Some thoughts on change in the berry industry: Spotted-Wing Drosophila

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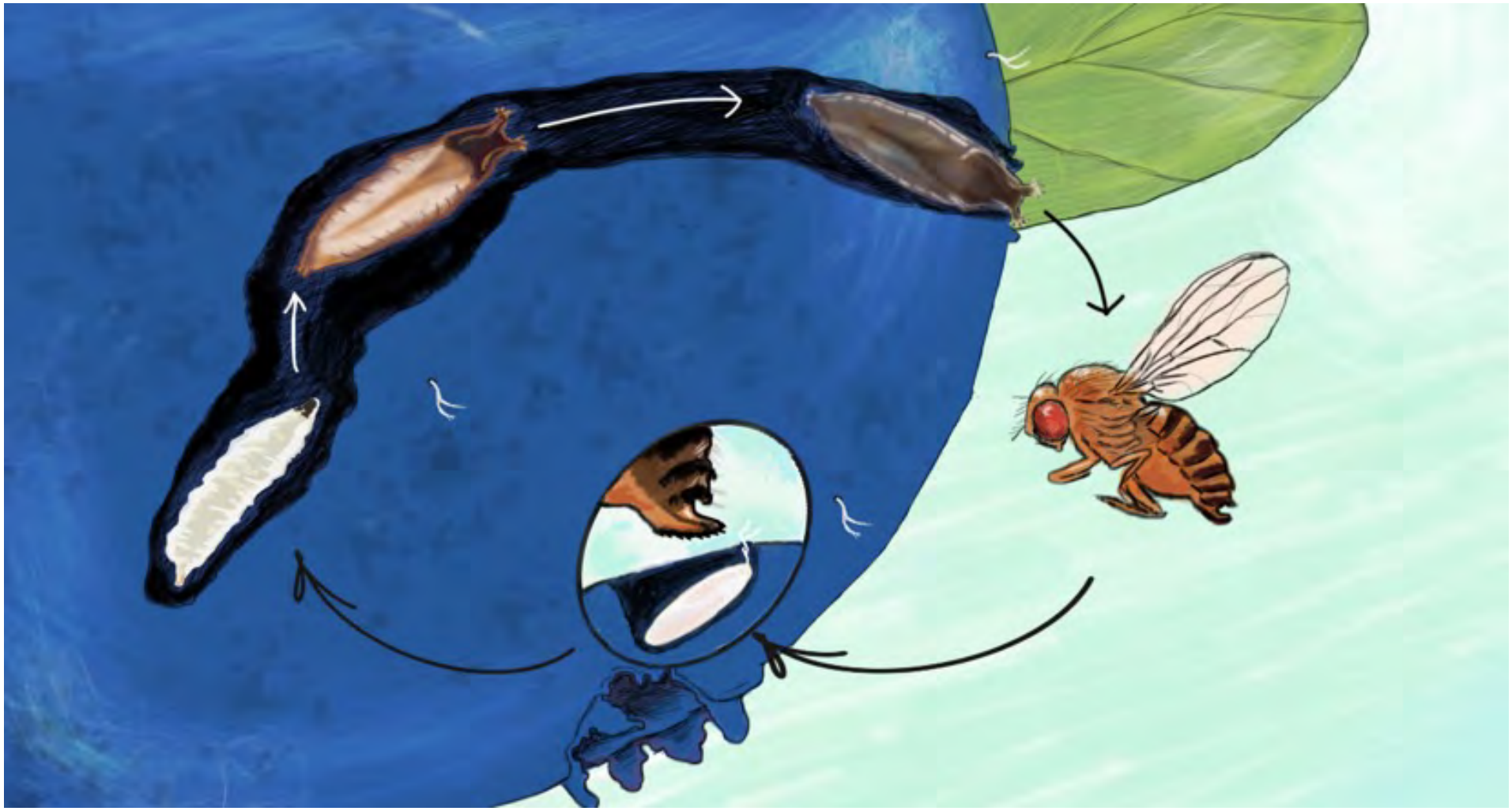
GEBORNE HOFERIN.



