

Evaluation of Fungicides for Fusarium Control on Caladium

Researchers:

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Dates of Experiment:

2002, 2003

Description of Experiment:

Fusarium solani can cause tuber rot in caladium bulbs. In experiments conducted in 2002 and 2003, commercial seed tubers of *Caladium hortulanum* cv. Florida Cardinal that were severely affected by Fusarium tuber rot were either immersed in hot water alone (122 F. for 30 minutes) or in various hot water-fungicide combinations. An equal number of tubers were left untreated.

The fungicides tested were as follows:

2002	
Fungicide	oz/gallon
Spectro 90 WDG	24.0
3336 50 WP	8.6
Daconil Ultrex 82.5 WDG +	20.9
Medallion 50 WP	2.0
Heritage 50 WG	4.0
Daconil Ultrex 92.5 WDG +	20.9
Medallion 50 WP	2.0
Daconil Ultrex 82.5 WDG +	20.9
Heritage 50 WG	4.0

2003	
Fungicide	oz/gallon
Daconil Ultrex 82.5 WDG	40.0
Medallion 50 WP	4.0
Heritage 50 WG	8.0
Terraguard 50 W	8.0
Daconil Ultrex 82.5 WDG +	40.0
Medallion 50 WP	4.0
Daconil Ultrex 82.5 WDG +	40.0
Heritage 50 WG	8.0
Daconil Ultrex 82.5 WDG +	40.0
Terraguard 50 W	8.0
Daconil Ultrex 82.5 WDG +	40.0
Medallion 50 WP	4.0
Heritage 50 WG	8.0

Following treatment, a 0.2 inch diameter core was removed from each tuber and placed in Komada's medium, which is selective for *Fusarium* spp. After a 7-day incubation period at 76 F., the incidence and severity of tuber infection by *Fusarium* spp. were determined. The experiment was repeated three times and the data were combined. The data were analyzed by ANOVA, and treatment means were separated by Fisher's Protected LSD (P<0.05) following appropriate transformation.

The severity of *Fusarium* infection was evaluated using a 0 to 4 rating scale:

Value	Severity of Infection
0	No recovery of the fungus
1	Mycelial growth < 0.4 inches from one end of core
2	Mycelial growth < 0.4 inches from each end of core
3	Mycelial growth < 0.4 inches from one end of core but > 0.4 inches from other end
4	Mycelial growth > 0.4 inches from both ends of core

Results:

In 2002, hot water alone was not effective in significantly reducing either the incidence or severity of *Fusarium* infection compared with the untreated control. Daconil Ultrex 82.5 WDG and combinations of this fungicide with Medallion 50 WP and Heritage 50 WG significantly decreased the incidence of *Fusarium* spp. in caladium tubers compared with the untreated control. All fungicide treatments except for 3336 50 WP significantly decreased the severity of *Fusarium* infection compared to the untreated control; Heritage 50 WG and Daconil Ultrex 82.5 WDG alone and in combination with Medallion 50 WP and Heritage 50 WG were the most effective and Spectro 90 WDG and Medallion 50 WP were of intermediate effectiveness in reducing severity.

