“When we spray one of the Stressgard® products, particularly on fairways, we get good color for two weeks and beyond.”

– Mike Dachowski, Shelter Harbor Golf Club

“Ninety-nine percent of the products are used on our bentgrass/Poa greens. They remained healthy this year, even though we had an extreme drought for six weeks during the summer.”

– Spencer Roberts, The National Golf Club of Kansas City
Extraordinary is Your New Ordinary

By Richard Rees, Ph.D., Head of Environmental Science Field Solutions, North America

For years, superintendents have turned to Bayer for the solutions and advice that make their jobs easier, their turf greener and their golfers happier.

In my role leading development of new solutions across the Bayer North American Environmental Science Division, I work with a team of dedicated and highly skilled scientists who conduct the extensive work necessary to ensure optimal performance for each innovation we bring to superintendents. We do so with one guiding principle: innovation without customer insight is not innovation. And no solution better illustrates this principle than Stressgard®.

By nature, superintendents have extremely high expectations for their course conditions and for themselves. They have an incredible work ethic and are constantly learning, tweaking and improving their craft to achieve the best possible course.

Today, superintendents turn to Stressgard for solutions they can count on, even in incredibly unpredictable conditions. Until the mid-1990s, superintendents struggled to manage their turf under stress, especially in high heat and humidity. With the discovery of Stressgard, a proprietary technology, Bayer introduced a solution that could go beyond disease control to mitigate a wide scope of biotic and abiotic stresses.

The introduction has changed the game for superintendents. For Bayer, innovation never stops for the solutions and advice that make their jobs easier, their turf greener and their golfers happier.

Stressgard innovation contributes to a better life for superintendents. For Bayer, innovation never stops for the solutions and advice that make their jobs easier, their turf greener and their golfers happier.

Currently, the comprehensive Stressgard portfolio includes trusted solutions for greens and fairways, including Signature® XTRA Stressgard, Fiata® Stressgard, Mirage® Stressgard, Exteris® Stressgard, Interface® Stressgard and Tartan® Stressgard. Since Stressgard is not dependent on a single active ingredient, superintendents can use the Stressgard portfolio of products with proper rotation to avoid resistance development. That means, no matter the disease or stress you’re dealing with, you can have Stressgard on your course all season long.

Stressgard has helped superintendents achieve extraordinary results, reaching the higher expectations they have set for themselves. Whether that means more time with their teams or more time with their families, we know our Stressgard innovation contributes to a better life for superintendents on and off the course.

Signature XTRA Stressgard:
The Foundation of Any Greens Program... and for Good Reason

By Patrick Burgess, Ph.D., Field Development Scientist, Northeast U.S.

Putting greens are held to the highest performance standards amongst all golf course playing surfaces and are continually subjected to extreme management practices which push the limits of plant physiology. Signature XTRA Stressgard continues to be the cornerstone of successful greens management programs with the optimized Fosetyl-Al + Stressgard delivering unrivaled benefits beyond disease control for over two decades. But how does Signature XTRA Stressgard deliver such superior results for the turf manager when all other products continue to fall short of par? It all comes down to conditioning the core attributes of plant physiology to “do more with less.”

Chlorophyll is the basis of all plant development processes and serves to harvest sunlight energy to drive growth and metabolism. When stress (heat, drought, shade, traffic, etc.) becomes severe, chlorophyll production slows and degradation accelerates, leading to profound consequences for whole-plant performance. Stressgard serves to mitigate chlorophyll degradation or accelerate production when stress conditions would dictate otherwise.

Chlorophyll which remain unaffected by stress antagonists will operate at peak performance and continue to deliver a constant supply of energy for growth and stress defense. Optimized chlorophyll capacity means that turf plants receiving Stressgard will maintain photosynthetic output across a range of light intensities.
By Richard Rees, Ph.D., Head of Environmental Science Field Solutions, North America

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The introduction has changed the game for superintendents. For Bayer, innovation never stops with an initial discovery. Over the past 25 years, this powerful technology was tailored to solve challenges across the entirety of the course, from greens to fairways. Our studies with Stressgard have shown that whether a superintendent is battling summer stress and drought, high traffic, shade issues or winter recovery or green up, they can turn to Stressgard for unmatched performance.