Avosani, from Tait et al 2021

Problem

Packing Shed

Retail Market

Vaughn Walton

Spotted-wing drosophila causes significant losses

How fruit characters affect SWD susceptibility

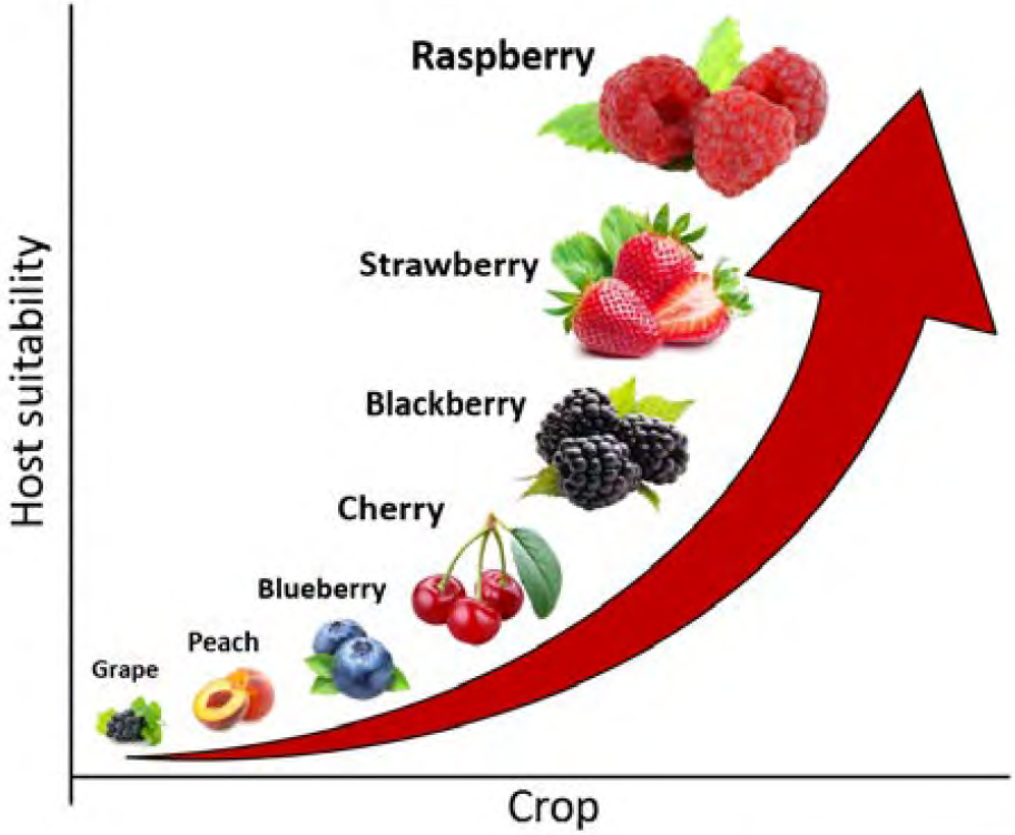


Illustration: Marco Rossi-Stacconi, © Oregon State University

Figure 1. Susceptibility ranking of fruits based on aroma preference, egg-laying performance and reproductive success of SWD (after: Bellamy et al. 2013).

