

Effect of *Fusarium oxysporum* f.sp. *fragariae* inoculum density on strawberry cultivar performance



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Ability to produce fruit in presence of pathogens

- Cultivar resistance
- Fumigation optimization
- Environmental considerations (cool soils slow disease development)
- Non-fumigant approaches (ASD, steam, solarization, biocides)
- Crop rotations
- Soilless culture/hydroponics

How much Fusarium in soil can
strawberry handle?



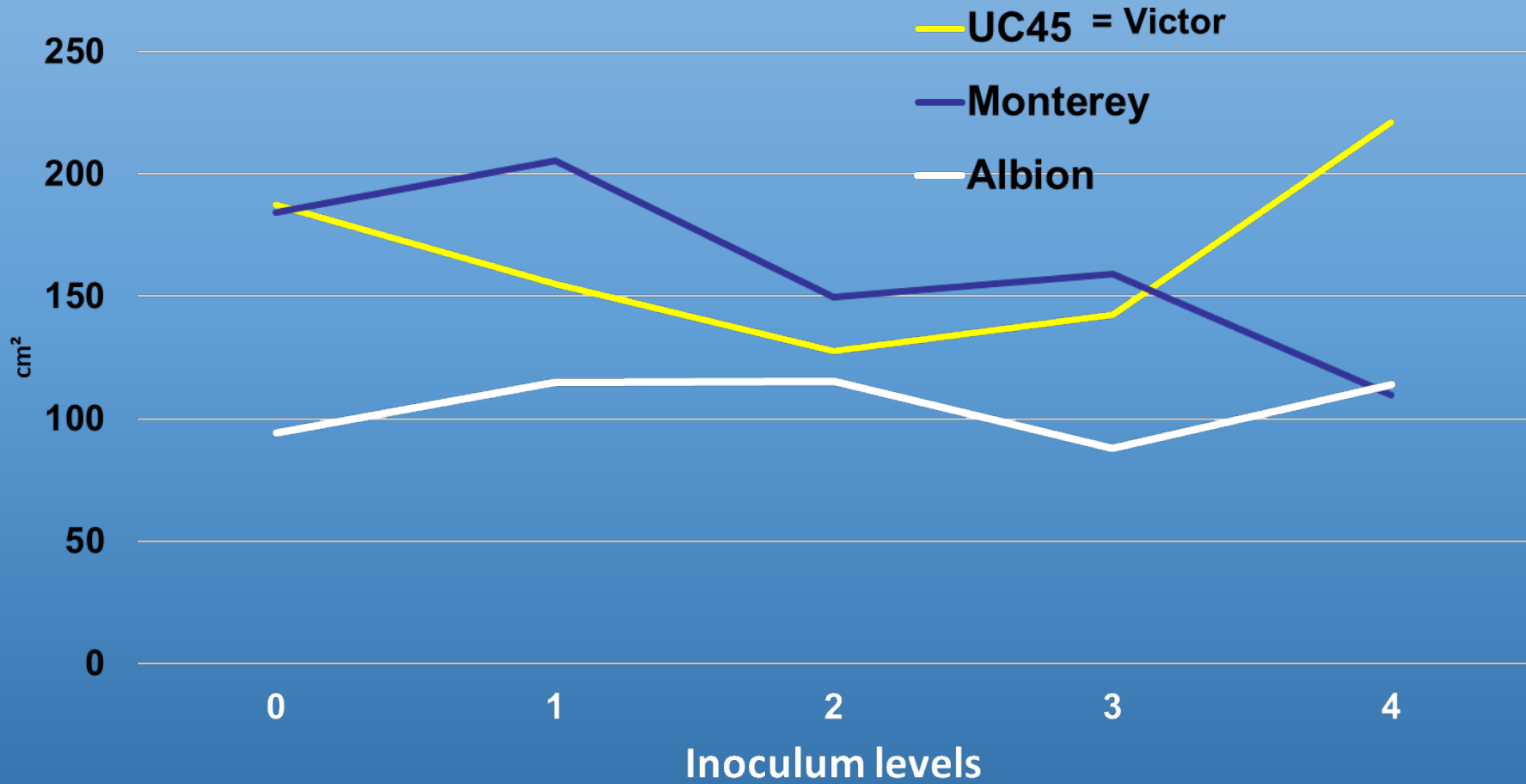
Treatments

- **Soil flat fumigated with Chloropicrin at 300 lbs/A, beds made with black TIF , holes cut**
- **Soil excavated from planting holes (1L) is mixed with Fusarium-inoculated sand (0.1L) and returned to planting holes**
- **3 cultivars Planted in RCBD plots with 4 reps**

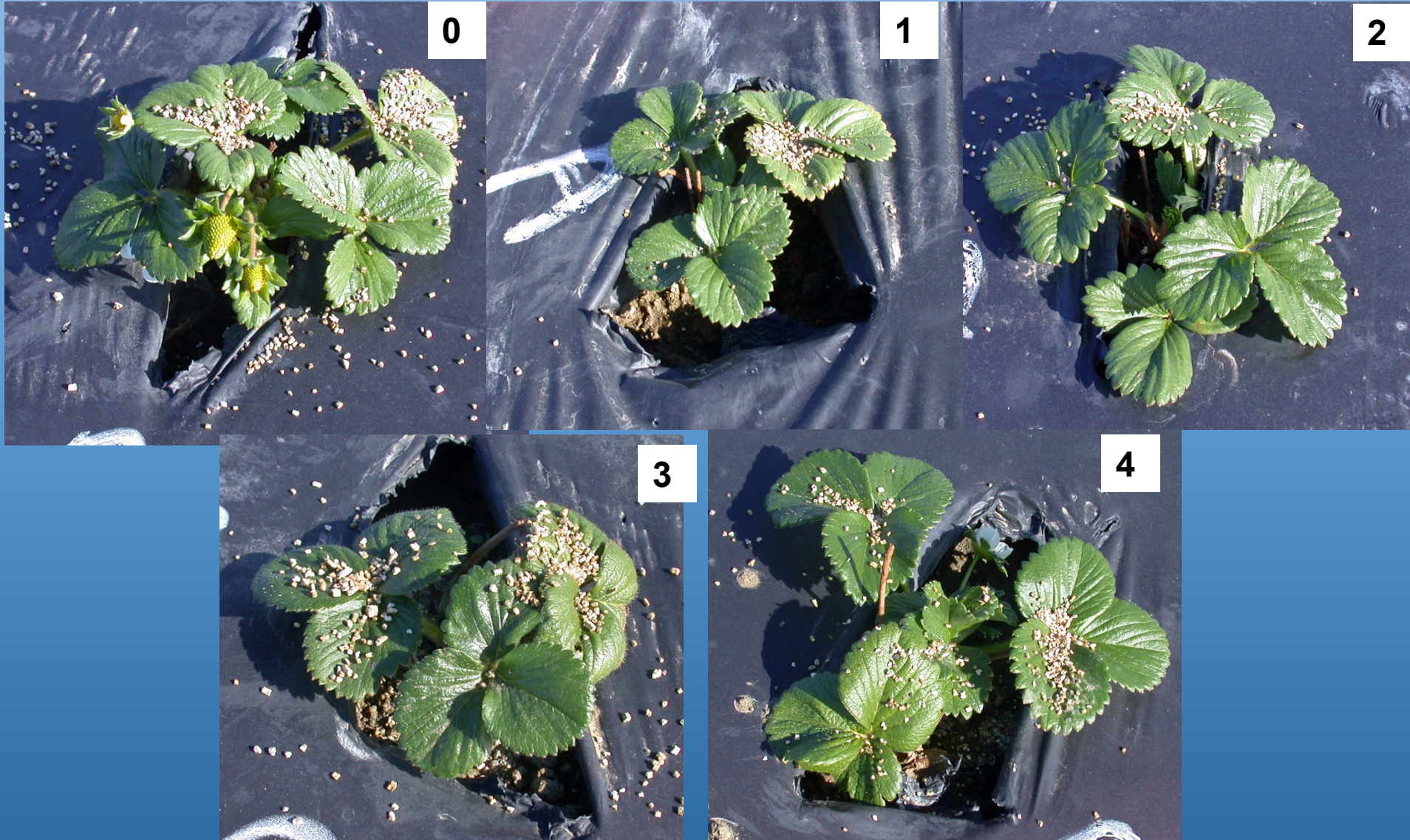
**2000 CFUs per gram (4),
1000 CFUs per gram (3),
500 CFUs per gram (2),
100 CFUs per gram (1),
0 CFU (just sand) (0).**



