2020 Seed Guide
Great Lakes Region

Delivering technology, genetics and value.
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Since 1884, NK has earned a reputation for innovation.

1884 Among the companies operating today, Northrup King was the first to sell seed corn.
1922 One of the first private seed companies to create a formal research program.
1973 First private company to sell a proprietary soybean variety, S1474.
1993 First company to introduce bulk soybean containers, Q-Bit®
1996 First company to market Bt seed corn.
1999 First company to market TruBulk® for easier delivery of soybean seed.
Seed is only the beginning.

From day one, NK® has been forward-thinking and driven by science. We continue to live up to this legacy through strong investments in R&D, committed field support teams and an award-winning data analytics program.

Our latest advancements include high-speed trait conversion, which brings NK hybrids and varieties to market faster than before. The latest gene-editing technology helps NK seed breeders and scientists pinpoint high performing genetics. All done with one goal in mind—to help growers maximize whole-farm ROI potential.

Latest technology

Our technological advancements have allowed us to develop 12 new trait stacks in 13 years. These Agrisure® corn traits help growers protect genetic potential from pests while also optimizing water usage.

Our technology goes beyond the field and into the feedlot and ethanol plant. Enogen® and Enogen Feed offer a unique in-seed innovation that can help improve the profit potential of fields, feedlots or dairy farms.

Proven genetics

Yield is the most important factor when choosing a hybrid, and the NK hybrid yield results speak for themselves. In 2018, NK hybrids secured more than 100 top-10 finishes across 14 states in trials conducted by Farmers’ Independent Research of Seed Technologies (FIRST), including 28 top-three appearances.

Incredible value

ROI isn’t all about high yields. It’s a combination of several factors. Like market conditions, choosing seeds with consistent and excellent performance, competitive pricing and committed partners. And, it’s finding unique opportunities to offer growers greater value like we do with Enogen and Enogen Feed. NK is the complete package, helping growers achieve a better return on investment.

1 Farmers’ Independent Research of Seed Technologies (FIRST). No product recommendation by FIRST is implied. See firstseedtests.com for details.
When it comes to yield, NK corn hybrids with Agrisure traits are among the best in the business. And for your business. The newest NK hybrids launched in 2019 outyielded major competitors in pre-launch trials by as much as 5.4 bu/A.

But that’s not all. NK breeders are constantly leveraging the award-winning R&D capabilities of Syngenta to deliver cutting-edge corn and soybean technology. This includes state-of-the-art trait conversion techniques that significantly shorten the breeding process and bring new products to market faster than ever before.

We’re also making advancements on the digital frontier with a digital seed selector tool that offers field-specific optimized seed recommendations based on local data, weather pattern history and more.

Seeds built to boost your bottom line.

NKcorn.com

Innovative Agrisure traits are designed with one thing in mind: to protect a grower’s investment in high-performance NK genetics. Our advanced Agrisure traits portfolio offers a wide choice of market-leading trait stacks to fit the unique needs of every acre. From proactively managing corn rootworm to controlling western bean cutworm to water optimization, count on Agrisure traits to safeguard NK genetics and help improve ROI.

Industry-leading insect control

Agrisure trait stacks offer in-seed control options for up to 16 key corn insect pests, with options for above- and below-ground control. AgrisureTraits.com

**Agrisure Duracade®**

Controlling corn rootworm (CRW) is important. So is managing resistance. By rotating with other traits, growers can help ensure corn rootworm trait technologies will be effective for the long term.

Trait stacks with the Agrisure Duracade trait express a unique protein that binds differently in the gut of corn rootworm that is essential to successful CRW management.

Agrisure Duracade 5222 E-Z Refuge® is the ultimate trait stack for insect control, simplicity and choice, providing protection from 16 above- and below-ground pests.

**Agrisure Viptera®**

Above-ground Agrisure trait stacks offer industry-leading control of ear-, stalk- and leaf-feeding insects for reduced insect damage, noticeably healthier ears and more kernels.

Trait stacks featuring Agrisure Viptera offer access to the only trait available that effectively controls western bean cutworm—no other trait in the industry provides better or more complete above-ground insect control.

Agrisure Viptera 3330 E-Z Refuge® trait stack includes three modes of action for key lepidopteran pests, including corn earworm.

**Season-long drought protection**

All Agrisure trait stacks are also available in hybrids with Agrisure Artesian® technology to maximize yield when it rains and increase yield when it doesn’t.

**Agrisure Artesian**

The most advanced water optimization technology on the market.

A simple, efficient way to help manage the unpredictability of weather.

Many trait stacks are available with E-Z Refuge seed blend, offering a convenient in-bag refuge.

To learn more about the elite Agrisure traits portfolio, visit AgrisureTraits.com
## CORN CHARACTERISTICS

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>TRAIT OFFERS</th>
<th>ABOVE/BELOW GROUND INSECT PROTECTION WITH E-Z REFUGE</th>
<th>ABOVE GROUND INSECT PROTECTION WITH E-Z REFUGE</th>
<th>ABOVE/BELOW GROUND INSECT PROTECTION</th>
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Flex hybrids adjust to growing conditions by changing ear length or kernel depth. Determinate/Fixed hybrids are less able to adjust ear size. Plant Population is considered more important for a determinate-ear hybrid than for a flex-ear hybrid. Ratings are based on interpretation of data gathered by Syngenta and/or observations across areas of adaptation and may change as additional data is gathered.