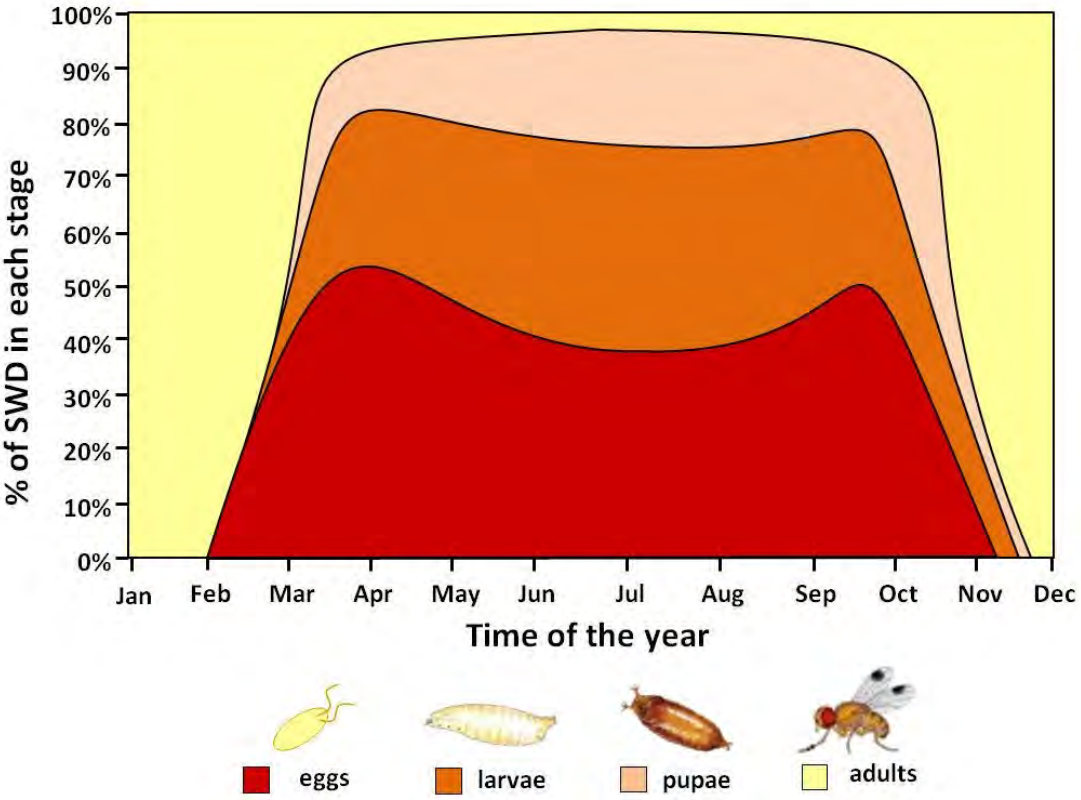
OSU Extension service EM9264, 2019. Lee et al. 2015. Infestation of wild and ornamental noncrop fruits by *Drosophila suzukii* (Diptera: Drosophilidae). *Annals of the Entomological Society of America* 108:117–129.