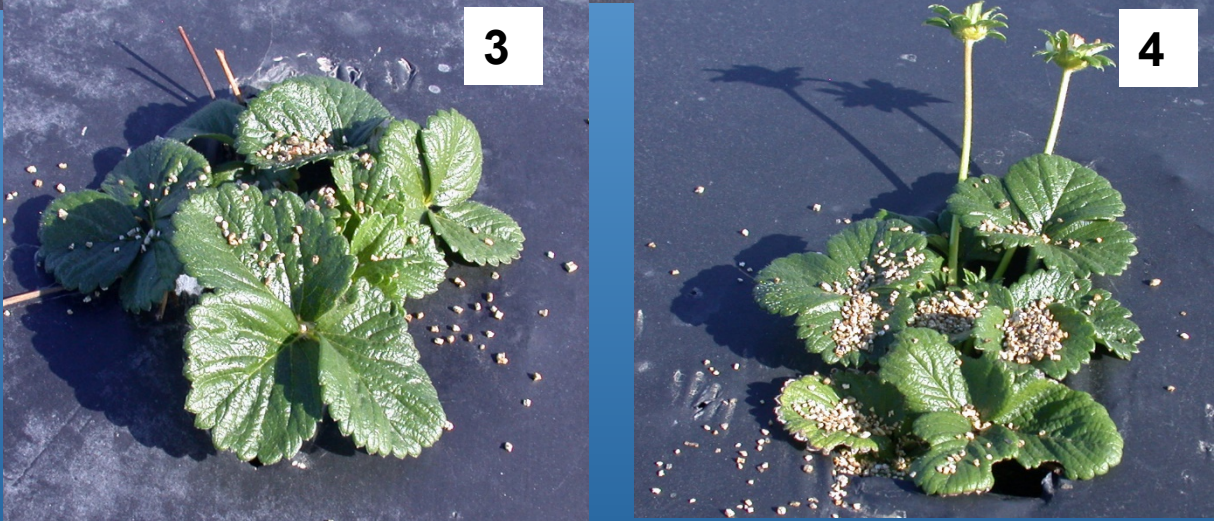
Plant size in response to Fusarium (01/05/2018)



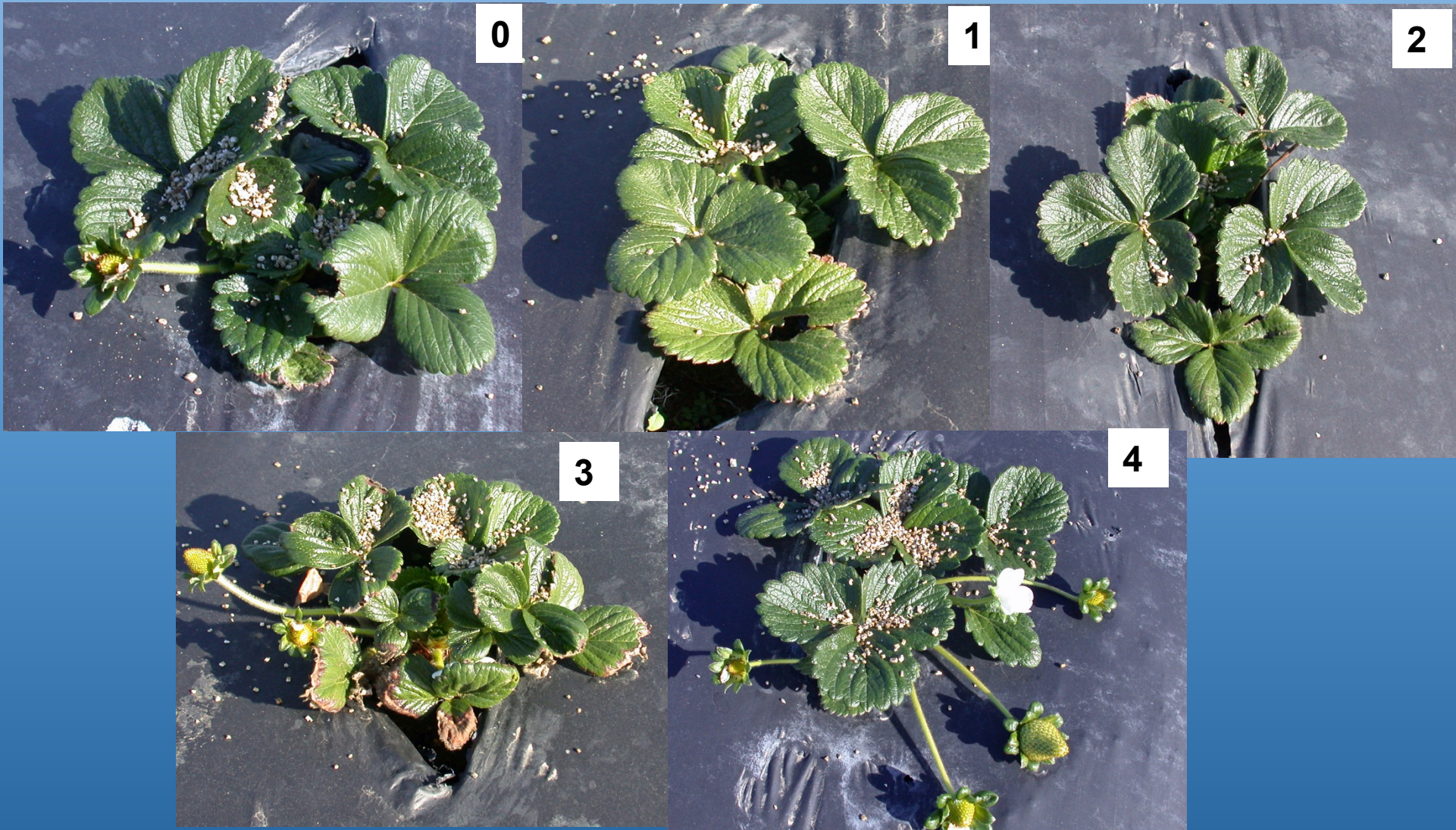
Albion in response to Fusarium (12/02/2018)



