

A NEW GENERATION CONTACT FUNGICIDE

Emerald[®]

LONGER RESIDUAL, BROADER SPECTRUM, LOW RATES

- **Dollar Spot**
- **Anthraco**se
- **Helmo** Diseases
- **Gray Leaf Spot**



COLIN CAMPBELL (CHEMICALS) PTY LTD
100% Australian owned & operated. Established 1940
The Key to Professional Turf
www.campbellchemicals.com.au (02) 9725 2544



Emerald® AT A GLANCE

Product Name:	Emerald®
Type	Fungicide
Active Constituent	500g/L Fluazinam
Resistance group	29
Formulation	Suspension Concentrate (SC)
Pack Size	1L
Mode of action	Contact

WHAT IS Emerald®

Emerald is a new generation broad spectrum contact fungicide. Emerald is the perfect partner to use in rotation with Dacogreen WeatherShield to deal with troublesome diseases.

Colin Campbell (Chemicals) have been developing Emerald for a number of years to bring a new active ingredient (Fluazinam), that is broad spectrum and versatile, to use in an ever changing climate.

HOW DOES Emerald® WORK

As mentioned Emerald is a contact fungicide and is a multi site mode of action. This means Emerald disrupts the production of energy at multiple metabolic sites within the fungal cell. Resistance risk is very low due to this. Emerald is (FRAC) Group 29 Fungicide.

The perfect partner with Dacogreen WeatherShield.

With variable weather conditions turf managers need to know what they put out will be effective. Dacogreen has proven this time and time again with it's unique sticking properties. Now we have Emerald.

Emerald binds to the plant very quickly. Once spray is dry product is rainfast (usually within 2 hours). Emerald does not wash off the plant unlike other contact fungicides. The Emerald formulation holds fungicide to the surface of leaf blades even after irrigation and heavy rains. In the below rain fastness study, plants treated with 2 fungicides (Emerald and Daconil® Weatherstik) were subjected to an artificially simulated rainfall events (20 mm/hr) at 2 hours and 24 hours following fungicide application.

In the study, the plant leaves were then inoculated with disease spores, incubated then placed in ideal growing conditions for 3 days. Following this period the plant leaves were assessed for disease presence and control achieved by the fungicides. The results below indicate that disease control was achieved with both PPM rates of both products, indicating that Emerald was equivalent to Daconil Weatherstik when it comes to rainfast properties

PPM (Concentration of Fungicide in spray solution)	% Disease Control following simulated rainfall at 2 and 24 hours after fungicide treatment.	
125	Emerald	Daconil® (Dacogreen WeatherShield has similar properties due formulation)
125	88	88
31	56	50

Ref: Komyoji et al "Biological Properties of a New Fungicide, Fluazinam" J.Pesticide Science 20:129-135 (1995).

Other features of: **Emerald[®]**

- Emerald has shown to have quicker recovery of dollar spot than DMI fungicides.
- Emerald can be used in any temperature range as there is no phytotoxicity to any turf grass variety
- Emerald is active all year round as it is not temperature sensitive (DMI Group 3 Fungicides need air temperature to be at least 10°C to be active and will not work as efficiently if the plant is under stress. Emerald does not have any of these issues).
- Emerald is a water based formulation Emerald has very good tank mixing features. However, it is highly recommended to conduct a jar test and/or a small plot test to make sure as other variables can influence results.

Emerald[®] (LABEL EXTRACT)

Situation	Diseases Controlled	Rate/ha	Critical Comments
Turf including but not limited to bowling greens, fairways, golf greens, racetracks, sports fields and tees	Dollar Spot <i>(Sclerotinia homeocarpa)</i> Helminthosporium Disease <i>(Bipolaris spp., Drechslera spp. and Exserohilum spp.)</i> Gray Leaf Spot <i>(Pyricularia grisea)</i> Anthracnose <i>(Colletotrichum graminicola)</i>	1-1.5L in 400L-800L water	Emerald should be applied as a preventative treatment. Spray when conditions are favourable for disease development and/or as soon as possible after first symptoms are detected. Make a second application 7 to 14 days later if conditions continue to favour disease development. Use rates towards the higher end of the range and shorten intervals. DO NOT mow or water treated area until turf or lawn is thoroughly dry, ideally allow 24 hours.
NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.			

