

We need to make this happen in a very sustainable, practical way while protecting the environment and natural resources. It will be exciting to see the shift in Wisconsin over the next few years.

As far as viruses and vectors, these are front and center in potato production. Viruses are well entrenched in the potato production system. They evolve, adapt, and

change in short time periods.

Just the PVY strains and challenges they pose keep us on our toes. Fortunately, the state of Wisconsin, USDA and universities have made it a priority to monitor the situation.

Certainly, the way they're evolving, viruses as living organisms have the propensity to go through cycles. In hours, they can change, in the snap of a finger.

We're going through a pandemic. We have a virus in our midst. Just watch

Above & Below: Syngenta potato research in Ephrata, Washington, includes a white mold trial.

the 6 o'clock news—it is a big part of our lives today. Potatoes are no different, and PVY appears to be one of most challenging viruses we deal with today. Wisconsin is not immune.

How do you control the spread of vectors transmitting viruses from one living plant to another? The list is long, and this is multi-faceted.

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Plant breeding and biotechnology combine as one of the best solutions to combat viruses. The search for resistance in the genetic pool will continue to remain our best source, and therefore plant breeding can provide the answers.

Crop protection must include a good understanding of vectors' behavior—when and where they occur, the habitat they thrive in, and the supporting crops and weeds that favor their existence and multiplications.



You can use a “quarantine” by removing infected plants that are sources of virus. You can also control natural vectors, primarily insects, and to some degree, nematodes.

There has been tremendous advancement in vector control and some of the new targeted modes of



Above & Left: When it comes to silver scurf in potato, Syngenta has products that will address reduction of inoculant load, addressing it from seed and extending into soil with Elatus®. For seed treatment, the company offers Cruiser Maxx Vibrance®, which controls seedborne diseases like silver scurf or Rhizoctonia. Once treated with Cruiser Maxx Vibrance, Elatus is applied because the pathogen is still living in the soil.

action of insecticides provide us the tools to keep the populations low or to a manageable level.

Weed control and volunteer control are also integral in the strategy to reduce virus transmission in a cropping season.

Don't bring in bad or poor seed, eliminate reservoirs and vectors, and improve sanitation methods—these are the primary ways to eliminate the transmission of viruses.

What are you most excited about as far as advancements in crop protection, and specifically with Syngenta? Syngenta's pipeline is one of strongest I've ever known in my professional career. I think we are ready to meet the challenges ahead, and we have the best people in the business working with growers on the front line.

That's why I'm excited to be a part of this company and what we do.



Kiran Shetty evaluates potato crop quality in the field.

What proven or new products does Syngenta offer in the fight against vectors, viruses, and diseases of potato? Against PVY, there is a new set of products, or what we call modes of action, that control vectors,

which are mainly aphids.

As we develop product, they become the solutions. About 20 years ago, Syngenta legacy companies and others in the

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business of insecticide development introduced neonicotinoids, a unique group of chemistries that can be applied early in the season when potatoes are planted in soil.

When aphids are active, they can transmit viruses early and spread. The potato leaf roll virus was somewhat existent in pockets across the U.S. I was in Idaho testing neonicotinoids. If you look now, PLRV is almost gone.

Switching gears, silver scurf is a different beast, a fungus, and you have to look at where and how it spreads. We have products today at Syngenta that will address reduction of inoculant load, addressing it from seed and extending into soil with a product named Elatus®.

For seed treatment, we offer Cruiser Maxx Vibrance®, which controls seedborne diseases like silver scurf or Rhizoctonia. Once you finish with Cruiser Maxx Vibrance, then you apply Elatus, because the pathogen is still living in the soil.

Applying another treatment with the fungicide Amistar Top® and finishing with a chemical called Stadium® will give complete control. You can't piecemeal control. You must follow steps A, B, C and D.

We offer an integrated approach that combines seed, soil, and post-harvest treatments. Disease can spread in storage. All these steps are targeted toward getting inoculant as low as possible, because I don't think we can completely eliminate the pathogens in our system.

What about in-furrow or broadcast spray applications and treatments?

Systemic insecticides applied at the soil level or in-furrow, including a whole family of available neonicotinoid pesticides, are extremely effective, very soluble and can move in the plant quickly and redistribute.



Insect behaviors are unpredictable. If they are colonizing, the idea is to apply in-furrow treatments to get them quickly. You don't want them forming another colony and another. Check them at the gate.

As far as broadcast spray applications, assuming seed and soil treatment did not work, then you get into timing of sprays on an appropriate basis.

Scout the field to stay ahead of colonizing insects. Syngenta offers excellent products such as Minecto Pro®, which is a combination of two active ingredients. This is really the big hammer. You can knock down a population quickly, and it also helps control Colorado potato beetle.

Besiege® and Endigo ZCX® insecticides are new products that can be introduced to an existing program in Wisconsin for reducing aphid populations.

Do you have any recommendations for our potato and vegetable growers in Wisconsin and the Midwest as far as ensuring quality

Above: Syngenta's Kiran Shetty has worked with several organizations and individuals in extension services, as well as with potato researchers in Idaho on storage issues, marketability of potatoes and consumer packaging.

and reducing defects of potato, so crops aren't rejected by the buyers?

You've got to start with seed. If we don't start well, it will be tough to finish well.

Wisconsin's Antigo seed potato growers produce some of the best seed in the country and the state's seed certification program is one of the best in the United States. So, my advice is to use their guidelines and certifications. We have good products and beautiful Wisconsin sands to do the rest.

Quality and due diligence—you cannot shortcut them.

Are there any trends as far as challenges in crop protection, specifically in potato, that you're seeing across the country? One of the biggest challenges we as

chemical manufacturers face today are restrictions on import tolerances, which is really a trending thing. Leading companies face trade restrictions from importing countries, handicapping growers and preventing them from using new products.

Unless these products are approved by importing countries, it takes time, and that's one thing we don't have as we face resistance from insects, and pathogens and vectors.

This is a trend we're seeing in front of our eyes. We are consciously bringing the best chemistries and products to the industry, but they are constrained, and we have to make sure they are approved down the channels.

What about a disease management direction or trends? More and more, manufacturers are introducing low-use-rate products, targeted specifically for what they do. That's

a trend in disease management. We will have to integrate and use them only when called for and in the right manner.

If they specify a dose, we need to figure that out in tank mixes and applications, using specific delivery systems at the right schedules and mixtures. So, companies that bring new products out must do their homework.

The best potato disease management is preventative rather than taking a wait-and-see approach, and in most cases, the sign of a pathogen is already in the field, so growers need to step back earlier and plan a preventative program. A lot of new products you see are for doing just that.

Is breeding potatoes with genetic resistance to disease the answer to growers' challenges? The source of genetic diversity we have in the

potato crop is from when they grew wild. Only breeders know how best to bring these traits to market.

I'm not a breeder; I work with them. At Syngenta, we hire experts who have that knowledge.

Is there anything I've missed that you'd like to add, Kiran? Do not cut corners when it comes to disease or insect control. We have to save money, I understand, but what if we flip that logic to say we have to make money instead? Rely on expertise.

Potato is not only an important crop in the state of Wisconsin, by also the fourth or fifth largest food crop in world and utilized in many ways.

It is one of best crops that turns natural resources into food, so if talking food security and conservation in the same breath, you have a candidate, and it is the potato. **BCT**



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