110 Summer 2019 by NuTech Seed®

Q&A with agronomist **Ryan Booton**

Answers to your Enlist E3™ soybean questions

Fresh fare

Recipes ripe for a summer garden

One Beautiful Week

Living the life at our St. Kitts getaway

The Product Issue

- Complete 2020 seed guide
- Top hybrid and variety picks for Central Corn Belt



CORTEVA[™] agriscience

Welcome to The Life by NuTech Seed®

F

arm work is hard work.
So why do we do it?
We believe it comes down to three things: Success.

Enjoyment. Family. This magazine is a new way to celebrate all of them.

I've always seen living the farm life as a privilege—we're blessed to be able to get up and see the corn every day outside our windows, from our trucks and walking the rows with customers.

It's a unique life, and in these pages, we plan on celebrating it.

We'll also talk about the NuTech Lifestyle and the people who live it. We're the type who want it all, and there's nothing wrong with that. We want to work hard, and see the results of that work. We want to enjoy those results—taking time to kick back and savor what makes it all worthwhile. And we demand the best—from our products and from ourselves.

We see each season as a chance to harvest more, support tomorrow's up-and-coming farmers and learn a lot along the way. We'll bring you stories about all this and more.

In this issue—our very first—we've got some fun stuff, too:

- See how families are living the NuTech life in our beautiful photo essay.
- Revisit our fabulous trip to St. Kitts and get ready for our next getaway.
- Meet our lead agronomist, Brad Johnson, and learn more about his philosophy for your farm.
- Find some tasty summer fare in the recipes section.

 Get a view of the farm from a little closer to the ground in our Kids Corner section that celebrates the next generation of growers.

And of course, check out our 2020 seed guide, which is included as a special insert in this issue. You'll find 71 new products this year, plus a full lineup of Enlist E3™ soybeans.

Our hope is that you find *The Life* a fun read on one of these long summer evenings. We look forward to making your next season one for the books (or magazines!).

Bul Com

Brad Damery *General Manager*



WHAT ARE WE TALKING ABOUT?



The seed's in the ground, and it's a great time to get away for a few days. What's your favorite summer vacation spot?

We're getting ready for the Farm Progress Show! Our banners are rolled up. Our bags are packed. We'll post our pics on social media, but it will be better to see you in person. Stop by the NuTech booth and say hi! School's out and the college kids are back home for the summer. We love seeing them back in their boots and out in the barn.
#backhomebacktowork

Follow NuTech Seed®

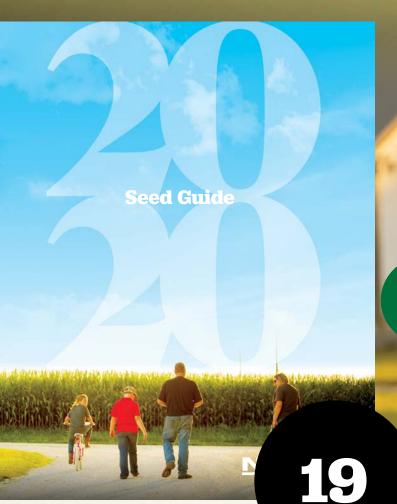








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2020 seed guide

Our complete seed guide for 2020 is enclosed. Check out the latest in top-performing hybrids and varieties, including 71 new products for next year.



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Pause and enjoy the beauty in every acre.

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Iowa farmer Allen Henry talks Enlist[™] herbicides





New faces

We're excited to welcome five DSMs to the NuTech team. These new additions will help introduce more growers to the NuTech Lifestyle and provide additional customer service in key grower areas.



Lawson



Brocton, IL



Jordan Uthe



Looking ahead to harvest

We know harvest is a ways off, but we're already looking forward to fall harvest results. We've got our eye on a few particular hybrids and varieties with big performance potential. We predict the NuTech FIRST trial results will be something special to see again this year. You'll be able to check out the results at www.nutechseed.com/products/ harvest-results.



Gaining the upper hand on weeds

With seed in the ground, it's time to start scouting for weeds. If you've planted Enlist[™] corn or are planning to plant Enlist E3[™] soybeans in 2020, Enlist herbicides can really reduce your weed worries. Enlist Duo® herbicide is a convenient blend of 2,4-D choline and glyphosate. Enlist One® is straight-goods 2,4-D choline with additional tank-mix flexibility. Both herbicides feature nearzero volatility and minimized potential for physical drift. We'll be sharing more information about both Enlist herbicides at our upcoming field days and summer product tours.



SUMMER 2019

Field days

Enlist E3[™] soybeans continue to be a hot topic. Now that they're available for commercial planting, we're finding our customers are both interested and just plain excited to learn more about Enlist E3 soybeans. So, look for Enlist E3 soybeans to be a special focus on our field days and summer product tours this year. Expect all the usual fun, food and festivities, too. Look for more details coming soon. See you there! (www.nutechseed.com/events)



Bringing you Qrome® corn products and Enlist E3 soybeans

We're excited to launch two new technologies Qrome® products



provide an optimized balance of insect protection and agronomic performance. Qrome products include a triple stack of defensive traits and dual modes of action to defend against above- and belowground pests and deliver enhanced yield performance.

Enlist E3 soybeans are now available for commercial planting. Enlist E3 soybeans offer more weed control



options with tolerance to 2,4-D choline, glyphosate and glufosinate. The Enlist system offers control of tough weeds so you can maximize your yield potential.

Be sure to speak with your NuTech Seed® representative about these new options and check out our lineups for both Qrome corn and Enlist E3 soybeans in the 2020 seed guide.

Refrigerator art

These young artists have captured the heart of farm life. 3

Clara

Age 7, Missouri

Clara shows us a tractor plowing a

2

Kale

Age 6, Missouri

Kale sent in his view of two tractors. The bottom one is working ground, while the one on top is a planter full of NuTech seed ready for the field.

3

Titus

Age 10, Illinois

Last fall, Titus got to help run the combine with his uncle, while his twin brother, Brant, ran the grain cart. They love helping on the farm!

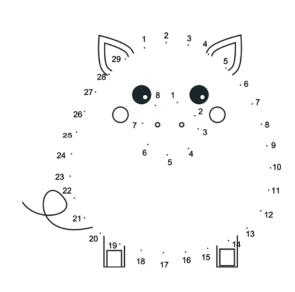
Send their artwork and a short description to info@nutechseed.com and it could be featured in a future issue! Selected artists will receive a NuTech Seed® youth t-shirt!

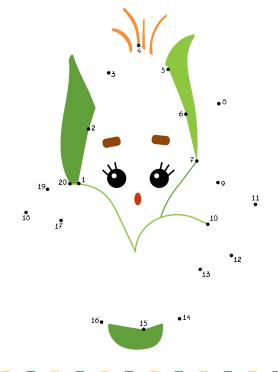
Activity page

Fun puzzles, games and more—just for kids!



Connect the dots. Color your finished picture!









Q&A with Ryan Booton

We sat down with Ryan Booton, Sales Agronomist for southeast Iowa and central/northern Illinois, to get his take on Enlist E3[™] soybeans and the Enlist[™] system.

Q

What's been the buzz from customers about Enlist E3™ soybeans?

Since we received approval for commercial planting, I've seen a lot of excitement around Enlist E3 soybeans at dealer meetings and other events. Growers are looking for new options in weed control management. I honestly feel this could be as big a game changer

as when glyphosate-tolerant soybeans hit the market in 1996.



That's a big deal. What makes the Enlist™ system in soybeans so exciting?

The big value I see for a grower is the flexibility to use three different herbicides. The traits in Enlist E3 soybeans allow the flexibility to use new 2,4-D choline in Enlist Duo® and Enlist One® herbicides as well as glyphosate and glufosinate. With this system, you also get application timing flexibility. We have a wide window of application on Enlist E3 soybeans, up to R2.

2,4-D has, of course, been around forever. What's different with the 2,4-D choline in Enlist herbicides?

There are a few things. First, the Enlist herbicides have near-zero volatility and minimized potential for physical drift. I call them "neighbor-friendly." With Enlist herbicides, there are situations where you need zero buffer when spraying. And when you do need a set-back, it's only 30 feet for sensitive areas. That's much smaller than many other systems, some of which call for 110 or 220 feet in certain situations.

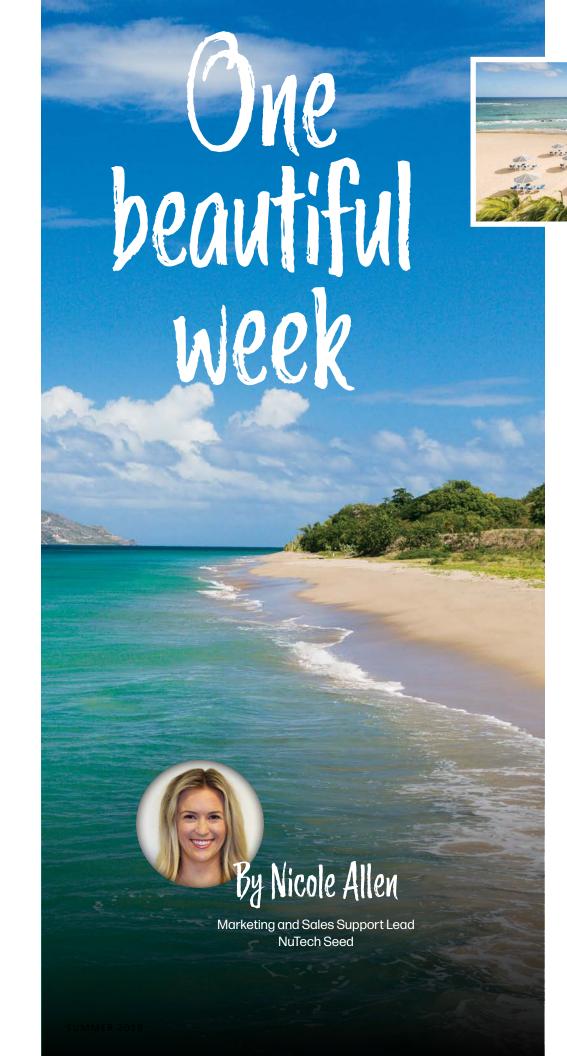
The other advantage I see is that there is no plant-back restriction with Enlist herbicides. I'd say about 70% of the growers I work with use traditional 2,4-D for burndown. It works great, but then they have to wait several weeks before planting. With Enlist

E3 soybeans, they can plant the day after burndown with 2,4-D. That's a big help if you've got a rainy spring and you end up with a short window to plant. The sooner you can get that seed in the ground, the more chance you have to maximize yield.

O

How are the genetics shaping up?

Growers who choose Enlist E3 soybeans should know that the trait is being put into the newest germplasm on the market. Our expectation is that yield will meet or exceed other technologies out there. The data we have shows the germplasm is solid and we've got a great platform for Enlist E3 soybeans moving into the 2020 season.





ne of the great perks of working in a support role at NuTech Seed® is the opportunity to join our customers on our annual

getaway. I've had the chance to go to some pretty fabulous places, but the thing that makes these trips so special is the people. I love seeing our customers come together—renewing old friendships, making new ones and just having fun.

I have put together some of the highlights from our last trip. For some of you, I hope this brings back fun memories. For those of you who haven't joined us on one of these getaways, I have to give you fair warning: This article may make you a little envious, but I encourage you to join us on the next one (see details on page 15).

The setting

While some of our getaways are actionpacked and full of excursions, this year, we selected St. Kitts for its natural beauty and laid-back vibe. There wasn't much of a schedule to keep—and that was just fine.

St. Kitts is located in the southern
Caribbean, with one side of the island facing
the Caribbean Sea and the other facing the
Atlantic Ocean. From our hotel, it was a
quick cab ride to Sir Timothy's Hill, where
you got a breathtaking view of both waters
at the same time.



Plenty to do...or not

Most days, you could find NuTech customers lounging by the pool, strolling the beach and just enjoying some well-earned relaxation. Of course, if that got a little old (as if), there were some fun activities to participate in. I personally enjoyed the rum tasting, where the local coconut cream flavor topped my list. Everyone's new rum palate came in handy at our mixology contest later in the

week. The winning cocktail, the NuKitts Tango, was a hit and was served at our farewell dinner. (You can find the recipe on page 18.)

Others got a little more adventurous and headed out on a catamaran to snorkel in the crystal-clear waters. One of the snorkelers was Wesley Gay, who, along with

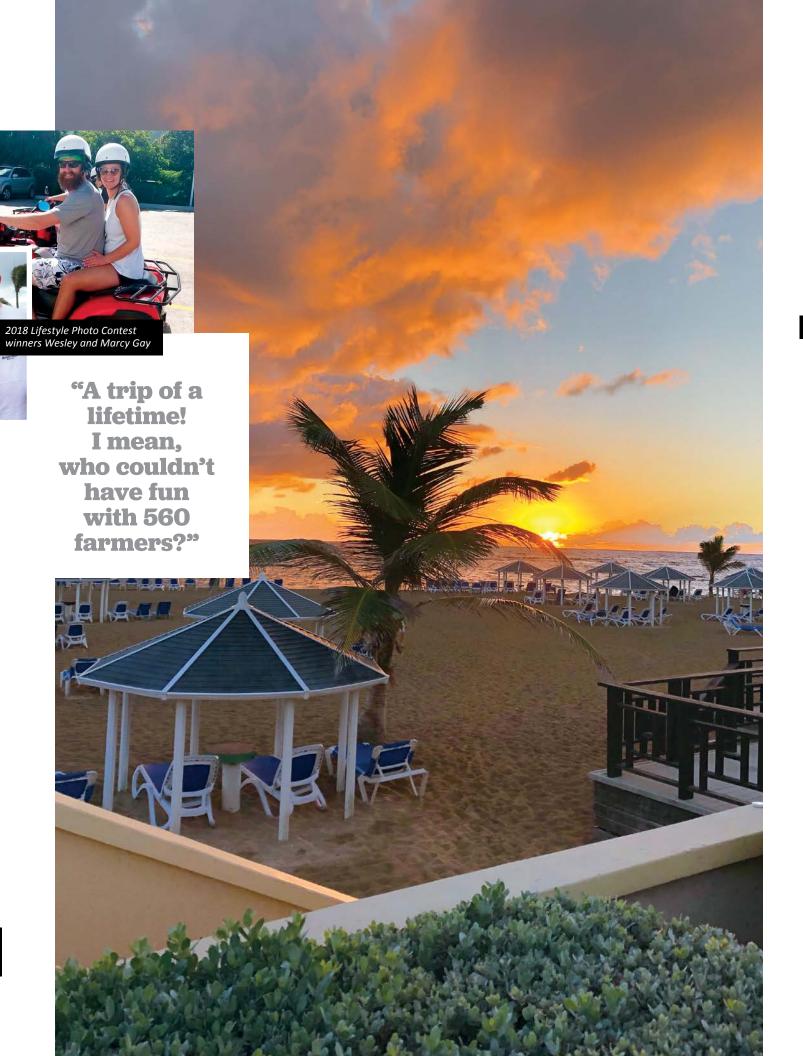
his wife Marcy, earned a spot on the trip as winners of our Lifestyle Photo Contest. Wesley and Marcy enjoyed making new friends, touring the island on four-wheelers and partaking in the local fresh seafood. Marcy described the getaway as, "A trip of a lifetime!! I mean, who couldn't have fun with 560 farmers?" I couldn't agree more.

Love was in the air

Of course, not all of the excitement was printed on the agenda. This year's getaway featured TWO engagements.

During our karaoke night, Cordt Holub sang two romantic songs to his girlfriend, Krista—"Deeper than the Holler" by Randy Travis and "I Cross my Heart" by George Strait—before dropping to one knee and asking for her hand. "I just so happened to sing 'I Cross my Heart' before asking Krista to be my girlfriend on Valentine's Day 2016," Cordt said, "Not knowing three years later I would do the same as I proposed to her in front of friends almost 2,500 miles away on beautiful St. Kitts."





Jake Frey decided to propose to his girlfriend, Megan, on the beach at sunrise. Jake said, "I planned this for the NuTech trip because I wanted it to be around the friends I've made over the years, especially the ones who introduced us." He added, "We enjoyed the perfect temperatures of St. Kitts, the clear water and the beautiful beach. It will be a trip we'll never forget!"

Thanks to both couples for sharing their special moments with us. Everyone at NuTech wishes them all the best!





Overall, it was a beautiful, relaxing week for everyone. We're already looking forward to next year's trip to Panama. Make sure to check out our next issue of *The Life* to learn more about Panama and the exclusive NuTech tours we have planned.





Multiple Herbicide Tolerances for Superior Weed Control



- New 2,4-D Choline
- Glyphosate
- Glufosinate

Following burndown, Enlist Duo® and Enlist One® with Colex-D® technology are the only herbicides containing 2,4-D that are labeled for preemergence and postemergence use with Enlist E3™ soybeans.



- Convenient blend of 2,4-D choline and glyphosate
- Two modes of action to deliver control and help prevent resistance in your fields



- Straight-goods 2,4-D choline with additional tank-mix flexibility
- Ability to tank-mix with glufosinate and other qualified herbicides, customizing the ratio of herbicides to match each farm's needs

On Target Applications

- 90% less drift than traditional 2,4-D
- 96% less volatile than 2.4-D ester



Recipes perfect for mid-summer produce

Stuffed zucchini

A light dinner for a summer evening.

- 4 zucchini, halved
- 1 lb ground beef
- 2 cups cooked white rice
- 1 can diced tomatoes, Italian style, drained
- 1 clove garlic, minced
- 1 T chopped fresh oregano (or 1 tsp dried)
- 1 T chopped fresh basil (or 1 tsp dried)
- 1 tsp ground black pepper
- 1 cup shredded mozzarella



Preheat oven to 350° F. After halving the zucchini, scrape out inside flesh to create an empty "boat." Prick zucchini a few times with a fork and drizzle with olive oil and a little salt and pepper. Roughly chop the removed zucchini flesh. Sauté ground beef, garlic and chopped zucchini until meat is browned and zucchini is soft. Drain ground beef/zucchini mixture. Return beef/zucchini mixture to pan and add: tomatoes, rice, herbs, salt and pepper. Stir until combined. Spoon beef mixture into zucchini boats. Top with shredded mozzarella. Bake for 15–20 minutes, until zucchini boats are tender.

Serves 4-6



Have a delicious dish you love to make every autumn?

Send your favorite fall recipe to us at info@nutechseed.com and we may feature it in our next issue!

Summer corn salad

A simple and delicious side for any summer dinner.