Application volume for leaf and crown diseases (Dollar Spot, Helminthosporium Disease, Grey Leaf Spot and Anthracnose) should be adequate to ensure thorough and even coverage of the turf leaves and penetration into the crowns. Ideal application volumes should be between 400 – 800 L/ha. For best results use coarse [Turbo Teejet* or AIXR Teejet* (11004 or 11005)] nozzles, at 5 km/h and 3 bar pressure. In higher cut turf (>15 mm) a significant spray shielding effect can occur, impacting negatively on spray penetration and even coverage at low application volumes. Good control requires good coverage. Application should be made in sufficient water to ensure thorough coverage. Do not apply more than 3 application of Emerald per season.

See label for full use information & re entry period for non golf sectors



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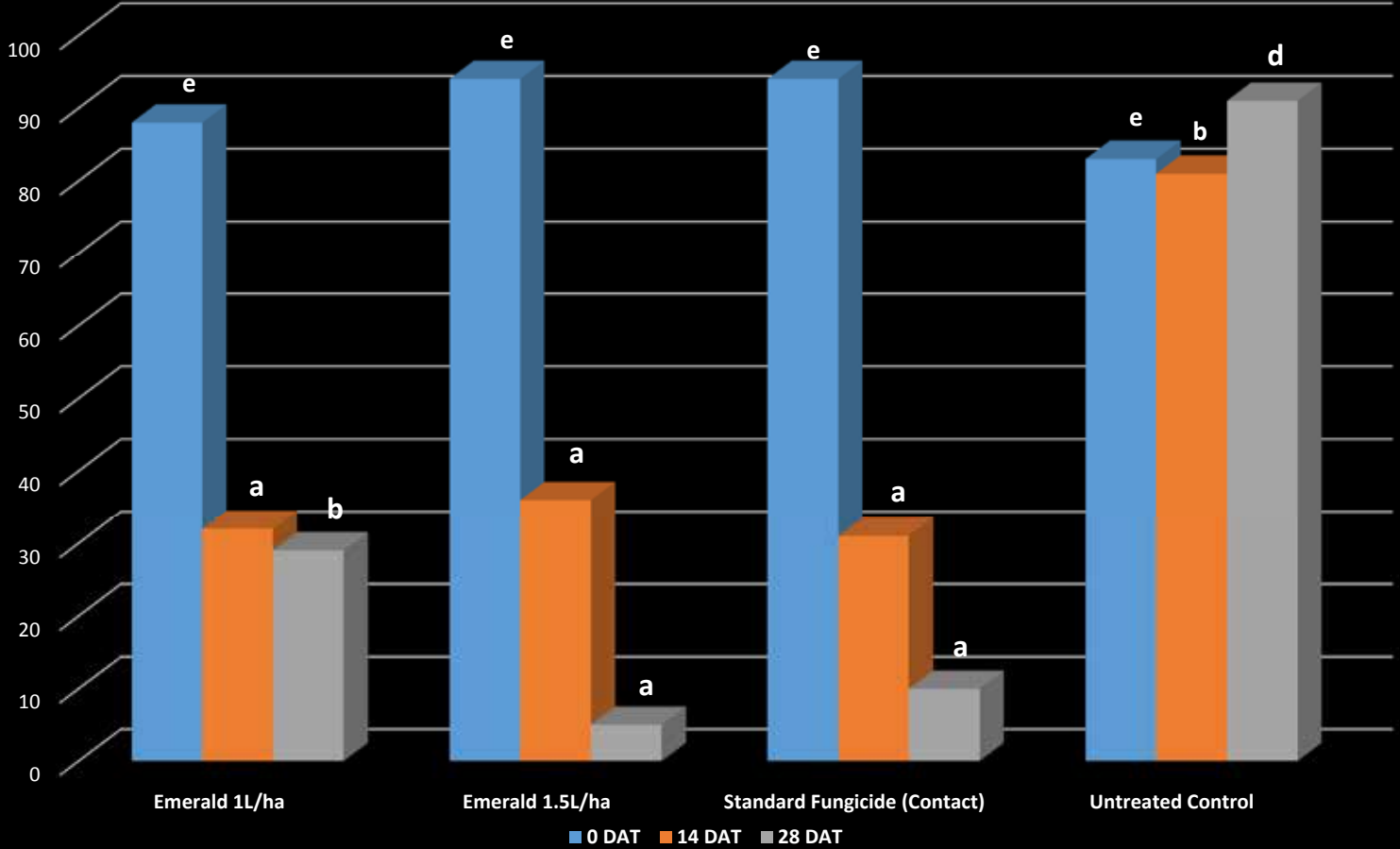
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Trial Work for Emerald®

