MANAGING WATER ALL SEASON LONG

Dry conditions at any growth stage can result in reduced yield. The good news is that Agrisure Artesian corn hybrids from Syngenta help the crop optimize the use of available water all season long, converting water to grain more effectively than other hybrids.

How insufficient water affects the corn plant:

- Can delay silk emergence, resulting in unsuccessful fertilization
- May produce fewer carbohydrates, resulting in less harvestable grain to fill the ear
- May cause leaves to wilt and curl, disrupting photosynthesis and normal plant development
- May inhibit cell expansion and division within the plant, resulting in reduced plant height and ear size
- Can reduce plant’s uptake of water and soluble nutrients

How Artesian hybrids help the corn plant manage water:

- Better regulate synchronization of pollen shed and silking, resulting in successful fertilization
- Better control of how resources are allocated within the plant, increasing the volume of harvestable grain per ear
- Maintain normal growth and development longer into a dry spell
- Optimize growth and health of developing shoot and floral tissues
- Improve water and nutrient uptake through robust root system

Talk to your Syngenta seed or Agrisure® traits representative about Artesian corn hybrids today or visit AgrisureArtesian.com.

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Are You **PARANOID**?

Think about it for a minute, Are you **PARANOID**?

Paranoia is to have suspicion of something, so are you suspicious? If you’re not, maybe you should be...

I recently attended a presentation about Soil Moisture Probes, the presenter described irrigators as being paranoid. For example, ask yourself If your neighbors start irrigating, does it make you more or less likely to start? This behavior can be linked to paranoia, because you likely lack all the information, you are suspicious of your neighbors action. It would be very similar to how you might act if your pick-up did not have a fuel gauge – out of paranoia (suspicion of running low) you would more than likely stop more frequently at the gas station when you passed by.

So this leads me to wonder, Are you **PARANOID**? or are you using the tools available to us today as 21st Century farmers to make the most educated decisions possible on when, how much, and what to apply to your crops. Are you maximizing production while minimizing inputs? Are you the low cost producer? Or are you chasing yield at all cost? In today’s agriculture economy these questions could be the difference between success and failure, the difference in farming this year or farming for years to come.

Most people view being **PARANOID** as a bad thing, but from my perspective, being paranoid leads us to greater understanding of many of the most important questions in agriculture. Am I using the right product, at the right rate, at the right time, and in the right place to get the expected result – maximum ROI? If you aren’t you are likely throwing away time and money, and I don’t know anyone who has extra time or money.
REDUCE HEADER LOSS

360 YIELD SAVER™ REDUCES HEADER LOSS BY 80% BY CLOSING THE GAPS IN TRADITIONAL DECK PLATES AND GATHERING CHAINS.

Traditional corn heads have gaps in the deck plates and gathering chains that result in corn kernels falling right through. 360 YIELD SAVER eliminates those gaps by adding intermeshing bristles to custom gathering chains to capture significantly more kernels.

Side by side tests show 360 YIELD SAVER reduces header loss by over 80%. 360 YIELD SAVER can pay for itself within the first season and generate more than a 75% ROI after three years.

KEY FEATURES

+ Mounts easily on corn heads
+ Chain includes crop lugs (not shown) to improve stalk feeding
+ 360 YIELD SAVER blocks easily attach to chain
+ Simply replace blocks when they wear out
+ Chain wear life similar to conventional chains
+ Block life expected to be one season
REDUCE HEADER LOSS.

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DON'T LET YIELD FALL THROUGH THE CRACKS

Field test show that 360 YIELD SAVER typically captures and additional 1.8 bushels per acre. The savings add up quickly. Consider the return on investment for a typical corn operation. With an eight row head covering 750 acres per year, a grower could expect gross yield savings of over $16,000 and a net profit of over $7,000. That's a 76% return on investment.

In addition to the yield capture, header management improves. You no longer have to manage the header speed to minimize header loss. You can optimize head and feeder house speed to ground speed and crop flow. Plus, because 360 YIELD SAVER can capture nubbins and undersized ears, you have more flexibility in deck plate spacing.

360 YIELD SAVER IS AVAILABLE FOR:

- John Deere 600 AND 40/90 Corn Heads
- Case IH 1000 through 4000 Corn Heads
- Geringhoff Northstar, Rota Disc, MS Cornstar, PC Corn Heads

360 YIELD SAVER is part of a new approach to farming from 360 Yield Center. Designed to provide crop management solutions at every turn – from planning and planting to full-year nutrient application and harvesting. Giving you more control to significantly improve your yield.

info@360yieldcenter.com  888-512-4890  360YIELDCENTER.COM
Syngenta researchers reflect on the discovery and development efforts that have contributed to the success of Artesian corn hybrids. | By Karyn Ostrom

Given this season’s excessive rain throughout much of the Corn Belt, choosing a 2016 corn hybrid based on its ability to optimize water may seem counterintuitive. But 2015’s rainfall underscores the reality that weather remains the most unpredictable factor in growing a successful crop, explains Duane Martin, Ph.D., commercial traits lead at Syngenta.