1.5 cups cherry tomatoes, halved or quartered

5-6 ears of corn, slightly cooked, shucked and cut off the cob

2 avocados, peeled, pitted and sliced 1/2 red onion (medium), thinly sliced 1/4 cup cilantro, chopped

3 T extra virgin olive oil

Juice from 2 limes

2 garlic cloves, pressed or finely minced 1 tsp sea salt or 3/4 tsp table salt

1/8 tsp black pepper

In a large salad bowl, combine sliced tomatoes, corn kernels, sliced avocado, thinly sliced red onion, 1/4 cup chopped cilantro.

For the dressing, combine olive oil, lime juice, pressed or minced garlic and salt and pepper. Drizzle the salad with the dressing and toss gently just until combined and serve.

Optional: serve with tortilla chips.

SEASONAL COCKTAIL



NuKitts Tango

This little refresher was dreamed up by some attendees at our NuTech getaway on St. Kitts and won the mixology contest. Make it at home for a taste of the islands.

1 oz light rum 1 oz dark rum 6 oz guava nectar 1 drop vanilla extract Splash of bitters Splash of water Shake and serve over crushed ice







The key to unlocking yield potential

Qrome® products bring together the most advanced technology for above- and belowground insect protection with top-performing germplasm, using proprietary triple-stack genetic technology. The result? Corn hybrids with exceptional agronomics and defense against key pests, including corn rootworm, to maximize onfarm performance.

In trials across regions and growing conditions, Qrome products have been shown to improve yield as much as 7 bu/A over legacy triple-stack technology.¹

Pests Controlled







n corn borer Southwestern corn

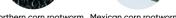






rm Corn earworm





OM

Mode of Action

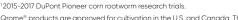
AgrisureRW











Qrome® products are approved for cultivation in the U.S. and Canada. They have also received approval in a number of importing countries, most recently China. For additional information about the status of regulatory authorizations, visit http://www.biotardestatus.com/



Agrisure* is a registered trademark of, and used under license from, a Syngenta Group Company. Agrisure* technology incorporated into these seeds is commercialized under a license from Syngenta Crop Protection AG. Herculex* XTRA insect protection technology by Dow AgroSciences and Pioneer Hi-Bred. Herculex* and the HX logo are registered trademarks of Dow AgroSciences LLC. YieldGard*, the YieldGard Corn Borer design and Roundup Ready* are registered trademarks used under license from Monsanto Company.

The Right Seed for Your Field

Look for our product categories to make sure you're getting the most out of your fields

High-yield fields

Rich, productive soils

Field focus: Plant early, harvest timely and reap the benefits of fungicide application

Primary strength seed brands:

196, 57B3, 601, 63C4, 64D1, 65H2, 308, 8808, 68B3, 69A6, 9909, 71C1, 2213, 6313, 74J1, 7215, 75Y1, 75G1, 78A1



Corn-on-corn fields

Continuous corn environments

Field focus: Emphasis on stalk and root strength

Primary strength seed brands:

196, 56A7, 57B3, 601, 63C4, 504, 64D1, 65H2, 66B6, 308, 68B3, 69A6, 70B2, 811, 2213, 6313, 2770, 74J1, 7215, 75D2, 75G1, 78A1



Heat/drought-stressed fields

Low organic matter soils at risk of moisture stress

Field focus: Built-in stress tolerance to handle periods of heat and low rainfall

Primary strength seed brands:

196, 56A7, 601, 63C4, 504, 64D1, 66B6, 308, 8808, 68B3, 9909, 70B2, 1111, 71C1, 811, 2213, 6313, 2770, 74J1, 7215, 75D2, 75G1



Poorly drained fields

Fields with wet feet problems

Field focus: Exceptional plant health coupled with a solid agronomic package

Primary strength seed brands:

196, 57B3, 601, 63C4, 504, 64D1, 65H2, 66B6, 308, 8808, 68B3, 69A6, 9909, 1111, 2213, 6313, 2770, 7215, 75Y1, 78A1



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PRODUCT IDENTIFICATION



Q: Available through the G2 Genetics brand, Qrome® products feature dual modes of action to defend against above- and below-ground pests. Qrome products include a unique molecular stack of the proven *Bt* proteins from the Herculex® I and Herculex® RW traits and allow for a 5% refuge product. The refuge hybrid component is treated with a high rate of seed-applied insecticide and is blended in the bag with the *Bt* hybrid component stack to create a fully integrated refuge for both above- and below-ground pests. The non-blended version would be denoted as CYFR.



RASS/SSR: SmartStax® trait technology uses multiple modes of action for control of aboveand below-ground insects to cover a broad spectrum of insect threats and defend your yield. Conveniently packaged as a single-bag solution with no separate structured refuge required for planting in the Corn Belt.





SXE/SE: SmartStax® trait technology uses multiple modes of action for control of aboveand below-ground insects to cover a broad spectrum of insect threats and defend your yield. The Enlist™ corn trait adds advanced herbicide-tolerant technology, with tolerances to 2,4-D choline, glyphosate and FOP herbicides such as quizalofop.



SX/SS: SmartStax® trait technology uses multiple modes of action for control of above- and below-ground insects to cover a broad spectrum of insect threats and defend your yield.



AMXT**: Available through the G2® Genetics brand, with proven above- and belowground insect control that allows growers to simplify and reduce refuge in one bag. Two different modes of action against corn borers (MON810 & TC1507) pyramided with two different modes of action against corn rootworm (MIR604 & DAS59122-7) allow for a 5% refuge product. The refuge hybrid component is treated with a high rate of seed-applied insecticide and is blended in the bag with the *Bt* hybrid component stack to create a fully integrated refuge for both above- and below-ground pests. The non-blended version would be denoted as CYXR.



<u>AMX**</u>: Available through the G2® Genetics brand, above- and below-ground insect control solution which allows Corn Belt growers to simplify and reduce refuge in one bag. Two different modes of action against corn borers: YieldGard® Corn Borer (MON810) pyramided with Herculex® XTRA traits (TC1507 & DAS59122-7) allow for a 10% refuge product. The refuge hybrid component is treated with a high rate of seed-applied insecticide and is blended in the bag with the *Bt* hybrid component stack to create a fully integrated refuge for both above- and below-ground pests.



PCR/PWRA: PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure, conveniently packaged as a single-bag solution with no separate structured refuge required for planting in the Corn Belt.





PWE/PE: PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure. The Enlist™ corn trait adds advanced herbicidetolerant technology, with tolerances to 2,4-D choline, glyphosate and FOP herbicides such as quizalofop.



<u>PW</u>: PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure.



<u>AML**</u>: Available through the G2® Genetics brand, the new pyramid of traits for superior control of above-ground pests which allows Corn Belt growers to simplify and reduce refuge in one bag. Three different modes of action against corn borers (MON810, TC1507 and MIR162) allow for a reduced refuge of only 5%. The refuge hybrid is blended in the bag with the *Bt* hybrid component to create an integrated refuge for above-ground pests. The non-blended version would be denoted as VYHR.



 ΔM^{**} : Available through the G2® Genetics brand, the above-ground insect control solution which allows Corn Belt growers to simplify and reduce refuge in one bag. Two different modes of action against corn borers (MON810 & TC1507) allow for a reduced refuge of only 5%. The refuge hybrid is blended in the bag with the Bt hybrid component to create an integrated refuge for above-ground pests. The non-blended version would be denoted as YHR.



GT3: The Agrisure® 3000GT trait stack offers better control of corn borer and corn rootworm, as well as herbicide flexibility with both glyphosate and glufosinate tolerance.

2020 SEED GUIDE

^{**} In EPA-designated cotton counties, 20% separate corn borer refuge is required

First Character:

Denotes the presence or absence of a transgenic herbicide tolerance event.

- 0 Conventional
 - (Absence of any transgenic event)
- 3 Glyphosate Tolerant (NK603 or GA21 event)
- 5 Glyphosate Tolerant/LibertyLink®

(NK603 or GA21/Bt11, T-25 or TC1507 event stack)

5FB-8808AM™*

Second and/or Third Character(s):

Denotes the presence or absence of a transgenic insect resistance event.

Absence

(No transgenic insect resistance event)

(DP4114/MON810/MIR604 event stack plus 5% blend of similar hybrid that serves as refuge component)

D/DB Optimum® AcreMax® Xtra

(MON810/TC1507/DAS59122-7 event stack plus 10% blend of similar hybrid that serves as refuge component)

Optimum® AcreMax®

(MON810/TC1507 event stack plus 5% blend of similar hybrid that serves as refuge component)

Optimum® AcreMax® XTreme

. (MIR604/MON810/TC1507/DAS59122-7 event stack plus 5% blend of similar hybrid that serves as refuge component)

Agrisure® 3000GT

(MIR604/Bt11 event stack)

Optimum® AcreMax® Leptra®

(TC1507/MON810/MIR162 event stack plus 5% blend of similar hybrid that serves as refuge component)

Optimum® Intrasect® Xtra

(MON810/TC1507/DAS59122-7 event stack without refuge component blend)

Optimum® Intrasect®

(MON810/TC1507 event stack without refuge component blend)

(TC1507/MON810/MIR162 event stack without refuge component blend)

Last Four Characters:

Denote a specific hybrid family or series (i.e., 2213™*). Hybrid family or series may be available in several different technology versions.

Last Two Characters:

Denote relative maturity. "10" indicates a relative maturity of 110 days, while a "97" would indicate 97 days.

Suffix:

The suffix behind the hybrid name may be required by some technology providers and summarizes the information described by the first 2 characters of the product name.

\mathbf{G}^{2}

*G2® brand seed is distributed by NuTech Seed®, LLC. ®G2 is a registered trademark of Pioneer.

Base Variety Trait Suffix 69A6Q[™]

Relative Maturity:

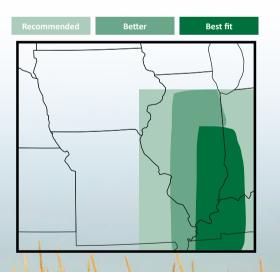
Add 40 to this number to aet RM davs. Ex: 73 = 113 RM

Random Code:

One random letter followed by one random number.

Area of Adaptation Maps:

Consult with a NuTech Seed® representative for planting outside of AOA recommendation. NuTech AOA maps provide a guide for corn product placement based upon a recommended area, an area of better fit and an area defined as **best fit** for optimized performance potential. These recommendations are based on multi-year research testing, disease ratings and overall agronomic fit.



Trait Code:

Qrome®

RASS/SSR SmartStax® Refuge Advanced®

SmartStax® Enlist™ SXE/SE

SX/SS SmartStax®

AMXT Optimum® AcreMax® XTreme

Optimum® AcreMax® Xtra

PCR/PWRA PowerCore® Refuge Advanced®

PWE/PE PowerCore® Enlist™

PowerCore®

Optimum® AcreMax® Leptra® AML

Optimum® AcreMax®

GT3 Agrisure® 3000GT

Agrisure® GT

Roundup Ready® Corn 2

Conventional

CYXR Optimum® Intrasect® Xtreme

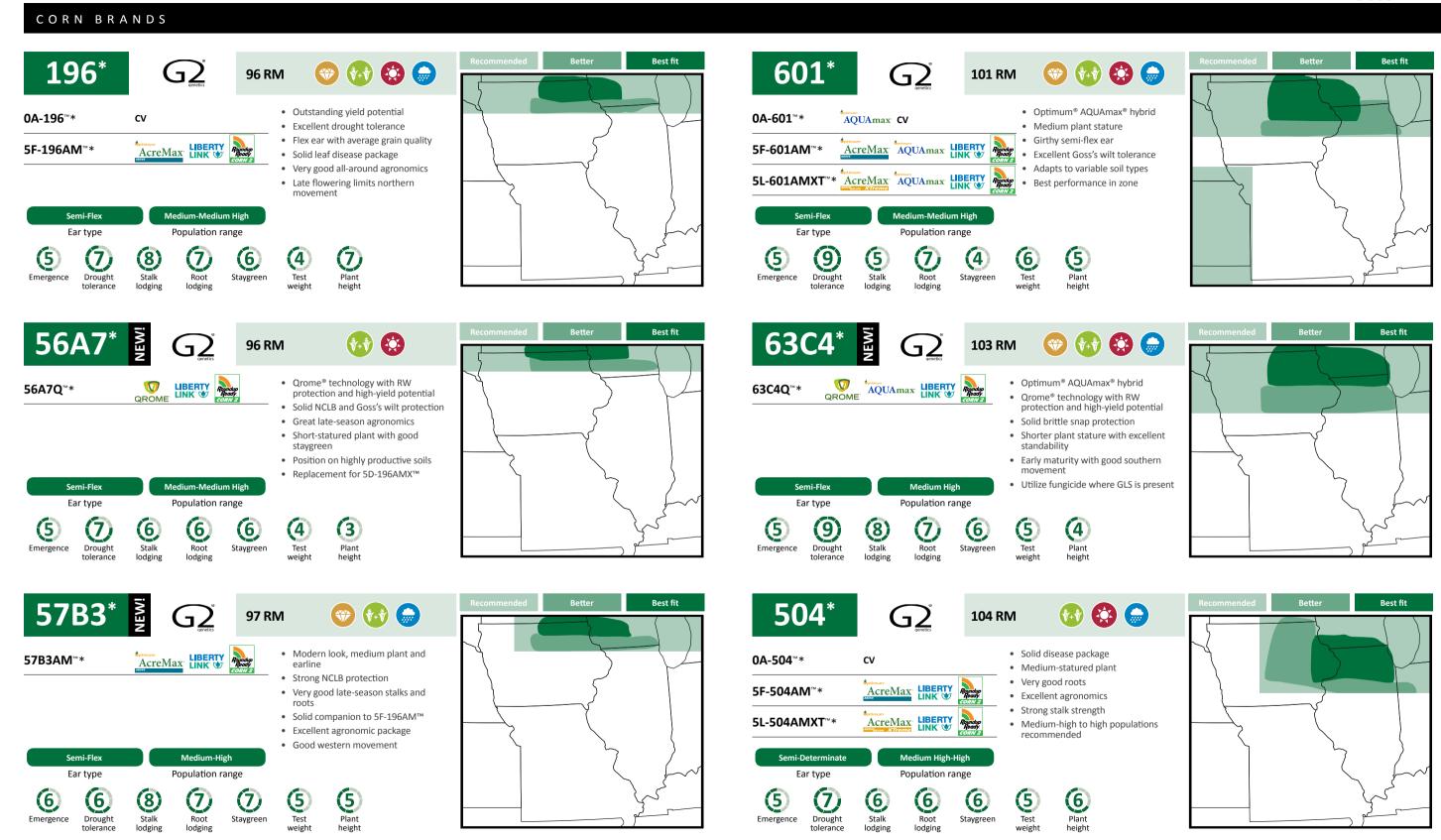
Optimum® Intrasect®

Optimum® Leptra®

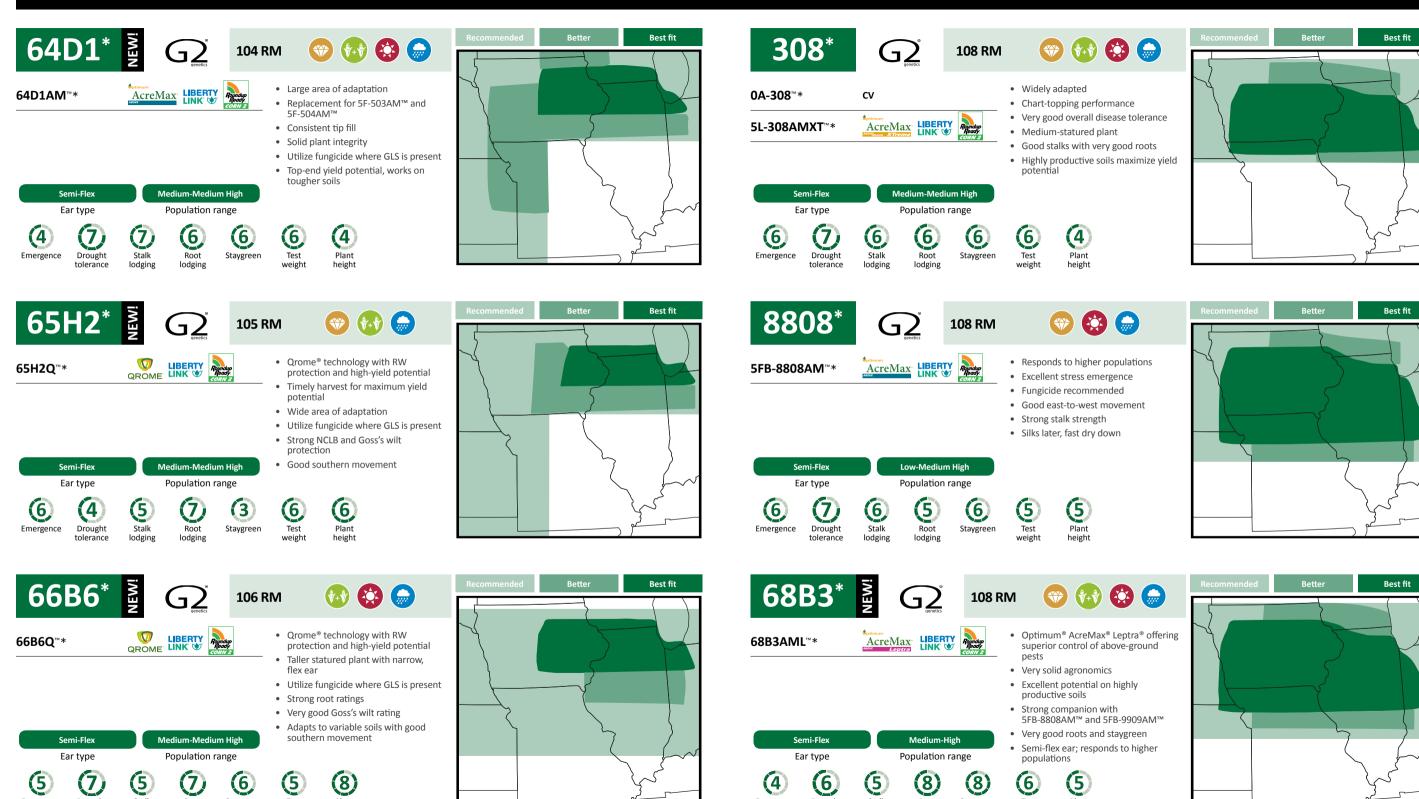
Note: All existing products will continue using the existing product name.