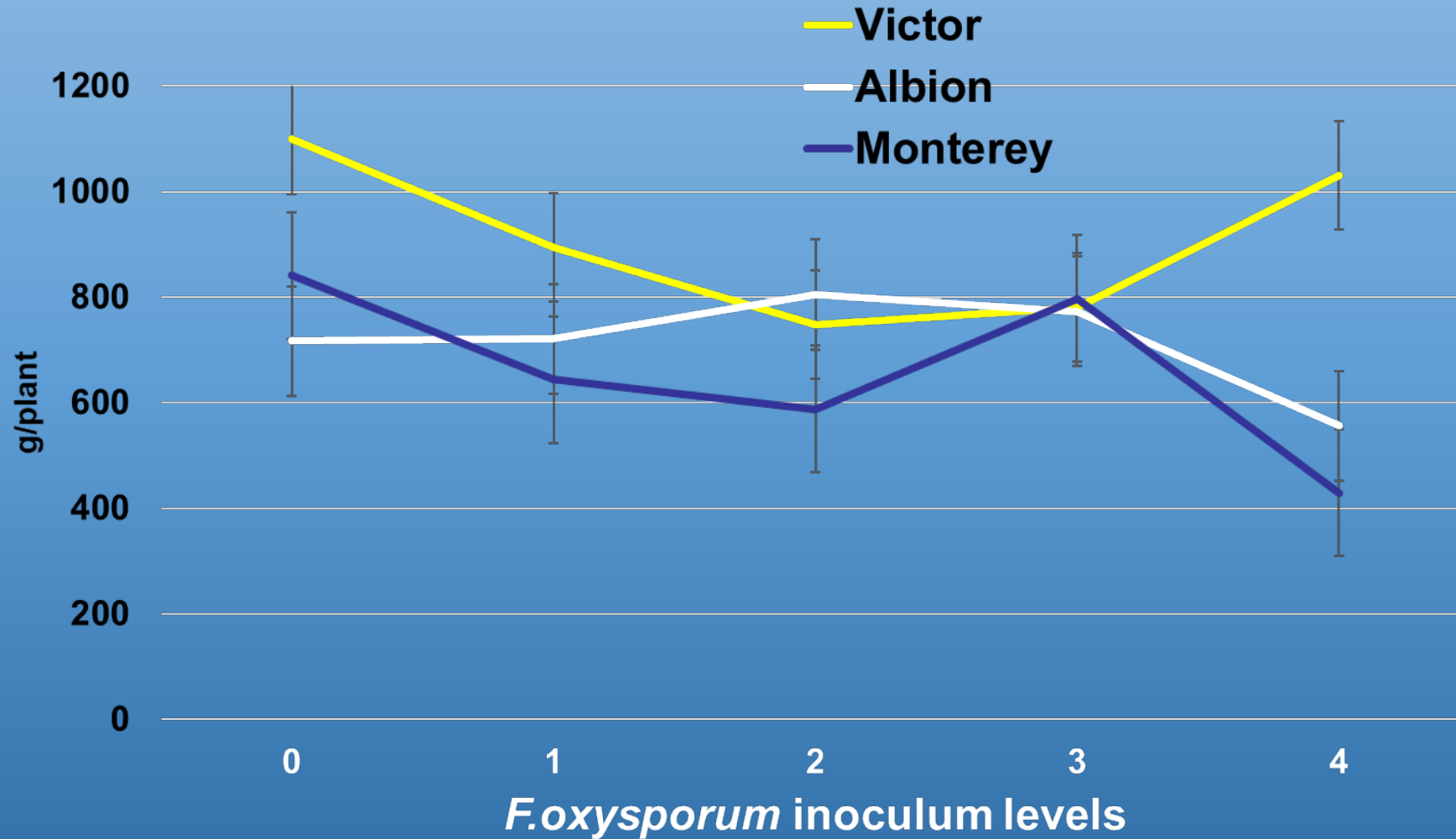
Monterey in response to Fusarium (12/02/2018)



Victor in response to Fusarium (12/02/2018)



