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# Update



## Quintozene Alternatives

June 24<sup>th</sup>, 2010

Health Canada Re-evaluation Decision RVD2010-06 Quintozen

Selected and adapted excerpts

### Re-Evaluation Decision

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After a re-evaluation of the fungicide quintozene, Pest Management Regulatory Agency of Health Canada ( PMRA ) announced that ...

... quintozene is being phased-out for turf and ornamental uses due to the health and / or environmental concerns.

On March 23<sup>rd</sup>, 2009, a submission by Canadian Golf Superintendents Association ( CGSA ) to Health Canada alleged that ...

- **REPEAT APPLICATIONS** of alternatives to quintozene would be required to provide a prolonged period of protection equivalent to that of one application of quintozene. [ !?! ]
- Most of the recently-registered alternatives to quintozene have a **SINGLE-SITE** mode of action. Greater use of active ingredients with a **SINGLE-SITE** mode of action will increase the risk of developing resistance. [ !?! ]
- Quintozen acts as a **CONTACT** fungicide, and alternative **SYSTEMIC** fungicides will be less effective since turf is dormant when disease is active. [ Wrong ! ]

The statements were **MISGUIDED, MISLEADING, and INCOMPETENT.**

# Update



Pest Management Regulatory Agency of Health Canada ( PMRA ) responded to CGSA allegations with the following statements —

## Efficacy Performance

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According to Pest Management Regulatory Agency of Health Canada ...

ALTERNATIVE products to quintozene which provide winter–season–long control ( such as, for the duration of winter ) of Snow Molds on turf with **ONLY ONE APPLICATION** are registered in Canada.

Examples —

- Instrata ( propiconazole, fludioxonil and chlorothalonil )
- Quali–Pro Iprodione 240 SE ( iprodione )
- Rovral Green GT ( iprodione )

## Resistance Management

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According to Pest Management Regulatory Agency of Health Canada ...

Quintozene is a group 14 fungicide which acts as a **PROTECTIVE CONTACT** fungicide.

**Most alternatives to quintozene have a SINGLE–SITE mode of action.**

However, two ALTERNATIVE active ingredients ( chlorothalonil and thiram ) have **MULTI–SITE** modes of action.

The registered **SINGLE–SITE** active ingredients with a high risk of resistance development should be **ALTERNATED** with the registered **MULTI–SITE** fungicides that have a low risk for resistance development in Snow Molds.

# Update



Some ALTERNATIVES to quintozene are registered for use as tank-mixes with products from other Mode of Action Groups for resistance management and to increase efficacy.

Examples —

- Daconil 2787 ( chlorothalonil )
- Rovral Green GT ( iprodione )

Additionally, products formulated with several active ingredients from different Mode of Action Groups are also currently registered.

Example —

- Instrata ( propiconazole, fludioxonil, and chlorothalonil )

## Need for Contact Fungicides on Dormant Turf

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According to Pest Management Regulatory Agency of Health Canada ...

Gray Snow Molds pass the summer as dormant sclerotia that produce spores during cool ( less than 10°C ) and wet conditions in the fall.

Pink Snow Mold passes the summer as dormant mycelia.

Pink Snow Mold spores are formed during growth in the fall and are distributed by water drainage.

Fungal growth and infection of the turf by Snow Molds take place under cool, wet conditions, and in particular under the snow cover.

Quintozene has been considered as an effective fungicide for the control of Snow Molds since it is a **CONTACT FUNGICIDE WITH PROTECTIVE ACTION**.

# Update



**CONTACT FUNGICIDES WITH PROTECTIVE ( and CURATIVE ) ACTION** provide an advantage over **SYSTEMIC** fungicides for the control of Snow Molds since **SYSTEMIC** fungicides will be less effective in dormant turf.

However, the use of the term « **SYSTEMIC** » can be **IMPRECISE** and **MISLEADING**. The only **TRUE SYSTEMIC** fungicide, Aliette, is **NOT** registered for Snow Mold control. Moreover, « **SYSTEMIC** » is often used to describe those fungicides with a **PENETRANT** mode of action.

Alternatives to quintozene which act by **CONTACT** action to control Snow Molds on turf **ARE** registered in Canada.

Examples —

- Daconil 2787 ( chlorothalonil ) — **CONTACT FUNGICIDE WITH PROTECTIVE ACTION** — inhibits growth of germinating fungal cells.
- Instrata ( fludioxonil ) — **CONTACT FUNGICIDE WITH PROTECTIVE ACTION** — fludioxonil mainly inhibits germination of spores, and to a lesser extent mycelial growth.
- Rovral Green GT ( iprodione ) — **CONTACT FUNGICIDE WITH PROTECTIVE AND CURATIVE ACTION** — inhibits germination of spores and growth of fungal mycelia — **LOCALIZED FOLIAR PENETRANT**.
- Thiram — **CONTACT FUNGICIDE WITH PROTECTIVE ACTION** — **MULTI-SITE** mode of action.

Other alternatives to quintozene have **CONTACT** and « **SYSTEMIC** » ( i.e. trans-laminar foliar penetrant mode of action ) with protective and curative action.

Examples —

- Compass 50WG ( trifloxystrobin )
- Heritage MAXX ( azoxystrobin )
- Insignia EG ( pyraclostrobin )

# Update



## Azoxystrobin, Pyraclostrobin, and Trifloxystrobin as Alternatives to Quintozene

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Heritage MAXX ( azoxystrobin ), Insignia EG ( pyraclostrobin ), and Compass 50WG ( trifloxystrobin ) have PROTECTIVE and CURATIVE properties.