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Emergence

Drought

Stalk

lodging

Root

lodging

Staygreen

Test

weight

Plant

height

Drought

Stalk

lodging

Root

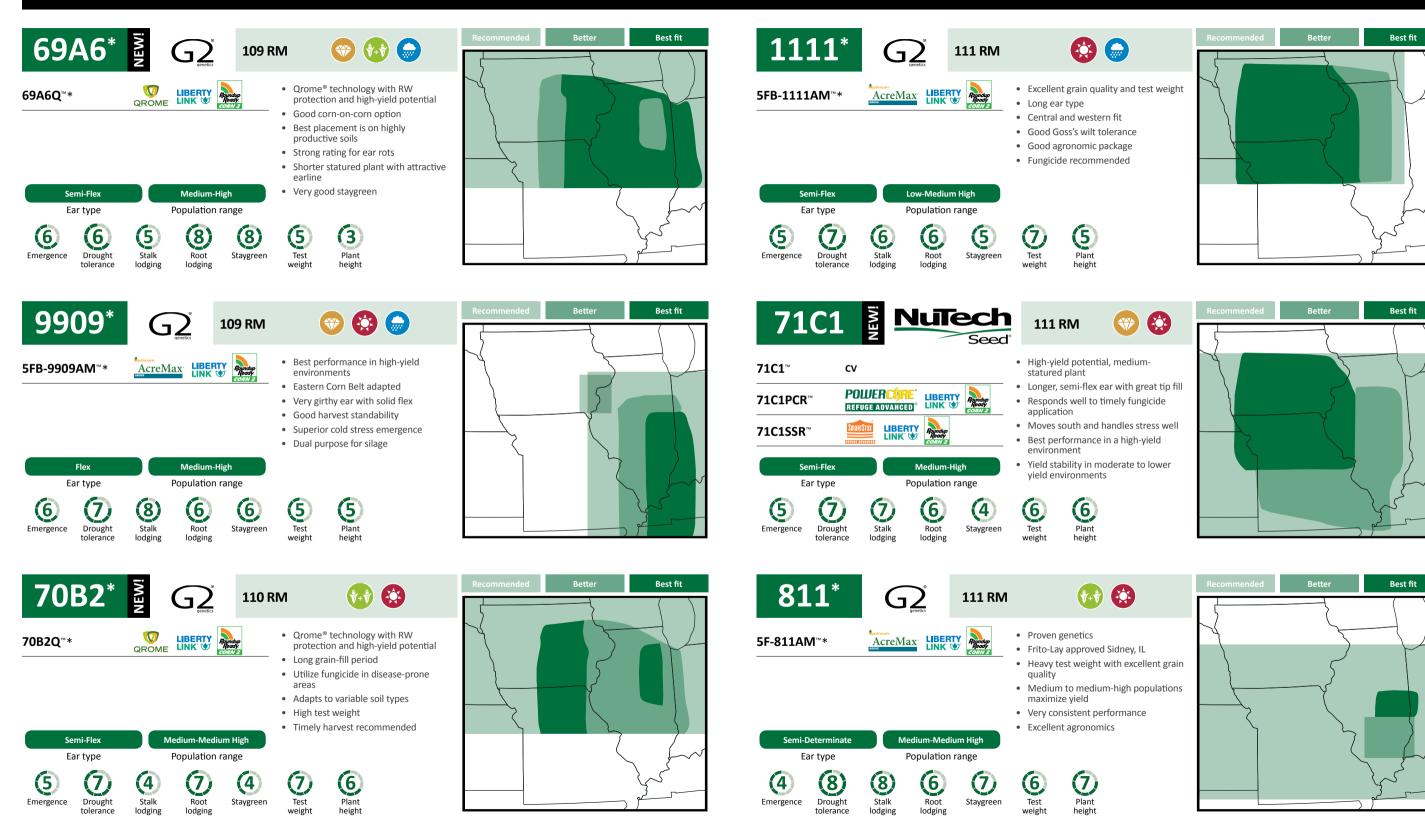
lodging

Staygreen

Plant

height

Emergence



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CORN BRANDS



• Strong performance across various

environments

(5

weight

Medium-High

Population range

(6)

Staygreen

(5)

Root

lodging

Flex

Ear type

(6)

Drought

(4)

Stalk

lodging

(6)

Emergence

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Semi-Flex

Ear type

Drought

tolerance

Stalk

lodging

(6)

Emergence

· Strong late-season plant health and

· Yield and stability in one package

Widely adapted, versatile hybrid

(4)

Plant

height

agronomics

Medium-High

Population range

Root

lodging

(6)

Staygreen

Best fit

Best fit

CORN BRANDS



75D2AM™*















- Wide area of adaptation
- Planned replacement for 2770RASS™
- Solid roots and stalks
- Versatile product with solid yield potential
- Limited launch in 2020























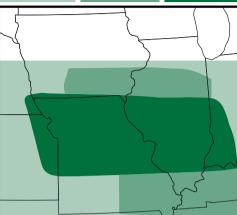
(6)

Medium-High Population range









75G1*

75G1AM™*

75G1Q™*









Medium-High

(6)

Root

lodging









- highly productive soils · Good grain quality and test weight
- · Good northern movement
- Lead product for southern NuTech marketing area
- Big flex ear with dependable stalk
- Population range













78A1AM™*

Semi-Flex

Ear type

Drought

tolerance



Stalk

lodging









Staygreen



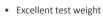












- · Good overall plant health
- · Flex-ear type with good girth
- High-yield potential
- · Strong stalks and roots
- · Taller statured plant

Semi-Flex

Ear type



















Low-Medium

Population range

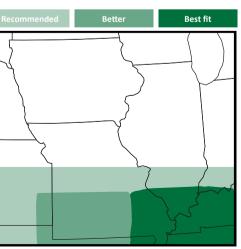


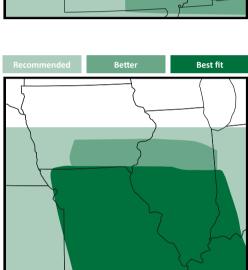


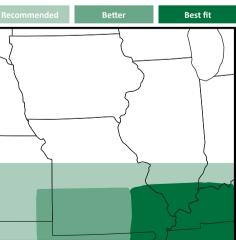












Lumigen

BEST-IN-CLASS SEED APPLIED TECHNOLOGIES FOR CORN

The unique LumiGEN™ system brings together a customizable and integrated combination of best-in-class seed applied technologies, genetics and trait packages and leading digital agriculture technologies to place the right product on every acre to meet each customer's needs.

FUNGICIDE SEED TREATMENT

Ingredients

Maxim® Ouattro

Pythium, Rhizoctonia, Fusarium

Lumiante[™] fungicide seed treatment Pythium

Lumiflex™ fungicide seed treatment

Rhizoctonia, Fusarium, Head smut

Differential yield advantages

Lumiante[™] fungicide +2.9 bu/A

50 replicated research locations 2013-2015 Standard FST/IST with Lumiante vs. without.

Lumiflex™ fungicide +3.0 bu/A

212 replicated research locations 2018 Standard FST/IST with

BIOLOGICAL

Ingredients

L-2012 R

L-2013 P

Exclusive to Corteva Agriscience™ seed brands

Differential yield advantages

L-2012 R +1.9 bu/A

29 replicated research locations 2017 Standard FST/IST with L-2012 R vs. without

INSECTICIDE AND INSECTICIDE/NEMATICIDE **SEED TREATMENT**

Ingredients

PONCHO® 500 + VOTiVO®

- Soil insect pests
- Corn nematodes

PONCHO® 1250 + VOTiVO®

- · Soil insect pests including corn rootworm
- Corn nematodes

Differential yield advantages

PONCHO® 1250 + VOTiVO® +2.4 bu/A

119 replicated research locations 2016-2017 Standard FST with Poncho 1250 + VOTiVO vs. standard FST/IST.

CORN CHARACTERISTICS

	Family	Product Version	Maturity Central Corn Belt (RM)	Category	Population Range	Response to Fungicide	Stalk Lodging	Root Lodging	Emergence	Drought Tolerance	Greensnap Stavgreen	Test Weight	Plant Height	Ear Height	Ear Type	Kernel Rows	Cob Color	Gray Leaf Spot	Northern Corn Leaf Blight	Southern Corn Leaf Blight	Goss's Wilt	Diplodia Ear Rot	Southern Rust	GDUs to Silk	GDUs to Black Layer	Silage Yield	Starch	Crude Protein	Digestibility	Whole Plant Digestibility	Com-on-Com	No-Till	Timber Soil	Poorly Drained	_	Early Planting Date	Late Planting Date	Delayed Harvest	Family
	196	CV/AM	96	₩ 🐼 😂	M-MH	R	8	7	5	7	5 6	4	7	7	SF	16-18	R	5	5	NA	6	NA	NA	1220	2350	8	7	6	7	5	R	R	R	R	R	R	HR	NR	196
NEW	56A7	Q	96	₩ 🍪	M-MH	R	6	6	5	7	5 6	4	3	4	SF	14-16	Р	5	5	NA	6	NA	NA	1210	2350	6	7	7	8	7	R	R	NR	R	NR	R	R	R	56A7
NEW	57B3	AM	97	₩ 🖨	М-Н	R	8	7	6	6	5 7	5	5	4	SF	14-16	R	5	6	NA	6	NA	NA	1200	2350	7	8	9	NA	7	R	HR	NR	R	NR	R	R	R	57B3
	601	CV/AM/AMXT	101	◎ ◎ ◎	M-MH	R	5	7	5	9	5 4	6	5	5	SF	16-18	Р	5	5	NA	7	4	NA	1280	2470	9	8	5	8	8	R	R	HR	R	HR	R	R	NR	601
NEW	63C4	Q	103	◎ 🚳 🍪 🕞	М-Н	HR	8	7	5	9	6	5	4	4	SF	16-18	R	4	6	4	6	5	NA	1250	2550	7	9	8	8	9	HR	R	HR	R	HR	R	R	R	63C4
	504	CV/AM/AMXT	104	€ 😂	МН-Н	NR	6	6	5	7	1 6	5	6	6	SD	16-18	R	5	5	4	6	6	4	1320	2500	6	7	7	7	7	R	R	R	R	R	R	HR	R	504
NEW	64D1	AM	104	→ ♦ ♦ ♦	M-MH	R	7	6	4	7	7 6	6	4	5	SF	16-18	Р	4	5	NA	7	5	NA	1260	2530	8	NΑ	NA	8	NA	R	R	R	R	R	NR	R	R	64D1
NEW	65H2	Q	105	₩ 🕞	M-MH	HR	5	7	6	4	5 3	6	6	6	SF	18-20	R	4	6	NA	7	6	NA	1250	2420	7	9	7	NA	9	R	HR	R	R	NR	R	R	NR	65H2
NEW	66B6	Q	106	₩ 😂 🕣	М-МН	R	5	7	5	7	6	5	8	6	SF	14-16	Р	4	6	3	7	5	4	1340	2530	9	7	5	NA	7	R	R	R	R	R	R	R	R	66B6
	308	CV/AMXT	108		M-MH	HR	6	6	6	7	7 6	6	4	5	SF	18-20	W	4	5	5	6	6	4	1340	2600	8	8	9	6	8	R	R	R	HR	NR	R	R	R	308
	8808	AM	108	◎ 🚱 🕣	L-MH	HR	6	5	6	7	5 6	5	5	7	SF	16-18	R	4	5	4	5	6	3	1380	2680	8	7	7	7	7	NR	HR	R	R	R	HR	R	R	8808
NEW	68B3	AML	108		M-H	R	5	8	4	6	7 8	6	5	4	SF	16-18	R	5	6	4	7	5	4	1370	2630	7	7	9	8	8	R	R	R	R	R	NR	R	R	68B3
NEW	69A6	Q	109	₩ 💮	М-Н	HR	5	8	6	6	5 8	5	3	5	SF	12-14	Р	5	5	4	5	6	4	1370	2730	8	7	7	NA	7	R	HR	NR	HR	NR	R	R	HR	69A6
	9909	AM	109	₩ 😂	M-H	R	8	6	6	7	6	5	5	6	F	18-20	R	5	5	6	5	6	4	1430	2700	8	7	7	7	7	R	HR	R	R	R	HR	R	R	9909
NEW	70B2	Q	110	€ 💮	M-MH	HR	4	7	5	7	5 4	7	6	6	SF	16-18	R	5	5	3	5	5	5	1340	2550	8	8	9	NA	8	R	R	R	R	R	R	R	NR	70B2
	1111	AM	111	◎ ◎	L-MH	HR	6	6	5	7	5 5	7	5	4	SF	14-16	Р	4	5	3	6	5	3	1400	2700	8	7	8	9	9	NR	R	R	R	R	R	HR	R	1111
NEW	71C1	CV/PCR/SSR	111	₩ 😂	М-Н	HR	7	6	5	7	5 4	6	6	6	SF	14-16	R	3	6	3	5	4	4	1440	2700	8	8	8	7	8	R	HR	R	R	R	HR	R	R	71C1
	811	AM	111	₩ 🍪	M-MH	R	8	6	4	8	5 7	6	7	5	SD	16-18	Р	5	5	4	6	5	NA	1370	2600	8	9	6	6	7	R	R	HR	R	R	R	NR	HR	811
NEW	2213	CV/AM/Q	113	◎ 🐼 ॐ 💮	M-H	R	5	6	6	6	5 8	7	4	5	SF	16-18	R	5	5	4	4	6	4	1360	2810	8	8	9	8	8	R	R	R	R	R	R	R	R	2213
NEW	6313	AM	113		L-M	R	8	5	5	7	5 8	5	7	5	F	18-20	Р	5	6	5	7	6	2	1420	2730	7	7	8	8	8	HR	R	R	R	NR	R	R	HR	6313
	2770	RASS	114	₩ 😂 🕣	М-Н	R	5	7	6	7	6	5	4	6	SF	16-18	Р	7	6	6	3	NA	6	1420	2730	NA	AV	NA	NA	NA	HR	HR	HR	HR	HR	HR	R	HR	2770
NEW	74J1	AML	114	₩ 🐼	L-MH	HR	3	7	4	8	5 6	6	4	5	SF	16-18	W	4	6	4	7	6	3	1390	2830	7	8	8	9	8	R	R	R	R	R	R	R	NR	74J1
	7215	AM	115	◎ 🚱 😂	М-Н	R	8	7	6	7	1 8	6	6	8	SF	16-18	Р	5	5	5	6	6	3	1430	2810	9	8	7	8	8	R	R	R	R	R	R	R	HR	7215
	75Y1	PWRA	115	₩ 🖨	M-H	NR	4	5	6	6	6	5	7	8	F	16-20	R	4	6	3	5	4	5	1420	2780	8	8	8	6	8	NR	HR	NR	R	NR	HR	NR	NR	75Y1
NEW	75D2	AM	115	₩ 😂	М-Н	HR	6	6	5	9	7 6	5	5	5	SF	16-18	R	5	5	5	7	4	4	1380	2630	7	8	6	9	9	R	R	HR	R	HR	R	R	R	75D2
NEW	75G1	AM/Q	115	◎ 6 3	M-H	R	6	6	5	7	5 7	6	7	7	SF	16-18	R	5	4	4	4	5	4	1370	2630	9	7	9	7	7	R	R	R	NR	R	R	NR	R	75G1
NEW	78A1	AM	118	₩ 🔂	L-M	NR	7	6	5	6	6 6	7	7	7	SF	16-18	R	5	4	5	7	5	5	1400	2630	9	NΑ	8	7	8	R	R	NR	R	NR	HR	NR	R	78A1
Produ	ct Version	<u> </u>		DCD/DWDA = Do		5.6		PI	ant &	ar Heigh	<u>t</u>		Ear Ty	<u>rpe</u>				See pa	ige 63 f	or refug	ge requ	iiremei	nts.																

Product Versions

AM = Optimum® AcreMax® AML = Optimum® AcreMax® Leptra®

AMXT = Optimum® AcreMax® XTreme CV = Conventional

Q = Qrome® RASS/SSR = SmartStax® Refuge Advanced®

PCR/PWRA = Powercore® Refuge Advanced®

Plant & Ear Height 9 = Very tall plant type 1 = Very short plant type

SF = Semi-Flex **SD** = Semi-Determinate 9 = Very high ear placement **D** = Determinate 1 = Very low ear placement

F = Flex

All hybrids are treated with a fungicide seed treatment and a base rate of a seed-applied insecticide, including either LumiGEN™ technologies, Poncho® or CruiserMaxx®. Products may be available with the high rate (1250 rate) seed-applied insecticide as well. Consult package labels for complete treatment details.

Characteristic scores provide key information useful in selecting and managing products in your area. Information and scores are assigned by NuTech Seed® and are based on period-of-years testing through 2018 harvest and were the latest available at time of printing. Some scores may change after 2019 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions and a wide range of both climate and soil types, and may not predict future results. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product

Cob Color

 $\mathbf{R} = \text{Red} \quad \mathbf{P} = \text{Pink} \quad \mathbf{W} = \text{White}$

9 = Best 1 = Worst NA = Not available HR = Highly Recommended R= Recommended NR = Not Recommended

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4-Digit Number

2 Liberty

3 Liberty/SCN 7 Xtend

LibertyLink® or Roundup Ready 2 Xtend® technology

X = Roundup Ready 2 Xtend® technology

L = LibertyLink®

Brand 3386L™ Trait Code: First Digit: 2nd-3rd Digits Technology

Last Digit

Used to differentiate one pure-line from another within the same maturity group

Relative Maturity

Roundup Ready 2 Xtend® technology

LibertyLink®

LS LibertyLink/DuPont™ STS®

30N03E™

Relative Maturity:

Add a period between the numbers for relative maturity.

Example: 38 = 3.8 relative maturity

Note: All existing products will continue using the existing product name.