Fruit yield (total) in response to Fusarium



Albion without Fusarium - May



Albion in response to Fusarium - May



1



2

Albion in response to Fusarium - May

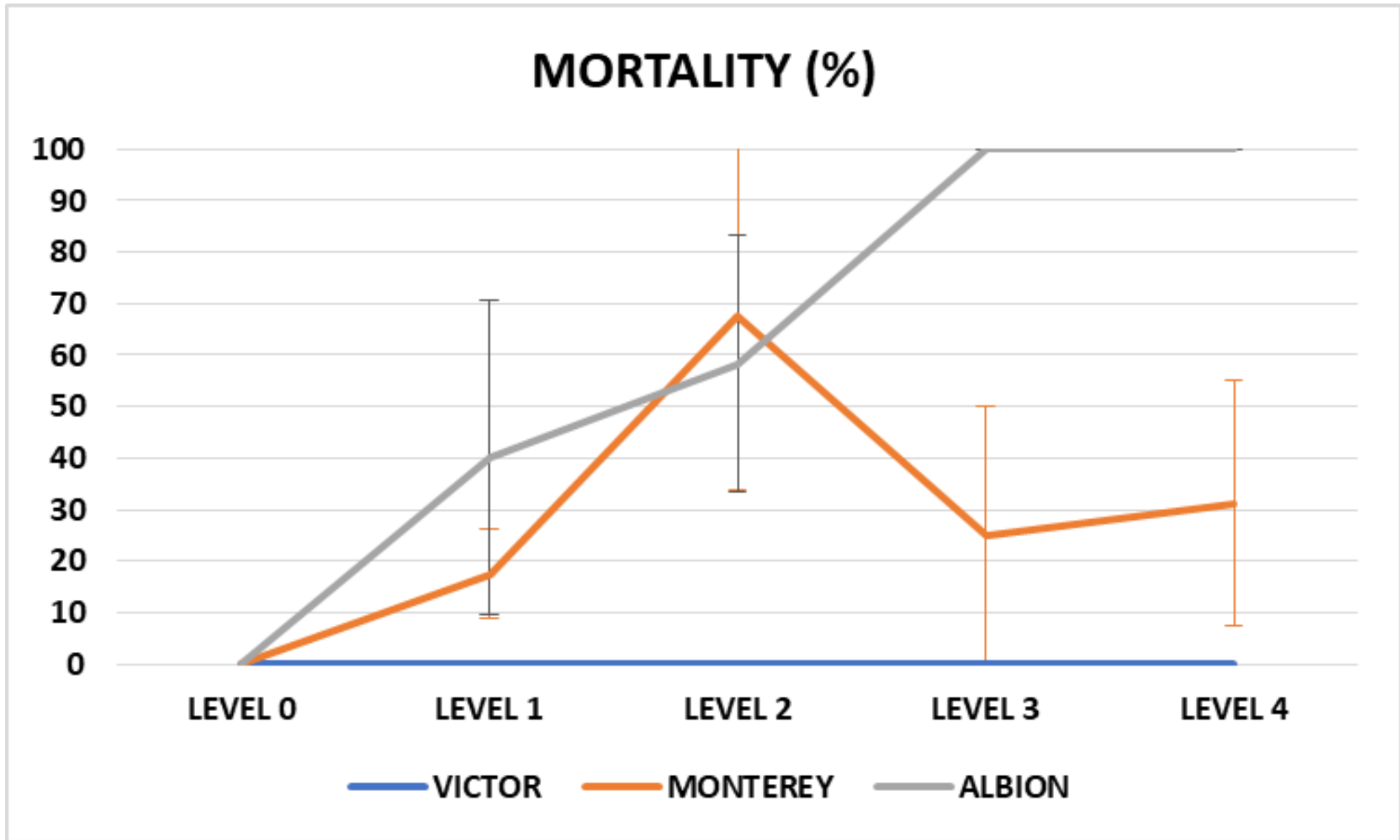


3



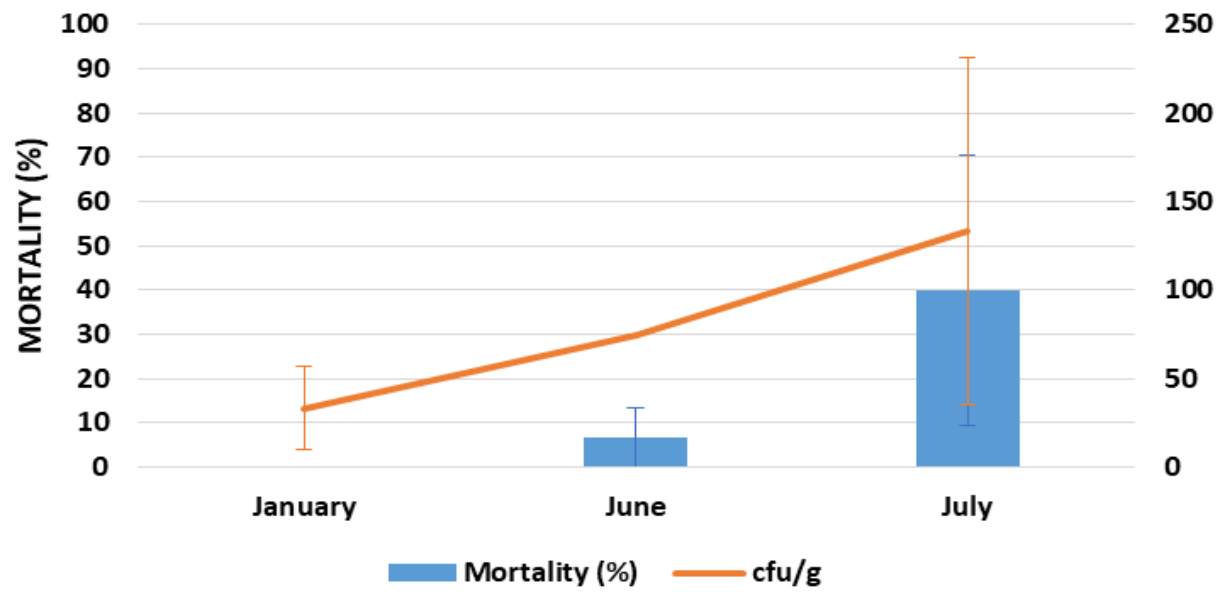
4