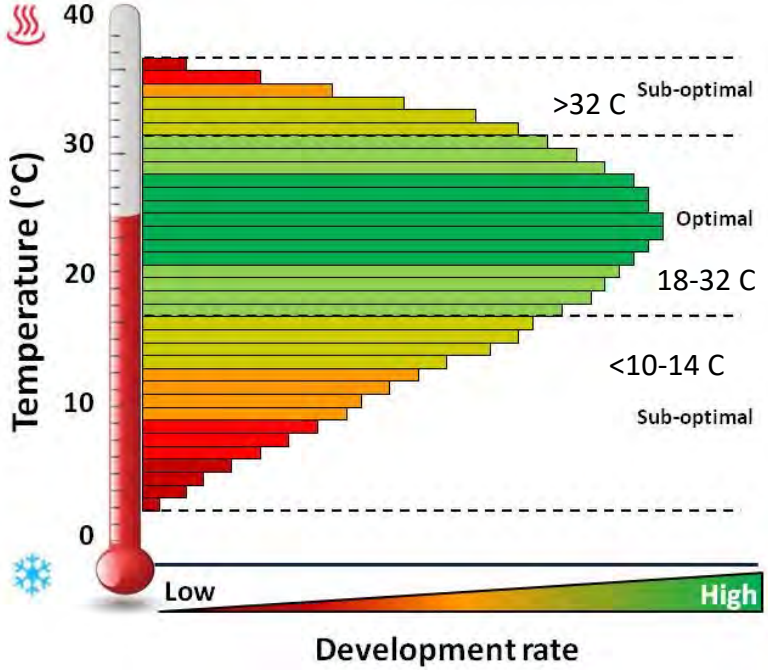
Economic importance in Oregon

Vaughn Walton

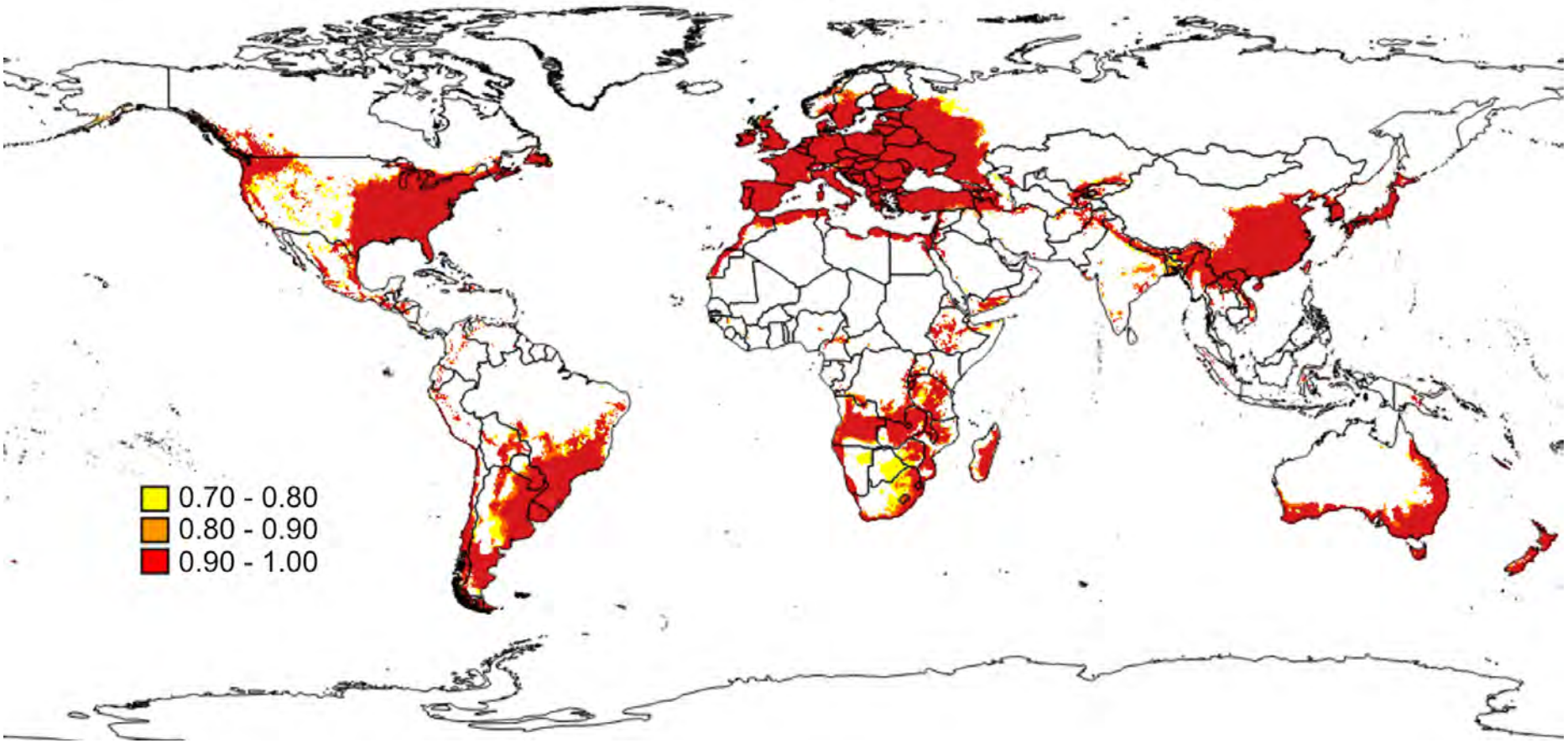
How seasons affect SWD

(OSU Extension Service, EM 9261)