Soybean Diseases Key

BSR	Brown Stem Rot	IDC	Iron Deficiency Chlorosis	PRR	Phytophthora Root Rot	
SCN	Soybean Cyst Nematode	SDS	Sudden Death Syndrome			

Random Code

Two random numbers

Trait Code:

- E Enlist E3™ soybeans
- X Roundup Ready 2 Xtend® technology
- L LibertyLink®
- LS LibertyLink/DuPont™ STS®
- **CV** Conventional



SOYBEAN BRANDS

• Very good emergence and SDS tolerance

• Manage populations in high-yield environments

• Manage in areas where white mold is a concern





· Solid PRR field tolerance

Metribuzin tolerant

· Outstanding shatter resistance



Medium Medium Plant Canopy

width

Brown

Pod

color

20N04E[™] \(\vec{3}{2} \) 2.0 RM Purple

Very good emergence and standability

Solid SDS tolerance

• Strong performance in the northern NuTech marketing area

Medium plant with medium-wide canopy

Pilot launch for 2020

Optimize performance with Enlist[™] system

Plant Canopy Flower SOYBEANS height width color Gray Tan Buff

> Pubescence color

Medium

color

Pod

Medium

Hilum color

Purple

Root Rot

Resistance

PI88788

Emergence

Harvest

Standability

Sudden Death

Syndrome

(5)

Iron Deficiency

Chlorosis

MS Brown

Stem Rot

height

Lt. Tawny

Pubescence

color

(3) White

Mold

NR

Phytophthora

Root Rot

Resistance

PI88788 Soybean Cyst Nematode

Resistance

Flower

color

Brown

Hilum

color

Emergence

(7)

Harvest Standability

Sudden Death Syndrome

Enlist E3

Iron Deficiency Chlorosis

(5)

NR Brown Stem Rot **(**4) White

NR Phytophthora

Soybean Cyst Nematode

Purple

Resistance

17N01L[™] $\frac{1}{2}$ 1.7 RM



Medium

Medium Canopy

width

Flower color

Purple

21N04E[™] 💆 2.1 RM

• Very good BSR tolerance

· Strong SDS tolerance

Emergence

• Very good SDS tolerance



Plant

Medium-Tall

height

Flower color

· Very good BSR tolerance · Solid IDC tolerance

Excellent shatter resistance

• Rps1k Phytophthora · Strong emergence and standability

· Good SDS tolerance

Lt. Tawny Pubescence

color

Plant

height

Brown Pod color

Hilum color

Black

Pilot launch for 2020

Optimize performance with Enlist[™] system

Very good emergence and standability

Medium-tall plant with medium canopy

Gray Pubescence

color

Pod color

Medium

Canopy

width

Tan

Hilum color

Imp. Black

PI88788

Emergence

Harvest Standability

Sudden Death Syndrome

(5) Iron Deficiency

Chlorosis

NR Brown

Stem Rot

(4) White

Mold

Rps1k Phytophthora

Root Rot

Resistance

Soybean Cyst Nematode Resistance

PI88788

21N05E[™] \(\frac{1}{2} \) 2.1 RM

Medium-tall plant with medium-full canopy

Harvest

Standability

Sudden Death

Syndrome

(4) Iron Deficiency Chlorosis

Enlist E3

HT NR Brown White

Mold

Phytophthora

NR

Root Rot

Resistance

Soybean Cyst Nematode Resistance

20N03E[™] | 3

· Rps1c and 3a genes for PRR

· Excellent emergence and standability · Solid SDS and IDC tolerance

• Optimize performance with Enlist™ system





Medium Plant

Medium-Full Canopy

width

Flower color

White

Gray

Pubescence

color

height

Brown Pod color

Hilum color

Buff

· Very good emergence and standability • High-yield potential when used with Lumisena™ fungicide

Optimize performance with Enlist[™] system

Medium-Tall

Plant

height

Stem Rot

Medium Canopy width

Flower color

Purple

Gray

Pubescence

color

Tan

Pod

color

Imp. Black Hilum

color

SCN resistance



• Gray bean with medium height and medium-full canopy













Soybean Cyst

• Strong performance in the northern NuTech marketing area



(3)

NR

(3)

NR

Soybean Cyst Nematode

Emergence

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot White Mold

Phytophthora Root Rot Resistance

Nematode Resistance

PI88788

Emergence Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot White Mold

Phytophthora Root Rot Resistance

Resistance

PI88788







Sudden Death

Syndrome

2.2 RM

- Strong Phytophthora field score
- Excellent emergence and standability
- · Solid BSR, IDC and SDS tolerance
- SCN resistance
- · Medium-tall with medium canopy
- Optimize performance with Enlist™ system



Emergence



Harvest Standability



Sudden Death Syndrome

Enlist E3

Enlist E3

(4)

Iron Deficiency

Chlorosis

SOYBEANS

Iron Deficiency Chlorosis

(5)

Brown Stem Rot

HT

Medium

Plant

height

Gray

Pubescence

color

Medium-Tall

Plant

height

Gray

Pubescence

color

Medium-Tall

Plant

height

Gray

Pubescence

color

HT

Brown

Stem Rot

Medium

Canopy

width

Brown

Pod

color

Medium

Canopy

width

Tan

Pod

color

Medium

Canopy

width

Tan

Pod

color

Rps1c,3a

Phytophthora

Root Rot

Resistance

(3)

White

Mold

Purple

Flower

color

Buff

Hilum

color

PI88788

Soybean Cyst

Nematode

Resistance

White

Flower

color

Buff

Hilum

color

White Mold

NR

White

Mold

Phytophthora Root Rot Resistance

NR

Soybean Cyst Nematode Resistance

Purple

Flower

color

NR

Hilum

color

PI88788



Strong SDS and BSR tolerance

Excellent emergence and standability

Gray bean with medium height and canopy type

Optimize performance with Enlist[™] system



Medium Plant height

Flower color

White

Gray

Pubescence

Pod color

Medium

Canopy

width

Tan

Hilum color

Buff

(7) Emergence

SCN resistance

(8) Harvest

Standability

(6)

Sudden Death

Syndrome

Iron Deficiency Chlorosis

(4)

Brown

MT

Stem Rot

color

(3) White

Mold

PI88788 Rps1c

Phytophthora Soybean Cyst Root Rot Nematode Resistance Resistance



• Excellent BSR tolerance

Very good SDS tolerance

Rps1k Phytophthora gene

SCN resistance

Emergence

Medium-tall plant with medium canopy

Optimize performance with Enlist[™] system

Harvest

Standability







Canopy width

Lt. Tawny Brown

Pubescence

Pod color

Medium

Hilum color

Purple

Flower

color

Black

color

HT

Rps1k

Medium

Canopy

width

PI88788

Stem Rot

Brown

Medium-Tall

Plant

height

color

White Mold

NR

Phytophthora Root Rot Resistance

Soybean Cyst Nematode Resistance

White

Flower

color

Brown

Hilum





- Very good emergence
- Strong southern movement in the NuTech marketing area
- · Very good standability
- · Strong IDC tolerance
- Medium-tall plant with medium-wide canopy
- Optimize performance with Enlist™ system



Emergence



Standability





Syndrome







Chlorosis









NR

Soybean Cyst Nematode Resistance

PI88788

27N01CV[™] 🚆

Conventional genetics

Outstanding BSR tolerance

Excellent field emergence

Excellent BSR tolerance





CV

(4)

Iron Deficiency

Chlorosis

Lt. Tawny Brown Pubescence

Pod color

color

(8)Emergence

Rps1c gene



Harvest

Standability

• Manage populations in high-yield environments



Syndrome

Sudden Death

Syndrome



Iron Deficiency

Chlorosis

HT Brown

Stem Rot

White

Mold

Rps1c Phytophthora

Root Rot

Resistance

Soybean Cyst Nematode

PI88788

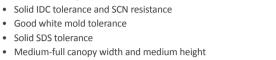
Resistance

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2020 SEED GUIDE **43**









NR Harvest

Standability

Sudden Death Syndrome

(5) Iron Deficiency

Chlorosis

Enlist E3

SOYBEANS

Brown Stem Rot

(4**)** White

Mold

Medium

Plant

height

Gray

Pubescence

color

Medium-Tall

Plant

height

Lt. Tawny

Pubescence

color

MS

Phytophthora Root Rot Resistance

NR

Medium

Canopy

width

Brown

Pod

color

Medium

Canopy

width

Brown

Pod

color

Soybean Cyst Nematode Resistance

Purple

Flower

color

Black

PI88788

Purple

Flower

color

Imp. Black

Hilum

color



Very good Frogeye tolerance

Pilot launch for 2020

(7)

Emergence

• Very good emergence and standability

Medium-tall plant with medium canopy

· Best performance on highly productive soils

Optimize performance with Enlist[™] system

Enlist E3 SOYBEANS



Medium-Tall Plant height

color

NR

Pod color

Medium

Canopy

width

NR

Medium

Canopy

width

Tan

Pod

color

Hilum color

Nematode

Resistance

Purple

Flower

color

Imp. Black

Hilum

color

NR

Flower

Pubescence color

NR

(2)

PI88788 NR

Iron Deficiency

(4)

Chlorosis

Enlist E3

Stem Rot

Brown

Medium-Tall

Plant

height

Gray

Pubescence

color

NR

Brown

Stem Rot

White Mold

Phytophthora Soybean Cyst Root Rot

Resistance

3281L[™]

2.8 RM



- · High-yield potential and broadly adapted from east to west
- Very good BSR tolerance
- Metribuzin tolerant
- · Medium-statured soybean with solid standability
- Great emergence for no-till
- Best performance within zone



Emergence

Harvest Standability

Syndrome

(6)

Sudden Death

Iron Deficiency Chlorosis

(4)

Brown Stem Rot

MT

White Mold

(3)

Phytophthora Root Rot Resistance

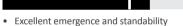
Rps1k

Hilum color

PI88788

Soybean Cyst Nematode Resistance





Harvest

Standability

- Rps1k gene with strong field tolerance
- Solid IDC and SDS tolerance
- SCN resistance
- · Medium-tall plant with medium-full canopy
- Optimize performance with Enlist[™] system



Emergence

Harvest

Standability

Sudden Death

Syndrome

Sudden Death

Syndrome

Iron Deficiency

Chlorosis

White

Mold

(3) Rps1k

Medium

Canopy

width

Tan

Phytophthora

Root Rot

Resistance

Soybean Cyst Nematode Resistance

White

Flower

Black

color

PI88788



· Strong BSR and SDS tolerance

· Excellent emergence and standability

Rps1k gene with good field tolerance

• Optimize performance with Enlist™ system



Medium Plant

height

Canopy width

Flower color

Purple

Imp. Black

Gray Pubescence

color

Pod color

Tan

Medium

color

Hilum

Optimize performance with Enlist[™] system

MS

NR

NR PI88788

> Soybean Cyst Nematode

SCN resistance

• Gray bean with medium-full canopy and medium-tall plant

(4)

HT

(4

Nematode Resistance

31N06E[™] 🚆 Very good Frogeye tolerance

Medium plant and canopy type

Solid SDS tolerance

Very good emergence

Pilot launch for 2020

Emergence



Lt. Tawny Pubescence

color

Medium

Plant

height

Pod color

Hilum color

Emergence

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot White Mold

Phytophthora Root Rot Resistance

Rps1k

Soybean Cyst

PI88788

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot

White Mold

Phytophthora Root Rot Resistance Resistance







- Manage populations in high-yield environments





Sudden Death Syndrome





Iron Deficiency Chlorosis



(3)

White

Mold

Medium-Tall

Plant

height

Lt. Tawny

Pubescence

color

NR

Brown

Stem Rot

Rps1k Phytophthora

Medium

Canopy

width

Brown

Pod

color

Soybean Cyst Root Rot Nematode Resistance Resistance

Purple

Flower

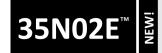
color

Brown

Hilum

color

Peking



· Very good emergence

• Good Phytophthora field tolerance

Optimize performance with Enlist[™] system

Manage Frogeye with fungicide

Strong SDS tolerance





Canopy width

Flower color

White

Lt. Tawny Brown

Pod

Medium

Black Hilum

Pubescence color

MS

Stem Rot

Medium-Tall

Plant

height

color

color

(7) Emergence

SCN resistance

(6)

Harvest

Standability

Sudden Death

Syndrome

6

(5)

Iron Deficiency Chlorosis

Brown

NR White

Mold

PI88788

NR

Phytophthora

Root Rot

Resistance

Soybean Cyst Nematode

Purple

Flower

color

Imp. Black

Resistance



• Excellent Frogeye tolerance



Medium-Tall

Plant

height

Pubescence

color

Medium

Plant

height

Gray

Pubescence

color

Canopy width

Medium

Flower color

White



Brown Pod

color

Medium-Thin

Canopy

width

Brown

Pod

color

Rps1c

Root Rot

Resistance

Buff

Hilum color



Optimize performance with Enlist[™] system

• Manage populations on highly productive soils

• Rps1c gene with solid field tolerance



Emergence

· Strong SDS rating

SCN resistance



Harvest Standability



Sudden Death



Syndrome



Chlorosis

Enlist E3

Iron Deficiency

Brown Stem Rot

MS

White Mold

NR

Phytophthora

Soybean Cyst Nematode Resistance

NR

Flower

color

Buff

Hilum

color

PI88788

Soybean Cyst

PI88788



Rps1k gene with solid field tolerance

Very good emergence and standability

Medium-tall plant height with medium canopy

Optimize performance with Enlist[™] system

• Excellent BSR tolerance





Gray Pubescence

color

Medium-Tall

Plant

height

Medium-Tall

Plant

height

Pod color

Medium

Canopy

width

Tan

Hilum color

• Pilot launch for 2020

(4)

NR

Rps1k

PI88788

Emergence

Harvest Standability

• High-yield potential with excellent emergence

• Rps1c gene with good field tolerance • Moderate tolerance to Metribuzin

· Management required in FEL scenarios

Very good stress and standability

Sudden Death Syndrome

3.5 RM

Iron Deficiency Chlorosis

Brown Stem Rot

HT

White Mold

Phytophthora Root Rot Resistance

Soybean Cyst Nematode Resistance

White

Flower

color

Buff

Hilum





• Utilize fungicide for Frogeye control

- SCN resistance
- Excellent standability Solid SDS tolerance
- Optimize performance with Enlist™ system



Emergence



Standability















NR



NR



NR

Phytophthora Root Rot Resistance

Rps1c

Nematode Resistance 7352X





Gray Brown Pubescence color

Pod color

Medium

Canopy

width

color

Emergence

Medium-tall plant





Chlorosis

(4)

Iron Deficiency

HT Brown Stem Rot

White Mold

Phytophthora Root Rot Resistance

Rps1c

Nematode Resistance

PI88788

Soybean Cyst



White

Flower

color

Black

Hilum

color

R

Soybean Cyst

Nematode

Resistance

Purple

Flower

color

Imp. Black

Hilum

color

PI88788

Soybean Cyst

Nematode

Resistance

White

Flower

color

Black

Hilum

color

Rps1c

Rps1c

Phytophthora

Root Rot

Resistance

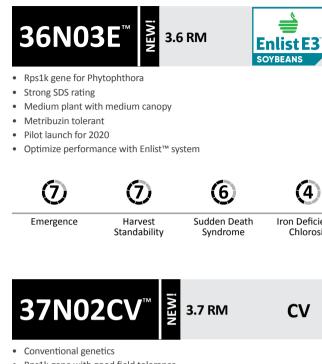
White

Mold

Brown

Stem Rot







Medium

Plant

height

Medium

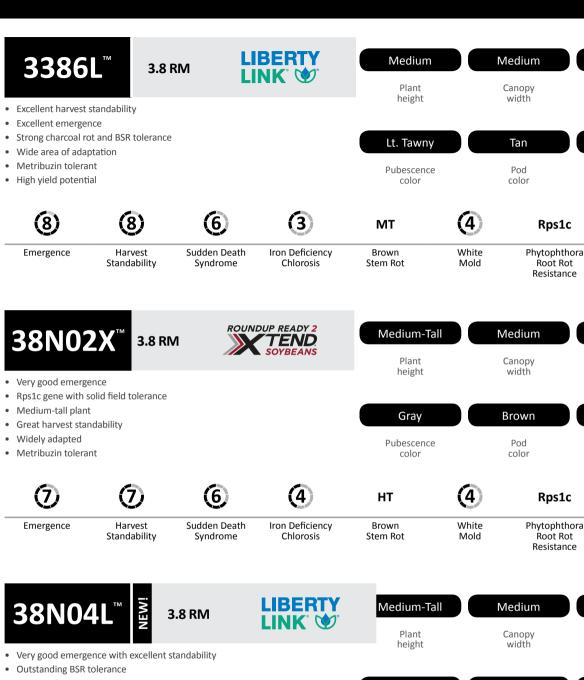
Canopy

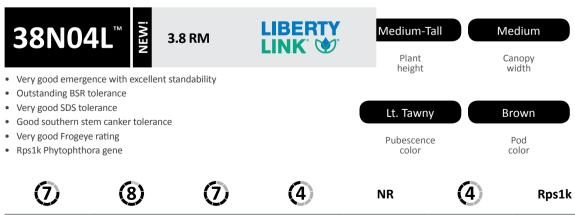
width

White

Flower

color





Iron Deficiency

Chlorosis

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Emergence

Harvest

Standability

Sudden Death

Syndrome

PI88788

Soybean Cyst

Nematode

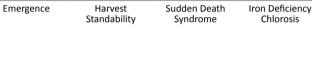
Resistance







3.9 RM





Enlist E3

SOYBEANS

• Excellent stem canker protection

39N03X[™] 3.9 RM

- · Position on well-drained soils
- · Solid standability
- Best performance when used with Lumisena™ fungicide
- Excellent shatter rating
- Very good chloride sensitivity score