Fortunately for growers, the benefits of water-optimized Agrisure Artesian® corn hybrids from Syngenta are twofold. During years like 2015, when in-season rainfall is sufficient to grow a successful crop, Artesian™ hybrids deliver top-end yield. And during seasons when available water is limited, they have demonstrated a nearly 12 percent yield advantage over non-Artesian hybrids. Much of the success can be attributed to the research and development (R&D) efforts that helped produce this elite lineup of hybrids—and the contributions of the Syngenta native traits water optimization team.

More Listening, Less Talking

There’s a reason why Syngenta took a native gene approach when the company’s water optimization R&D efforts in corn commenced a decade ago. By that time, advances in biotechnology had produced hybrids that could deliver specific outcomes, such as resisting herbicides and controlling pests. Building a hybrid to manage water stress, however, was different. Researchers agreed that a successful outcome would require a sophisticated understanding of how water stress affects corn at the gene level. It would be difficult and inefficient, they reasoned, to begin breeding plants to manage water stress without knowing more about the nature of the stress they were trying to manage.

“Studying native traits allows corn to teach us how it has adapted to respond to stress,” says Adrian Lund, Ph.D., a principal research scientist and plant physiologist on the genetics team at Syngenta. “Biotechnologists sometimes assume they know everything about corn—and thus we believe we can tell corn exactly what we want it to do. While this approach has been successful in some cases, we are finding that there is so much more we can learn when we stop telling corn what we want it to do and start listening to what it’s trying to tell us. The true power of native trait technology is that we now can rapidly identify and combine the best of these ancient adaptive strategies into modern high-performance corn hybrid products.”

During the discovery stage, Syngenta scientists analyze the native corn genome to identify genes that are involved in the ability to manage water stress. According to Allison Weber, Ph.D., senior research scientist at Syngenta, it’s a tedious yet rewarding endeavor. “Discovering and understanding how a gene contributes to a drought-tolerant Artesian hybrid is uncovering part of the truth,” she says. “As a scientist, that’s an exciting feeling.”
Testing for Stress Management
The groundwork for Artesian hybrids begins in a lab, but it doesn’t end there. Genes that test well for stress management during discovery become “candidate genes.” Syngenta researchers then evaluate hybrids containing these genes at Managed Stress Environment (MSE) sites around the world to determine whether the genes will perform in a field setting.

“The main purpose of operating MSE sites is to replicate our trials in real-world environments,” says Christine Chaulk-Grace, lead North America MSE trialing and station manager at Syngenta.

One of the MSE sites Chaulk-Grace manages is in LaSalle, Colorado. It is the first Syngenta research site dedicated to testing crops in managed irrigation trials and includes roughly 80 acres of land, outfitted with below-ground drip tape. This setup enables Chaulk-Grace and her team of three full-time researchers to deliver irrigation with maximum precision, from a volume and timing perspective. Because LaSalle receives little in-season rainfall, her team can induce drought by withholding water at various growth stages and at different levels of severity to observe how the crop—and, specifically, the candidate genes—can manage water stress.

The researchers at MSE sites communicate field observations and performance results to Syngenta corn breeders, who then move validated genes into hybrids with compatible genetic backgrounds.

Shepherding Artesian hybrids from discovery to development—and then to commercialization—is a defining career highlight for the LaSalle research team, says Aubrey Weiland, associate scientist at Syngenta. For the past nine years—spanning much of the native traits water-optimization effort—Weiland has monitored, managed and harvested the trials. “When you work on a project-like this with such intensity, it’s really exciting to know that actual growers are benefiting from the technology,” she says.

Optimizing the Conversion of Water to Grain
About 115 miles east of the LaSalle MSE site is Yuma County, Colorado—consistently ranked among the top corn-producing counties in the nation. Here, the Ogallala Aquifer, which nourishes much of the High Plains, provides the lifeblood for crops, as center pivot irrigation units transform the landscape from dry prairie grasses to vibrant green circles of crops.

Syngenta Seed Advisor™ and grower Nathan Armstrong, who maintains a 2,500-acre operation in Yuma County, recognizes that the aquifer is a finite resource. Doing his part to help extend its life, he embraces wireless irrigation management technology and agronomic practices that help him apply irrigation wisely.

In 2014, Armstrong planted Golden Harvest® Corn hybrid G07B39 Artesian in one field. “I love that hybrid,” he says. “It ended up being my highest-yielding field. And this hybrid simply doesn’t need as much water, so I don’t need to apply as much irrigation. I’ve found that, from my experience, it requires about 30 percent less water than other hybrids because it uses water so much more efficiently.”

