



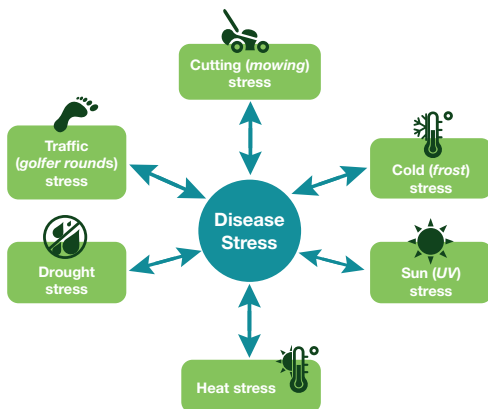
## Technical Information

**StressGard Formulation Technology (StressGard FT) is composed of active ingredients, inert ingredients and Bayer’s advanced formulation technology which combine to improve the ability of Bayer fungicides to deliver excellent turf quality above and beyond disease control.**

Bayer fungicides formulated with StressGard FT are proven to give outstanding disease control while alleviating plant stresses, ultimately improving turf quality, density, colour and playability. That’s because Bayer StressGard FT fungicides have stacked technologies:

- Systemic fungicide activity
- Colour enhancement
- Selective radiation management
- Photosynthesis enhancement
- Plant defence induction
- Oxidative Stress Reduction
- Summer turf safety

The benefits add up to improved disease control, enhanced turf colour and density, and overall improvements in turf quality.



### SYSTEMIC FUNGICIDES

All StressGard FT fungicides provide systemic activity for disease control, resulting in long-lasting preventative as well as curative activity. Effective fungicidal active ingredients are a key part of successful turf disease management programs.

### COLOUR

All StressGard FT fungicides enhance turf colour, adding to the natural aesthetic characteristics of both cool and warm season turfgrasses.

### SELECTIVE RADIATION MANAGEMENT

Fungicides formulated with StressGard FT reduce the impact of harmful ultraviolet radiation and selectively allow for the transmission of red and blue light wavelengths used by turf plants for photosynthesis. Plant stress is reduced, improving the balance between photosynthesis and respiration.

### PHOTOSYNTHESIS ENHANCEMENT

Studies with Chipco® Signature show an enhancement in photosynthesis in heat-stressed plants (Huang & Liu 2009). Enhanced photosynthesis equals more energy production in plants and increased tolerance to stresses and disease development.





### OXIDATIVE STRESS REDUCTION

Interface® contains trifloxystrobin and can be used to assist in stress reduction on turfgrass. Trifloxystrobin reduces oxidative stress in plants, resulting in increased tolerance to drought and other abiotic factors (Han *et al.* 2012).

### PLANT DEFENCE INDUCTION

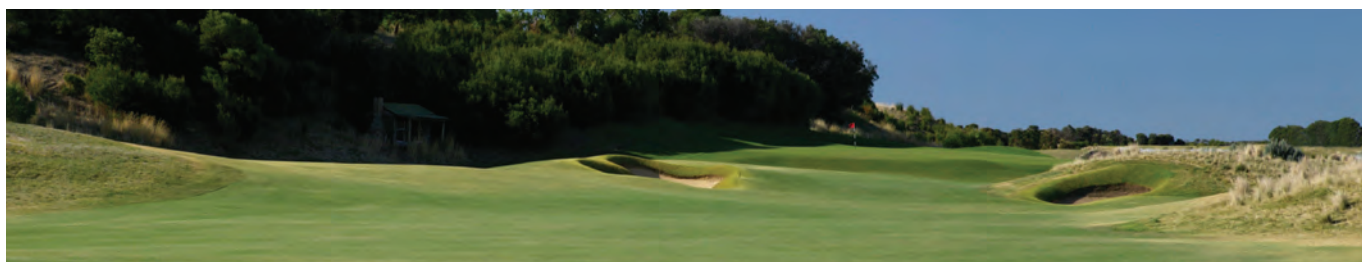
Chipco Signature activates natural plant defences to decrease the impact of diseases (Guest 1984). Although the active ingredient in Chipco Signature is primarily active against pythium, it has been found to be effective in combination with other products to prevent stress diseases like anthracnose (Cook *et al.* 2006).

### SUMMER TURF SAFETY

Under summer stress conditions, some other products can cause significant damage to plants; StressGard FT solutions have year-round flexibility. Non-DMI products like Chipco Signature and Interface can be used any time without risk of negative plant growth regulation effects.

### REFERENCES AND FURTHER READING

- Cook, J., Landschoot, P. and Schlossberg, M. 2006. Phosphonate products for disease control and putting green quality. *Golf Course Management* 74(4):93-96.
- Guest, D.I. 1984. Modification of defence responses in tobacco and capsicum following treatment with Fosetyl-Al [Aluminium tris (o-ethyl phosphonate)]. *Physiological Plant Pathology* 25:125-134.
- Huang, B. and Liu, X. 2009. Physiological responses of creeping bentgrass to heat stress affected by phosphonate fungicide applications. *International Turfgrass Society Research Journal* 11:799-806.
- Han, S.H., Kang, B.R., Lee, J.H., Lee, S.H., Kim, I.S., and Kim, C.H. 2012. A Trifloxystrobin Fungicide Induces Systemic Tolerance to Abiotic Stresses. *The Plant Pathology Journal* 28:101-106.



## Bayer is committed to sustainable development



Bayer is a leader in sustainable development within the industry and has been included in the Dow Jones Sustainability World Index on a number of occasions and is the first European Chemical company to be listed in the Carbon Disclosure Leadership Index. Printed on carbon neutral FSC certified paper using vegetable inks.