Emerald Efficacy Dollar Spot



NOTE: Look at all treatments on a specified day. For example look at all orange columns together. Do NOT compare the different colour column to each other.

About the trial

Turf type: bent grass green.

Dollar Spot pressure was extreme during the trial period as indicated from untreated control. The site has history of dollar spot.

Two applications were made 14 days apart for all treatments

Conclusions from trials

All treatments needed 2 applications to reduce disease to acceptable level

Emerald significantly better at the 1.5L/ha rate than the 1L rate.

Emerald second application of 1.5L rate performed statistically the same as the standard treatment.

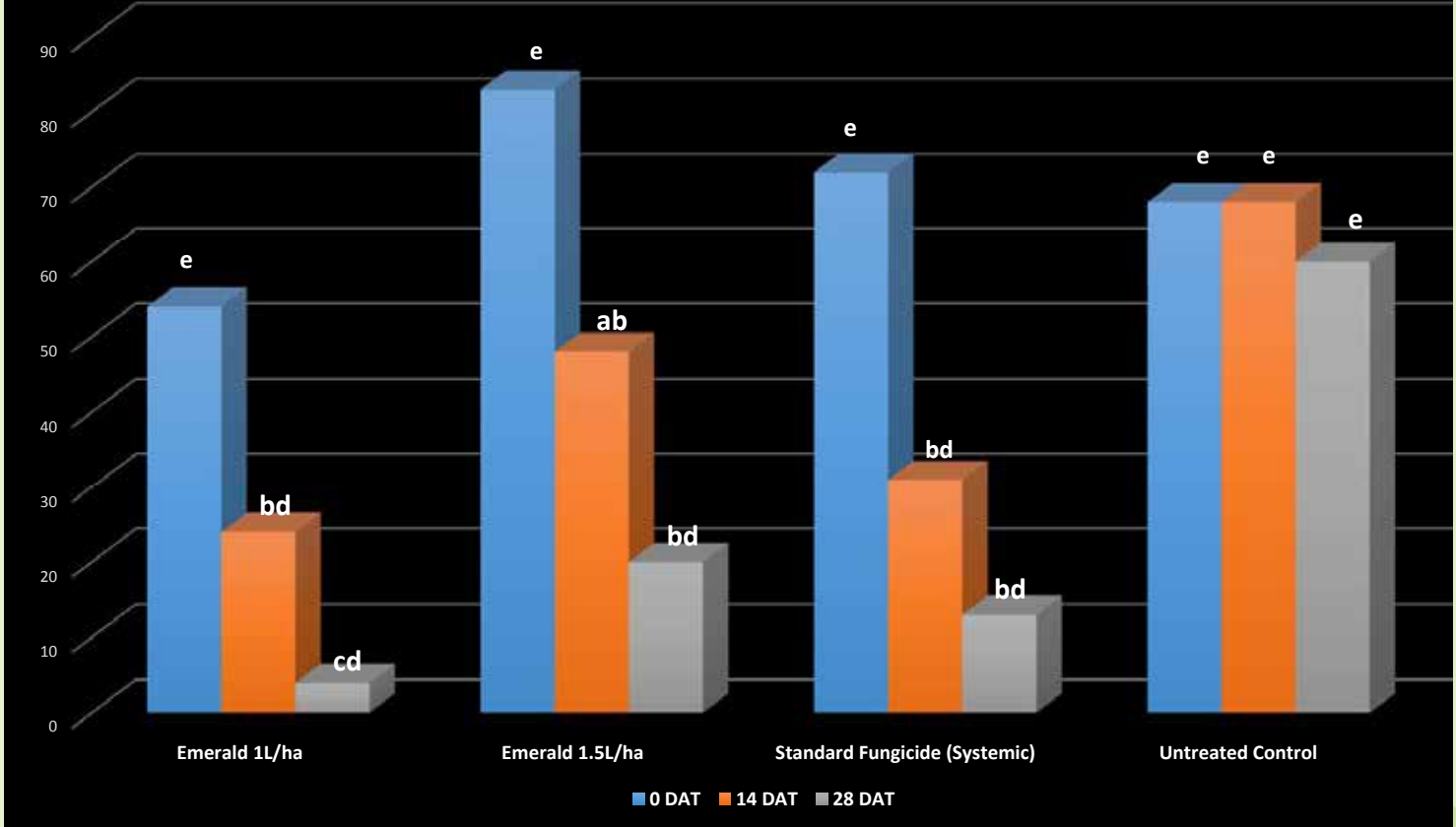


"When nothing else worked Emerald did. It was the only chemical I could control dollar spot with. It's not just a new active ingredient but a new chemical group."

***Shane George Superintendent
Links Shell Cove Golf Course***

Trial Work for Emerald[®]

Emerald Efficacy Anthracnose



NOTE: Look at all treatments on a specified day. For example look at all orange columns together. Do NOT compare the different colour column to each other.

About the trial

Turf type: bent/poa green mix.

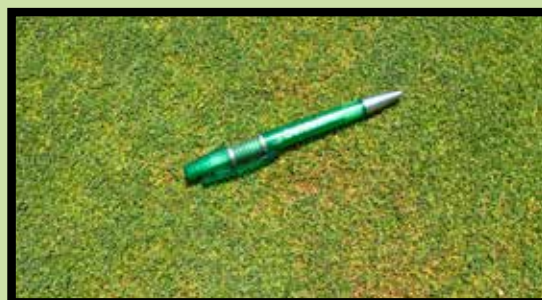
Disease pressure was high during the trial period as indicated from the untreated control. The site has a history of anthracnose.