Emergence Harvest Standability

Standability



Sudden Death Syndrome

Syndrome



(5) Iron Deficiency Chlorosis

Enlist E3

Chlorosis

Medium

Plant

height

Gray

Pubescence

color

Medium-Tall

Plant

height

NR

Brown

Stem Rot

Medium

Canopy

width

Tan

Pod

color

Medium-Full

Canopy

width

Rps1a

Phytophthora

Root Rot

Resistance

NR

White

Mold

PI88788 Soybean Cyst Nematode Resistance

Nematode

Resistance

White

Flower

color

Buff

Hilum

color

PI88788

Soybean Cyst

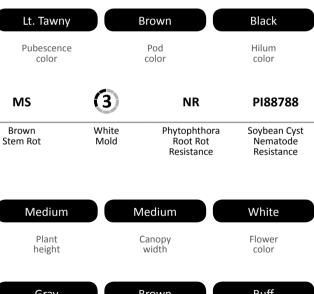
Nematode

Resistance

White

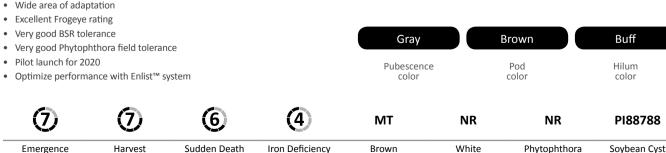
Flower

color



Root Rot

Resistance



Stem Rot

Mold



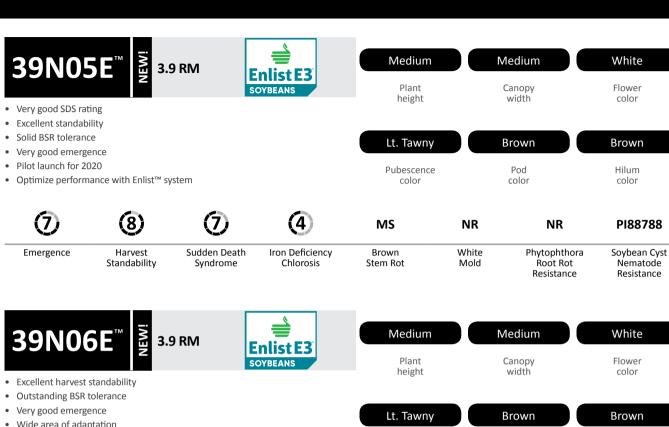
Emergence

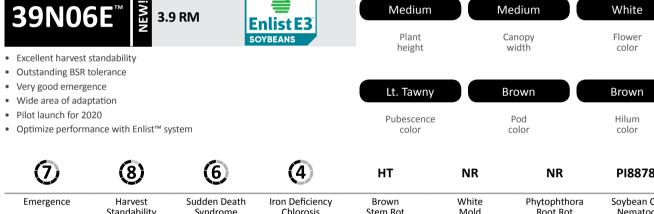
Harvest

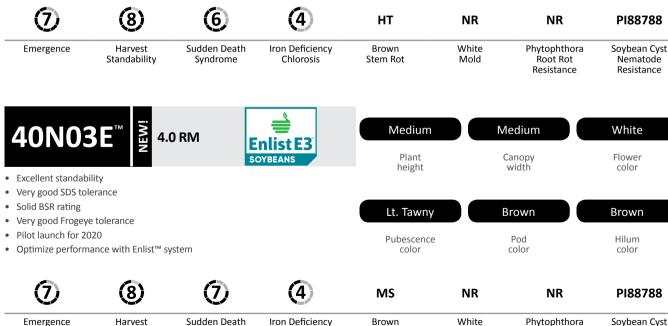
Standability

Sudden Death

Syndrome







Brown

Stem Rot

White

Mold

Iron Deficiency

Chlorosis

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Emergence

Pilot launch for 2020

Root Rot

Resistance

Soybean Cyst

Nematode

Resistance







(3)

Plant Canopy height width

NR

Medium

Pod

color

Medium-Full

Canopy

width

Brown

Pod

color

Flower color

White

Buff Brown

Pubescence color

Medium

Gray

Medium

Plant

height

Gray

Pubescence

color

NR

Hilum color

PI88788

White

Flower

color

Buff

Hilum

color

PI88788

• Rps1k Phytophthora gene Great stem canker score • Outstanding Frogeye tolerance

• Manage populations in high-yield environments

43N02X[™] 💆 4.3 RM

Medium-tall plant, works on rolling soils

• Exceptional tolerance on high-salt soils

(3)

MS

Medium-Tall

Plant

height

Lt. Tawny

Pubescence

color

Medium

Plant

height

Lt. Tawny

Pubescence

color

Medium

Plant

height

Pubescence

color

Rps1k

Root Rot

Resistance

PI88788

Purple

Flower

color

Black

Hilum

color

Nematode

Resistance

Purple

Flower

color

Black

Hilum

color

Emergence

Harvest Standability

• SCN resistance with excellent BSR and SDS tolerance

· Gray with medium canopy and height

Optimize performance with Enlist[™] system

Sudden Death Iron Deficiency Syndrome Chlorosis

HT Brown Stem Rot

White Mold

Phytophthora Soybean Cyst Root Rot Nematode Resistance Resistance

Emergence

(6)Harvest

Standability

Sudden Death

Syndrome

Iron Deficiency Chlorosis

Enlist E3

ROUNDUP READY 2

YTEND

Brown Stem Rot

White Mold

NR

Medium

Canopy

width

Brown

Pod

color

Medium

Canopy

width

Brown

Pod

color

Phytophthora Soybean Cyst

7410X[™]

4.1 RM



 Outstanding SCN protection · Bushy plant type, manage populations in high-yield

Handles early planting with excellent emergence

• Rps1k gene for Phytophthora with strong field tolerance

• Utilize a fungicide to manage Frogeye

· Moderate tolerance to Metribuzin



Emergence

Harvest Standability

Sudden Death Syndrome

Iron Deficiency

Chlorosis

MS Brown Stem Rot

(4) White

Mold

Rps1k Phytophthora Root Rot

Resistance

Soybean Cyst Nematode Resistance

• Very good emergence and standability Solid SDS rating

Emergence

Medium plant height and canopy type

Best performance on highly productive soils

Best performance when used with Lumisena™ fungicide

Harvest

Standability

Optimize performance with Enlist[™] system

Sudden Death

Syndrome

(4) Iron Deficiency Chlorosis

MS

Brown

Stem Rot

NR White

Mold

NR

Phytophthora

Root Rot

Resistance

PI88788 Soybean Cyst

Nematode

Resistance

White

Flower

color

Brown

· Solid Frogeye tolerance

Pilot launch for 2020

SCN resistance

· Very good emergence and standability

• Optimize performance with Enlist™ system



Medium-Tall

Plant

height

Medium

Canopy width

Flower color

White

Lt. Tawny Pubescence

color

Pod color

Tan

color

Black Hilum

MS Brown NR

NR PI88788

Soybean Cyst Nematode

• Strong performance across the southern NuTech marketing area

MS

Phytophthora Root Rot Resistance

NR

Soybean Cyst Nematode Resistance

PI88788

43N04E[™] 3

Medium plant height and canopy type

Manage populations on highly productive soils

Optimize performance with Enlist[™] system

Very good emergence

Pilot launch for 2020

Emergence

Solid SDS rating



Lt. Tawny

Brown Pod color

Medium

Canopy

width

Hilum color

Emergence

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot White Mold

NR

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Stem Rot

White Mold

Phytophthora Root Rot Resistance Resistance

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LIBERTY

DuPont™

Medium

Plant

height

color

Canopy

7450X[™]

4.5 RM

ROUNDUP READY 2 TEND

Medium-Tall Medium Plant Canopy

Flower color

Purple

Black

• Very good stem canker score

Strong on wet soils

• LL/STS stacked and moderate tolerance to Metribuzin

• Excellent choice for double-crop acres

• Rps1k with good Phytophthora field tolerance

• Manage populations on highly productive soils

Black Lt. Tawny Brown Pubescence Pod Hilum

NR

White

Mold

Medium

width

color

Metribuzin tolerant

• High-yield potential when used with Lumisena™ fungicide

· Good harvest standability

· Outstanding stem canker score Medium height and plant structure

• Utilize a fungicide to manage Frogeye

Lt. Tawny Brown

Hilum

Pod color color

Emergence

Harvest

Standability

Sudden Death

Syndrome

(3)

Iron Deficiency

Chlorosis

NR

Brown

Stem Rot

Rps1k

Phytophthora

Root Rot

Resistance

PI88788

Soybean Cyst

Nematode

Resistance

Purple

Flower

color

color

(7) Emergence

46N01E™

Attractive, light tawny variety

• Very good emergence

Pilot launch for 2020

Solid SDS rating

(6)

(3)

MS

(5)

White

Mold

PI88788 NR

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

Enlist E3

Brown Stem Rot

Medium

Plant

height

Lt. Tawny

Pubescence

color

height

Pubescence

color

Phytophthora Root Rot Resistance

Medium

Canopy

width

Brown

Pod

color

width

Soybean Cyst Nematode Resistance

Purple

Flower

color

Black

Hilum

color

45N02L[™] 4.5 RM



Good tolerance to high-salt soils

• Utilize a fungicide to manage Frogeye

• Excellent Phytophthora field tolerance

• Moderate tolerance to Metribuzin

• Excellent BSR tolerance and good stem canker tolerance

· Root-knot nematode resistant

Plant height

Tawny

Pubescence

color

Medium-Tall

Canopy width

Brown

Pod

color

Medium-Thin

Flower color

Purple

Black

NR

Phytophthora

Root Rot

Resistance

Hilum color

(6)

Best performance when used with Lumisena™ fungicide

(4)

MS

NR NR PI88788

Emergence

 Solid SDS rating • Metribuzin tolerant

Pilot launch for 2020

Harvest Standability Sudden Death Syndrome

Iron Deficiency Chlorosis

(4)

HT Brown Stem Rot

White Mold

NR

Soybean Cyst Nematode Resistance

PI88788

Emergence Harvest Standability

Optimize performance with Enlist[™] system

Sudden Death Syndrome

Iron Deficiency Chlorosis

Enlist E3

Brown Stem Rot

Medium

Plant

height

Lt. Tawny

Pubescence

color

White Phytophthora Mold Root Rot Resistance

Medium

Canopy

width

Tan

Pod

color

Soybean Cyst Nematode Resistance

White

Flower

color

Brown

Hilum

color



Outstanding Frogeye tolerance

Very good emergence and standability

• Optimize performance with Enlist™ system

Enlist E3 SOYBEANS

Medium

Plant

height

Canopy

White Flower color

Lt. Tawny Black Brown

Medium

width

Pubescence color

NR

Pod color

NR

Hilum color

Optimize performance with Enlist[™] system

Emergence

Solid BSR rating

 Very good emergence Solid SDS rating

Pilot launch for 2020

(4)

MS

NR

NR

PI88788

Emergence

Harvest Standability

Sudden Death Syndrome Chlorosis

Iron Deficiency

MS Brown

Stem Rot

White Phytophthora Mold Root Rot

Resistance

Soybean Cyst Nematode Resistance

PI88788

Harvest Standability

Best performance when used with Lumisena™ fungicide

Sudden Death

Syndrome

Iron Deficiency Chlorosis

Brown Stem Rot

White Mold

Phytophthora Soybean Cyst Root Rot Nematode Resistance

Resistance

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• Excellent Frogeye tolerance • Very good stem canker score • Solid Phytophthora field tolerance







(4)

Iron Deficiency

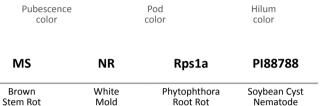
Chlorosis

Sudden Death

Syndrome







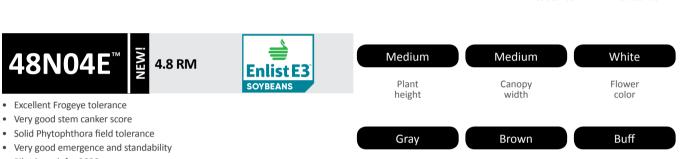
Resistance

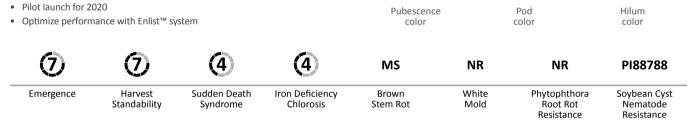
Resistance

White

Flower

color

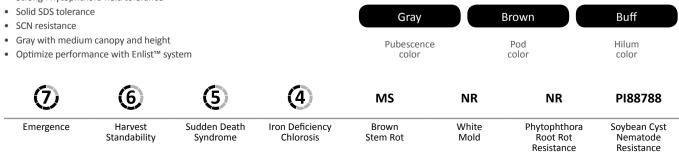






- · Very good emergence and solid standability
- Strong Phytophthora field tolerance
- SCN resistance

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Solid PhytophthoStrong SDS toleraVery good stem of	gence and standabilit ora field tolerance ance	y	Enlist E3	Medium-T Plant height Gray		Medium Canopy width Brown Pod	Purple Flower color Imp. Black
• Optimize perform	nance with Enlist™ sy Harvest Standability	Sudden Death Syndrome	Iron Deficiency Chlorosis	SEG Brown Stem Rot	NR White Mold	NR Phytophthora Root Rot Resistance	PI88788 Soybean Cyst Nematode Resistance
Notes:							

2020 SEED GUIDE **57**





	Brand Name	Technology	Relative Maturity	Plant Height	Canopy Width	Flower Color	Pubescence Color	Pod Color	Hilum Color	Emergence	Harvest and Standability	Shatter Resistance	Soybean Cyst Nematode Resistance	Phytophthora Root Rot Resistance	Phytophthora Field Tolerance	Iron Deficiency Chlorosis	Charcoal Rot	Brown Stem Rot	White Mold	Sudden Death Syndrome	Frogeye Leaf Spot	Stem Canker	Herbicide Resistance	Average Seed Size (seeds per pound)	Brand Name
NEW	16N01X™	RR2X	1.6 RM	М	М	P	LT	BR	BR	7	6	8	PI88788	NR	5	5	4	MS	3	8	4	NR	RR2X	2500-2700	16N01X™
NEW	17N01L™	LL	1.7 RM	M	М	Р	LT	BR	BL	7	7	8	PI88788	Rps1k	4	5	3	NR	4	6	NR	NR	LL	3100-3300	17N01L™
NEW	20N03E™	E3	2.0 RM	M	MF	W	G	BR	BU	7	7	NR	PI88788	Rps1c,3a	NR	5	NR	NR	NR	5	NR	NR	E3	2900-3100	20N03E™
NEW	20N04E™	E3	2.0 RM	M	M	P	G	TN	BU	7	7	NR	PI88788	NR	NR -	5	NR	NR	4	5	NR	NR	E3	2700-2900	20N04E™
NEW	21N04E TM	E3	2.1 RM	MT	M	P	G	TN	IB	7	7	NR	PI88788	NR	5	4	NR	HT	NR	5	NR	NR	E3	2500-2700	21N04E TM
NEW	21N05E™	E3	2.1 RM	MT M	M	P P	G	TN	IB BU	7 7	7	NR NR	PI88788	NR Posts 25	4 NR	3 4	NR	NR HT	3	7 6	NR NB	NR NB	E3	2900-3100 NR	21N05E [™] 22N02E [™]
NEW NEW	22N02E™ 24N02E™	E3 E3	2.2 RM 2.4 RM	MT	M	W	G	BR TN	BU	7	7	NR NR	PI88788 PI88788	Rps1c,3a NR	6	5	NR NR	HT	2	5	NR NR	NR NR	E3 E3	2900-3100	24N02E TM
NEW	24N04E™	E3	2.4 RM	MT	M	P	G	TN	NR	7	7	NR	PI88788	NR NR	NR	6	NR	MS	NR	5	NR	NR	E3	3300-3500	24N04E™
NEW	25N03E™	E3	2.5 RM	M	M	w	G	TN	BU	7	8	NR	PI88788	Rps1c	5	4	5	MT	3	6	2	NR	E3	2900-3100	25N03E™
NEW	26N04E™	E3	2.6 RM	M	M	P	LT	BR	BL	7	7	NR	PI88788	Rps1k	NR	4	NR	HT	NR	7	6	NR	E3	2900-3100	26N04E™
NEW	27N01CV [™]	CV	2.7 RM	MT	M	W	LT	BR	BR	8	6	NR	PI88788	Rps1c	4	4	4	HT	5	5	4	NR	CV	2500-2700	27N01CV™
NEW	28N02E™	E3	2.8 RM	М	M	Р	G	BR	IB	7	NR	NR	PI88788	NR	NR	5	NR	MS	4	5	NR	NR	E3	3100-3300	28N02E™
	3281L™	LL	2.8 RM	MT	М	Р	LT	BR	BL	7	6	7	PI88788	Rps1k	4	4	4	MT	3	6	2	NR	LL	2300-2500	3281L™
NEW	30N02E™	E3	3.0 RM	M	М	Р	G	TN	IB	7	8	NR	PI88788	Rps1k	NR	4	NR	HT	4	6	NR	NR	E3	3100-3300	30N02E™
NEW	30N03E™	E3	3.0 RM	MT	М	NR	NR	NR	NR	7	7	NR	PI88788	NR	NR	4	NR	NR	2	5	7	NR	E3	NR	30N03E™
NEW	30N05E™	E3	3.0 RM	MT	M	Р	G	TN	IB	7	7	NR	PI88788	Rps1k	6	5	4	NR	3	6	4	NR	E3	NR	30N05E™
NEW	31N06E™	E3	3.1 RM	M	M	W	LT	TN	BL	7	6	NR	PI88788	NR	5	5	NR -	MS	NR	6	4	NR	E3	2900-3100	31N06E™
NEW	32N02L™	LL	3.2 RM	MT	M	P	LT	BR	BR	7	6	7	Peking	Rps1k	3	4	5	NR	3	6	9	NR	LL	2700-2900	32N02L™
NEW	32N03E™ 33N03E™	E3	3.2 RM 3.3 RM	MT M	M MT	W NR	G	BR BR	BU BU	7 5	6 7	NR NR	PI88788	Rps1c	6 NR	4 ND	NR	MS NR	NR NR	6	8	NR NR	E3	2700-2900 NR	32N03E™ 33N03E™
NEW NEW	35N03E 35N02E™	E3 E3	3.5 RM	MT	M	W	LT	BR	BL	7	6	NR NR	PI88788 PI88788	Rps1c NR	5	NR 5	NR NR	MS	NR NR	6	2 5	NR NR	E3 E3	2900-3100	35N02E™
NEW	35N03E™	E3	3.5 RM	MT	M	P	G	TN	IB	7	7	NR	PI88788	Rps1k	5	4	NR	HT	NR	5	2	NR	E3	3100-3300	35N02E 35N03E™
14230	7352X™	RR2X	3.5 RM	MT	M	w	G	BR	BU	7	7	7	PI88788	Rps1c	4	4	5	HT	5	6	4	NR	RR2X	3100-3300	7352X™
NEW	36N03E™	E3	3.6 RM	M	M	W	LT	TN	BR	7	7	NR	PI88788	Rps1k	NR	4	NR	MS	NR	6	NR	NR	E3	2900-3100	36N03E™
NEW	37N02CV™	CV	3.7 RM	М	M	W	LT	BR	BL	7	7	NR	PI88788	Rps1k	5	4	2	HT	4	6	6	6	CV	2500-2700	37N02CV™
NEW	37N07L™	LL	3.7 RM	М	М	Р	LT	BR	BL	7	7	7	PI88788	NR	4	4	3	NR	NR	5	5	5	LL	2700-2900	37N07L™
	3386L™	LL	3.8 RM	M	M	W	LT	TN	BL	8	8	NR	R	Rps1c	7	3	8	MT	4	6	4	NR	LL	2500-2700	3386L™
	38N02X™	RR2X	3.8 RM	MT	М	Р	G	BR	IB	7	7	NR	PI88788	Rps1c	5	4	5	HT	4	6	5	NR	RR2X	2500-2700	38N02X™
NEW	38N04L [™]	LL	3.8 RM	MT	M	W	LT	BR	BL	7	8	7	PI88788	Rps1k	4	4	4	NR	4	7	7	6	LL	2900-3100	38N04L [™]
	39N03E™	E3	3.9 RM	M	M	W	G	TN	BU	7	7	NR	PI88788	Rps1a	NR	4	NR	NR	NR	4	1	NR	E3	NR	39N03E™
NEW	39N03X™	RR2X	3.9 RM	MT	MF	W	LT	BR	BL	6	6	8	PI88788	NR	4	5	4	MS	3	6	5	8	RR2X	2500-2700	39N03X™
NEW	39N04E™	E3	3.9 RM	M	M	W	G	BR	BU	7	7	NR	PI88788	NR NB	7	4	NR	MT	NR	6	8	NR	E3	2900-3100	39N04E™
NEW NEW	39N05E™ 39N06E™	E3 E3	3.9 RM 3.9 RM	M M	M	W	LT	BR BR	BR BR	7 7	8	NR NR	PI88788 PI88788	NR NR	NR NR	4	NR NR	MS HT	NR NR	7 6	NR 5	NR NR	E3 E3	2900-3100 3100-3300	39N05E™ 39N06E™
NEW	40N03E™	E3	4.0 RM	M	M	W	LT	BR	BR	7	8	NR	PI88788	NR NR	NR	4	NR	MS	NR	7	NR	NR	E3	2900-3100	40N03E™
NEW	41N03E™	E3	4.1 RM	M	M	w	G	BR	BU	7	8	NR	PI88788	NR NR	5	3	4	HT	NR	7	5	7	E3	2700-2900	41N03E™
	7410X™	RR2X	4.1 RM	M	MF	W	G	BR	BU	7	5	NR	PI88788	Rps1k	5	2	4	MS	4	6	3	7	RR2X	2900-3100	7410X ™
NEW	42N04E™	E3	4.2 RM	MT	М	w	LT	TN	BL	7	7	NR	PI88788	NR	NR	5	NR	MS	NR	5	6	NR	E3	2900-3100	42N04E™
NEW	43N02X™	RR2 Xtend	4.3 RM	MT	M	Р	LT	BR	BL	7	6	NR	PI88788	Rps1k	4	3	5	MS	NR	7	8	8	RR2X	2700-2900	43N02X™
NEW	43N03E [™]	E3	4.3 RM	М	М	Р	LT	BR	BL	7	7	NR	PI88788	NR	NR	4	NR	MS	NR	6	NR	NR	E3	3100-3300	43N03E ™
NEW	43N04E™	E3	4.3 RM	M	M	W	LT	BR	BR	7	6	NR	PI88788	NR	NR	4	NR	MS	NR	6	NR	NR	E3	2900-3100	43N04E™
NEW	3451LS™	LS	4.5 RM	M	М	Р	LT	BR	BL	7	6	NR	PI88788	Rps1k	5	3	3	NR	NR	4	7	7	LS	2900-3100	3451LS™
	45N02L™	LL	4.5 RM	MT	MT	Р	T	BR	BL	7	7	7	PI88788	NR	8	4	4	HT	NR	4	3	7	LL	2300-2500	45N02L™
NEW	45N04E TM	E3	4.5 RM	M	M	W	LT	BR	BL	7	7	NR	PI88788	NR	NR	4	NR	MS	NR	6	8	NR	E3	2900-3100	45N04E™
NEVA	7450X TM	RR2X	4.5 RM	MT	M	P	LT	BR	BL	7	7	NR NB	PI88788	NR NB	4 ND	3	4	MS	5 ND	6	8 ND	8 ND	RR2X	3100-3300	7450X TM
NEW	46N01E™ 46N02E™	E3	4.6 RM	M M	M	P W	LT	BR	BL BD	7 7	6	NR NR	PI88788	NR NR	NR NR	4	NR NR	MS	NR NB	5 6	NR NR	NR NR	E3	2900-3100 2900-3100	46N01E™ 46N02E™
NEW NEW	46N02E™ 47N03E™	E3 E3	4.6 RM 4.7 RM	M	M	P W	LT G	TN	BR IB	7	8	NR NR	PI88788 PI88788	NR Rps1a	NR NR	4	NR NR	MS MS	NR NR	5	NR NR	NR NR	E3 E3	2900-3100	46N02E™ 47N03E™
NEW	47N03E [™] 48N04E [™]	E3	4.7 RIVI 4.8 RM	M	M	W	G	BR	BU	7	7	NR NR	PI88788	NR NR	5	4	NR	MS	NR NR	4	8	7	E3	2900-3100	47N03E™ 48N04E™
NEW	48N05E™	E3	4.8 RM	M	M	W	G	BR	BU	7	6	NR	PI88788	NR NR	6	4	NR	MS	NR	5	NR	NR	E3	2700-2900	48N05E™
NEW	49N03E™	E3	4.9 RM	MT	M	P	G	BR	IB	7	7	NR	PI88788	NR NR	5	4	4	SEG	NR	6	5	7	E3	2700-2900	49N03E™
							Datin																	,	
iecr	nology		Plant Height	<u>.</u>	Canopy width		Ratings						IMPORTAN [*]	Γ: Characteristic	scores prov	ide key infori	mation usef	ul in selectin	g and mana	ging product	s in your are	a. Informatio	n and scores are	assigned by	