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Putting greens are held to the highest performance standards amongst all golf course playing surfaces and are continually subjected to extreme management practices which push the limits of plant physiology. Signature XTRA Stressgard continues to be the cornerstone of successful greens management programs with the optimized Fosetyl-Al + Stressgard delivering unrivaled benefits beyond disease control for over two decades. But how does Signature XTRA Stressgard deliver such superior results for the turf manager when all other products continue to fall short of par? It all comes down to conditioning the core attributes of plant physiology to “do more with less.”

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Chlorophyll which remain unaffected by stress antagonists will operate at peak performance and continue to deliver a constant supply of energy for growth and stress defense. Optimized chlorophyll capacity means that turf plants receiving Stressgard will maintain photosynthetic output across a range of light intensities.
The Stressgard ability to support chlorophyll health and drive light harvesting under stressful conditions has profound effects across all aspects of turf growth, notably enhanced root health. Intensive putting green cultural practices such as low mowing, repetitive rolling and deficit irrigation can collectively influence turf growth by slowing cellular growth and causing a pseudo “survival mode.” This leads to reduced root growth and eventual turf thinning. Stressgard-treated greens produce stronger roots and dense turf, resulting in superior playing surfaces for golfers.

Cool-season turfgrass species, such as creeping bentgrass and annual bluegrass, are regularly exposed to unfavorable environmental conditions such as heat, drought, traffic, and/or shade. These stress factors impose significant limitations on the functionality and performance of putting green turf. In cases when only one antagonist is present at a given time, the resulting stress on the putting green can be mild to moderate. When multiple antagonists are present together, which tends to be the more common scenario on golf courses, considerable turf decline and disease incidence can occur. Multiple antagonists can weaken turf considerably, causing turf decline and increased disease incidence. Simply put, turf managers who build their putting green programs upon the Signature XTRA Stressgard foundation are best equipped to mitigate symptomology of these stressors and maintain a superior putting surface when the environment is dictating otherwise.

Heat and drought stress are commonly referred to as the primary stresses of cool-season turf species and therefore historically received the bulk of research focus over the years. But what about the lesser-researched stresses such as shade and traffic, both of which pose major challenges for the turf manager and golf course putting greens? With regard to shade stress, there exists a small body of evidence suggesting that pigmented products intensify the negative effects of shade and use should be avoided in shade-prone locations. While this may be true for some pigmented products including phosphites, Signature XTRA Stressgard has been proven to delay or eliminate the shade-induced canopy thinning from leaf etiolation and chlorosis and continues to be the clear choice for use on shaded putting greens.

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Similar to the current state of shade stress research, limited knowledge exists surrounding traffic stress on golf course putting greens and how the turf manager can utilize plant health products to mitigate traffic symptoms typically developing in clean-up passes or equipment turning areas. Recognizing the customer need for an effective solution to traffic stress, recent field trials were conducted to demonstrate the stress-mitigating capabilities of Signature XTRA Stressgard on putting greens exposed to severe traffic stress.
The Stressgard ability to support chlorophyll health and drive light harvesting under stressful conditions has profound effects across all aspects of turf growth, notably enhanced root health. Intensive putting green cultural practices such as low mowing, repetitive rolling and deficit irrigation can collectively influence turf growth by slowing cellular growth and causing a pseudo “survival mode.” This leads to reduced root growth and eventual turf thinning. Stressgard-treated greens produce stronger roots and dense turf, resulting in superior playing surfaces for golfers.

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Creeping bentgrass putting green research site located in New Brunswick, NJ approximately ten weeks after trial initiation. Plots were exposed to abrasion and compaction stress three times per week throughout the summer. The Signature XTRA Stressgard foundational program maintained a dense canopy with less thinning or bruising due to traffic, whereas canopy damage and subsequent algae encroachment were seen in untreated plots or plots receiving an alternative phosphite with or without generic pigment.

Creeping bentgrass putting green research site located in New Brunswick, NJ approximately eight weeks after trial initiation. Plots were exposed to shade stress, traffic stress, and increasing heat stress as summer progressed. The Signature XTRA Stressgard foundational program mitigated the majority of stress-induced symptoms and resulted in an acceptable playing surface compared to the untreated plots.