Two applications were made 14 days apart for all treatments

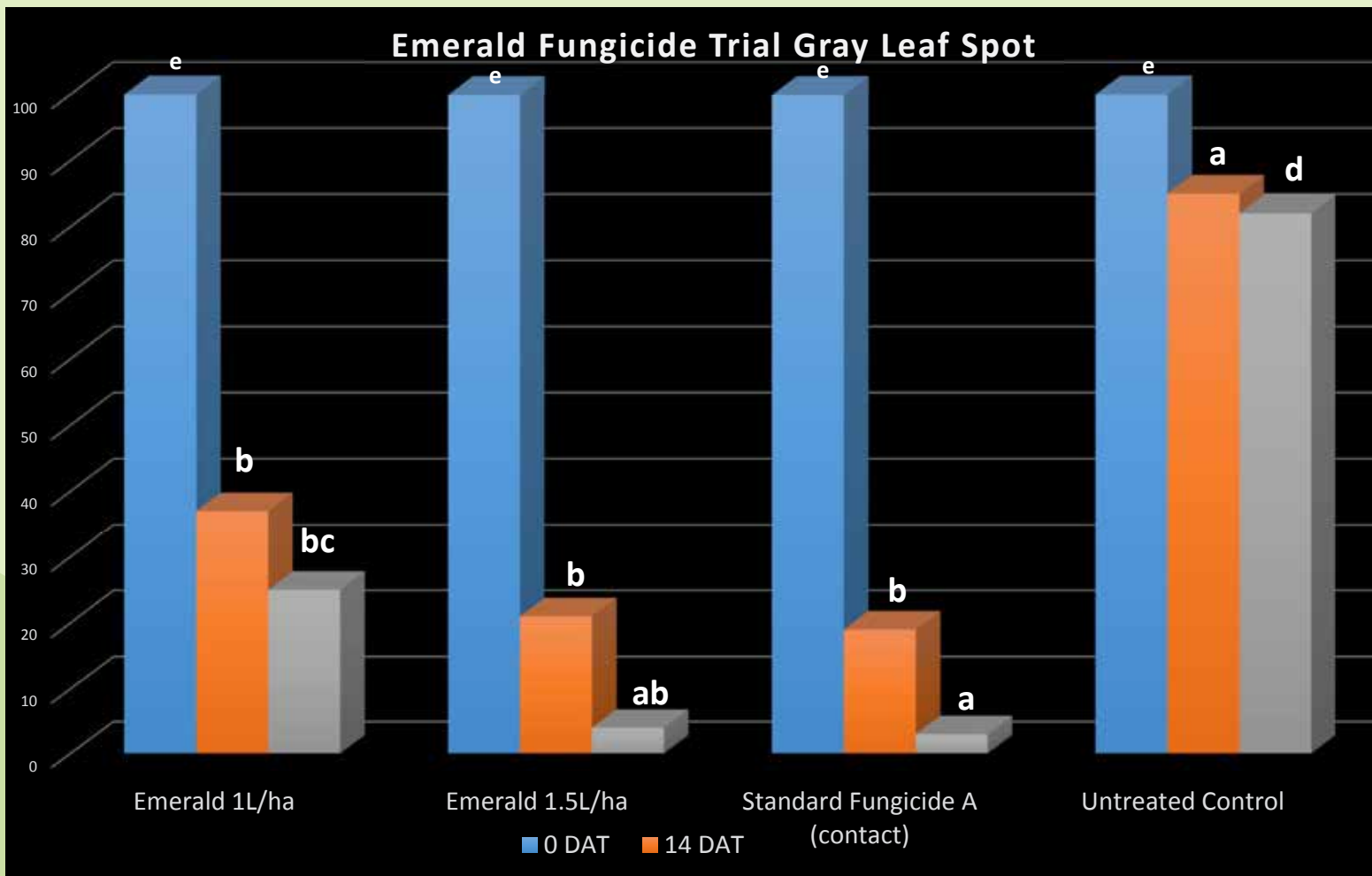
Conclusions from trials

All treatments needed 2 applications to reduce disease to acceptable level

Emerald (both rates) performed statistically the same as the standard systemic fungicide treatment.



Trial Work for Emerald[®]



NOTE: Look at all treatments on a specified day. For example look at