The ability to achieve optimal yields while saving a significant amount of water motivated Armstrong to convert 70 percent of his corn acres to G07B39 Artesian in 2015.

Growers across the entire Corn Belt report that Artesian hybrids help them manage gaps in rainfall better than other hybrids—and that the plant’s ability to optimize the conversion of water to grain translates to improved yield consistency. “I like the fact that an Artesian hybrid is very consistent across every acre that we plant here,” says Mitch Agre, a Syngenta Seed Advisor and grower from Sacred Heart, Minnesota. “We can plant it on corn-on-corn acres, less productive acres—even sandy ground—and it seems to do all right. We don’t have to worry about running out of water in the middle of the summer, as that hybrid will kick into high gear for us and help finish out the season.”

The Next Wave
As growers like Armstrong and Agre embrace Artesian technology as a simple, effective way to manage the unpredictability of weather, the Syngenta native traits water optimization team continues to actively research, identify and validate additional genes. “The pipeline works, and we want to extend it,” says Dirk Benson, Ph.D., head of seeds product development at Syngenta.

The Artesian footprint now extends beyond North America, having been launched as HYVIDO® corn in southeastern Europe. Other regions anticipating Artesian product launches in the coming years include Latin America and Southeast Asia.

“We’re in a great place,” says Ben Ford, Ph.D., germplasm team lead at Syngenta. “As part of the breeding team, it’s exciting to develop such an elite lineup of hybrids. When growers are seeing success, it’s that much more fulfilling.”

PHOTOS: WILLIE PETERSON
Why spend time logging-into different apps and websites when you can…

Check the in-season status of your fields at a glance!

Looks great on computer, tablet, or phone screen!

Easily glance over multiple fields or get a detailed look at a single field!

In-field weather measurements and upcoming forecast.

Crop maturity and growth stage.

Pivot location and status.

Flow meter readings and total water use. (Not shown.)

In-season CropView aerial imagery. Thermal, Natural Color, and NDVI.

Plant available water at each soil sensor depth.

Graphs of how soil moisture is changing throughout the season.

Rate of evapotranspiration (water loss) for this location and crop type.
MANAGE NITROGEN WITH A BASE-PLUS APPROACH.

Margins are tight. That means you need to make inputs work harder so you can maximize profit. How you manage nitrogen can make a big difference in your bottom line and your yields. 360 Yield Center gives you the tools so you can make the most of inputs by applying N when it’s needed most, instead of putting it out early when it’s vulnerable to loss from rain and the environment.

Corn uses almost 75% of its needed nitrogen after V10. That’s why it’s time to start rethinking a one-and-done approach and instead build a strong foundation with a base rate in the fall or spring, but saving inputs for mid-season application.

知，不要猜测，你的植物在整个季节中有多少氮可以使用。通过360 SOILSCAN™，你可以轻松地在你的田地里实时监测氮含量。还有，使用Corn N Need Calculator，你可以根据现场和现场的需要建立氮应用计划。

360 Y-DROP™让你可以在任何时间添加氮，甚至在VT时，当玉米最需要的时候，360 Y-DROP会在茎秆底部直接添加氮，这使得它对根系来说是最容易吸收的。
# 2015 SORGHUM YIELD DATA

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Cooperator: Circle B Farms, Inc.  
Irrigated/dryland: Dryland  
Previous Crop: Wheat  
Planting Rate: 32500  
Tillage: No-Till  
Planting Date: 6/7/2015  
Harvest Date: 11/8/2015
### GRAIN SORGHUM

**AG1201 Early Bronze Grain Sorghum**
- Very uniform
- Excellent yield for maturity
- Strong drought tolerance
- Adaptable across a wide range of growing conditions
- Sugarcane aphid tolerance

**AG1203 Medium-Early Bronze Grain Sorghum**
- Outstanding yield for maturity
- Strong standability and excellent uniformity
- Excellent drought tolerance and dryland option
- Widely adaptable
- Sugarcane aphid tolerance

**AG1301 Medium-Early Cream Grain Sorghum**
- Performs well in dryland conditions and responds very favorably to irrigation
- Excellent staygreen
- Good standability
- Very good plant uniformity
- Widely adaptable
- Sugarcane aphid tolerance

### 2016 SORGHUM YIELD DATA

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<th>Brand</th>
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Tillage: No-Till  
Planting Date: 6/9/2016  
Harvest Date: 10/18/2016
March 28 2017

the BOTTOM LINE

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Ag West
AgriEdge Excelsior
Enogen Feed Corn
Servi-Tech

STALK TALK
News & Field Report

Volume 13 | 02-2017

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