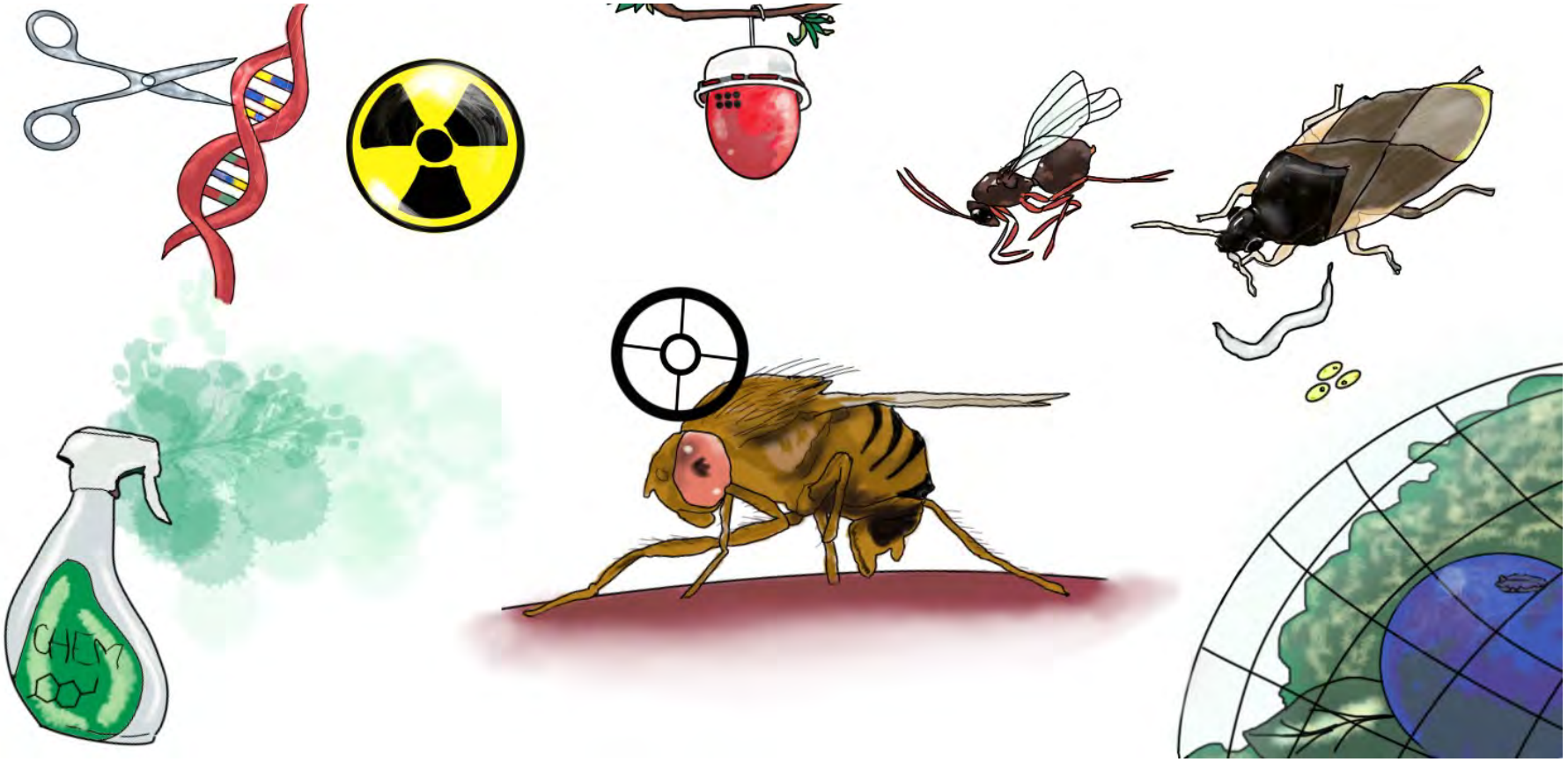




Grassi et al 2018, Tochen et al 2014, Wiman et al 