<u>Technology</u>

CV = Conventional

E3 = Enlist E3™ soybeans

LL = LibertyLink®

LS = Liberty/DuPont™ STS

RR2X = Roundup Ready 2 Xtend®

Plant Height T = Tall M = Medium

MT = Medium-Tall

B = Bush MB = Medium-Bush

MF = Medium-Full M = Medium MT = Medium-Thin

9 = Outstanding or resistant 8 = Excellent

7 = Very Good

6 = Good 5 = Average 4 or less = Poor NR = Not rated

HT = Highly Tolerant MS = Moderately Susceptible

MT = Moderately Tolerant **SEG** = Segregating Gene

IMPORTANT: Characteristic scores provide key information useful in selecting and managing products in your area. Information and scores are assigned by NuTech Seed® and are based on period-of-years testing through 2018 harvest and were the latest available at time of printing. Some scores may change after 2019 harvest. Scores represent an average of performance data across areas of adaptation, multiple growing conditions and a wide range of both climate and soil types, and may not predict future results. Individual product responses are variable and subject to a variety of environmental, disease and pest pressures. Please use this information as only one component of your product positioning decision.



BEST-IN-CLASS SEED APPLIED TECHNOLOGIES FOR SOYBEANS

The unique LumiGEN™ system brings together a customizable and integrated combination of best-in-class seed applied technologies, genetics and trait packages and leading digital agriculture technologies to place the right product on every acre to meet each customer's needs.

FUNGICIDE SEED TREATMENT

Ingredients

Lumisena™fungicide seed treatment Phythophthora

EverGol® Energy

Pythium, Rhizoctonia, Fusarium

Differential yield advantages

Lumisena fungicide +1.0 bu/A

broad acre

+4.0 bu/A susceptible fields

Data is based on 638 head-to-head comparisons between Lumisena fungicide seed treatment (0.568 fl oz/cwl) and metataxyl (0.75 fl oz/cwl) in the top 10 soybean-producing states through bec. 12, 2017. Comparisons were made utilizing the same soybean variety. DO NOT USE THIS OR ANY OTHER DATA FROM A LIMITED NUMBER OF TRIALS AS A SIGNIFICANT FACTOR IN PRODUCT SELECTION.

BIOLOGICAL

Ingredients

L-2030 R

Exclusive to Corteva Agriscience™ seed brands

Differential yield advantages

L-2030 R +0.6 bu/A

77 research locations comparing standard FST/IST with L-2030 vs. without L-2030.

INSECTICIDE SEED TREATMENT

Gaucho®

- Bean leaf beetle
- Soybean aphid
- Seed corn maggot
- Others

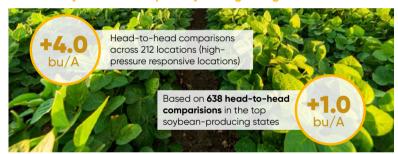


SEED APPLIED TECHNOLOGIES

Premium soybean recipe delivered in a single container

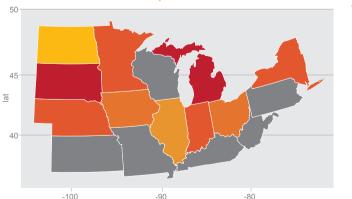
	Targeted pests	Recipe ingredients	Features	Benefits
Fungicide Package	Phytophthora Rhizoctonia Pythium Fusarium Penicillium Seed-borne Phomopsis, Sclerotinia, Botrytis	Lumisena [™] fungicide seed treatment (Oxathiapiprolin) Lumiflex [™] seed treatment fungicide (Ipconazole) Metalaxyl DPX-YT669 (Picoxystrobin) or Thiabendazole	Lumisena fungicide offers best-in-class protection against Phytophthora, the #1 disease in soybeans DPX-YT699 – 2nd mode of action against Rhizoctonia & Fusarium Thiabendazole – 2nd mode of action against Fusarium & Phomopsis	Lumisena fungicide demonstrated a +4.0 bu/A increase over high-rate metalaxyl in Phytophthora susceptible fields, and +1.0 bu/A across broad acres. 2nd mode of action choice depending on disease focus.
Insecticide Package	Bean Leaf Beetle Aphids Seed Corn Maggot	Imidacloprid	Proven performance	Reducing early season leaf damage and chance of late-season bean pod mottle virus improves plant health to maximize yield potential.
Polymer		Polymer, red-colorant, stabilizer		Improves adherence to the seed coat plus a stabilizer for blend stability.

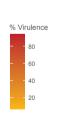
Lumisena™ fungicide seed treatment yield advantage vs. metalaxyl across the top 10 soybean-growing states.



Increasing Phytophthora Pressure

Percent isolates Virulent on Rps 1k







Greater number of soybean-growing states have a high proportion of isolates with virulence to Rps 1c & 1k. Multiple modes of action, through genetics, treatments and other practices, is the best way to combat disease.

States in gray not included in surveys'

Lumisena[™]

Pathotype diversity of Phytophthora sojae in Eleven states in the United States - A. E. Dorrance et al

Visit us at corteva.us

Lumiflex[™]

Lumisena fungicide performance data based on on 638 head-to-head comparisons between Lumisena" fungicide (0.568 fl oz/cwt) and metalaxyl (0.75 fl oz/cwt) in the top 10 soybean-producing states in 2017. State registrations for Lumiflex" seed treatment fungicide are pending. This product may not be registered for sale or use in all states. Contact your Corteva Agriscience representative for details and availability in your state. Lumiflex" has not yet received regulatory approvals in any country outside the United States; approvals are pending. DPX-YT669 pending state registration approvals. The information presented here is not an offer for sale. This is not intended as a substitute for the product lobel for the product(s) referenced herein. The information contained in this technical document is based on the latest to-date technical information available to Corteva Agriscience, and Cortevar reserves the right to update the information at any time.

SEED TREATMENT FUNGICIDE

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*Pathotypes, Distribution, and Metalaxyl Sensitivity of Phytophthora sojae from North Dakota - B.D. Nelson et al



			Product Ref	uge Requirements		Her	oicide R	Resistanc	e	Corn Belt-S	eparate Refuge
ID	Product Name	Technology Description	Description	Integrated Components	Structured	Glyphosate Li	berty®	Enlist™	Insect Protection	Refuge Size Requirement	Refuge Distance Requirement
Q	QROME:	Qrome is the most advanced technology for above- and below-ground insect protection. It is a single bag integrated product with a 95/5 blend of two hybrids. The first contains a unique molecular stack of the proven Bt proteins from the Herculex® I and Herculex® RW traits, Agrisure® RW, YGCB, LL and RR2 traits. The second contains the LL and RR2 traits.	Single-bag product with integrated corn borer and corn rootworm refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	95% RW, YGCB, HXX, LL, RR2 5% LL, RR2	√	✓	√		Above Below	CORN BELT REFUGE	None
SXRA/SSR	SMART STAX	SmartStax® trait technology uses multiple modes of action for control of above- and below-ground insects to cover a broad spectrum of insect threats and defend your yield. Conveniently packaged as a single-bag solution with no separate structured refuge required for planting in the Corn Belt.	Single-bag product with integrated corn borer and corn rootworm refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	95% VT2, HX1, VT3, HXRW, LL, RR2 5% RR2, LL		✓	✓		Above Below	CORN BELT REFUGE	None
SXE/SE	SmantStax Enlist CORN	SmartStax® trait technology uses multiple modes of action for control of above- and below-ground insects to cover a broad spectrum of insect threats and defend your yield. The Enlist™ corn trait adds advanced herbicide-tolerant technology, with tolerances to 2,4-D choline, glyphosate and FOP herbicides such as quizalofop.	Trusted traits, 5% Corn Belt, 20% corn borer in cotton counties.	100% VT2, HX1, VT3, HXRW, LL, RR2, Enlist	✓	✓	\checkmark	\checkmark	Above Below	5% CORN BELT REFUGE	Within or adjacent
sx/ss	SmantStax	SmartStax® trait technology uses multiple modes of action for control of above- and below-ground insects to cover a broad spectrum of insect threats and defend your yield.	Trusted traits, 5% Corn Belt, 20% corn borer in cotton counties.	100% VT2, HX1, VT3, HXRW, LL, RR2	✓	✓	\checkmark		Above Below	5% CORN BELT REFUGE	Within or adjacent
АМХТ	AcreMax	Optimum® AcreMax® XTreme insect protection is a single-bag, integrated corn borer and corn rootworm product featuring multiple modes of insect protection through a 95/5 blend of two hybrids. The first contains the Agrisure® RW, YGCB, HXX, LL and RR2 traits. The second contains the RR2 and LL traits.	Single-bag product with integrated corn borer and corn rootworm refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	95% RW, YGCB, HXX, LL, RR2 5% RR2, LL		✓	✓		Above Below	CORN BELT REFUGE	None
AMX	AcreMax	Optimum® AcreMax® Xtra insect protection is a single-bag, integrated corn borer and corn rootworm refuge product. It features a 90/10 blend of two hybrids: the first contains the YGCB, HXT, LL and RR2 traits and the second contains the RR2 and LL traits.	Single-bag product with integrated corn borer and corn rootworm refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	90% YGCB, HXT, LL, RR2		✓	√		Above Below	CORN BELT REFUGE	None
PWRA/PCR	POWERCORE' REFUGE ADVANCED®	PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure, conveniently packaged as a single-bag solution with no separate structured refuge required for planting in the Corn Belt.	Single-bag product with integrated corn borer refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	95% VT2, HX1, LL, RR2 5% RR2, LL		✓	√		Above	CORN BELT REFUGE	None
PWE/PE	POWERCORE Enlist	PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure. The Enlist™ corn trait adds advanced herbicide-tolerant technology, with tolerances to 2,4-D choline, glyphosate and FOP herbicides such as quizalofop.	Trusted traits, 5% Corn Belt, 20% corn borer in cotton counties.	100% VT2, HX1, LL, RR2, Enlist	✓	✓	\checkmark	\checkmark	Above	5% CORN BELT REFUGE	Within, adjacent or up to a half mile
PW	POWER CÓRE	PowerCore® trait technology is a combination of three modes of action to provide superior control of above-ground insects. This focused insect control is specialized for areas with minimal rootworm pressure.	Trusted traits, 5% Corn Belt, 20% corn borer in cotton counties.	100% VT2, HX1, LL, RR2	✓	✓	\checkmark		Above	5% CORN BELT REFUGE	Within, adjacent or up to a half mile
AML	AcreMax Leptra	Optimum® AcreMax® Leptra® insect protection is a single-bag, integrated corn borer refuge product. It features a 95/5 blend of two hybrids: one containing the AVBL, YGCB, HX1, LL and RR2 traits and the other containing the RR2 and LL traits.	Single-bag product with integrated corn borer refuge. In EPA-designated cotton counties, additional 20% corn borer refuge is required.	95% AVBL, YGCB, HX1, LL, RR2 5% RR2, LL		✓	\checkmark		Above	CORN BELT REFUGE	None
AM	AcreMax.	Optimum® AcreMax® insect protection is a single-bag, integrated corn borer refuge product. It features a 95/5 blend of two hybrids: one containing the YGCB, HX1, LL and RR2 traits and the other containing the RR2 and LL traits.	5% LL, RR2	95% YGCB, HX1, LL, RR2 5% RR2, LL		✓	\checkmark		Above	CORN BELT REFUGE	None
GT3	Agrisure 3000GT	The Agrisure® 3000GT trait stack offers better control of corn borer and corn rootworm, as well as herbicide flexibility with both glyphosate and glufosinate tolerance.	Trusted traits, 20% Corn Belt, 20% corn borer in cotton counties.	100% GT, CB, RW, LL	√	✓	\checkmark		Above Below	20% CORN BELT REFUGE	Within or adjacent
5TN/VYHR	Leptra ABOVE	Optimum® Leptra® hybrids offer superior control of above-ground pests. These hybrids contain HX1, YGCB, AVBL, LL and RR2 traits.	Trusted traits, 20% Corn Belt, 20% corn borer in cotton counties.	100% AVBL, YGCB, HX1, LL, RR2	\checkmark	✓	√		Above	20% CORN BELT REFUGE	Within or adjacent
5FN/YHR	Intrasect	Optimum® Intrasect® insect protection is a reduced-refuge product with multiple modes of above-ground insect protection. These hybrids contain the YGCB, HX1, LL and RR2 traits. This product has both glyphosate and glufosinate tolerance.	Trusted traits, 20% Corn Belt, 20% corn borer in cotton counties.	100% YGCB, HX1, LL, RR2	√	✓	✓		Above	20% CORN BELT REFUGE	Within or adjacent
5KN/CYXR	Intrasect	Optimum® Intrasect® XTreme insect protection is a single-bag, integrated corn borer and corn rootworm product featuring multiple modes of insect protection. These hybrids contain the Agrisure® RW, YGCB, HXX, LL and RR2 traits.	Trusted traits, 5% Corn Belt, 20% corn borer in cotton counties.	100% RW, YGCB, HXX, LL, RR2	✓	✓	\checkmark		Above Below	5% CORN BELT REFUGE	Within or adjacent
5DN/YXR	Intrasect	Optimum® Intrasect® Xtra insect protection offers multiple modes of insect protection including above- and below-ground traits. These hybrids contain the YGCB, HXX, LL and RR2 traits. This product has both glyphosate and glufosinate tolerance.	Trusted traits, 20% Corn Belt, 20% corn borer in cotton counties.	100% YGCB, HXX, LL, RR2	✓	✓	✓		Above Below	20% CORN BELT REFUGE	Within or adjacent
5R	TRISECT	Optimum® TRIsect® hybrids contain a unique mode of action against corn rootworm pests, along with providing protection against above-ground insects. These hybrids contain the Agrisure® RW, HX1, LL and RR2 traits.	An additional high-performance choice for above- and below-ground insect protection, 20% Corn Belt, 50% corn borer in cotton counties.	100% RW, HX1, LL, RR2	√	✓	✓		Above Below	20% CORN BELT REFUGE	Within or adjacent

5% refuge equals 5 acres of non-Bt corn for every 95 acres of Bt corn planted. 20% refuge equals 20 acres of non-Bt corn for every 80 acres of Bt corn planted. 50% refuge equals 50 acres of non-Bt corn for every 50 acres of Bt corn planted. Agrisure Viptera 3200 requires a 5% refuge in the Corn Belt and a 20% refuge in the Cotton Belt. Refuge requirements refer to the Corn Belt only. For Cotton Belt refuge requirements, consult Corn Product Use Guide.

luTech 20

Insect Resistance Management (IRM) for Bt Corn

Following an insect resistance management (IRM) program is an essential part of good stewardship. The aim of an IRM program is to reduce the probability of target insects developing increased



Planting Refuges, Preserving Technology

tolerance to the insecticidal *Bt* proteins, thus maximizing the longevity and effectiveness of these valuable traits in an environmentally conscious way. Sustainable preservation of this technology places individual responsibility on everyone in the seed distribution system, from the seed supplier to the grower planting the seed. Additionally, IRM is a legal obligation, as requirements have been incorporated into the

registrations granted by the EPA for all Bt corn products.