MORTALITY CAUSED BY *F. OXYSPORUM* F. SP. FRAGARIAE AT THE END OF THE EXPERIMENT

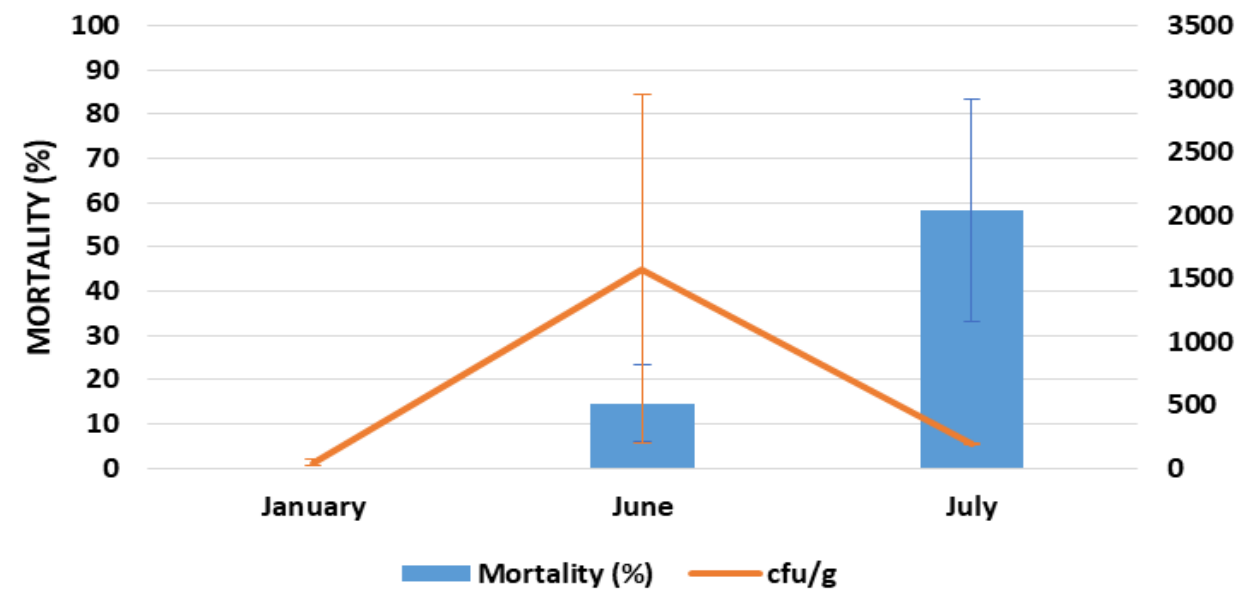


MORTALITY AND CFU OVER THE TIME

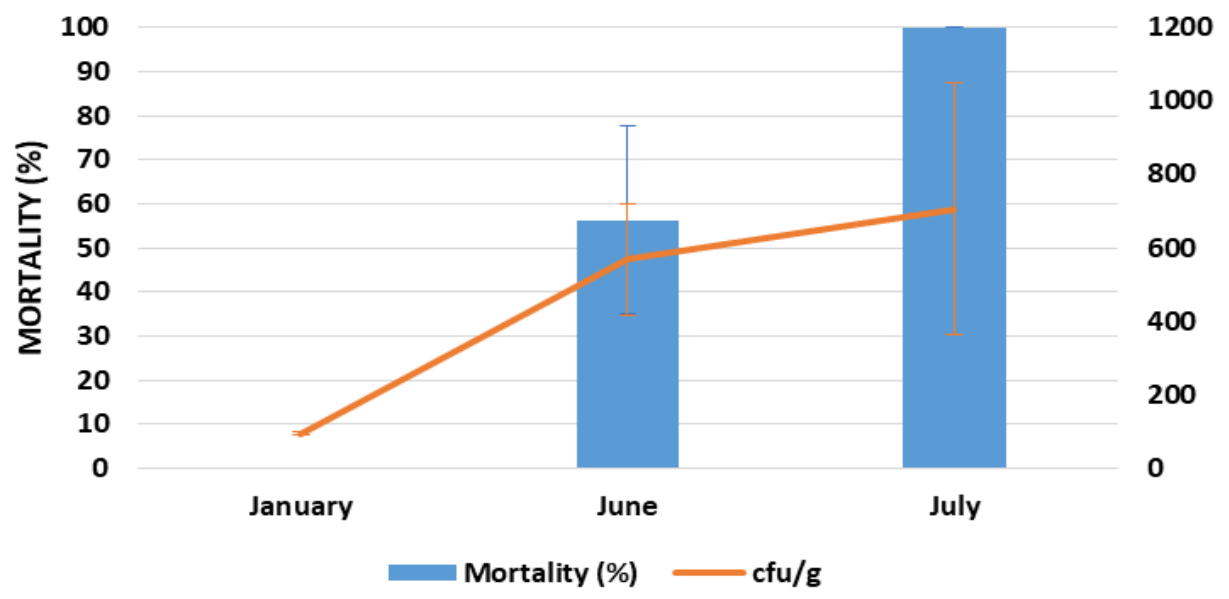
ALBION - LEVEL 1



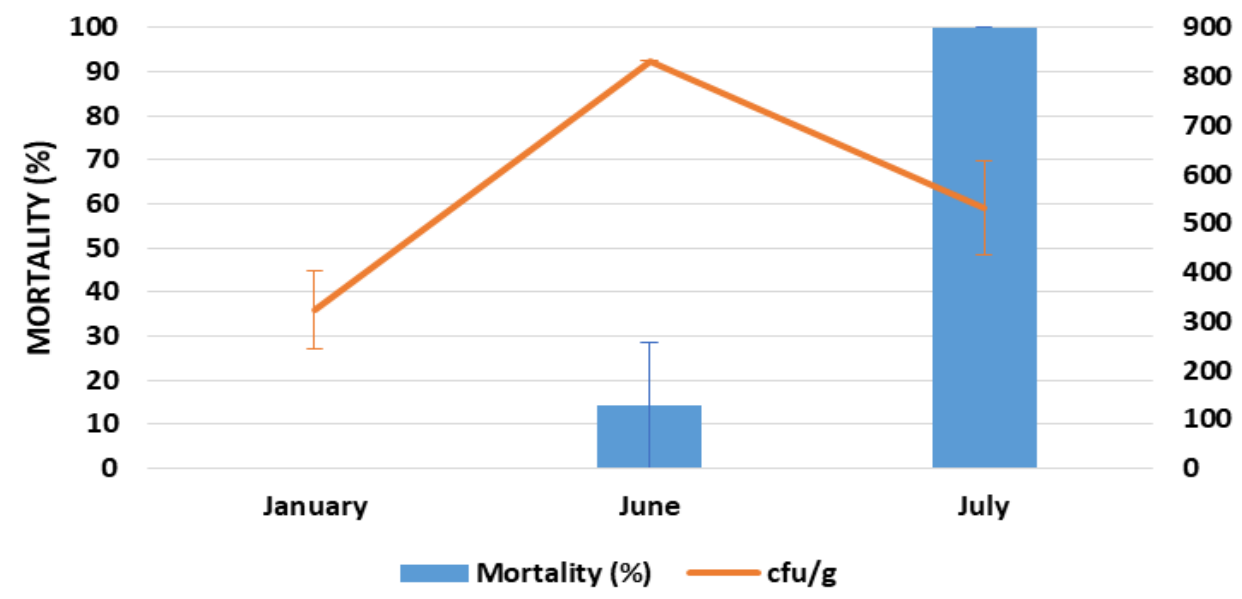
ALBION - LEVEL 2



ALBION - LEVEL 3

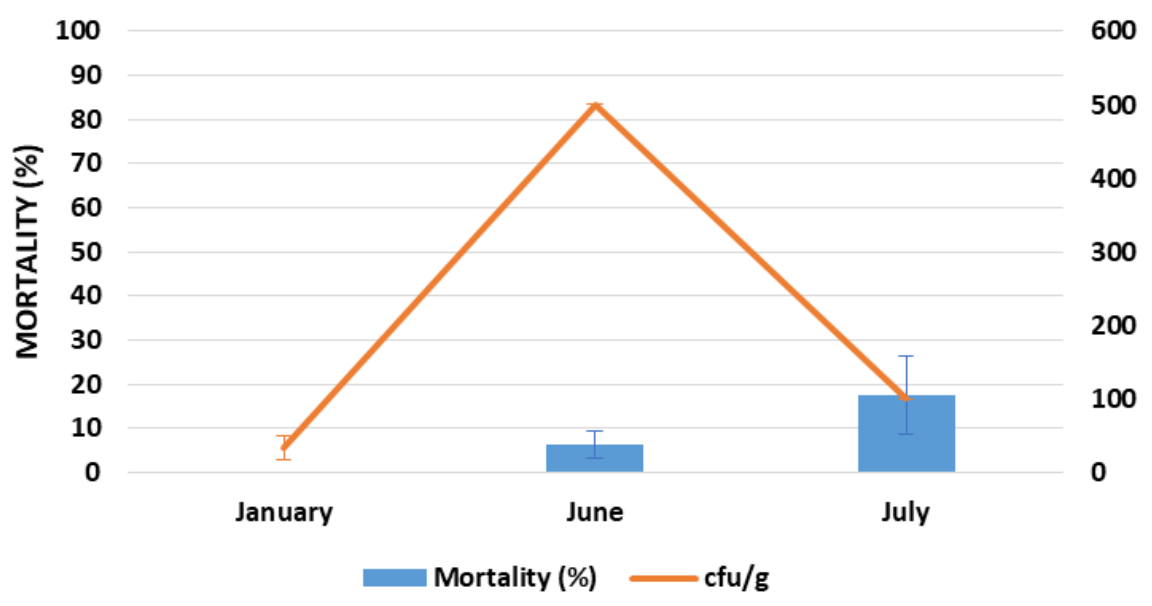