2016, Walton et al 2019



Dos Santos et al. 2017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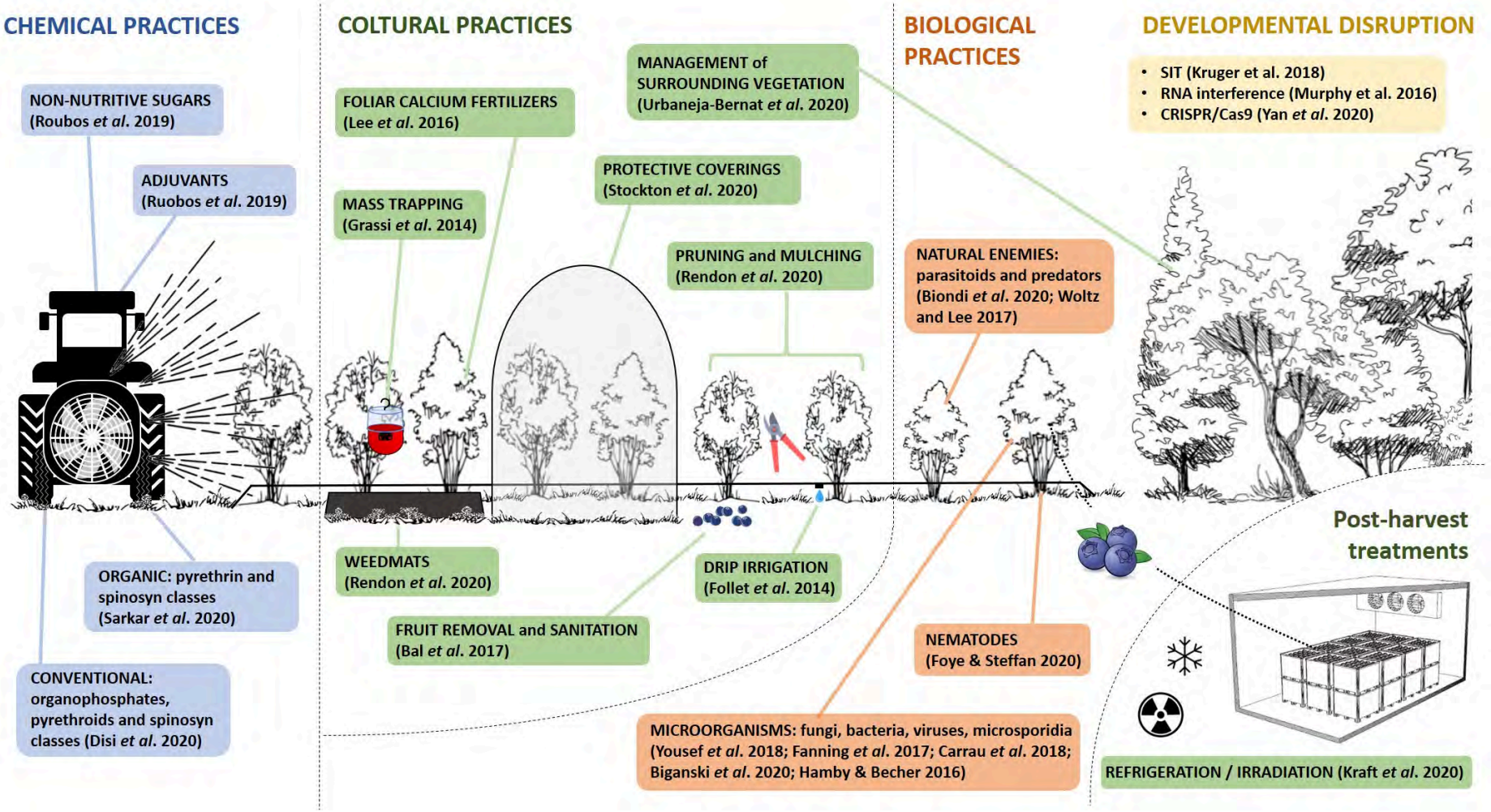
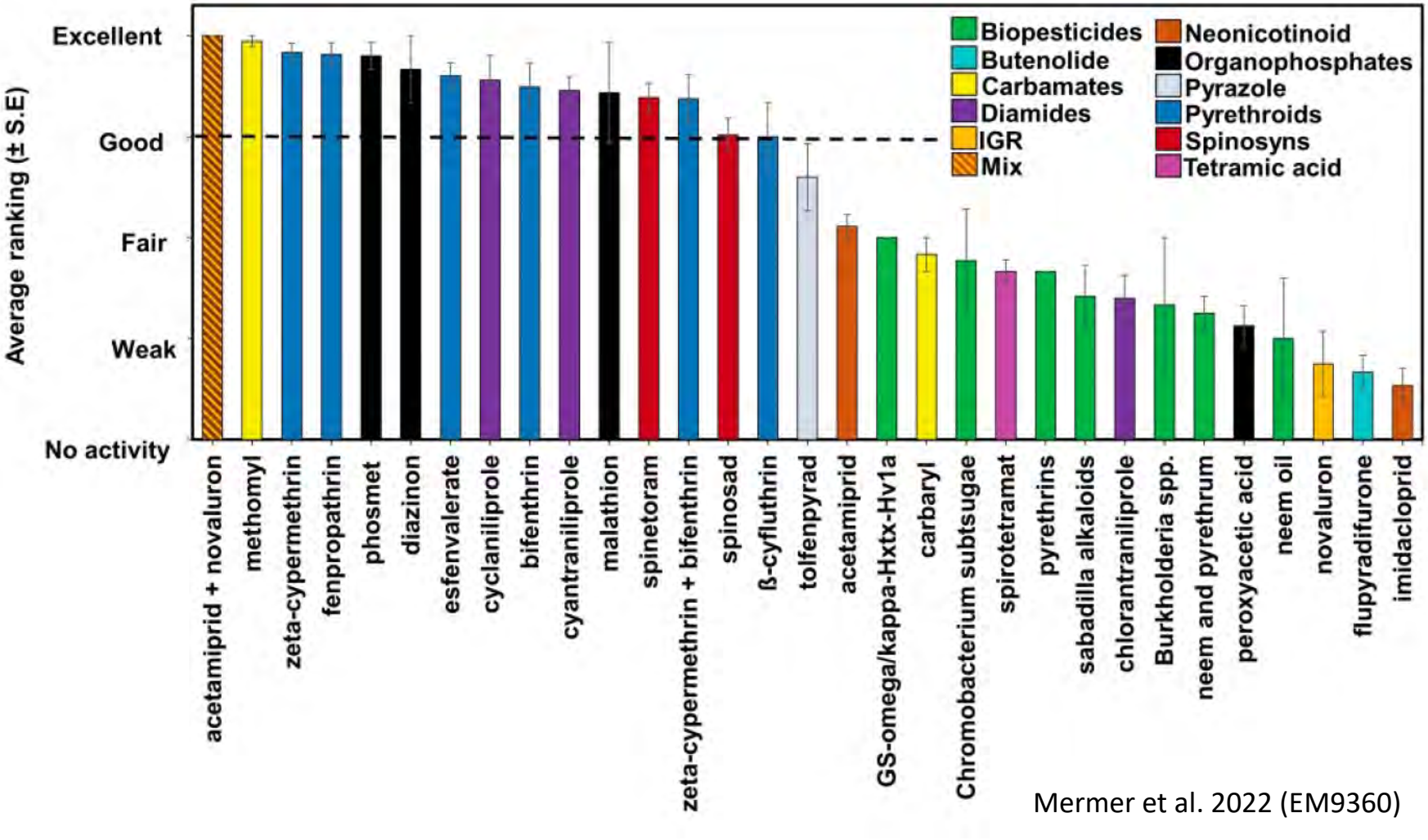