Seed products with the LibertyLink® (LL) trait are resistant to the herbicide glufosinate ammonium, an alternative to glyphosate in corn, and combine high-yielding genetics with the powerful, non-selective, postemergent weed control of Liberty® herbicide.
<table>
<thead>
<tr>
<th>MATURITY INFORMATION</th>
<th>AGRONOMIC CHARACTERISTICS</th>
<th>PLANT CHARACTERISTICS</th>
<th>DISEASE TOLERANCE</th>
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**RATING SCALE**
- 1 = High
- 9 = Low
- - = Not available

**PLANT HEIGHT**
- 1 = Tall
- 9 = Short

**TEST WEIGHT**
- 1 = High
- 9 = Low

**ROOT TYPE**
- P = Penetrating
- M = Modified
- F = Fibrous

**EAR FLEX**
- F = Flex
- SF = Semi-Flex
- SD = Semi-Determinate
- D = Determinate

**LEAF TYPE**
- U = Upright
- S-U = Semi-Upright
- P = Pendulum

**COB COVER**
- S = Short
- M = Medium
- L = Long

**DISEASE TOLERANCE**
- 1 = High
- 9 = Low
- - = Not available

**DROUGHT**
- Agrisure Artesian water-optimized hybrid.
**NK8920**

**EXCITING YIELD WITH BROAD ADAPTATION**

- Excellent emergence and seedling vigor for a fast start
- Moderate stature with strong roots and stalks
- Superb staygreen and late-season plant health

**Rating**

<table>
<thead>
<tr>
<th>Emergence</th>
<th>Root Strength</th>
<th>Stalk Strength</th>
<th>Staygreen</th>
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**Best**

| 1          |

**NK8920-5122 E-Z Refuge**
**NK8920-3120 E-Z Refuge**

**To order, contact your NK retailer or call 1-800-258-0521 or visit NKSeeds.com**

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**NK9175**

**NEW**

**TOP-END YIELD POTENTIAL WITH BROAD ADAPTATION**

- Exceptional early disease package
- Consistent performance brings exciting yield levels to this maturity range
- Outstanding drought tolerance in the Northern Corn Belt

**Rating**

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<tr>
<th>Emergence</th>
<th>Root Strength</th>
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**NK9175-3110A**

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**NK9227**

**Artesian**

**EXCITING YIELD LEVELS PAIRED WITH AGRISURE ARTESIAN TECHNOLOGY**

- Maximizes yield when it rains; increases yield when it doesn’t
- Superb stalk strength for ease of harvest
- Very good staygreen and drydown

**Rating**

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<tr>
<th>Emergence</th>
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**NK9227-5222A E-Z Refuge**
**NK9227-3226A E-Z Refuge**
**NK9227-7226GA**

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**NK9535**

**DIVERSE GENETICS WITH EXCITING YIELD PERFORMANCE**

- Broad adaptation across yield environments
- Superb stalks for season-long standability
- Solid agronomics for continuous corn acres

**Rating**

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<tr>
<th>Emergence</th>
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**Best**

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**NK9535-3220 E-Z Refuge**
**NK9535-GT/LA**

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**NK0199**

**Artesian**

**EXCITING YIELD LEVELS PAIRED WITH AGRISURE ARTESIAN TECHNOLOGY**

- Maximizes yield when it rains; increases yield when it doesn’t
- Well suited to continuous corn environments
- Dependable stalks with superior late-season plant health

**Rating**

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**NK0199-3122A E-Z Refuge**
**NK0199-GT/LA**

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**NK0243**

**NEW**

**EXCELLENT AGRONOMICS IN A BROADLY ADAPTED HYBRID**

- Strong stalks and roots deliver season long standability
- Strong late season plant health for harvest flexibility
- Great emergence and vigor for fast stand establishment in cooler environments

**Rating**

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**NK0243-5122 E-Z Refuge**
**NK0243-3120 E-Z Refuge**

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To order, contact your NK retailer or call 1-800-258-0521 or visit NKSeeds.com
**NK0330**
**DIVERSE GENETICS WITH TOP-END YIELD**
- Quick drydown for timely harvest
- Strong disease package to protect yield
- Ear flex for population flexibility

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0330-5122 E-Z Refuge**
**NK0330-3120 E-Z Refuge**

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**NK0440**
**TALL, ATTRACTIVE PLANT TYPE THAT DELIVERS YIELD THROUGH VARIABLE ENVIRONMENTS**
- Adapted to all soil types for ease of placement
- Strong stalks for harvest flexibility
- Semi-flex ear enables competitive yields across diverse environments

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0440-3122 E-Z Refuge**

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**NK0624**
**STRONG PERFORMANCE IN HIGHLY PRODUCTIVE ENVIRONMENTS**
- Moderate plant height with good stalk and root strength for harvest flexibility
- Population flexibility while still excelling at higher populations
- Adapted to all soil types for ease of placement

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0624-5222 E-Z Refuge**
**NK0624-3220 E-Z Refuge**

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**NK0659**
**HIGH-PERFORMANCE HYBRID FOR TOP-END YIELD**
- Responds well to higher populations and high yield management
- Widely adapted to soils and environments with medium-to-high yield potential
- Excellent test weight

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0659-5122 E-Z Refuge**

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**NK0760**
**BROADLY ADAPTED HYBRID WITH CONSISTENT PERFORMANCE ACROSS YIELD ENVIRONMENTS**
- Moderate plant stature with very good root strength
- Excellent stalk strength for late-season standability
- Consistent ear with very good grain quality

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0760-3111**
**NK0760-GT**

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**NK0886**
**EXCELLENT COMBINATION OF OFFENSE AND AGRONOMICS FOR TOP-END YIELDS AND STABILITY**
- Excellent stalk strength for harvest flexibility
- Above average test weight for improved grain quality
- Adapted to all soil types for ease of placement

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 3
- Drought: 1

**NK0886-5122 E-Z Refuge**
**NK0886-3120 E-Z Refuge**
**nk0962 Artesian**

**Exciting Genetics with Agrisure Artesian Technology**
- Maximizes yield when it rains; increases yield when it doesn’t
- Population flexibility across all environments
- Top-end yield potential with stability when conditions are tough

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NK0962-5222A E-Z Refuge®
NK0962-3220A E-Z Refuge®

**nk0968**

**Top-End Yield with Sound Agronomics**
- Excellent stalk and strong roots for season-long standability
- Outstanding choice for variable soils provides consistent performance
- Strong protection against Gray Leaf Spot to minimize risk

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NK0968-3330 E-Z Refuge®
NK0968-3000GT™
NK0968-30LL™

**nk1066**

**Outstanding Test Weight Choice for the Central and Eastern Corn Belt**
- Strong foliar disease package to maximize yield potential
- Excellent drydown and very good grain quality
- Exceptional choice for variable soil types