Since the initial launch of Chipco® Signature two decades ago, the Stressgard portfolio has expanded to address emerging customer needs on both greens and fairways. Today, this proven stress mitigating technology is formulated into seven different products across five chemical classes. These solutions combine biotic and abiotic stress management to consistently achieve premium turf quality under challenging conditions. Countless university field studies and golf course demonstration trials clearly exhibit Stressgard benefits with side-by-side comparisons against alternative products.

As the latest addition to the Bayer Stressgard Portfolio, Exteris Stressgard offers reliable broad-spectrum disease management and further brings the Stressgard advantage onto fairways. In the controlled environment study above, when challenged with imposed heat stress, turf treated with a simple program containing Exteris Stressgard and Signature XTRA Stressgard maintained shoot growth and experienced significantly less root loss. This typical plant health benefit delivered by Stressgard products helps reduce turf injury and preserve playability during stressful periods.

Every Stressgard product comes with turf-specific formulation optimized for turf safety and performance. This is clearly demonstrated in an efficacy and safety study conducted at University of Connecticut shown above. Premium turf quality maintained in Mirage® Stressgard treated Poa annua plots is a combination of effective anthracnose control and product safety. Another plant health study conducted at North Carolina State University, shown below, further demonstrates the stress-mitigating effect of Mirage Stressgard on a creeping bentgrass fairway. It also served to answer an important point that Stressgard cannot be mimicked by combining generic active ingredients with pigment.

For over twenty years, the scientists at Bayer have continued to innovate on Stressgard and exceed the limits of what a plant health product can deliver to putting green management. This yearning to innovate based on the customer need continues with ongoing research, demonstrating the superiority of Signature XTRA Stressgard as the foundation of putting green programs in cool and warm season climates. Unlike other pigmented phosphites currently available in the marketplace, there continues to be no issues surrounding phytotoxicity or functional limitations with Signature XTRA Stressgard. Moreover, Signature XTRA Stressgard represents the epitome of flexibility in that the turf manager can effectively incorporate it at 7, 14, or 21-day intervals prior to, during, and following stress periods, resulting in cumulative plant health promotion across all seasons.
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Flexible use rates make Fiata Stressgard a great plant health promoter for any fairway program. Quicker divot recovery at spring green-up. These great examples of proven stress-mitigating benefits and its application with Mirage Stressgard, a ‘Tifway 419’ hybrid bermudagrass fairway had better color, higher stand density, and quicker recovery following removal of stress. In a warm-season turf study, when Fiata Stressgard was used in a program and ‘L-93’ creeping bentgrass showed delayed wilting, reduced turf loss, and expedited recovery following removal of stress. A Stressgard program delivers sustained plant health benefits season-long while allowing chemical class rotation to minimize resistance concerns.

A feature of Stressgard fungicides is that their stress-mitigating benefits are not dependent on active ingredients. Stressgard fungicides have defined a revolutionary approach in promoting turf health through effective management of biotic and abiotic stress components. This proven technology by extensive research is available in a diverse collection of products for superintendents across the county to incorporate into their fungicide programs. The versatility, consistency and satisfaction delivered by Bayer Stressgard solutions will continue to be a feature of the ‘plant health champion’ of putting green programs and Fiata Stressgard provides similar benefits to fairways. In a deficit irrigation study conducted at Rutgers University, Fiata Stressgard was used in a program with Mirage Stressgard, a ‘Tifway 419’ hybrid bermudagrass fairway had better color, higher stand density, and quicker divot recovery at spring green-up. These great examples of proven stress-mitigating benefits and its flexible use rates make Fiata Stressgard a great plant health promoter for any fairway program.

The program comparison trial shown above demonstrates how a Stressgard program maintains top turf quality throughout the entire summer season. The Stressgard advantage was particularly prominent under high levels of environmental stress. Moreover, less canopy variability was observed in Stressgard program treated plots, indicating a more consistent playing surface.

Since the introduction of Chipco Signature and continued innovation during the past two decades, Bayer Stressgard fungicides have defined a revolutionary approach in promoting turf health through effective management of biotic and abiotic stress components. This proven technology by extensive research is available in a diverse collection of products for superintendents across the county to incorporate into their fungicide programs. The versatility, consistency and satisfaction delivered by Bayer Stressgard solutions will continue to help superintendents achieve their respective agronomic goals and redefine their own normal.