A decrease in susceptibility or field-evolved resistance of some insect populations to certain technology traits in corn has been observed in different geographies and may result in lower-than-expected efficacy. To help extend durability of this technology, we recommend you implement Integrated Pest Management (IPM) practices such as crop rotation, cultural and biological control tactics (including rotating sources of Bt-protected corn traits), pest scouting and appropriate use of pest thresholds when employing management practices such as insecticide application. You must also plant the required refuge when using this technology. Please contact your sales professional or consult with your local university extension for more information regarding insect resistance management guidelines, best management practices and to understand whether there has been a shift in susceptibility or insect resistance documented in your area.

If you have questions after reviewing this document, or if you wish to register a tip or complaint about a grower who may not be following the IRM refuge requirements, please contact your sales professional or call toll free at 1-800-323-6103.

IRM Requirements

IRM programs address: (1) the amount of refuge, (2) the required proximity of hybrids with the *Bt* traits to the refuge, (3) the use of insecticides in the refuge and (4) the design and management of the refuge.

What is a Refuge?

A refuge is a block or strip of corn that does not contain a *Bt* trait for controlling corn pests. The purpose of this refuge is to maintain a population of corn pests that is susceptible to *Bt* proteins. Potentially resistant insects emerging from *Bt* fields

can mate with susceptible insects from the refuge resulting in *Bt*-susceptible offspring.

There are two types of refuge for products with the *Bt* trait: integrated and structured. Some *Bt* products have an integrated refuge with refuge seed blended in the bag, while other *Bt* products require a structured refuge. A structured refuge requires a grower to plant a portion of a field with another product that does not contain the insect-control traits of the *Bt* product. Grower-blended seed mixtures are not approved for use with any *Bt* hybrids to satisfy grower refuge requirements. Refuge requirements vary by product type and EPA-designated noncotton and southern corn/cotton growing regions.

IRM Compliance Assurance Program (CAP)

We require all growers purchasing hybrids with a *Bt* trait to sign a *Technology Use Agreement*. By signing, the grower agrees to implement an IRM program—including planting a corn refuge and following EPA-mandated use requirements—as outlined in the Product Use Guide. Failure to follow these IRM requirements can result in the grower losing access to structured refuge products.

The EPA requires *Bt* corn seed providers to conduct on-farm visits as part of a comprehensive Compliance Assurance Program (CAP) to assess whether growers are following the IRM requirements. These on-farm assessments are conducted by an independent third party and directed toward areas at high risk of insect resistance based on pest pressure, *Bt* corn market penetration or insufficient refuge seed purchase.

The CAP also outlines consistent standards developed by the EPA and *Bt* corn registrants for responding to growers who have not followed the IRM requirements to bring them into full compliance. These responses include:

- Notifying the grower by letter of IRM compliance deviations.
- Conducting a <u>compliance assistance</u> visit with the grower prior to planting to assist the grower in planning and implementing a proper IRM program.
- Conducting a <u>compliance assessment</u> visit with the grower the following growing season to assess IRM compliance.
- Providing the grower additional IRM educational materials.
- A grower found with a second incident of non-compliance with refuge requirements within a five-year period will be denied access the next year to the registrant's structured refuge Bt corn products.

Structured Refuge Requirements

In **non-cotton** growing areas, the structured refuge requirements are 5% or 20% of corn acres planted for corn borer-protected products and 20% for corn rootworm-protected products. In **cotton** growing areas, the structured refuge requirements are

20% or 50% of corn acres planted for corn borer-protected products and 20% for corn rootworm-protected products.

Structured Refuge Planting Options for Above-Ground, Below-Ground and Above+Below-Ground Products

A **single-trait refuge** is one that can be used for corn rootworms or corn borers, but not both. A **common refuge** is a single field that serves as a refuge for both corn borers and corn rootworms simultaneously. A **separate refuge** is a refuge designed exclusively for corn borers or exclusively for corn rootworms—i.e., a stacked *Bt* product can require two separate refuges.

Select Similar Hybrid for Structured Refuge

One key to establishing an effective refuge is selecting an appropriate hybrid—one that is agronomically similar to the *Bt* hybrid. This helps ensure that the refuge hybrid has the same likelihood of attracting adult insects as the *Bt* field. The refuge hybrid should match the *Bt* hybrid in maturity, early vigor and plant height.

Refuge Management

Management practices in the refuge acres and *Bt* corn acres must be as similar as possible to promote parallel hybrid development.

- To be effective, the refuge must be the correct size and distance from the Bt field, and be planted with a similar hybrid under similar management practices.
- Plant the refuge at the same time as the Bt hybrid.
- Fertility programs, including starter and sidedress, should be similar
- Use the same tillage system in the Bt field and the refuge.
 Different tillage operations may result in dissimilar residue
 levels on the soil surface. Soil temperature differences
 could then lead to dramatic early development differences
 between the Bt field and the refuge.
- Reducing inputs on the refuge or planting it on marginal land also decreases the effectiveness of the refuge.
- If the refuge is planted on rotated ground, the trait corn must also be planted on rotated ground. If the refuge is planted on continuous corn ground, the trait corn may be planted on either continuous corn ground or rotated ground. It is also recommended that growers planting continuous corn plant the refuge in the same location each year.
- Practice Integrated Pest Management (IPM) to preserve the natural enemies of corn borer, corn rootworm and other insect pests. Natural predators such as ground beetles and ants can help reduce corn rootworm larvae populations. Bt corn insect protection aids IPM, because it affects only target insects and allows beneficial insects to thrive.
- Popcorn can be used as a refuge option, but sweet corn and/ or silage corn cannot.

Crop and Grain Marketing Stewardship

Corteva Agriscience is a member of Excellence Through Stewardship® (ETS). Corteva products are commercialized in accordance with ETS Product Launch Stewardship Guidance and in compliance with the Corteva policies regarding stewardship of those products. Crops and materials containing biotech traits may only be exported to or used, processed or sold in jurisdictions where all necessary regulatory approvals have been granted for those crops and materials. It is a violation of national and international laws to move materials containing biotech traits across borders into jurisdictions where their import is not permitted. Growers should discuss these issues with their purchaser or grain handler to confirm the purchaser or handler's position on products being purchased. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

Refuge Calculator

The National Corn Growers Association (NCGA), in collaboration with the industry, has developed a web-based calculator to help growers calculate the minimum refuge requirements for each of the *Bt* products on their farm. This calculator can be accessed at **refuge.irmcalculator.com**.

Field Monitoring

Monitoring *Bt* fields for insect resistance development is an integral part of an IRM plan. If resistant populations are detected early, alternative control measures can be quickly implemented to reduce the population and halt the spread of resistance. Because of its importance in maintaining the effectiveness of *Bt* technology, the EPA mandates activity monitoring as a condition of registration of *Bt* products. We require customers to monitor *Bt* fields for unexpected levels of insect damage and report any high level of suspected insect damage to a sales professional for further investigation. Acres planted with *Bt* hybrids should be <u>correctly marked</u> at planting to prevent confusion when monitoring.

Structured Refuge Configuration

Because *Bt* corn growers use different management practices, considerable flexibility is allowed in laying out the refuge. Several of these refuge patterns are described below.

Surveys indicate that most farmers plant the refuge within the *Bt* field. This closer proximity increases refuge effectiveness and maximizes *Bt* acreage in the field.

Refuge Within the *Bt* Field:

- Block
- · Perimeter or Border
- Split Planter

2020 SEED GUIDE $\mathbf{65}$



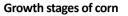
Separate-Field Refuge Distance Requirements:

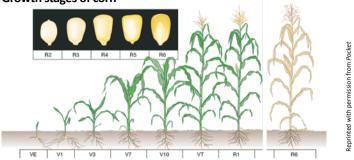
- Appropriate refuges must be planted on every farm with a field that contains *Bt* corn—i.e., you cannot use a neighbor's field to satisfy the refuge requirements.
- For corn borer-*Bt* products, refuge must be planted within a 1/2 mile of each *Bt* corn field.
- For corn rootworm-*Bt* products, refuge must be planted adjacent to *Bt* hybrids; it can be separated by a ditch or a road, but not by another field.

Common refuge op	otions			Additional refuge options for PowerCore®
Field Edge	Compact Block	Headland	Across Field	Half-mile
Splitting Planter	Perimeter	Adjacent Field		
			■ Bt c	Refuge corn (does not contain Bt genes for control of corn borers or corn rootworms)

Illustrations are not a representation of refuge size requirements. Please see "Refuge Distance Requirement" section on page 63 for minimum refuge requirements by product.

Notes:			
	<u> </u>	 	

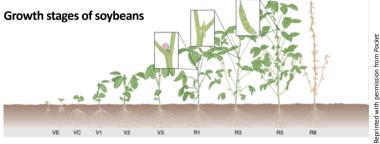




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Approximate Time After

Growth S	tage	Diagnostic Characteristic	Emergence From the Soil
0	Pre-emergence	Seed planted	
VE	Emergence	Coleoptile above soil	0
V2	Two-leaved	2 leaves fully open	1 week
V4-V6	Early whorl	4 to 6 leaves fully emerged	2 to 3 weeks
V8-V10	Mid-whorl	8 to 10 leaves fully emerged	4 to 5 weeks
V12-V14	Late whorl	12 to 14 leaves fully emerged	6 to 7 weeks
VT	Tassel	16 to 18 leaves fully emerged	8 weeks
R1	Silk	Silks emerging, pollen shedding, kernel fertilization	9 weeks
R2	Blister	Brown silk, cob is nearly full sized, kernels like "water blisters"	12 days after silking
R3	Milk	Kernels large, cob full sized, content "milky," "roasting ear"	18 days after silking
R4	Dough	Kernels progress from "soft dough" to "hard dough" as starch increases	24 days after silking
R5	Early dent	Kernels form "dents" on crown, embryos developed	36 days after silking
	Late dent	All kernels with dents, all kernels firm, "milk line" visible	48 days after silking
R6	Maturity	Grain mature and drying, "black layer" at tip of kernel	55 to 60 days after silking



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Growth Stage Diagnostic Characteristic

VE	Emergence	Cotyledons above soil surface
VC	Cotyledon	Cotyledons fully expanded, unifoliate leaves unfolded
V1	2nd node	1 node on main stem with fully developed trifoliates
V2	3rd node	3 nodes on main stem with 2 fully developed trifoliates, nodules begin forming on roots
V3	4th node	4 nodes on main stem with 3 fully developed trifoliates, increased lateral root growth, branching may begin at first node
V5/V6	6th/7th node	Number of nodes plant may produce is set, cotyledons have fallen off, branching begins, increased lateral root expansion
R1	Beginning bloom	1 open flower at any node on main stem, usually occurs at V7 to V10
R2	Full bloom	Large number of nodules present on roots, 1 open flower at 1 of upper 2 nodes on main stem
R3	Beginning pod	Pod 0.5 cm long at 1 of 4 upper-most nodes on main stem, flowers appear rapidly
R4	Full pod	Pod 2 cm long, rapid pod growth, beginning of seed development, flowering at 1 of 4 upper-most nodes, plants very sensitive to stress
R5	Beginning seed	Seed 0.3 cm long inside pod at 1 of 4 upper-most nodes, pod number set, seed number determined
R6	Full seed	Seed fills pod cavity at 1 of 4 upper-most nodes, seed weight approaches maximum, leaves begin to turn yellow
R7	Beginning maturity	1 pod on main stem has reached mature color, seed size is set, most seeds mature, 50% of leaves yellow
R8	Full maturity	95% of pods are mature color, leaves have dropped off, 5 to 10 days before harvest-ripe

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FOR MORE INFORMATION. VISIT WWW.NUTECHSEED.COM.

NuTech Seed® reserves the right to substitute product at its discretion in the event of crop or allocation shortages. The Buyer may accept or reject the substitute product at the point of offer. NuTech Seed shall not be liable for any breach of warranty or breach of contract claims in connection with unavailable product.

NuTech Seed warrants that seed sold by it conforms to the label description on the seed packaging within tolerances established or permitted by law. NUTECH SEED MAKES NO OTHER WARRANTIES. EXPRESSED OR IMPLIED. INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. It is expressly agreed that NuTech Seed's liability for any loss or damage arising out of or relating to the purchase or use of its products, including, but not limited to, liability arising out of breach of contract, breach of warranty or negligence, shall be limited, at the sole discretion of NuTech Seed, to comparable product or to refund of the amount of the purchase price for the seed. This remedy is exclusive. In no event shall NuTech Seed be liable for any incidental or consequential damages, including loss of profits.

NuTech Seed utilizes isolation and purity measures in the production of its seed products. Because of factors beyond its control, NuTech Seed does not represent or warrant that any NuTech Seed products are free of any genetically modified materials or organisms.

These terms and conditions of sale are in addition to those contained in NuTech Seed sale documents (e.g., order forms) and on NuTech Seed product packaging and labeling.

PRODUCT NOTES:



LIBERTY Seed products with the LibertyLink® (LL) trait are resistant LINK to the herbicide glufosinate ammonium, an alternative to glyphosate in corn, and combine high-yield genetics with

the powerful, non-selective, post-emergent weed control of Liberty® herbicide for optimum yield and excellent weed control. Liberty is not registered for use in all states. For additional product information, call toll free 1-866-99-BAYER (1-866-992-2937) or visit our website at www. Cropscience.Bayer.us. CR0516MULT1B788V00R0.



ROUNDUP READY 2 Always follow grain marketing, stewardship practices and pesticide label directions. Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active

ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

DO NOT APPLY DICAMBA HERBICIDE IN-CROP TO SOYBEANS WITH Roundup Ready 2 Xtend® technology unless you use a dicamba herbicide product that is specifically labeled for that use in the location where you intend to make the application. IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN-CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON SOYBEANS WITH Roundup Ready 2 Xtend® technology, OR ANY OTHER PESTICIDE APPLICATION, UNLESS THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THE USE. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with soybeans with Roundup Ready 2 Xtend® technology.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Sovbeans with Roundup Ready 2 Xtend® technology contain genes that confer tolerance to glyphosate and dicamba. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to

Seeds containing the Roundup Ready® trait and the Roundup Ready 2 Yield® trait are protected under numerous U.S. patents. Seed containing patented traits, such as seed containing the Roundup Ready and Roundup Ready 2 Yield traits, can only be used to plant a single commercial crop. It is

unlawful to save and replant Roundup Ready soybeans and Roundup Ready 2 Yield soybeans. Additional information and limitations on these products are provided in the Monsanto Technology Stewardship Agreement and the Monsanto Technology Use Guide. The licensed U.S. patents for Monsanto technologies can be found at the following webpage: http://www.monsanto. com/products-stewardship/patents.

Corteva Agriscience is a member of Excellence Through Stewardship® (ETS). Corteva products are commercialized in accordance with ETS Product Launch Stewardship Guidance and in compliance with the Corteva policies regarding stewardship of those products. Crops and materials containing biotech traits may only be exported to or used, processed or sold in jurisdictions where all necessary regulatory approvals have been granted for those crops and materials. It is a violation of national and international laws to move materials containing biotech traits across borders into jurisdictions where their import is not permitted. Growers should discuss these issues with their purchaser or grain handler to confirm the purchaser or handler's position on products being purchased. For further information on the approval status of biotech traits, please visit www.biotradestatus. com. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

Product performance in water-limited environments is AQUAmax variable and depends on many factors such as the severity and timing of moisture deficiency, heat stress, soil type, management practices and environmental stress, as well as disease and pest pressures. All hybrids may exhibit reduced yield under water and heat stress. Individual results may vary.



Qrome® products are approved for cultivation in the U.S. and Canada. They have also received approval in a number of importing countries, most recently China. For additional information about the status of regulatory authorizations, visit http://www. biotradestatus.com/

Lumisena™ Products are provided subject to the terms and conditions of purchase which are part of the labeling and purchase















AgrisureRW AgrisureViptera AM - Optimum® AcreMax® Insect Protection system with YGCB, HX1, LL. RR2. Contains a single-bag integrated refuge solution for above-ground insects. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax products. AMX -Optimum® AcreMax® Xtra Insect Protection system with YGCB, HXX, LL, RR2. Contains a single-bag integrated refuge solution for above- and belowground insects. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax Xtra products. YGCB,HXX,LL,RR2 (Optimum® Intrasect® Xtra) - Contains the YieldGard® Corn Borer gene and the Herculex XTRA genes for resistance to corn borer and corn rootworm. YGCB,HX1,LL,RR2 (Optimum® Intrasect®) - Contains the YieldGard® Corn Borer gene and Herculex® I gene for resistance to corn borer. AMXT (Optimum® AcreMax® XTreme) - Contains a single-bag integrated refuge solution for above- and below-ground insects. The major component contains the Agrisure® RW trait, the YieldGard® Corn Borer gene and the Herculex® XTRA genes. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax XTreme products. RW,HX1,LL,RR2 (Optimum® TRIsect®) - Contains the Herculex I gene for above-ground pests and the Agrisure® RW trait for resistance to corn rootworm. RW,YGCB,HXX,LL,RR2 (Optimum® Intrasect® XTreme) - Contains the Agrisure® RW trait, the YieldGard Corn Borer gene and the Herculex® XTRA genes for resistance to corn borer and corn rootworm. Optimum Intrasect XTreme will be the major component of Optimum AcreMax XTreme. AVBL,YGCB,HX1,LL,RR2 (Optimum® Leptra®) -Contains the Agrisure Viptera® trait, the YieldGard Corn Borer gene, the Herculex® I gene, the LibertyLink® gene and the Roundup Ready® Corn 2

Herculex® Insect Protection technology by Dow AgroSciences and Pioneer

Agrisure technology incorporated into these seeds is commercialized under a license from Syngenta Crop Protection AG.