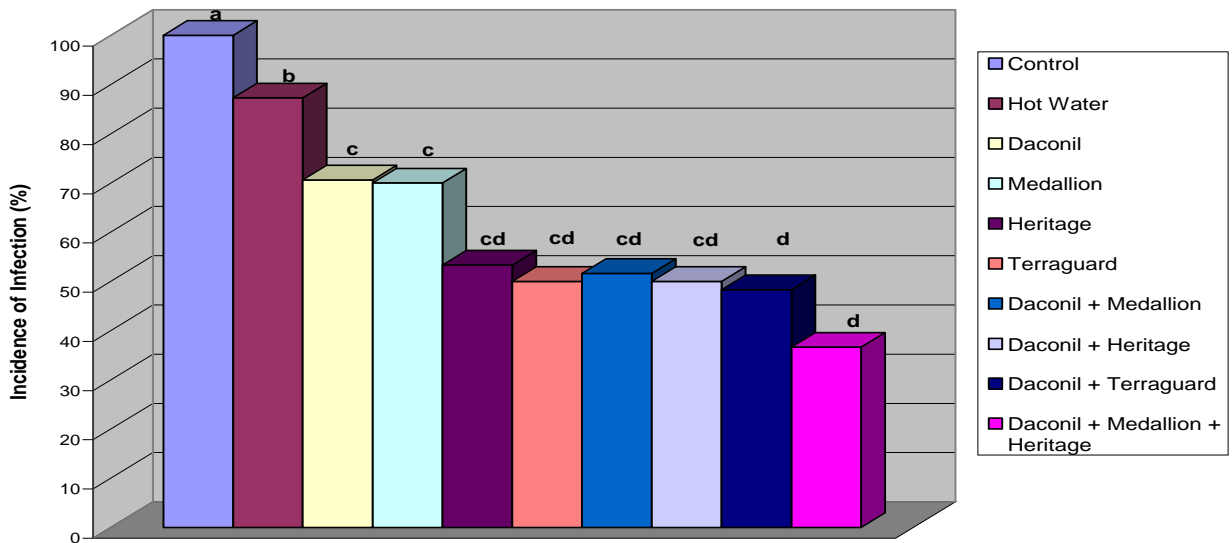


Figure 1: Impact of fungicides on incidence of Fusarium infection in 2002.

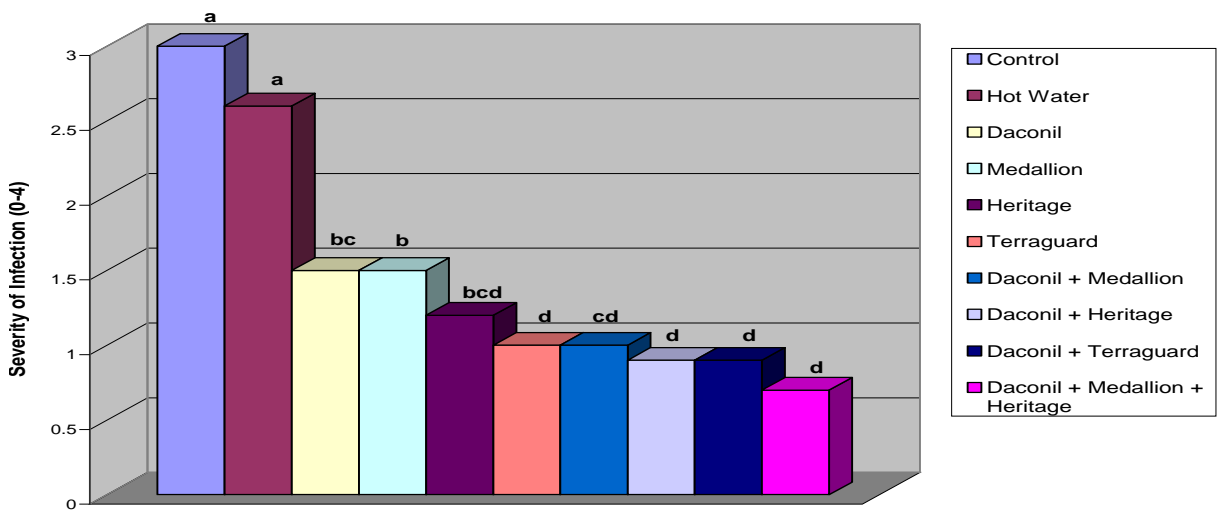


Figure 2: Impact of fungicides on severity of Fusarium infection in 2002.

In 2003, although hot water significantly reduced the incidence of *Fusarium* infection compared with the non-treated control, all fungicide treatments were significantly more effective. The combination of Daconil Ultrex 82.5 WDG and Terraguard 50 W, and Daconil Ultrex 82.5 WDG plus Medallion 50 WP and Heritage 50 WG were significantly more effective in reducing the incidence of *Fusarium* infection than Daconil Ultrex 82.5 WDG or Medallion 50 WP alone. All fungicide treatments, but not hot water, significantly reduced the severity of *Fusarium* infection. Terraguard 50 W alone and all fungicide combinations except for Daconil Ultrex 82.5 WDG plus Medallion 50 WP were significantly more effective in reducing the severity of *Fusarium* infection than Daconil Ultrex 82.5 WDG or Medallion 50 WP alone.

