

## PC1, a novel reduced-risk fungicide: field testing



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## INTRODUCTION

- A new product has been developed for control of fungal diseases of plants by Petro-Canada called PC1. PC1 is the active ingredient in the product Civitas™. It is composed of a mixture of food-grade synthetic isoparaffins and a food-grade emulsifier. In 2007, PC2 was developed with a green pigment dispersion added, called Civitas Harmonizer™. Both Civitas products were registered in the U.S.A. in February 2009, and are undergoing registration in other countries.
- The objective of this study was to examine the effects of PC1/PC2 on turf diseases in the field.

## RESULTS

- In three tests on the native soil fairway & one on the California green, treatments containing PC1 were found to significantly reduce dollar spot compared to the inoculated control (Figs. 3-5). The level of suppression was comparable to the standard fungicide control, Daconil 2787 at 95 ml or 190 ml /100 m<sup>2</sup> in most cases, but it required more time for the disease suppressive activity to be initiated.
- In a test at fairway height, PC1 was found to significantly reduce Fusarium patch by over 30% compared to the inoculated control (Fig. 2).

## RESULTS

- In three tests over three years on the pathology green, California fairway and native soil fairway, PC1 treatments were found to significantly reduce snow molds compared to the inoculated controls (Figs. 1,6,7), and at levels comparable to that of the standard snow mold fungicide, PCNB 75WP at 250 g /100 m<sup>2</sup>.
- In a single brown patch trial conducted on the pathology green in late summer 2006, PC1 at 10% was able to significantly reduce brown patch to 26% area affected compared to 59% for the untreated control.

Fig 1: May 2005 snow mold trial: PC1 greens height, inoculated

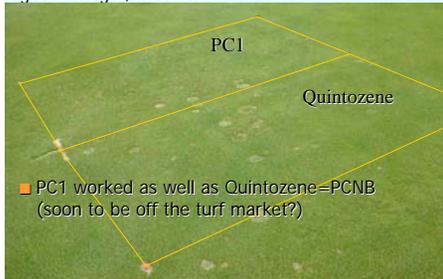


Fig 2: Jun 2006 Fusarium patch trial fairway height, inoculated

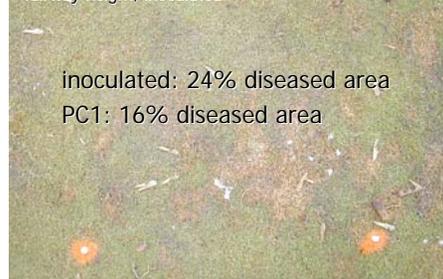


Fig 3: August 2006 Dollar spot trial fairway height, inoculated

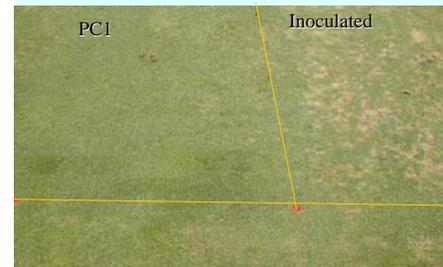


Fig 4: Aug 2007 dollar spot trial fairway height, inoculated

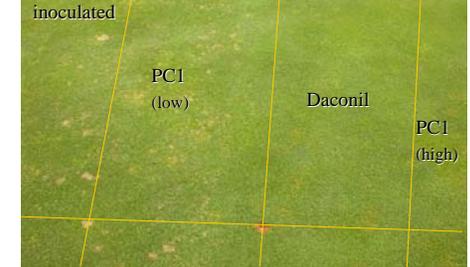


Fig 5: Oct 2007 dollar spot trial: PC2 greens height, inoculated

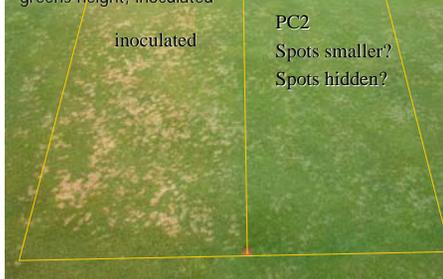


Fig 6: Winter 08 snow mold trials fairway height, inoculated

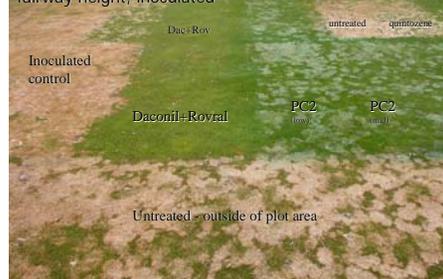


Fig 7: Winter 08 snow mold trials fairway height, inoculated



## CONCLUSIONS

- Civitas™ shows promise for the management of turfgrass diseases, whether used alone, in combination with Civitas Harmonizer™ or reduced rates of conventional fungicides.
- Research is continuing on the mode of action of PC1, which we believe involves induced resistance in the plant. The pigment dispersion also provides disease reduction, and its mode of action is being investigated.
- This research was supported by Petro-Canada and the Canadian Government.