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</table>

NK1066-3122 E-Z Refuge®
NK1066-3120 E-Z Refuge®
NK1066-3000GT™

**nk1082 Artesian**

**Excellent Yield Potential Across the Entire Corn Belt with Agrisure Artesian Technology**
- Broadly adapted hybrid for all yield environments
- Moderate plant stature with great emergence for earlier planting window
- Flexible trait offering for step change in above and below ground management

<table>
<thead>
<tr>
<th>Rating</th>
<th>Emergence</th>
<th>Root Strength</th>
<th>Stalk Strength</th>
<th>Staygreen</th>
<th>Drydown</th>
<th>Season Long Drought Protection</th>
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</table>

NK1082-5222A E-Z Refuge®
NK1082-3530A E-Z Refuge®

**nk1205**

**Strong Yield Performance Across the Corn Belt to the East Coast**
- Attractive plant stature to minimize residue
- Works well across all soil types with dependable drought tolerance
- Excellent grain quality and test weight

<table>
<thead>
<tr>
<th>Rating</th>
<th>Emergence</th>
<th>Root Strength</th>
<th>Stalk Strength</th>
<th>Staygreen</th>
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<th>Drought</th>
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NK1205-3120 E-Z Refuge®

**nk1284**

**Very Strong Agronomic Package Provides Superb Performance**
- Outstanding stalks and strong roots for late-season standability
- Excellent grain quality and test weight
- Consistent performance across all soil types

<table>
<thead>
<tr>
<th>Rating</th>
<th>Emergence</th>
<th>Root Strength</th>
<th>Stalk Strength</th>
<th>Staygreen</th>
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</tbody>
</table>

NK1284-5222 E-Z Refuge®
NK1284-3122 E-Z Refuge®
NK1284-3220 E-Z Refuge®
NK1284-3000GT™

To order, contact your NK retailer or call 1-800-258-0521 or visit NKSeeds.com
Control more insects, above and below ground.

Talk to your local NK® retailer about defending your yield.

AgrisureDuracade.com
This annual study aids growers’ understanding of how yield environment, grain price, seed cost and hybrid population response influence seeding rate recommendations. Information from this study is useful in determining the optimum planting population for each hybrid and field.

### INFLUENCE OF YIELD ENVIRONMENT AND COMMODITY PRICE ON OPTIMUM SEEDING RATE

<table>
<thead>
<tr>
<th>YIELD ENVIRONMENT (BU/A)</th>
<th>HIGHEST YIELDING SEEDING RATE (SEEDS/A)</th>
<th>OPTIMUM SEEDING RATE (SEEDS/A) BY COMMODITY PRICE ($/BU) (SEED COST = $200/80K UNIT)</th>
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<tr>
<td>120</td>
<td>29,700</td>
<td>21,900</td>
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</table>

### RATING SCALE

1 = Best  
9 = Worst  
- = Not available  
★ = Good Choice  
☆ = Best Choice  
-average to slightly below average  
X = Not Recommended  
- = Not Available  

### DROUGHT

Agrisure Artesian  
water-optimized hybrid.

### GENERAL INTERPRETATION OF HYBRID RESPONSE TO MANAGEMENT/PLACEMENT SITUATIONS AND END-USE TRAITS

#### Seeding Rate % Adjustment

Indicates how well a hybrid responds to lower or higher planting populations. Your local NK retailer has a calculator tool to help determine optimal seeding population for various environments.

#### Adaptation to Soil Types/Yield Environments

Ratings indicate whether hybrid contains multiple agronomic phenotypic traits deemed important for continuous corn systems. Ratings are weighted based on the individual hybrid characteristics: emergence strength, early vigor, root and stalk strength, staygreen and yield.

#### High pH Performance

Ratings represent an assessment of stand establishment, chlorosis severity and yield performance.

#### End-Use Traits

Ratings indicate end-use suitability based on the level of each grain quality characteristic.

#### Feed to Gain

Favorable ratings indicate hybrids with kernel density and weight associated with optimized feed to gain in a dry-rolled corn ration according to independent testing.
## CORN SILAGE HYBRID SELECTION

Silage quality and yield scores are based on actual tonnage—the silage analysis values were compared to hybrids of similar maturity.

<table>
<thead>
<tr>
<th>NK Hybrid Series</th>
<th>Relative Maturity (RM)</th>
<th>Agronomic Characteristics</th>
<th>Disease Tolerance</th>
<th>Agronomic Research Ratings</th>
<th>Feed Effect On*</th>
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<tr>
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<td>3</td>
<td>4</td>
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**NOTE:** Hybrid characteristics such as staygreen and drought stress tolerance are also important to consider when selecting hybrids for silage. Digestibility ratings are based on NIR and in-vitro digestibility analysis. Milk performance estimates generated from University of Wisconsin equations. Comparisons should only be made among hybrids within a maturity group. Although actual silage yield and quality analysis of a hybrid will vary with environment, the relative ranking of a hybrid will be similar. These ratings are a relative performance guide. Conduct a laboratory test to determine actual silage quality when balancing a feed ration.

**RATING SCALE**
- 1 = Best
- 9 = Worst
- - = Not available

**PLANT HEIGHT**
- 1 = Tall
- 9 = Short

**EAR HEIGHT**
- 1 = High
- 9 = Low

**RATINGS KEY**
★ = Best Choice
● = Good Choice
▼ = Average to Slightly Below Average
X = Not Recommended
- = Not Available

**DROUGHT**
Agrisure Artesian water-optimized hybrid.

**USING THIS CHART**
Yield: Calculated on a per-acre basis and adjusted to standard moisture.
Crude Protein (CP): Indicates the percent content of feed component relative to other hybrids.
Neutral Detergent Fiber (NDF): Measure of the indigestible and slowly digestible components of the silage.
Neutral Detergent Fiber Digestibility 48 Hour (NDFD 48 hr): Estimates the ruminant digestibility of the NDF fraction.
Starch: Indicates the percent content of feed component.