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Non-overseeded ‘Tifway’ bermudagrass fairway green-up study. Stressgard-treated plots received two applications of Mirage Stressgard in the fall and another two applications of Mirage Stressgard the following spring. This was also accompanied by a monthly Fiata Stressgard program from fall to spring. Genotypic comparison plots received equivalent doses of same active ingredients. Plot photos shown were taken on April 30, two weeks after all applications were concluded and approximately three weeks after initial green-up. (North Carolina State University, 2019)

Plant health index maps from a fungicide program comparison study on ‘Proclamation’ creeping bentgrass putting green. Products used in Stressgard program included Mirage Stressgard, Tartan Stressgard, Exteris Stressgard, Signature XTRA Stressgard, and Interface Stressgard. Treatment applications were made on various dates throughout the entire summer season. (Bayer, 2018)

The program comparison trial shown above demonstrates how a Stressgard program maintains top turf quality throughout the entire summer season. The Stressgard advantage was particularly prominent under high levels of environmental stress. Moreover, less canopy variability was observed in Stressgard program treated plots, indicating a more consistent playing surface.
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Extraordinary is Your New Ordinary

Mike Dachowski
Golf Course Superintendent, Shelter Harbor Golf Club

Willow Best Friend

When you can count on your turf to be at its best, others can count on you to be at yours.

Your golfers want a greener course. You want a little more time in your day. Stressgard goes beyond disease control to deliver both – allowing you to maximize your potential on and off the golf course. So whether that means finding time to be a better Superintendent, or to spend time with your best friend – Stressgard delivers.

For turf you and your golfers can count on in conditions you can’t, look to Stressgard.

See the science behind the extraordinary at es.bayer.us/stressgard

From Research to Real-World

By Paul Giordano, Ph.D. and Todd Lowe, M.S., Bayer Green Solutions Team Specialists

“University trial results look great, but how will it perform on my course?” This is a common question from golf course superintendents when discussing the benefits beyond disease control of Stressgard fungicides. So, how do we put Stressgard to the true test across diverse climatic and agronomic conditions? The answer – work directly with golf course superintendents across the country to demonstrate in situ plant health and abiotic stress mitigation across the portfolio of Stressgard products.

The protocol is simple: customize a comparative Stressgard program with similar chemistry, rates and costs to the standard fungicide program in place at each participating golf course. Both programs are carried out on the same schedule throughout the season; ensuring designated demo fairways receive the appropriate Stressgard product, while adjacent areas remain on the standard program for comparison.

Each course faces unique challenges, and the comparative demos have delivered some key insights into how Stressgard products can help create more consistent, predictable course conditions by mitigating a wide variety of biotic and abiotic stresses across the golf course. The results speak for themselves:

The differences in turf quality and consistency, especially through difficult stretches of weather were remarkable.

The comments from superintendents shed light on their experience with Stressgard:

// “Stressgard outperformed my traditional program in all areas...Excellent results and a perfect fit for any fairway program.”
  – Bill Coulter, Montauk Country Club

// “Disease control was on par with standard program, but stress tolerance was night and day better...The color and plant health through a very hot, dry period were above and beyond my expectations.”
  – Jake Mendoza, Detroit Golf Club

// “When I spray Fiata on fairways, we get a huge response in turf color weeks after the application. My members have gotten to know when I made the application, they look at me and say, ‘you sprayed that magic stuff again didn’t you?’”
  – John Thompson, Sycamore Hills Golf Club

// “The color and performance on abiotic stresses are phenomenal. Stressgard seems to limit the visual stresses the summer heat can enhance with no added water or wetting agents.”
  – Matt Emond, Reservation Golf Club

A total of five applications were made starting May 7 prior to picture being taken July 13 two days post application. Stressgard treatments included Tartan® Stressgard, Interface® Stressgard, Fiata® Stressgard, Mirage® Stressgard and Exteris® Stressgard. Both programs were carried out on 14-day average intervals.

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– Mike Dachowski, Shelter Harbor Golf Club

“Ninety-nine percent of the products are used on our bentgrass/Poa greens. They remained healthy this year, even though we had an extreme drought for six weeks during the summer.”
– Spencer Roberts, The National Golf Club of Kansas City