Host Resistance of Commonly Grown Strawberry Cultivars to Powdery Mildew

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Introduction

- Host resistance is a key tool in IPM
- Has not been evaluated for strawberry powdery mildew in CA in 20+ years
- Objective – define range of host resistance in cultivars grown today

Cultivar	Breeding Program	Winter Trial	Summer Trial	Field Evaluation
Albion	UC	✓	✓	✓
BG 3.324	Plant Sciences	✓	✓	✓
BG 4.367	Plant Sciences	✓	✓	✓
Cabrillo	UC	✓	✓	✓
Driscoll's 1	Driscoll's	✓		
Driscoll's 2	Driscoll's	✓		
Fronteras	UC		✓	
Monterey	UC	✓	✓	✓
Petaluma	UC	✓	✓	✓
R858	Lassen Canyon		✓	
Royal Royce	UC	✓	✓	✓
Ruby June	Lassen Canyon	✓	✓	✓
San Andreas	UC	✓	✓	✓
Sangria	Lassen Canyon		✓	
Sweet Ann	Lassen Canyon	✓	✓	✓
Valiant	UC		✓	
Victor	UC		✓	
Warrior	UC		✓	

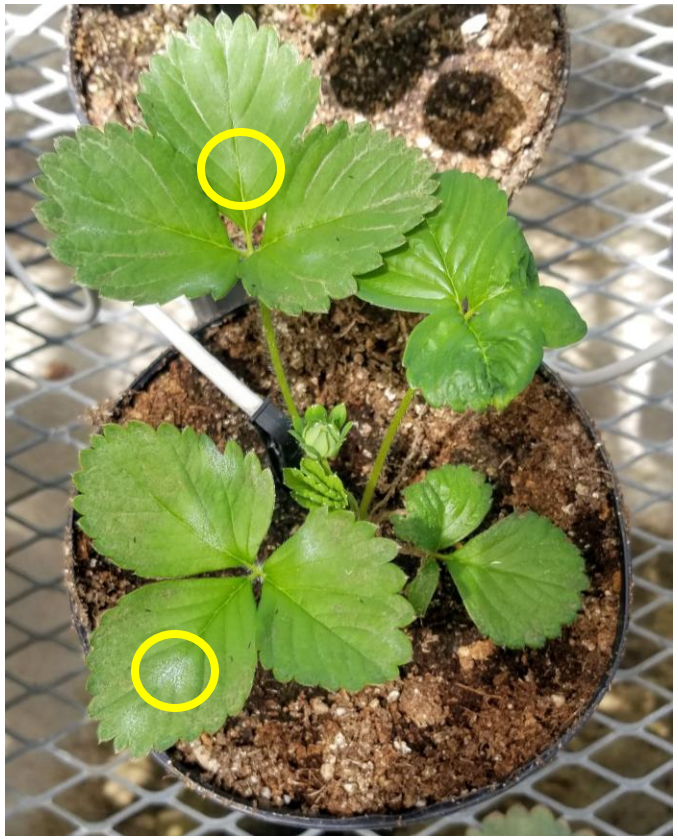
- Winter trial
  - Jan-Feb 2020
  - Cal Poly greenhouse
  - 12 cultivars
  - 4 plots of 4 plants each
- Summer trial
  - May-Jun 2020
  - Cal Poly greenhouse
  - 16 cultivars
  - 4 plots of 4 plants each
- Field evaluation
  - 3 Jul 2020
  - Strawberry Center fields
  - 10 cultivars
  - 10 plots

- Plants established in hoophouse
  - Six-inch pots
  - Peat, pearlite, coconut coir
  - Overhead irrigated

- Plants moved into greenhouse
  - Active PM epidemic
  - Spike emitter irrigation