**Net Energy Lactation (NEL):** Feed effect on net energy for lactating cows based on acid detergent fiber (ADF).

**Milk/Ton:** An estimate of forage quality driven by starch content, starch digestibility and NDF; Milk/A combines the estimate of forage quality (Milk/Ton) and yield (Tons/A) into a single term.**

**Beef/Ton:** A proprietary estimate of forage quality driven by TDN; Beef/A combines the estimate of forage quality (Beef/Ton) and yield (Tons/A) into a single term.

**Total Digestible Nutrients (TDN):** Sum of the digestibility of different nutrients.
Feed with more ROI potential.

Enogen Feed hybrids don’t just offer excellent yield potential across a variety of soil types and conditions.

The proven trait also boosts the energy potential of a feedlot or dairy ration. Enogen technology increases starch availability, digestibility, total digestible nutrients and silage quality, and can increase the feed efficiency of a beef cattle production by an average of 5 percent. And when incorporated into a dairy ration, predictive modeling software has indicated a potential 3–5 percent gain in potential income over feed cost.

Putting Enogen Feed to work on the farm is as easy as replacing the grain or silage currently grown and fed and complying with simple stewardship requirements. To learn more, visit EnogenFeed.com

INVEST IN ENERGY.

The first biotech corn output trait designed for ethanol production, Enogen increases ROI potential. Featuring corn enzyme technology, Enogen helps ethanol plant profitability by increasing potential throughput and reducing natural gas, water and electricity use. Available in industry-leading trait packages with high-yielding genetics, Enogen is another way NK is helping growers find unique ways to boost profitability.

1 University of Nebraska Lincoln research study, 2016.
2 Syngenta contract research, 2016.
# Enogen Hybrid Characteristics

## Enogen Hybrid Series

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>MATURITY INFORMATION</th>
<th>AGRONOMIC CHARACTERISTICS</th>
<th>PLANT CHARACTERISTICS</th>
<th>DISEASE TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enogen Hybrid Series</td>
<td>Relative Maturity (RM)</td>
<td>GDs to Silk</td>
<td>GDs to Black Layer</td>
<td>Emergence</td>
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<td>E092T4</td>
<td>3000GT</td>
<td>92</td>
<td>1265</td>
<td>2350</td>
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<tr>
<td>E095D3</td>
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<td>95</td>
<td>1280</td>
<td>2400</td>
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<td>E101P5</td>
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<tr>
<td>E111B2</td>
<td>3000GT</td>
<td>111</td>
<td>1406</td>
<td>2580</td>
</tr>
</tbody>
</table>

### Rating Scale

- **TEST WEIGHT**: 1 = High, 9 = Low
- **PLANT HEIGHT**: 1 = Tall, 9 = Short
- **EAR HEIGHT**: 1 = High, 9 = Low
- **ROOT TYPE**: P = Penetrating, M = Modified, F = Fibrous
- **LEAF TYPE**: S-U = Semi-Upright, P = Pendulum
- **EAR FLEX**: F = Flex, SF = Semi-Flex, D = Determinate
- **COB COLOR**: R = Red, Pi = Pink, W = White
- **DROUGHT**: Agrisure Artesian water-optimized hybrid.

### Flex hybrids adjust to growing conditions by changing ear length or kernel depth. Determinate/Fixed hybrids are less able to adjust ear size. Plant Population is considered more important for a determinate-ear hybrid than for a flex-ear hybrid.

### NOTE: DISEASE AND INSECT RATINGS

Ratings are not absolute; environmental conditions and certain cultural practices, such as continuous corn, can play a critical role in disease development and insect infestation. Ratings are based on interpretation of statistically analyzed results of studies conducted by Syngenta.

**Herbicide Tolerance for Agrisure Traits in Enogen Hybrids**

Examples of Enogen hybrid-specific trait herbicide tolerance:

- **3000GT-EVT3/3011A-EVT3**: Can only be sprayed with glyphosate; cannot be sprayed with glufosinate.
- **3000GT-EVT5.1**: Can be sprayed with glyphosate and glufosinate.
- **All Enogen 5122/5122A**: Can only be sprayed with glyphosate; cannot be sprayed with glufosinate.

Important: Always read and follow label and bag tag instructions; only those labeled as tolerant to glufosinate may be sprayed with glufosinate ammonium-based herbicides.

Seed products with the LibertyLink (LL) trait are resistant to the herbicide glufosinate ammonium, an alternative to glyphosate in corn, and combine high-yielding genetics with the powerful, non-selective, postemergent weed control of Liberty herbicide.

---

*Enogen Corn*

Delivering technology, genetics and value.
**E092T4**

**TOP-END YIELD POTENTIAL WITH BROAD ADAPTATION**

- Superior grain yields across changing soil types
- Very good drought tolerance and drydown
- Great dual purpose silage option

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 1
- Drydown: 3

**E092T4-3000GT**

---

**E095D3**

**DIVERSE GENETICS WITH EXCITING YIELD PERFORMANCE**

- Broad adaptation across yield environments
- Superb stalks for season-long standability
- Solid agronomics for continuous corn acres

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 1
- Drydown: 3
- Drought: 1

**E095D3-5122 E-Z Refuge**

---

**E101P5**

**ARTESIAN TECHNOLOGY**

- Maximizes yield when it rains; increases yield when it doesn’t rain
- Well suited to continuous corn environments
- Dependable stalks with superior late-season plant health

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 1
- Drydown: 3
- Season Long Drought Protection: 3

**E101P5-3011A**

---

**E105T1**

**EXCELLENT TOP-END YIELD WITH STRONG AGRONOMICS TO MAXIMIZE GROWER PRODUCTIVITY**

- Adapted to continuous corn acres
- Fantastic late-season plant health and stalk strength allow movement south of zone
- Good drought tolerance allows for flexible placement on soil types

**Rating**
- Emergence: 9
- Root Strength: 7
- Stalk Strength: 5
- Staygreen: 1
- Drydown: 3
- Drought: 1

**E105T1-3000GT**
## ENOGEN HYBRID AGRONOMIC MANAGEMENT

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>AGRONOMIC MANAGEMENT AND PLACEMENT TRAITS</th>
<th>END-USE TRAITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEEDING RATE % ADJUSTMENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ADAPTATION TO SOIL TYPES/YIELD ENVIROMENTS</td>
<td></td>
</tr>
</tbody>
</table>

### CORN POPULATION RESPONSE FACTORS

This annual study aids growers’ understanding of how yield environment, grain price, seed cost and hybrid population response influence seeding rate recommendations. Information from this study is useful in determining the optimum planting population for each hybrid and field.