all orange columns together. Do NOT compare the different colour column to each other.

About the trial

Turf type: Buffalo grass

Gray leaf spot pressure was extreme with close to 100% infection in plots and only dropping slightly for the duration. The turf farm site has a history of gray leaf spot.

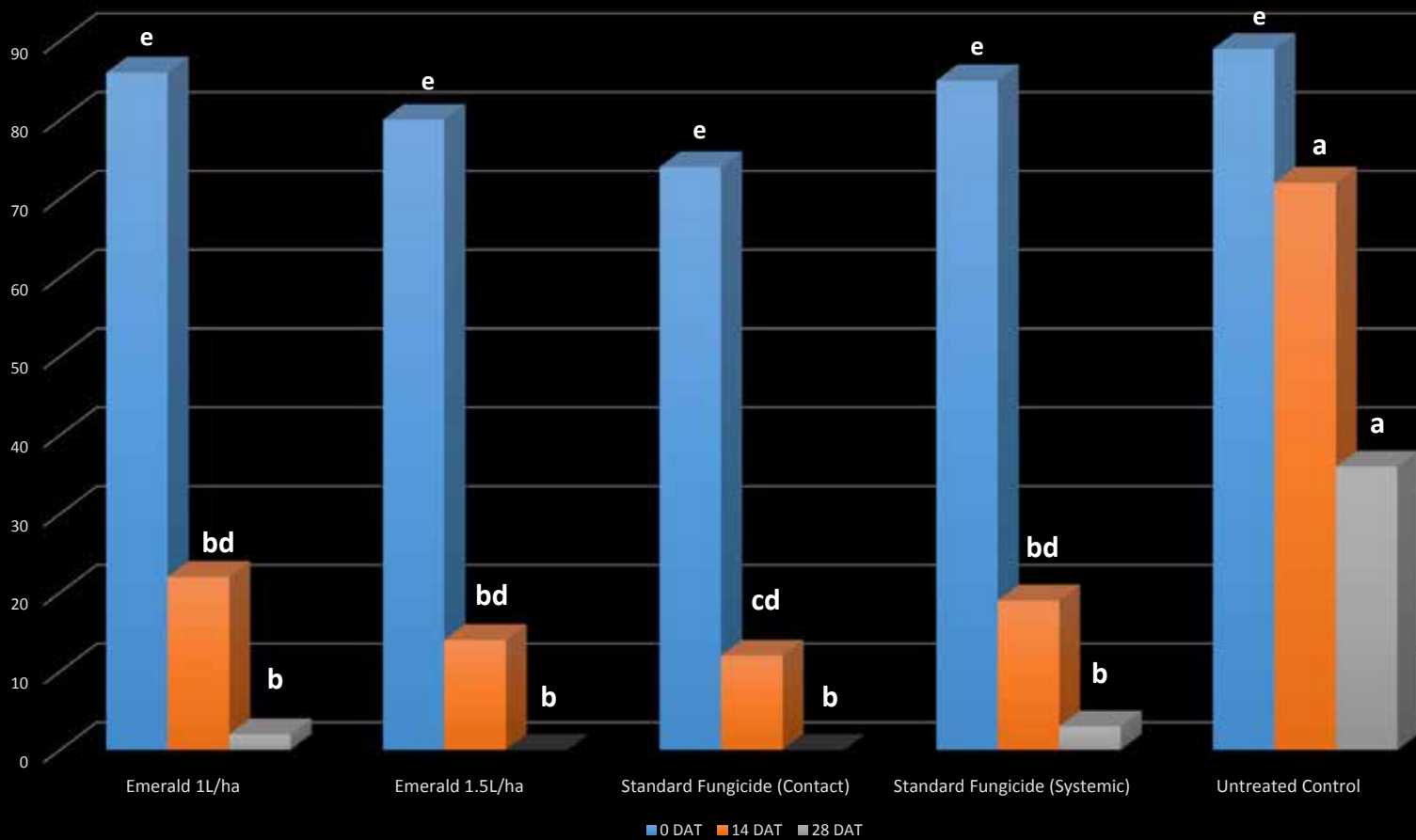
Two applications were made 14 days apart for all treatments