ALBION - LEVEL 4

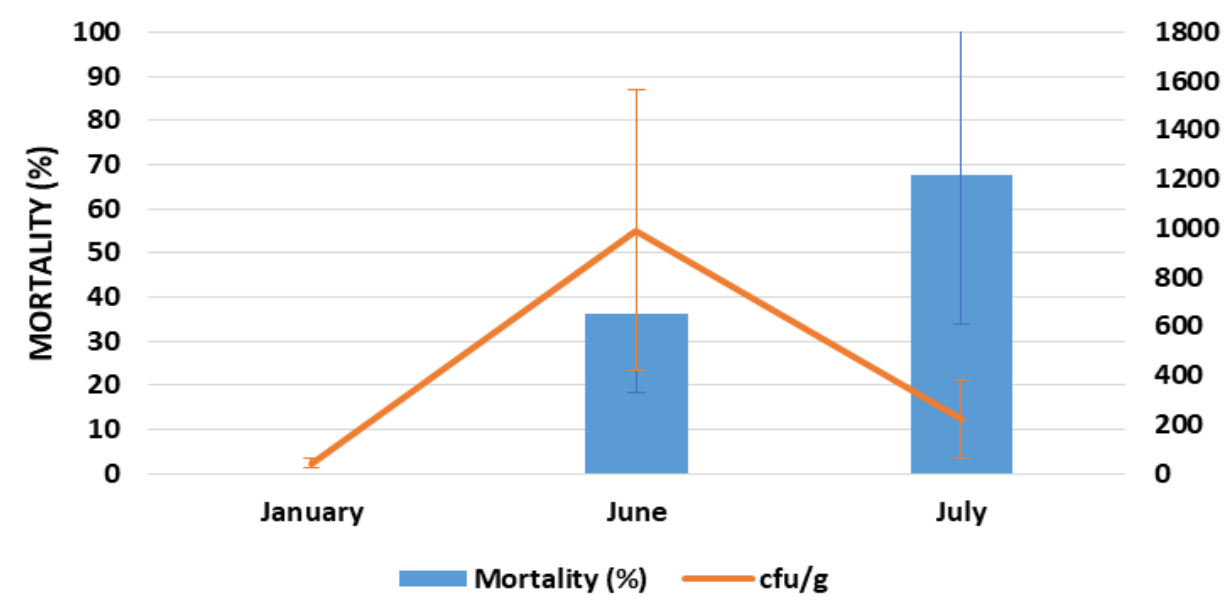


MORTALITY AND CFU OVER THE TIME

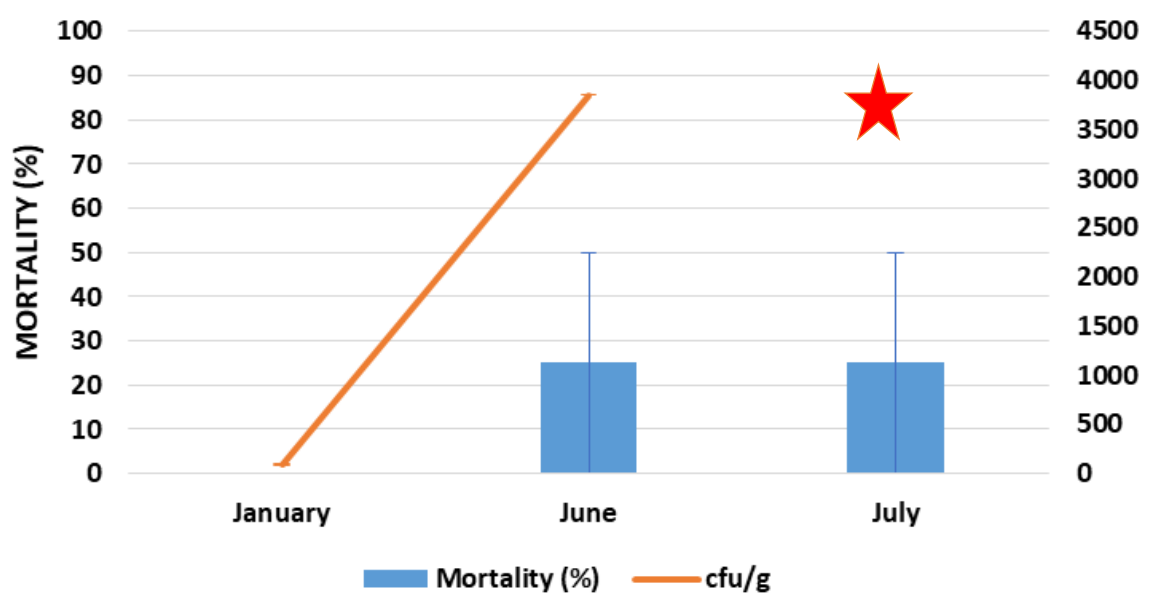
MONTEREY - LEVEL 1



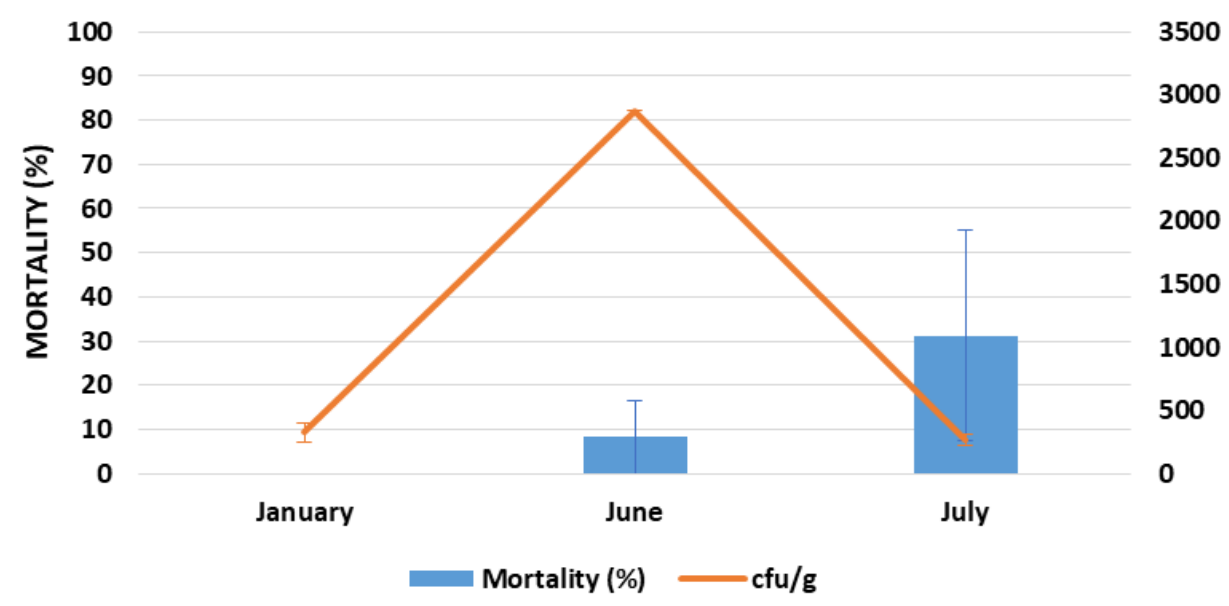
MONTEREY - LEVEL 2



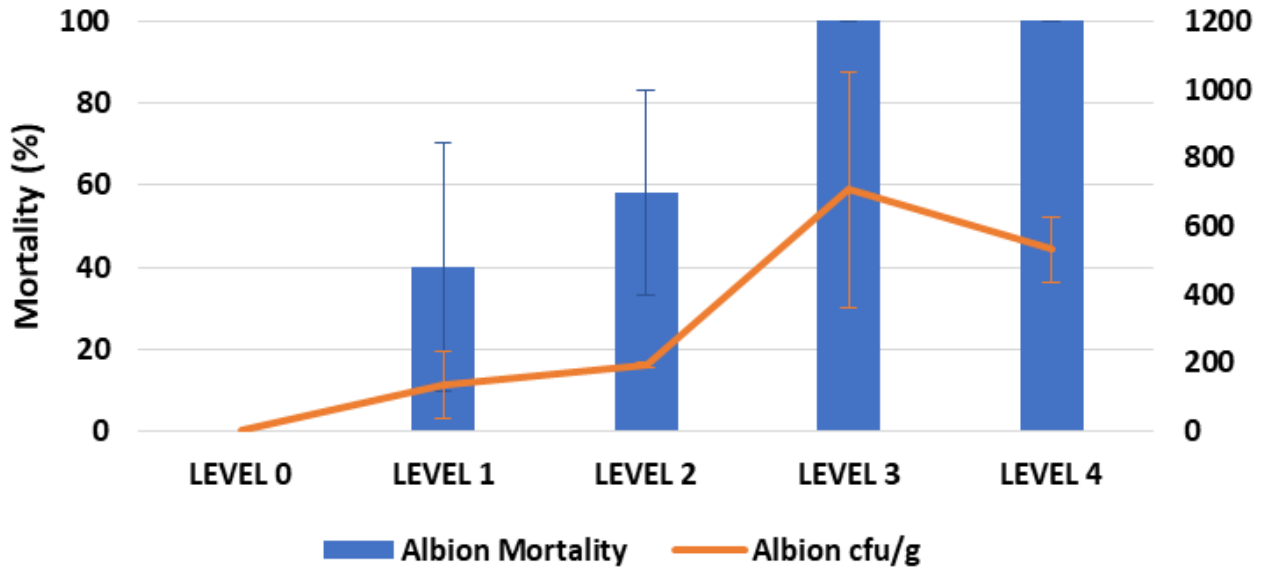
MONTEREY - LEVEL 3



