Calcium and silicon applications in gerbera daisies and their effect against *Botrytis cinerea* infection

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Background

Botrytis is the causal agent of Botrytis blight in gerbera daisies. The infection results in tissue necrosis, making the plants and especially the flowers not suitable for marketing.

Previous research in our lab has demonstrated the benefits of calcium applications as sprays and dips against *Botrytis cinerea* infections in petunia and cut rose flowers, respectively.

Silicon has been used in several crops to enhance host tolerance against different plant pathogens.

The goal of this study is to test Ca and Si as alternative methods for Botrytis blight management in gerbera daisies.

Objectives

1. To determine the effectiveness of Ca and Si foliar spray and drench applications in potted gerbera daisies against Botrytis blight
2. To determine the effectiveness of Ca and Si post harvest dips in cut gerbera daisies

Calcium and silicon sources and treatments

Nutrient of interest	Source	Foliar spray and postharvest dip concentrations	Drench concentration
Calcium	Calcium chloride (Lab grade, 96%)	1000, 2000, 3000 ppm Ca	100, 200, 300 ppm Ca
Silicon	Potassium silicate (AgSil® 16H, 53%)	500, 1000, 1500 ppm Si	30, 60, 90 ppm SI

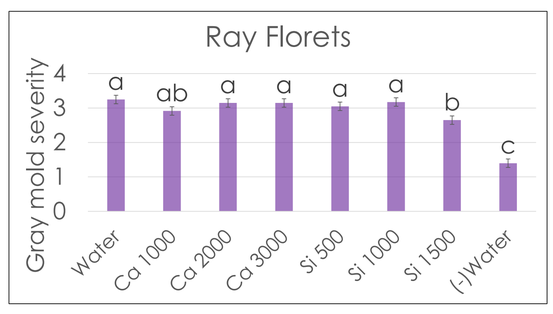
Treatment	Description	Cultivar	After harvest
Spray and drench	Weekly applications during flower formation (3 weeks)	**Potted plant:** Sweet Smile	Inoculation with a Botrytis spore suspension
Postharvest dip	Weekly applications during flower formation (4 weeks)	**1. Commercial cut flower:** Mermaid Hot Pink, Mette Orange **2. Potted plant:** Sweet Smile	1. Non-artificially inoculated 2. Inoculation with a Botrytis spore suspension