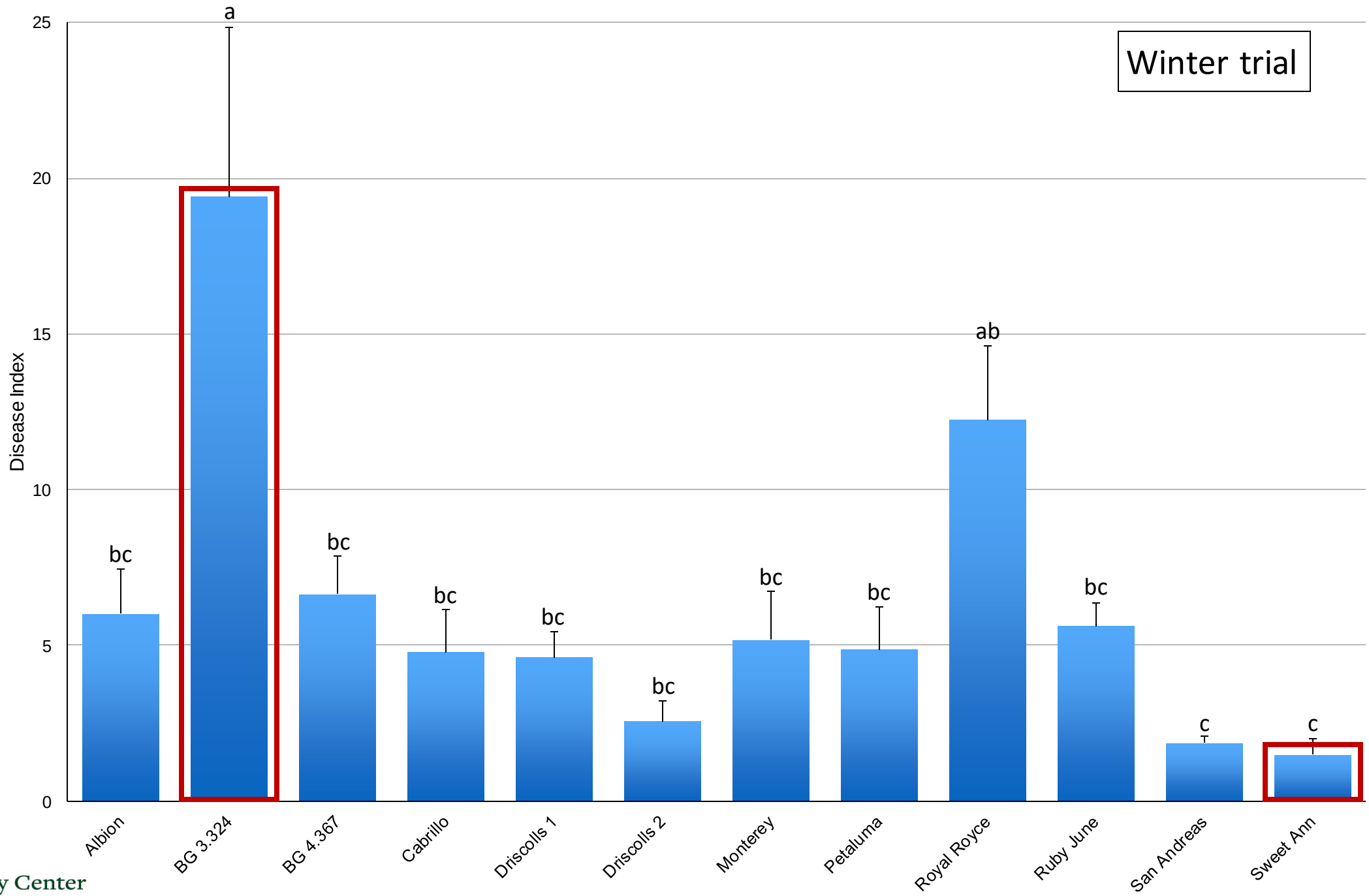
Plot of disease-free plants on day of transfer into greenhouse

Inoculum/spreader plant on day of transfer



Ratings

- Greenhouse
  - 40 and 41 days after transfer in Winter and Summer, respectively
  - Disease incidence = # symptomatic leaves per plot / total # leaves per plot
  - Disease severity = % of total leaf surface infected by mildew
  - Disease index = disease incidence * average disease severity
- Field
  - Five symptomatic leaves selected from each plot
  - Disease severity = % of total leaf surface infected by mildew