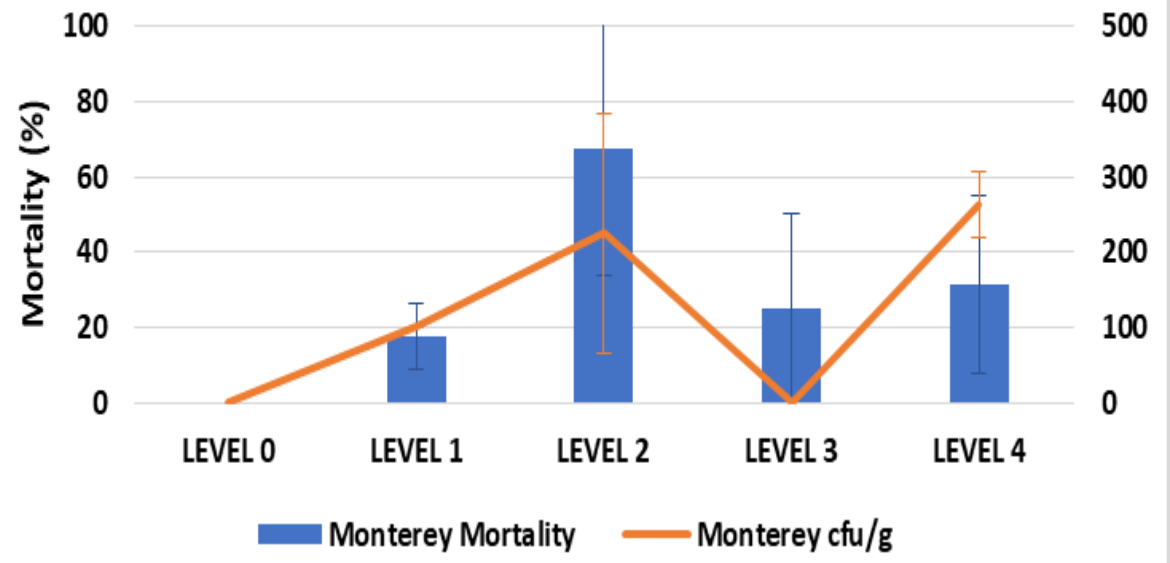
MONTEREY - LEVEL 4



ALBION - END POINT



MONTEREY - END POINT



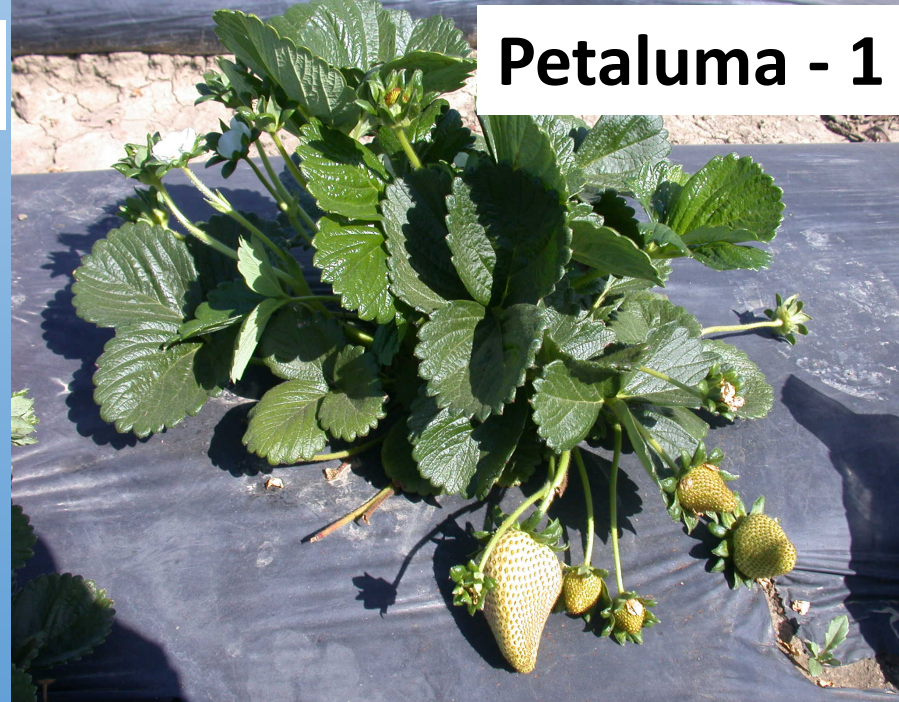
2019-2020 Season: short day cultivars

- Petaluma (Fusarium susceptible)
- Victor (Fusarium resistant)
- Warrior (Fusarium resistant)