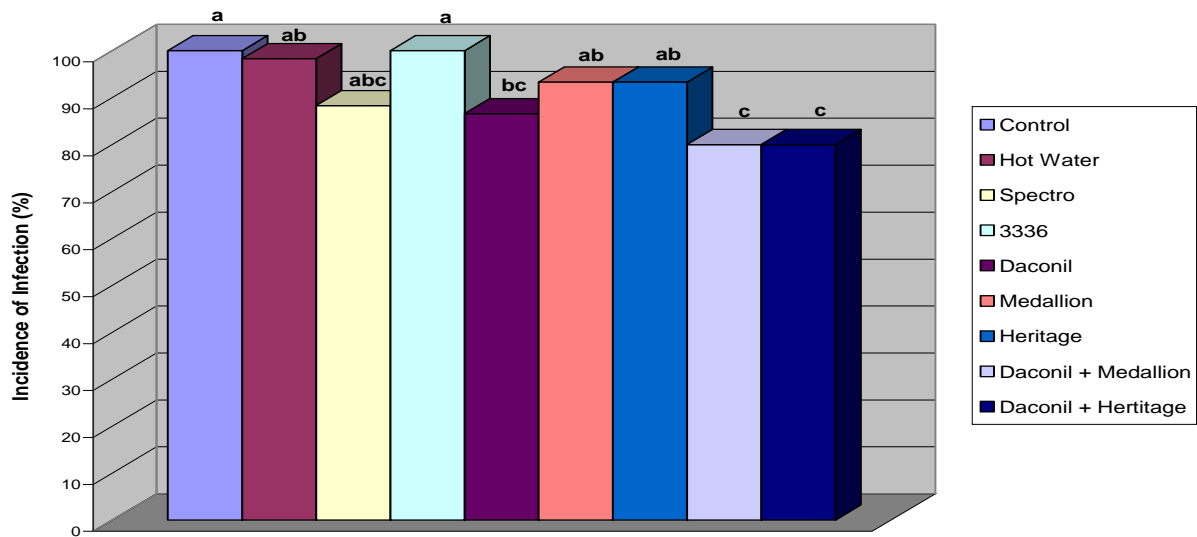


Figure 3: Impact of fungicides on incidence of *Fusarium* infection in 2003.

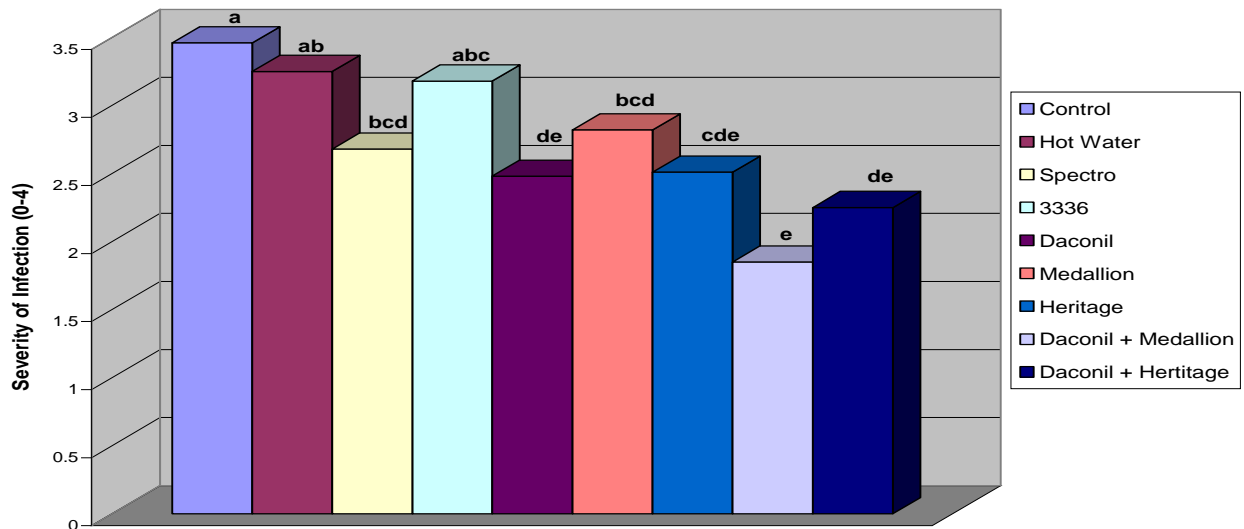


Figure 4: Impact of fungicides on severity of *Fusarium* infection in 2003.