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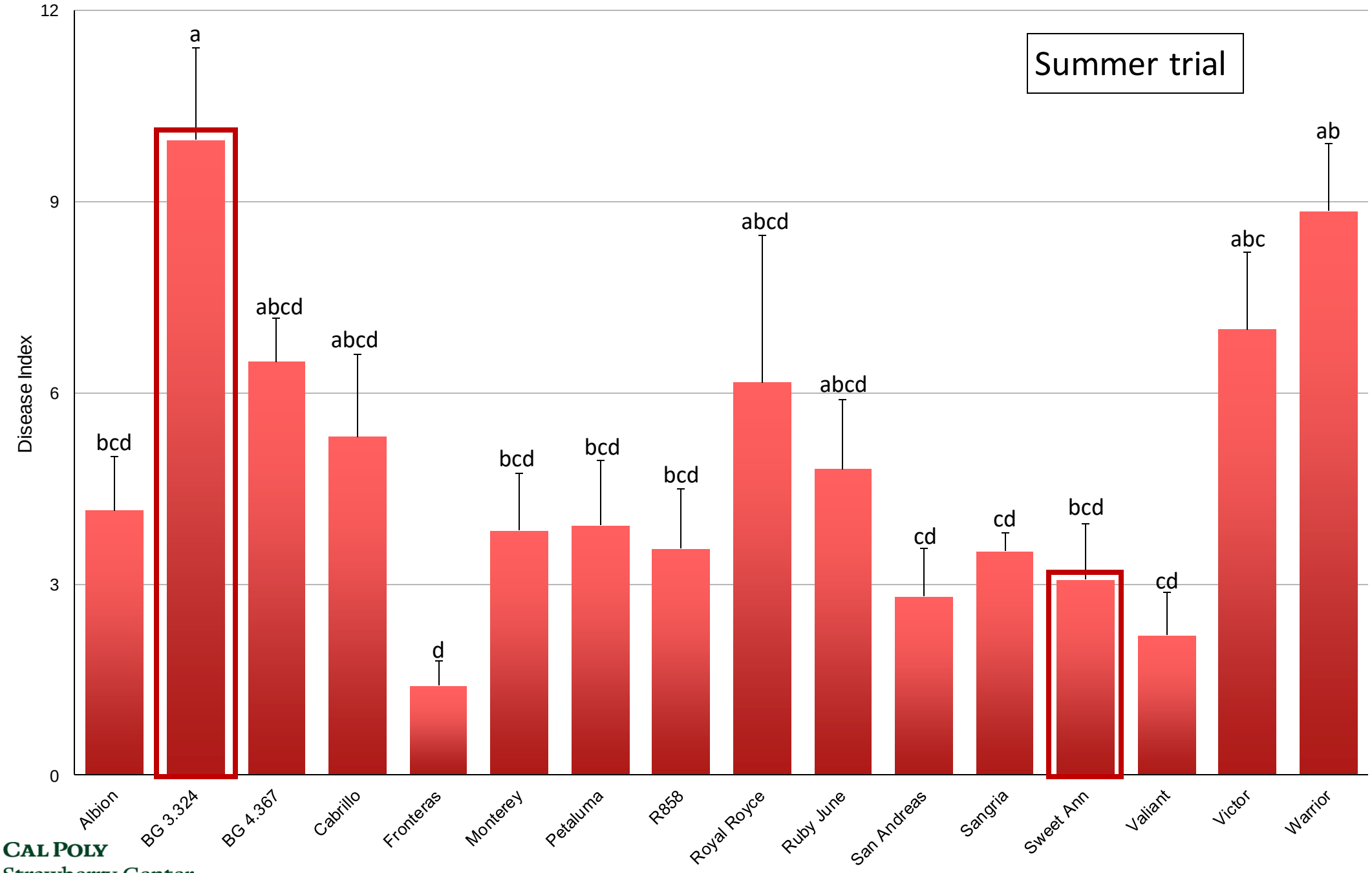