Results

Visual rating scale

Foliar sprays

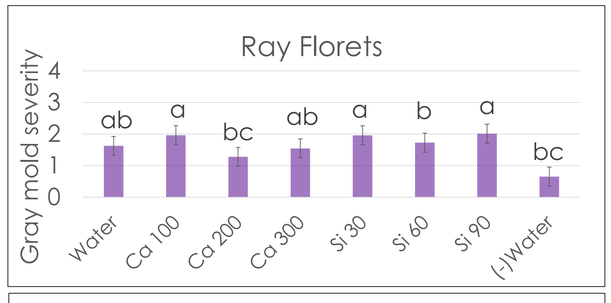
Spray treatment

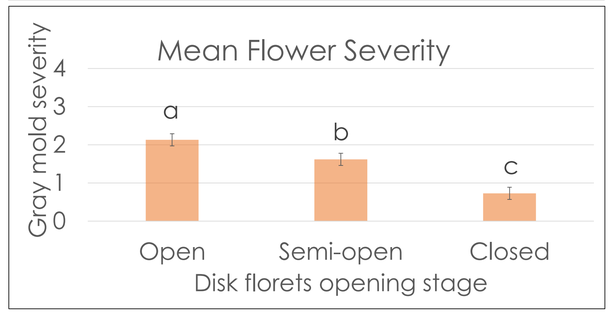


Salt accumulation observed in all of the Si spray treatments

Drench

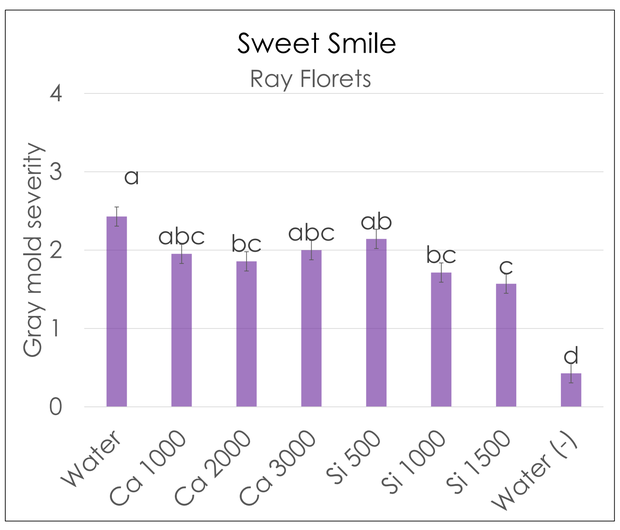
Drench treatment

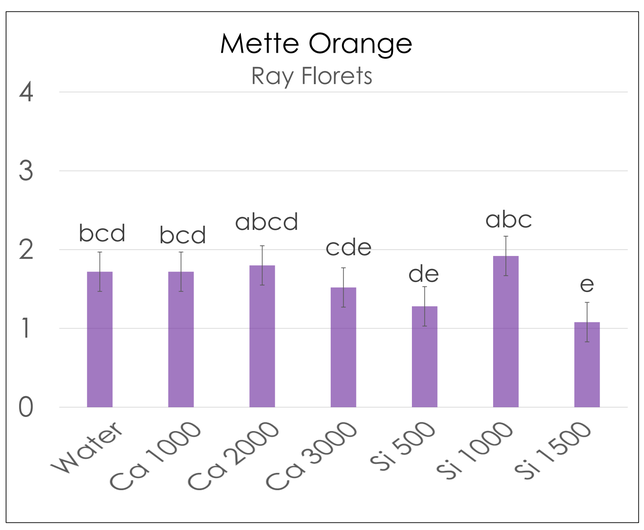


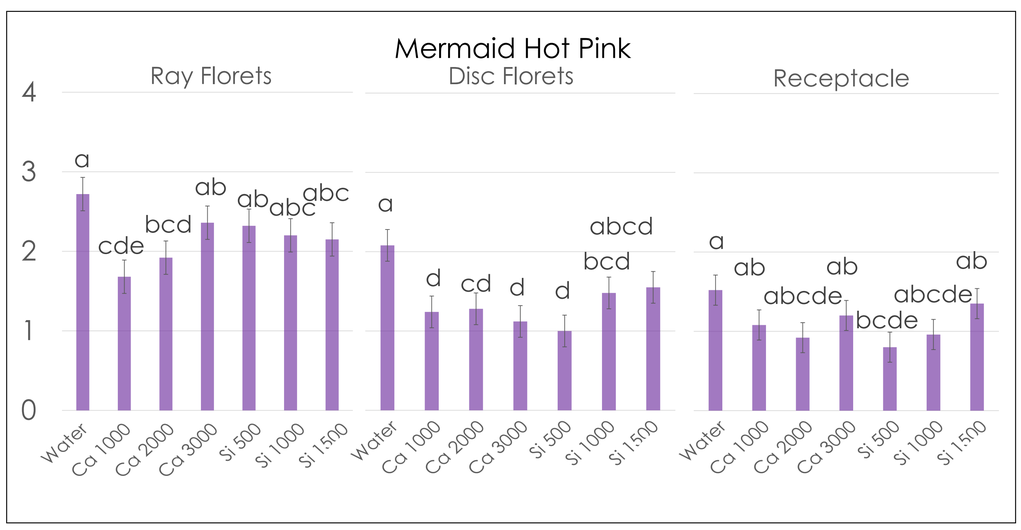


Postharvest dips

Postharvest dip treatment







Take home

- Gray mold severity and response to Ca and Si treatments in gerbera daisies varied between cultivars and flower structures
- No treatment worked effectively in reducing gray mold severity across all floral structures for any cvr.
- Disk floret age appears to have an effect in the susceptibility to *Botrytis cinerea* infection in gerberas.

Acknowledgments

American Floral Endowment — Funding Generations of Progress Through Research and Scholarships
USDA Agricultural Research Service
Longwood Gardens
Grupo Vegaflor