### INFLUENCE OF YIELD ENVIRONMENT AND COMMODITY PRICE ON OPTIMUM SEEDING RATE

<table>
<thead>
<tr>
<th>YIELD ENVIRONMENT (BU/A)</th>
<th>HIGHEST YIELDING SEEDING RATE (SEEDS/A)</th>
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<tbody>
<tr>
<td></td>
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<td>($3.00)</td>
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<td>280</td>
<td>40,200</td>
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<tr>
<td>120</td>
<td>29,700</td>
<td>20,900</td>
</tr>
</tbody>
</table>

### GENERAL INTERPRETATION OF HYBRID RESPONSE TO MANAGEMENT/PLACEMENT SITUATIONS AND END-USE TRAITS

**Seeding Rate % Adjustment:** The seeding rate columns indicate how well a hybrid responds to lower or higher planting populations. Your local Syngenta Representative has a calculator tool to help determine the optimal seeding population for various environments in your local geography.

**Adaptation to Soil Types/Yield Environments:** Ratings and soil type classifications are based on interpretation of studies conducted by Syngenta.

**Continuous Corn Agronomic Characteristics:** Favorable ratings in this column indicate hybrids containing multiple agronomic phenotypic traits deemed important for fields where corn is being cultivated for consecutive years. Ratings are weighted based on the following individual hybrid characteristics: yield, emergence strength, early vigor, root and stalk strength, staygreen and foliar disease tolerance.

**High pH Performance:** Ratings represent an assessment of stand establishment, chlorosis severity and yield performance.

**End-Use Traits:** Ratings indicate end-use suitability based on the level of each grain quality characteristic.
Soybean genetics that maximize profit potential.

NK soybeans have a track record of high performance from an established genetics portfolio with proven disease and pest protection. We’re also unmatched when it comes to bringing new industry-leading soybean varieties to market faster while also delivering superior yield potential.

**Traits packed with technology**

To maximize ROI, growers need to maximize the potential of our advanced genetics. Our best-in-class agronomic characteristics make that possible. The latest NK offerings allow growers to protect yield potential from more threats than ever before, including Soybean Cyst Nematode (SCN), Sudden Death Syndrome (SDS), Iron Deficiency Chlorosis (IDC) and Phytophthora root rot. NKsoybeans.com

**MORE VALUE. MORE ROI.**

NK will be a volume leader for both Enlist E3™ and Roundup Ready 2 Xtend®. Plus, among leading soybean companies, only NK soybeans and the trait owner offer a full lineup of unique Roundup Ready 2 Xtend varieties. All available for simplified, tiered pricing.
Weed management is the biggest concern of most soybean producers. Among leading soybean companies, only NK soybeans offer all herbicide trait options to help growers with weed management. We also offer the expertise to help growers choose the right technology platform. And with a state-of-the-art greenhouse, we can provide more options with accelerated trait conversion.

**Roundup Ready 2 Xtend®**
The industry’s first biotech stacked soybean trait that confers tolerance to glyphosate and dicamba herbicides—two different modes of action that deter resistance in weeds.

**Enlist E3™**
The first three-gene herbicide tolerant trait stack, Enlist E3 soybeans confer robust tolerance to glyphosate, glufosinate and 2,4-D herbicides, offering exceptional weed control and resistance management options. And with an advanced molecular construction, the Enlist E3 trait enables efficient breeding, which brings high-quality varieties to market faster.

**CONVERTING GENETICS**
Multiple NK genetics are in the pipeline to be converted from the Roundup Ready 2 Xtend portfolio to future trait Xtendflex® (RR2X/LL).

ALWAYS READ AND FOLLOW PESTICIDE PRODUCT LABELING. It is a violation of federal and state law to use any pesticide product in a manner inconsistent with its labeling.

Only dicamba formulations that employ VaporGrip® Technology are approved for use with Roundup Ready 2 Xtend® soybeans.

Only 2,4-D chloride formulations with Colex-D® Technology are approved for use with Enlist E3™ soybeans.

Enlist Duo and Enlist One herbicides are not 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 area.
## Soybean Characteristics

<table>
<thead>
<tr>
<th>Soybean Brands</th>
<th>Herbicide Tolerant Trait</th>
<th>Relative Maturity (RM)</th>
<th>Emergence</th>
<th>Canopy/Plant Type</th>
<th>Growth Habit</th>
<th>Standability</th>
<th>Narrow Row</th>
<th>Whole Row</th>
<th>Flower Color</th>
<th>Pubescence Color</th>
<th>Pod Color</th>
<th>Hilum Color</th>
<th>Chloride Sensitivity</th>
<th>Green Stem Rating</th>
<th>ADAPTATION TO SOIL TYPES/ YIELD ENVIRONMENTS</th>
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</table>

*HERBICIDE TOLERANT TRAITS*

- RR2X = Roundup Ready 2 Xtend®
- RR2X/STS = Roundup Ready 2 Xtend® and STS®
- E3 = ENLIST E3™
- E3/STS = ENLIST E3™ and STS®
- STS = Sulfonylurea Tolerant Soybean

**CANOPY/PLANT TYPE**

- T = Thin
- MS = Medium-Thin
- M = Medium
- MB = Medium-Bush
- B = Bush

**PLANT HEIGHT**

- S = Short
- MS = Medium-Short
- M = Medium
- MT = Medium-Tall
- T = Tall

**GROWTH HABIT**

- IND = Indeterminate
- DET = Determinate

**COLOR ABBREVIATIONS**

- BF = Buff
- BL = Black
- BR = Brown
- GR = Gray
- IMB = Imperfect Black
- IMY = Imperfect Yellow
- LTW = Light Tawny
- PUR = Purple
- TN = Tan
- TW = Tawny
- WH = White
- YEL = Yellow

**CHLORIDE SENSITIVITY**

- INC = Includer
- EXC = Excluder

**ADAPTATION TO SOIL TYPES/YIELD ENVIRONMENTS**

- ★ = Best Choice
- ◆ = Good Choice
- ♆ = Average to Slightly Below Average
- ♇ = Not Recommended
- - = Not Available

*NOTE: E3 product descriptions and ratings are sourced from the variety’s genetic supplier and may change as additional data are gathered.*
### Soybeans

#### RESISTANCE RATING SYSTEM
Indicates when a variety is resistant to a specific disease or pest. For Soybean Cyst Nematode (SCN) resistance, the nematode races the variety is resistant against are specified, when available. For Phytophthora, the gene conveying the resistance is listed.