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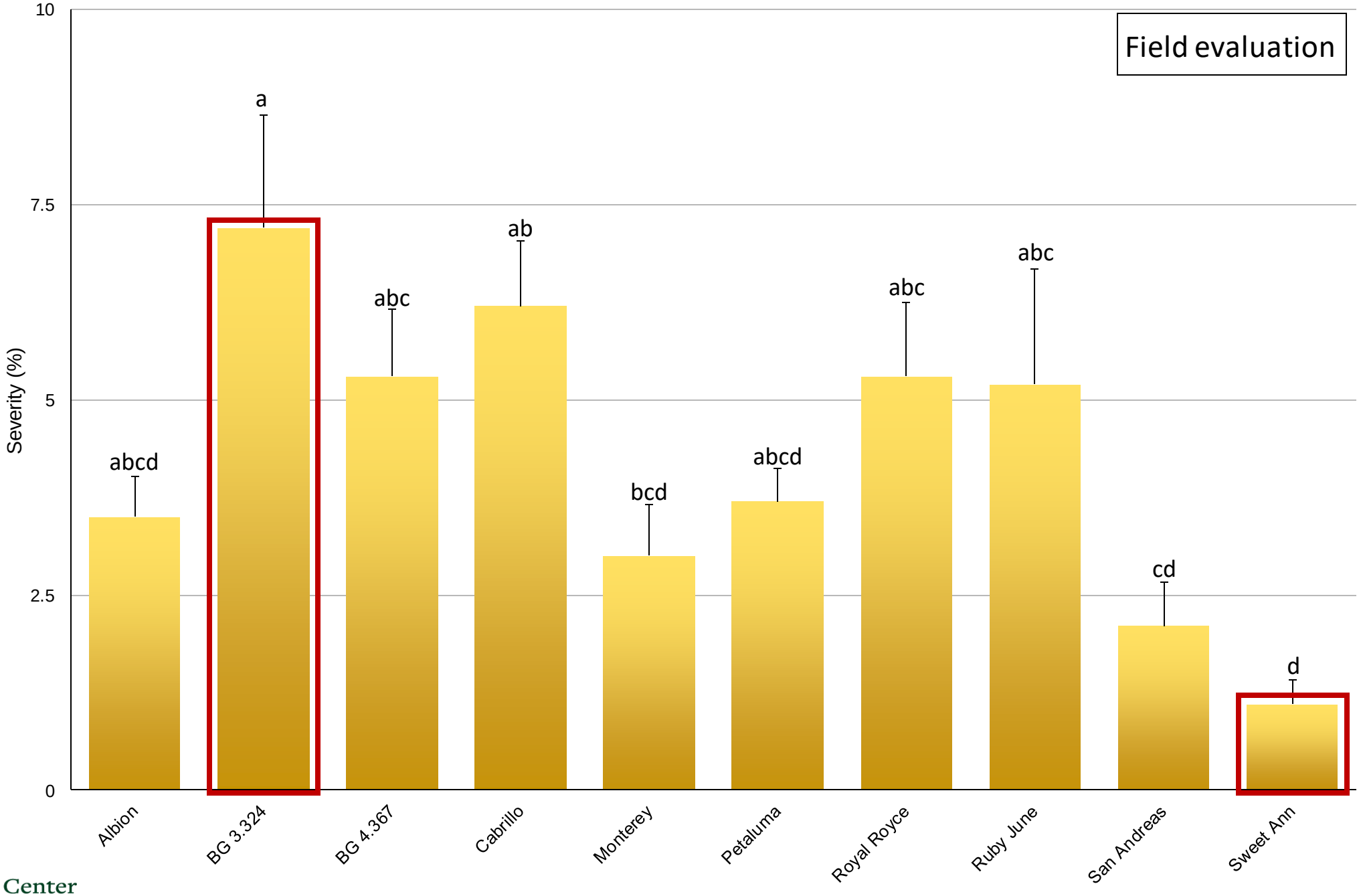

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++++ most susceptible
+ least susceptible

Cultivar	Breeding Program	Susceptibility
Albion	UC	++
BG 3.324	Plant Sciences	++++
BG 4.367	Plant Sciences	+++
Cabrillo	UC	+++
Driscoll's 1	Driscoll's	++
Driscoll's 2	Driscoll's	++
Fronteras	UC	+
Monterey	UC	++
Petaluma	UC	++
R858	Lassen Canyon	++
Royal Royce	UC	++++
Ruby June	Lassen Canyon	+++
San Andreas	UC	+
Sangria	Lassen Canyon	++
Sweet Ann	Lassen Canyon	+
Valiant	UC	++
Victor	UC	+++
Warrior	UC	+++

- Range of host resistance
  - BG 3.324 and Royal Royce most susceptible
  - San Andreas, Sweet Ann, and Fronteras least susceptible
- No cultivars showed full resistance

Cal Poly Strawberry Center Field Day

- Tuesday, August 25
- More info at https://strawberry.calpoly.edu/

Acknowledgements

- Thank you to the California Strawberry Commission for funding this project
- Thank you to Dr Gerald Holmes for guidance in the experimental design and data presentation
- Thank you to Kyle Blauer and Sam Farao for helping setup and maintain the project

Question 1

What strawberry cultivars were highly susceptible to powdery mildew?

a) San Andreas and Sweet Ann

b) Sweet Ann and BG 3.324

c) Monterey and San Andreas

d) BG 3.324 and Royal Royce

Question 2

What cultivar was most resistant in the field evaluation?

a) Monterey
b) Sweet Ann
c) Royal Royce
d) Ruby June

Questions?

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