Compass 50WG ( trifloxystrobin ) is registered as a tank-mix with Rovral Green GT ( iprodione ).

## Carbathiin, Oxycarboxin, and Thiram as Alternatives to Quintozene

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The registrant for the technical grade active ingredients does NOT support the continued use of carbathiin and oxycarboxin on turf.

Thiram is a CONTACT FUNGICIDE WITH PROTECTIVE ACTION.

## Iprodione as an Alternative to Quintozene

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Iprodione has PROTECTANT and CURATIVE properties.

It inhibits germination of spores and growth of mycelium.

Application is required in the fall and spring when the snow melts.

Rovral Green GT and Quali-Pro Iprodione 240 SE are the only iprodione products registered for a SINGLE APPLICATION prior to snow cover for winter-season-long control.

Rovral Green GT can also be tank-mixed with either Daconil 2787 or Compass 50WG.

# Update



## Myclobutanil, Propiconazole, and Triticonazole as Alternatives to Quintozene

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Eagle WSP ( myclobutanil ) and Banner MAXX ( propiconazole ) are « *SYSTEMIC* » fungicides with PROTECTIVE and CURATIVE properties. In fact, they are LIMITED ACROPETAL FOLIAR PENETRANTS, and LOCALLY SYSTEMIC fungicides.

Eagle WSP is registered for Gray Snow Mold, and NOT Pink Snow Mold.

Premis 200 F ( triticonazole ) has PROTECTIVE properties. However, it requires repeated applications to control Gray Snow Molds, and can be tank-mixed with Rovral Green GT.

## Propiconazole, Fludioxonil, and Chlorothalonil as Alternatives to Quintozene

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Only one product is registered in Canada with this combination of active ingredients — Instrata ( propiconazole, fludioxonil, and chlorothalonil ).

The product label recommends that turf treated in the previous season with Instrata **NOT be treated** in the following season.

Fludioxonil is a PROTECTANT CONTACT fungicide with LONG RESIDUAL ACTIVITY.

Propiconazole has PROTECTANT and CURATIVE properties.

Chlorothalonil has PROTECTANT properties for Snow Molds.

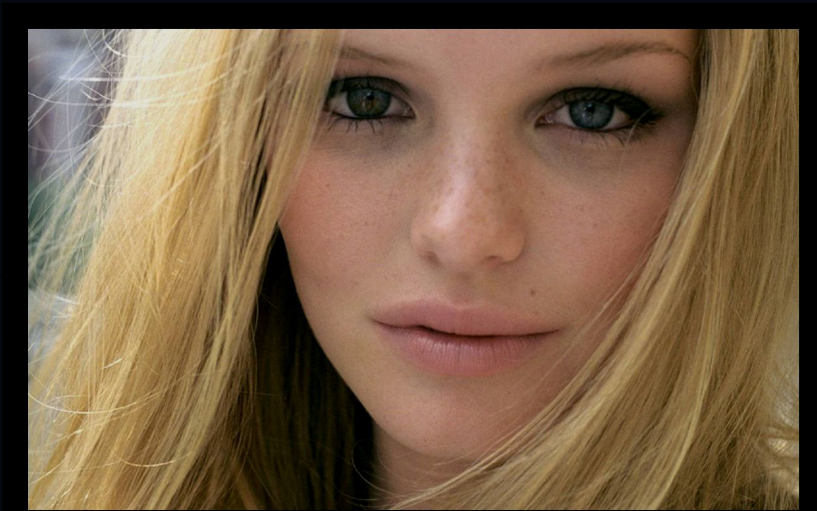
## Thiophanate–Methyl as an Alternative to Quintozene

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Senator 70WP ( thiophanate–methyl ) is registered for Pink Snow Mold only.

# NORAHG

Force Of Nature presents THE WHOLE TRUTH FROM AN INDEPENDENT PERSPECTIVE from National Organization Responding Against Huje that seek to harm or misinform the Green Space Industry (NORAHG). It is a series of Reports destined for the Green Space Industry, the Environmental Terror Movement, Governments, and the Media, nationwide across Canada, the United States, and overseas. This Report has been developed for the education and entertainment of the reader by providing TECHNICAL INFORMATION WITH COMMENTARY. The neutrality of the Report might be disputed.



The information presented in this Report is for preliminary planning only. Before making a final decision, the turf manager is expected to obtain trusted expert advice from extension specialists, local distributors and/or agronomists. All decisions must take into account the prevailing growing conditions, the time of year, and the established management practices.

All products mentioned in this Report should be used in accordance with the manufacturer's directions, and according to provincial, state, or federal law. For the official advantages, benefits, features, precautions, and restrictions concerning any product, the turf manager must rely only on the information furnished by the manufacturer. The mention of trade names does not constitute a guarantee or a warranty.

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Force Of Nature is the brainchild of William H. Gathercole and his entourage. Mr. Gathercole is a principal founder of the Modern Professional Lawn Care Industry in both Ontario and Quebec. He holds a degree in Horticulture from the University of Guelph, and another pure and applied science degree from McGill University. He has worked in virtually all aspects of the Green Space Industry, including golf, professional lawn care, and distribution. Mr. Gathercole has supervised, consulted, programmed, and/or overseen the successful execution of hundreds of thousands of management operations in the urban landscape. He has trained, instructed, and advised thousands of turf managers and technicians. Mr. Gathercole has also been an agricultural agronomist. Mr. Gathercole is personally credited for crafting the Exception Status that has allowed the Golf Industry to avoid being subjected to the prohibition of pest control products. He is also the creator of the signs that are now used for posting after application. Mr. Gathercole is now retired, although his name continues to appear as the founder of Force Of Nature.

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