#### PHYTOPHTHORA GENE RESISTANCE
The following genes confer resistance to the listed races of Phytophthora:
- **Rps1a** = Resistant to races 1, 2, 10, 11, 13-18, 24, 26, 27, 31, 32, 36, 38
- **Rps3a** = Resistant to races 1-5, 8, 9, 11, 13, 14, 16, 18, 23, 25, 28, 29, 31-35, 39, 44, 45
- **S** = Susceptible (no gene-specific tolerance)

#### PHYTOPHTHORA FIELD TOLERANCE
Usually not as complete as race-specific resistance, but it offers general protection. Resistance is not expressed in early stages of plant development. Numerical rating scale of 1-9; 1 = Best.

#### SOYBEAN CYST NEMATODE (SCN)
- **R** = Resistant
- **MR** = Moderately Resistant
- **S** = Susceptible
- **3 and/or 14** = Specific race of soybean cyst nematode

---

#### GRAIN QUALITY
<table>
<thead>
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<th>% Oil @13% mst.</th>
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#### DISEASE/PEST RATINGS
- **1** = Best
- **9** = Worst
- **-** = Not available
In order to help ensure maximum performance and protection of our advanced genetics, we recommend innovative products from the Syngenta seed treatment portfolio. These high-performance seed treatments protect your investment against early season diseases, insects and season-long activity for nematodes.

Through our work at the Seedcare Institute and our R&D teams, we are committed to bringing the newest technologies to market. And we have a deep pipeline of seed treatment products in development, including a new defense against soybean Sudden Death Syndrome (SDS) and new modes of action against some of the toughest pests in soybeans.

SyngentaSeedcare.com

Coming soon—a new soybean seed treatment for Sudden Death Syndrome (SDS) and nematodes.

Upon registration with the US EPA, Adepidyn® fungicide will be marketed as Saltro® fungicide1. It will offer:

- Consistent yield improvement over a leading SDS competitor under high SDS pressure.
- The highest intrinsic activity against Fusarium virguliforme, the causal organism of SDS.
- Activity against soybean cyst, root knot, lesion and lance nematodes.
- Protection from SDS without signs of early season plant stress, including phytotoxicity, stunting, susceptibility to pests or weather and reduced plant stands.

Provides broad-spectrum protection from damaging early season insects and diseases from day one because what’s on your seed matters, and not all seed treatments are created equal.

- Optimizes root health, nutrient and water uptake and stress tolerance for better emergence through the unique RootingPower of Vibrance® fungicide.
- Delivers faster speed to canopy and more robust, vigorous plants for improved overall performance through the Cruiser® Vigor Effect.
- Helps establish a higher stand count vs. competitor seed treatments and generics, and reduces the risk and costs of replants.
- Consistently outperforms against custom blends.

Season-long, lethal activity against Soybean Cyst Nematode (SCN), with added broad-spectrum, early season protection from damaging insects and diseases.

- Offers the only season-long, lethal activity against SCN on the market.
- Is a premix formulation of Clariva® pn nematicide and CruiserMaxx® Vibrance seed treatment to optimize root health and plant vigor.
- Delivers an attractive return on investment with an average yield increase of 2.7 bushels per acre, with some fields achieving yield increases of more than 10 bu/A.
- Establishes a higher stand count and stronger emergence vs. Acceleron® Elite + iLeVO® delivering more yield.
- Combines with Mertect® 340-F fungicide for increased activity against SDS and other SCN-related diseases.

1 Adepidyn/Saltro is not registered for sale or use as a seed treatment in the US and is not being offered for sale.
2 Includes locations that exhibited 20 percent SDS incidence or more as measured by a local scientist Syngenta Seedcare trials, 2015-2017, trial locations: AR, IL, IA, KY, MI, MN, TN, WI (p<0.1).
3 2015 Syngenta trials. Competitor comparisons: Performance evaluations are based solely upon interpretation of public information and field observations.
S20-E3 BRAND

**NEW**

**RM: 2.0**

**GREAT YIELDS WITH FULL DISEASE PACKAGE**

- Selected with SDS and SCN in mind
- Rps1c/3a stack and excellent tolerance to Phytophthora Root Rot
- Great row spacing flexibility

---

S20-J5X BRAND

**NEW**

**RM: 2.0**

**HIGH-YIELDING GENETICS PLUS RESILIENCE AGAINST KEY DISEASES**

- Excellent SDS tolerance safeguards your crop
- Strong Sclerotinia White Mold tolerance
- Suited to any row-spacing or population

---

S21-W8X BRAND

**NEW**

**RM: 2.1**

**DESIGNED TO IMPROVE RETURN ON INVESTMENT IN HEAVY SOILS**

- Outstanding SDS and superb Sclerotinia White Mold tolerance
- Above average Iron Deficiency Chlorosis tolerance
- Compact stature ideal for narrow rows yet competitive in 30” rows

---

S22-E3 BRAND

**NEW**

**RM: 2.2**

**DEFENSIVE LEADER WITH BROAD ADAPTATION**

- Strong SDS and Sclerotinia White Mold tolerance protect yields
- Rps1k gene with good field tolerance to Phytophthora Root Rot
- Solid tolerance to Iron Deficiency Chlorosis
**S24-E3 BRAND**