SmartStax® and PowerCore® multi-event SmarrStax POWERCORE: technologies developed by Dow AgroSciences and Monsanto.





Enlist E3™ soybeans were jointly developed and are owned by M.S. Technologies, L.L.C. and Dow AgroSciences. Enlist Duo® and Enlist One® herbicides are not yet registered for sale or use in all states or counties Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state or area. Enlist Duo and Enlist One herbicides are the only 2,4-D products authorized for use in Enlist crops. Consult Enlist herbicide labels for weed species controlled



Components of LumiGEN™ technologies for soybeans are **LumiGEN**[™] applied at a Corteva Agriscience[™] production facility, or by an independent sales representative of Corteva Agriscience or

its affiliates. Not all sales representatives offer treatment services, and costs and other charges may vary. Please contact your Corteva sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary. State registrations for Lumiflex™, Lumiante™, L-2012 R, L-2013P and L-2030 R are pending. One or more of these products may not be registered for sale or use in all states. Contact your local DuPont retailer or representative for details and availability in your state.



G2® brand seed is distributed by NuTech Seed, LLC.

Bt products may not yet be registered in all states. Check with your seed representative for the registration status in your state.





Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, including applicable refuge requirements for insect resistance management, for the biotechnology traits

expressed in the seed as set forth in the Dow AgroSciences Technology Use Agreement and the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

Always follow IRM, grain marketing and all other stewardship practices and pesticide label directions

TRADEMARK OWNERSHIP:

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®Respect the Refuge Logo is a trademark of the National Corn Growers Association.

SOYBEANS PIRACY STATEMENT

Not only can it be illegal to save and replant patented seed, but as a grower, you need to consider the yield results and profitability. NuTech Seed® offers no quality guarantee for bin-run seed. Growers also incur extra costs, like cleaning, storage, handling and germination testing for such endeavors.

BENEFITS OF NEW SEED:

- · Meets quality standards of seed company
- Professionally handled and rigorously tested
- > Dramatically reduces splits and foreign matter
- > Ensures varietal purity
- Germination tests for peace of mind
- Weed-free
- · Access to the most elite germplasm
- Average loss of approximately 10% to 15% cleanout at harvest for bin-run
- New seed yields an average of 1.8 bushels per acre more than bin-run seed (university yield trials range from 1.2 to 5.9 bushels per acre)
- Dealer agronomic support before and after the sale
- · Royalties provide research and development of new traits and higheryielding germplasm
- · New trait introductions
- Seven to nine years for commercialization
- \$50 million to \$100 million in total costs for a new biotech trait

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2020 SEED GUIDE 2020 SEED GUIDE **69**





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NuTech Seed® is currently hiring District Sales Managers.

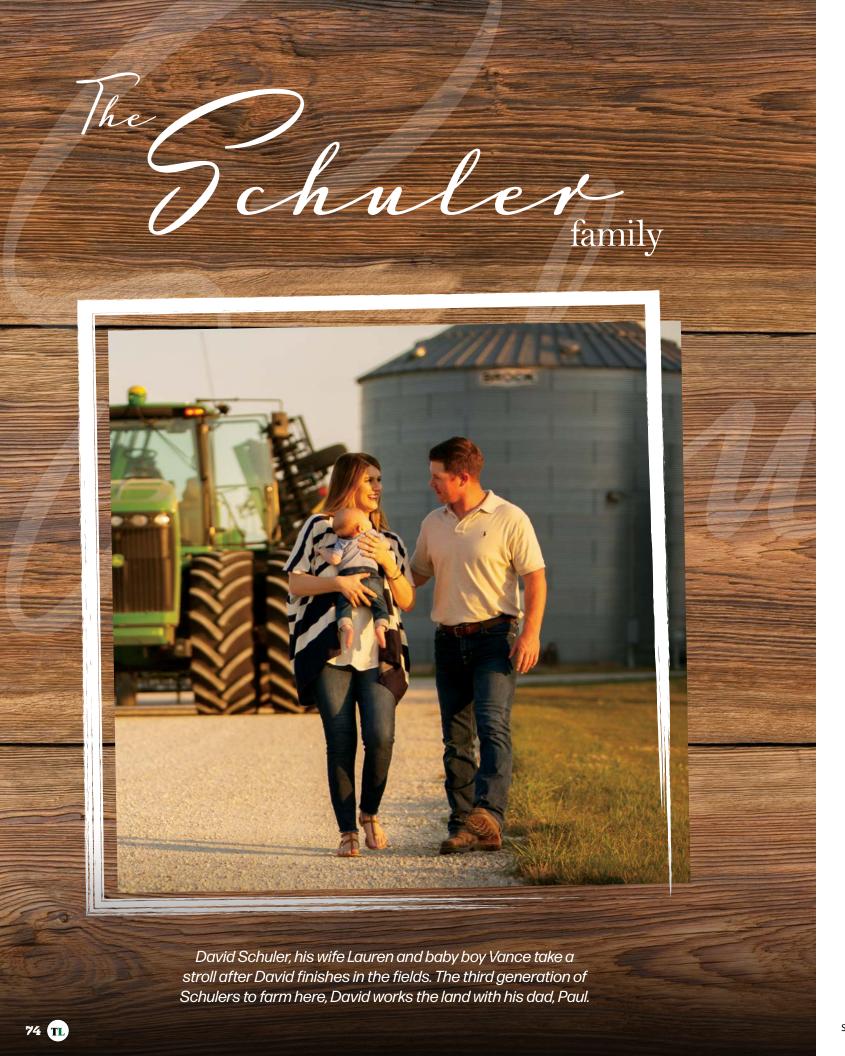
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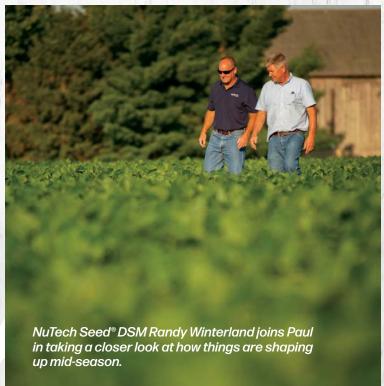




In lucky to do what I love

After a long, satisfying day, the Schulers reflect on what their farm and family mean to them. Paul Schuler says, "I loved working this land with my dad, so it means a lot to have my boys, David and John, now working alongside me. Some of our best memories have been made on these acres."







For all his agronomy expertise, his best skill is just listening to customers

rad Johnson grew up on a cattle farm just west of Des Moines, lowa. A self-described "show jock" in his teens, he had little interest in agronomy until a college internship changed his path. "I spent a summer in northwest lowa living out of hotel rooms," Brad recalls. "I was working with farmers over some complaints about a chemical carryover issue that was causing purple corn. I spent all day, all summer, hearing complaints. And I just loved it."

Lending a sympathetic ear

For Brad, hearing complaints wasn't draining—it was an opportunity. He says, "I loved going around and meeting farmers and learning about their operations, and then the thrill for me was that I was the guy bringing them the first contact on this problem, walking them through it, explaining it and giving them a solution."

Those skills would serve Brad well through 20+ years in agronomy. "You learn real quick in this business you're better off letting the customer talk," he says. "Nine times out of 10 the customer will tell you what he wants or needs." Brad feels the best way to offer solutions is to listen first.

Customer-centric agronomy

Brad believes in building relationships with his customers over years. Only when trust has been built up can an

agronomist have a deep discussion with a farmer and help lead them to the best solutions for their acres. "My goal is, 'How do I walk out of there when we're done and feel like I've helped that farmer?" Brad says. "I want to have helped him take a step in the right direction."

Sometimes, that involves helping a grower change their perspective on a particular piece of ground. "When you've done the same things for so many years, you get caught in a cycle," Brad says. "Maybe a particular area we're talking about is never going to produce 250 bushels. Maybe it's a 200-bushel parcel, and that's how we need to manage it, so you're not wasting money, resources and time." For Brad, the approach is straightforward. "When you step on that farm, your job—what you have to be thinking in your mind—is, 'How do I help this guy be more successful?""

Boots on the ground

Brad has worked to form a NuTech agronomy team that is different from most. "Our job is to get into the country, get nose-to-nose with the farmer, get a little dirty and have a little fun. If you're not doing that, you're not doing your job."

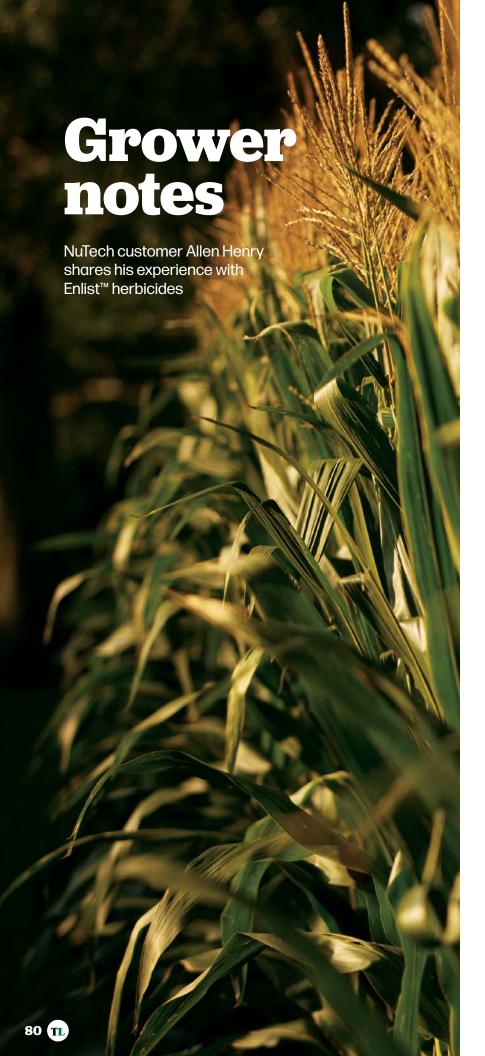
"My goal is, 'How do I walk out of there when we're done and feel like I've helped that farmer?"

When NuTech customers have an issue or concern, Brad wants his team to be their first call. To make that happen, Brad says, "You still need boots on the ground and your sales force walking onto that

farm. You still have to have that human experience: 'Hey, I'm Brad Johnson and this is what I do for NuTech Seed.' If you don't have that, you're just a guy on the other end of the line.

"I know my objective has been met when I get a "thank you" call from a grower. I couldn't be prouder to be part of the NuTech team."

Get in touch with Brad Johnson and the NuTech agronomy sales team at brad.johnson@nutechseed.com



Allen Henry grows corn, soybeans and wheat on his farm, where he's the fourth generation to work the land homesteaded by his family 150 years ago.



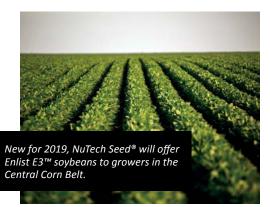
Allen farms with his dad and brother and looks forward to his son joining the business.

Allen was excited to try the Enlist™ weed control system before commercial launch. He was particularly interested in how Enlist herbicides would perform against waterhemp.

Allen shared his perspective after using the Enlist system and Enlist Duo® herbicide on his farm.

"We've always prided ourselves in using new technology. In fact, my grandfather was one of the first in the area to try anhydrous on his farm. Naturally, we jumped at the opportunity to try the Enlist system on our farm."

"Enlist is easy to apply, and it works. There is no drift and no smell. Enlist stayed right on target. In a program approach with other herbicides that have multiple modes of action, I think it will be a fantastic tool for many years."



"Enlist is easy to apply, and it works... I think it will be a fantastic tool for many years."



"The day after application, I could already see the herbicide was working; the weeds were dying. When we sprayed, we had heavy waterhemp pressure. Enlist took care of every bit of it."

"Mid-season, there was not a weed in the field. We couldn't have asked for the Enlist field to be any better."

"We've always used a proactive approach to weed control on our farm, including following a program approach and rotating our herbicides. We avoid overusing the same herbicide on our farm, as overuse may lead to resistance issues. We believe, when used properly in a program approach, Enlist Duo will help us control tough weeds for many years to come."





Two American companies come together to serve agriculture in a whole new way

By combining the strengths of DuPont Pioneer, DuPont Crop Protection and Dow AgroSciences, we've harnessed agriculture's brightest minds and expertise gained over two centuries of scientific achievement.



A commitment to growing progress

We bring our global presence, depth of knowledge and diverse resources, so that farms and farmers flourish everywhere, moving our world forward.

The champion of farmer success

Farmers are the first to face an everchanging landscape, while constantly striving for higher yields. They need seed and crop protection products that address their challenges—not just by county or region, but laser-focused down to the acre. We are on the ground alongside them, listening first and then innovating collaboratively to help enable their success. Our priority is the success of the farmer—because when producers thrive, our world thrives.

A novel approach to innovation

Ideas don't live within the confines of a specific industry, sector or technology. It's why we apply an open-source philosophy toward innovation, seeking inspiration from a diverse range of thoughts, ideas and solutions. When combined with our world-class research and development capabilities, ideas are transformed into reality with groundbreaking and sustainable agricultural solutions.

A responsible food system

We understand that quality food is the foundation of thriving communities and we work closely with farmers to ensure that the latest thinking and technology are used to grow better food, while sustaining the land and conserving resources.

Collaborating across the global food chain

We believe that collaboration with the scientific community and society—from local governments and policymakers to regulatory bodies—plays an integral role as an enabler of global agricultural success. Through our partnerships and ongoing involvement, we are forging a new path—one that is rooted in transparency—that will help to foster trust, confidence, pride and purpose.

Turning potential into reality

Delivering innovation is all about experience—in our case, two centuries of it. With a scale and breadth unmatched in the industry, we bring products to market with speed, efficiency and safety, while improving our environmental footprint.

SUMMER 2019 (\mathbf{TL})

Every farm town has something that makes it special. They're places often just down the road, but miles from what you'd expect. Follow us down some gravel roads and discover a few hidden gems you just have to see when you're out in NuTech country.



362 DAYS A YEAR, Kate Lambert and her husband Matt are well-grounded, tending to Uptown Farms and Lambert Farm Supply in north-central Missouri. But for three days every Labor Day weekend, the Lamberts get their heads in the clouds when the hayfield on the south side of their house transforms into the landing field for the annual Great Pershing Balloon Derby.

The event has a lot of history in the area. "The Great Pershing Balloon Derby is the country's longest-running, sanctioned hot air balloon event," Kate explained. "The first event was held in 1977."

"For the first few years, the event rotated around different farms in the area," Kate said, "but starting in the



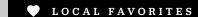
Each Labor Day weekend, the hayfield next to the Lambert home in north-central Missouri transforms into a landing field for the Great Pershing Balloon Derby.

ninth year, it landed at the Myron Peacher farm—a farm we rent and which our home farm was originally part of—and it has been here ever since." The spectacle is something to see, and local farms have gotten in on the event. "Most farm families in the area have sponsored or continue to sponsor a balloon, which gets you a ride in one for the weekend," Kate said. "Matt was able to ride last year!"

This year, the event will be home to the Women's National Invitational. "We think it's a pretty awesome event," Kate shared. "It's one of our favorite

weekends every year. And thousands of people drive by on Highway 36 every month and never know anything about it."

If you find yourself out on Highway 36 between Brookfield and Laclede, Missouri, this Labor Day, stop in and check it out. Of course, to see the Lamberts, you might need to look up.



DOGWOOD-AZALEA FESTIVAL

Charleston, MO

Submitted by Chris Dugan, NuTech Seed dealer

Chris recommends making time in April to attend this beautiful event, which has been running in Charleston for more than 50 years and features tours and festivities.



THE SIDNEY DAIRY BARN

Sidney, IL

Submitted by Katie Lannon

SUMMER 2019



Everyone always says they have the best ice cream in their town, but The Sidney Dairy Barn really does have the best! The town doesn't have much, not even a stop light, but it does have this little shop with the "World's Best Ice Cream!" I may be a little biased, since I grew up going here with family, then going on to work here for five years.





People have traveled near and far to get this delicious, creamy goodness, and most summer evenings the line even wraps around the parking lot! I would even ride my bike 10 miles through the country to get this ice cream—now that's dedication! If you are adventurous, try one of their tornadoes. You'll be blown away!

WHERE DO YOUR GRAVEL ROADS LEAD?



Share your favorite "can't miss" spots in your town or county with us. Send your Gravel Travel story to info@nutechseed.com, and we'll send you a thank you gift: an 8 oz. candle in Back Roads scent from Antique Candle Company. Plus, you could be featured in an upcoming issue.

*While supplies last. **Must live and farm in the NuTech geography to qualify.

DESIGNED TO MAKE MORE OUT OF EVERY DROP

TOUGH FROM TASSEL TO ROOT

Equipped with strong agronomics and the latest technology packages, Optimum® AQUAmax® hybrids use less water per bushel and lengthen the opportunity for growth.

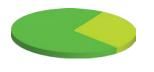
YIELD ADVANTAGE

5.7 bu/A

in non-irrigated conditions

conditions

WIN RATIO



70%

in non-irrigated conditions



61%

conditions

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ADVANCED STOMATA CONTROL

for more efficient use of H₂O*



AGGRESSIVE SILKING

for improved



DEEPER KERNELS

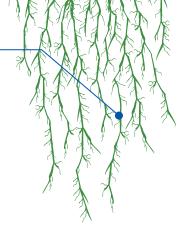
maintain yield under late-season stress*



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EFFICIENT ROOT SYSTEM

captures deep soil







SUMMER 2019

Let your soybeans thrive.



Enlist E3[™] Soybeans—Now Available!

At NuTech Seed®, we're focused on helping our customers live a lifestyle filled with success, enjoyment and family. Resistant weeds that hurt soybean yields can sure put a damper on things. That's why we're so excited to introduce Enlist E3™ soybeans, with tolerance to 2,4-D choline in Enlist™ herbicides, glyphosate and glufosinate. Spend less time worrying about weeds and get back to enjoying clean fields and soybeans that thrive.