Conclusions from trials

All treatments needed 2 applications to reduce disease to acceptable level due to the high infection rate. Emerald performed statistically same as the standard treatment.

Trial Work for Emerald[®]

Emerald Efficacy Helminthosporium



NOTE: Look at all treatments on a specified day. For example look at all orange columns together. Do NOT compare the different colour column to each other.

About the trial

Turf type: Green couch fairway.

This trial was conducted on a fairway where helminthosporium pressure is typically high during winter. Heavy dews were present throughout the trial period. Helminthosporium pressure was moderate to high during the trial period. Two applications were made 14 days apart for all treatments

Conclusions from trials

Starting from a high rate of infection (close to 100%), all treatments needed 2 applications to reduce disease to a minimum level.

Emerald performed statistically the same as the standard for both contact and systemic products.



Did you know?



- Colin Campbell (Chemicals) was established in 1940 supplying chemicals to paperworks
- Did you know Colin Campbell Sr started the company and his sons Colin Campbell Jr and Neil Campbell took over in 1960 until 1986
- In 1986 a management buy out took over Colin Campbell (Chemicals). This ensured that Colin Campbell (Chemicals) stayed independent and in Australian hands. We are proud to be 100% Australian owned.
- Even though we cannot invent the molecule we have introduced an array of innovative solutions by working with our partners.
- We team up with our partners (suppliers) to ensure new technologies reaches the Australian grower/turf manager.
- We carry out constant R&D work for registration purposes on all our products. As well we go further and check our products in all circumstances including high pressure seasons to ensure you understand the limitations and best way to use our products.
- Even though some products do not have to be registered we still evaluate these as we would any registered products to ensure products meet or exceed your expectations.
- We have conducted a number of seminars/conferences (national and local) over the years to further educate growers and turf managers with university professors (Penn State, Auburn University, WSU to name a few), and respected agronomists from all over the world including Japan, Chile, USA, Canada and Israel.
- We attend international renowned conferences including International Horticulture Congress, GIS, International Citrus Congress, Post Harvest Symposiums (various crops) to help provide cutting edge Solutions.
- We are proud to be an Australian company working with Australian growers and turf managers to help provide solutions with our product range. We look forward to providing more solutions in the years to come.

These are just a few things we about us. We would like to learn more about yourself so please do not hesitate to contact us via phone, email or social media.



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