**NEW**

**RM: 2.4**

*Sweet Top-End Yields with Dependable Standability*
- Very good Iron Deficiency Chlorosis tolerance
- Yields well in zone and north
- Medium-tall, medium canopy allows flexibility across row widths

**S25-B6X BRAND**

**NEW**

**RM: 2.5**

*Rugged Plant Type with Great Stress Tolerance*
- Performs on tough soils and in droughty conditions
- Proven Sclerotinia White Mold tolerance
- Closes the canopy quickly

**S26-E3 BRAND**

**NEW**

**RM: 2.6**

*Great Choice for Fighting SDS*
- Performs best in central region
- Peking source of SCN resistance
- Rps1k gene with good field tolerance to Phytophthora Root Rot

**S27-M8X BRAND**

**NEW**

**RM: 2.7**

*First Class Performance in Any Growing Season*
- Superb SDS tolerance and high SCN resistance work together for a healthier crop
- Strong emergence for early planting in conventional or no-till systems
- Excellent standability for a clean-cut harvest

**S28-E3 BRAND**

**NEW**

**RM: 2.8**

*Easy to Manage High Yielding Genetics*
- Rps1k gene with outstanding field tolerance to Phytophthora Root Rot
- Plant type supports all row widths
- Above average SDS tolerance

**S30-M9X BRAND**

**NEW**

**RM: 3.0**

*Strong Product with Great Top-End Yield Potential*
- Outstanding SDS tolerance headlines the strong agronomic package
- Dependable standability for ease of harvest
- Rps1c gene with above average field tolerance to Phytophthora Root Rot

To order, contact your NK retailer or call 1-800-258-0521 or visit NKSeeds.com
### Soybeans

#### S31-E3S Brand
**NEW**  
**RM:** 3.1

**CONSISTENT PERFORMANCE ACROSS ENVIRONMENTS**
- Rps1c gene for Phytophthora Root Rot protection
- Excellent standability for easy harvest
- STS tolerance for flexible placement

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#### S31-Y2X Brand
**RM:** 3.1

**STRONG PERFORMANCE WITH THE AGRONOMICS TO PROTECT ALL SEASON**
- Plant confidently across varying soil types
- Wins across a wide geography north to south
- Versatile across dryland or irrigated acres

<table>
<thead>
<tr>
<th>Trait</th>
<th>Rating</th>
<th>BEST</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Standability</td>
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<tr>
<td>Phytophthora Field Tolerance</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Sudden Death Syndrome</td>
<td>3</td>
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</tr>
<tr>
<td>Sclerotinia White Mold</td>
<td><em>NA</em></td>
<td></td>
</tr>
</tbody>
</table>

### S33-D7X Brand
**RM:** 3.3

**EXCITING PRODUCT FOR EARLY MG 3 GROWERS**
- Strong performance across environments capitalizes on productive acres
- Proven defensive package
- Superior emergence paired with strong SDS tolerance for early planting

<table>
<thead>
<tr>
<th>Trait</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
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<td>Sudden Death Syndrome</td>
<td>3</td>
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</tr>
<tr>
<td>Sclerotinia White Mold</td>
<td><em>NA</em></td>
<td></td>
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</table>

### S33-E3 Brand
**NEW**  
**RM:** 3.3

**STRONG PERFORMANCE WITH BROAD ADAPTATION**
- Great Standability for smooth harvest
- Rps1c gene helps protect yield
- Good tolerance to SDS and Frogeye Leaf Spot

<table>
<thead>
<tr>
<th>Trait</th>
<th>Rating</th>
<th>BEST</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Sclerotinia White Mold</td>
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</table>

### S34-T2X Brand
**RM:** 3.4

**HIGH-PERFORMING, BROADLY ADAPTED PRODUCT**
- Strong performance across varying soil types
- Outstanding Frogeye Leaf Spot tolerance paired with proven SDS tolerance
- Rps1c gene with above average field tolerance to Phytophthora Root Rot

<table>
<thead>
<tr>
<th>Trait</th>
<th>Rating</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>Sclerotinia White Mold</td>
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</table>

### S35-E3 Brand
**NEW**  
**RM:** 3.5

**VERY STRONG YIELDS ACROSS YEARS**
- Excellent season long standability
- Solid Phytophthora Root Rot field tolerance
- Superior resistance to Southern Stem Canker

<table>
<thead>
<tr>
<th>Trait</th>
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</thead>
<tbody>
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<tr>
<td>Sclerotinia White Mold</td>
<td><em>NA</em></td>
<td></td>
</tr>
</tbody>
</table>
Buy a Ram® Truck. Get an NK seed rebate.

Get a $250 soybean seed rebate or a $1,000 corn seed rebate with the purchase of a new Ram truck from a Ram AgPack dealer.

Learn more at RamAgDealer.com/Ram-AgPack-promo
NK CORN

Hybrid Series: All hybrids within this series were developed from the same base genetics.

This two-digit number is the same as the last two digits of relative maturity.

The next two-digit numbers have no specific meaning.

RM: Specific relative maturity for this hybrid series.

Agrisure Artesian

*“A” indicates the presence of Agrisure Artesian technology for water optimization in the hybrid.

E-Z Refuge: Products include integrated in-bag 5% refuge.

The dash separates the genetic and trait portions.

The trait designator aligns with the Agrisure traits nomenclature system.

NEW: Indicates hybrid series or hybrid trait versions new for 2020.

NK1082

EXCELLENT YIELD POTENTIAL ACROSS THE ENTIRE CORN BELT WITH AGRISURE ARTESIAN TECHNOLOGY

- Broadly adapted hybrid for all yield environments
- Moderate plant stature with great emergence for earlier planting window
- Flexible trait offering for step change in above and below ground management

RM: 110

ENOGEN CORN

Hybrid Series: All hybrids within this series were developed from the same base genetics.

Relative maturity number

Randomly designated letter and number(s)

RM: Specific relative maturity for this hybrid series.

Agrisure Artesian

*“A” indicates the presence of Agrisure Artesian technology for water optimization in the hybrid.

E-Z Refuge: Products include integrated in-bag 5% refuge.

The dash separates the genetic and trait portions.