PLANT SIZES, DEC 11	CM²
• Petaluma	168 a
• Victor	113 b
• Warrior	138 b



Petaluma - 0



Petaluma - 1

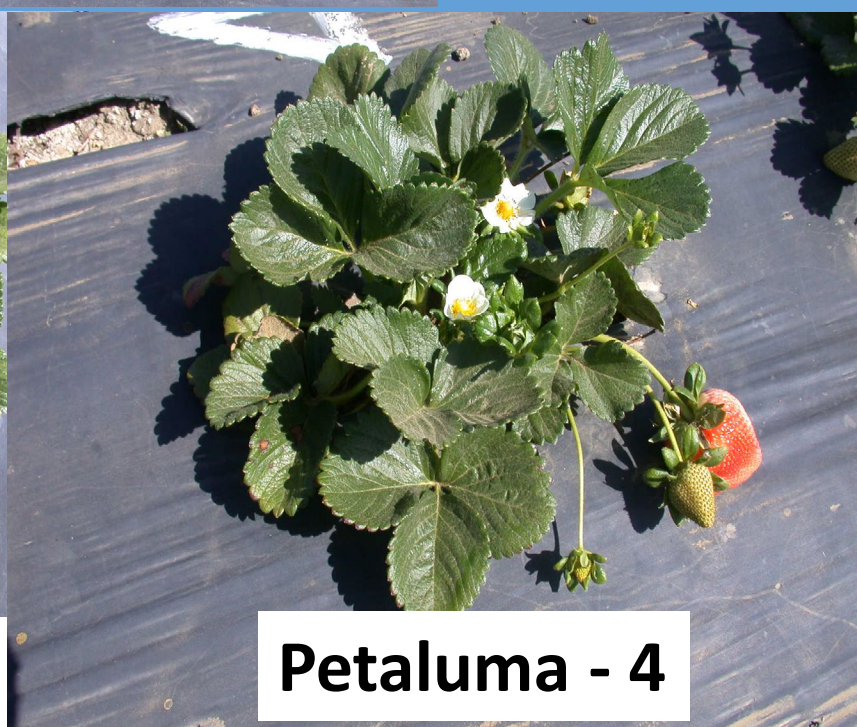
4/28/2020



Petaluma - 2



Petaluma - 3



Petaluma - 4



Victor - 0



Victor - 1

4/28/2020



Victor - 2



Victor - 3



Victor - 4



Warrior - 0



Warrior - 1

4/28/2020



Warrior - 2

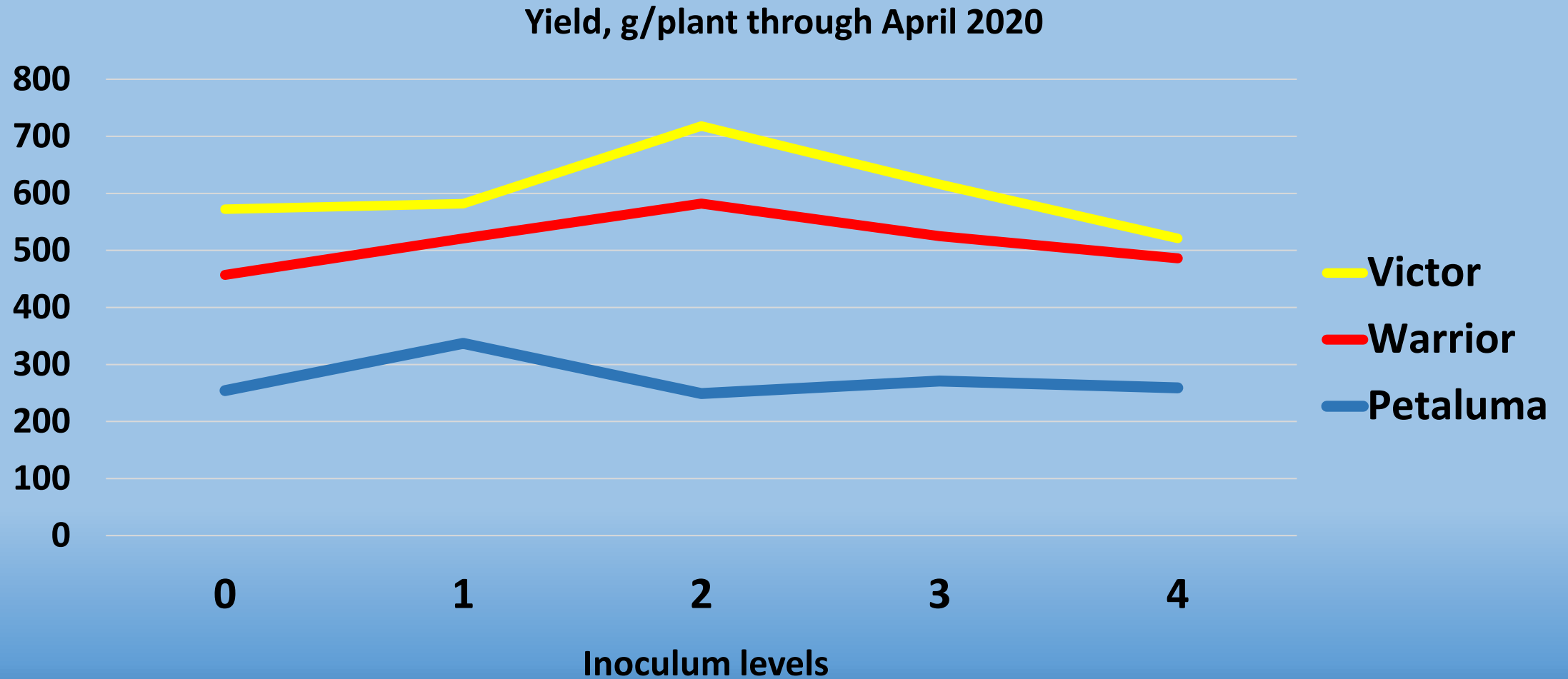


Warrior - 3



Warrior - 4

Fruit yields Jan-April 2020, no *F.ox.* mortality



Acknowledgements

- UCD breeding Program
- Cedar Point Nursery and Lassen Canyon Nursery
- Hansen REC and UCCE staff
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