The trait designator aligns with the Agrisure traits nomenclature system.

NEW: Indicates hybrid series or hybrid trait versions new for 2020.

E109Y2

EXCITING GENETICS WITH AGRISURE ARTESIAN TECHNOLOGY

- Maximizes yield when it rains, increases yield when it doesn’t
- Population flexibility across all environments
- Top-end yield potential with stability when conditions are tough

RM: 109

NK SOYBEANS

Hybrid Series: All hybrids within this series were developed from the same base genetics.

A B C D E

RM: 2.0

A “S” indicates NK soybeans
B Indicates maturity group (00-7)
C Indicates within group maturity rating on a 0-9 scale (0 = early, 9 = late)
D Randomly designated letter and number
E Denotes herbicide technology – E = Enlist E3; L = LibertyLink®; X = Roundup Ready 2 Xtend® technology

RM: 2.0: Specific relative maturity for this variety.

S20-J5X

HIGH-YIELDING GENETICS PLUS RESILIENCE AGAINST KEY DISEASES

- Excellent SDS tolerance safeguards your crop
- Strong Sclerotinia White Mold tolerance
- Suited to any row-spacing or population

Herbicide tolerance and other traits

RM: 2.0
## NK CORN AGRISURE TRAIT BREAKDOWN

<table>
<thead>
<tr>
<th>AGRISURE® TRAIT STACK</th>
<th>MODES OF ACTION</th>
<th>ARTESIAN</th>
<th>HERBICIDE TOLERANCE</th>
<th>CORN BELT INSECT REFUGE REQUIREMENT**</th>
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## INSECT EVENT TRAIT NAMES

<table>
<thead>
<tr>
<th>AGRISURE TRAIT STACK</th>
<th>INSECT TRAIT EVENTS*</th>
<th>BROAD LEP TRAITS</th>
<th>CORN BORER TRAITS</th>
<th>ROOTWORM TRAITS</th>
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<tr>
<td>Agrisure® 3010</td>
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<th>INSECT EVENT TRACT EVENT BRAND NAMES</th>
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<td>MON89034</td>
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For more information check www.nca.com/for-farmers/know-before-you-grow/trait-table

* Refer to Insect Trait Event Brand Names.
** Refer to Stewardship page for complete details.
A strong stewardship program is essential for protecting and preserving the long-term value of insect-protected trait technology. Syngenta provides responsible agriculture programs and information regarding the safe handling and storage of product.

Stewardship Requirements
Read and understand the stewardship requirements found in the Syngenta Stewardship Guide, including applicable refuge requirements when planting insect-protected traits as set forth in the Syngenta Seeds, LLC Stewardship Agreement that you sign. To sign an agreement or view recommended planting configurations, please visit SyngentaStewardship.com or contact the Syngenta stewardship team: 1-877-476-2676. By opening and using a bag of seed, you are reaffirming your obligation to comply with those stewardship requirements.

Best Management Practices
The agricultural industry has learned that, in addition to planting a refuge, a sound Integrated Pest Management (IPM) strategy is needed to prevent Corn Rootworm (CRW) resistance. For more information on how you can implement Best Management Practices (BMPs) on your farm, including crop and trait rotation, refer to the industry CRW BMPs found on the NCGA website at NCGA.com/CornRootworm or SyngentaStewardship.com

Grain Marketing
Growers are encouraged to consult the Bio Trade Status website for the approval status of commercially available hybrids: BioTradeStatus.com. Talk to your grain handler prior to delivering crop so that it can be handled and marketed appropriately. Please contact your local seed representative with any questions.

Agrisure Duracade growers needing grain marketing assistance may contact Gavilon Grain, LLC at 844-559-1500 to identify an accepting location near you or visit syngenta-us.com/agrisure/duracade-stewardship.aspx for more information.

CORN REFUGE REQUIREMENTS
It is important to recognize that different hybrid/trait packages may have different Insect Resistance Management (IRM) requirements. On-farm mixing of any seed is not an approved method to comply with stewardship requirements.

<table>
<thead>
<tr>
<th>TRAIT STACK*</th>
<th>MINIMUM REFUGE REQUIREMENT CORN-GROWING REGION</th>
<th>MINIMUM REFUGE REQUIREMENT COTTON-GROWING REGION</th>
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<tr>
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<tr>
<td>Agrisure Viptera</td>
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<td>Agrisure Duracade</td>
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</table>

Refuge size is calculated by applying the appropriate percentage (e.g., 20%, 50%) to the TOTAL CORN ACRES.
Calculator available to help farmers plan how to meet the minimum refuge requirements for each Bt corn product on their farm. Download at www.irmcalculator.com
* These products may be offered as Agrisure Artesian® corn hybrids, which convert water to grain more efficiently. Artesian™ corn hybrids are designated by an ‘A’ at the end of the trait stack name.
The Agrisure® 3010 trait stack was previously sold as Agrisure® GT/CB/LL.
Important: Always read and follow label and bag tag instructions; only those labeled as tolerant to glufosinate may be sprayed with glufosinate ammonium-based herbicides.
Syngenta hereby disclaims any liability to Third Party websites referenced herein.
Corn crop planning

Field Name: 
Hybrid: 
Population: 
Management Considerations: 

Field Name: 
Hybrid: 
Population: 
Management Considerations: 

Soybean crop planning

Field Name: 
Variety: 
Population: 
Management Considerations: 

Field Name: 
Variety: 
Population: 
Management Considerations: 

To order, contact your NK retailer or call 1-800-258-0521 or visit NKSeeds.com
Delivering technology, genetics and value.
Delivering technology, genetics and value:

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Product performance assumes disease presence.

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Some seed treatment offers are separately registered products applied to the seed as a combined slurry. Always read individual product labels and treater instructions before combining and applying component products. CruiserMaxx Vibrance Beans is an on-seed application of CruiserMaxx Vibrance alone or with Apron XL. Saltro is currently not registered for sale or use in the U.S. and is not being offered for sale. Adapride is not currently registered as a seed treatment in the U.S. and is not being offered for sale.

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YieldGard® VT Pro™ is a trademark of Monsanto Technology LLC.

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