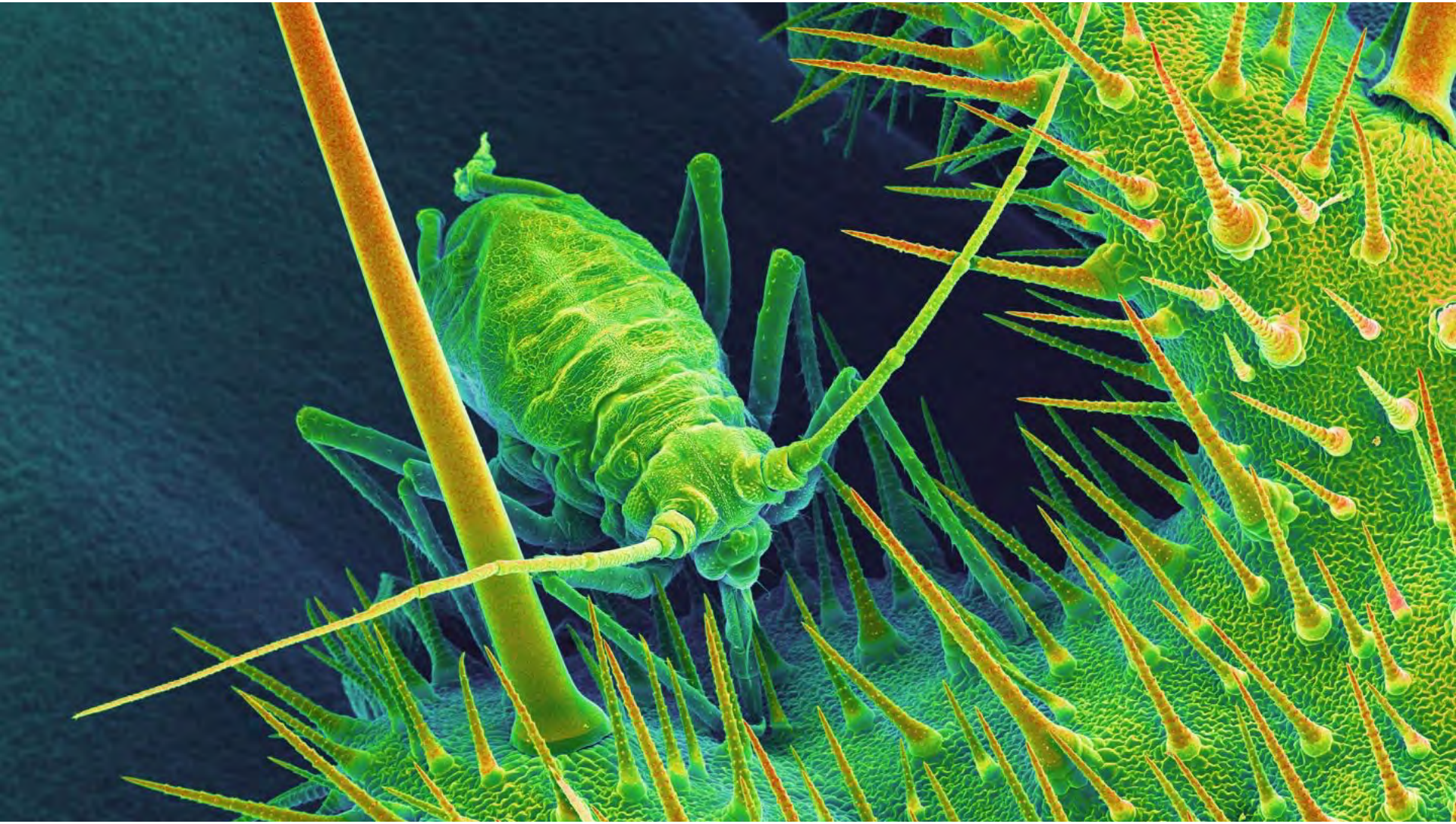
Rossi-Stacconi, from Tait et al 2021

Relative ranking of insecticide efficacy and insecticidal class

(indicated by color code) of insecticides commonly used to control spotted-wing drosophila. Insecticides are color-coded by insecticidal class.

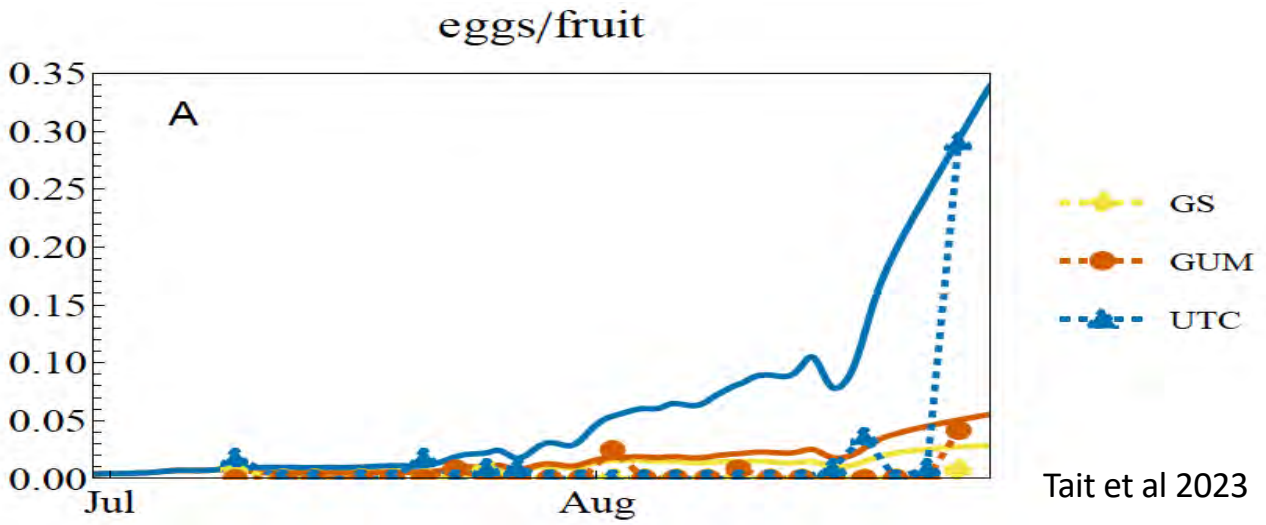


Mermer et al. 2022 (EM9360)

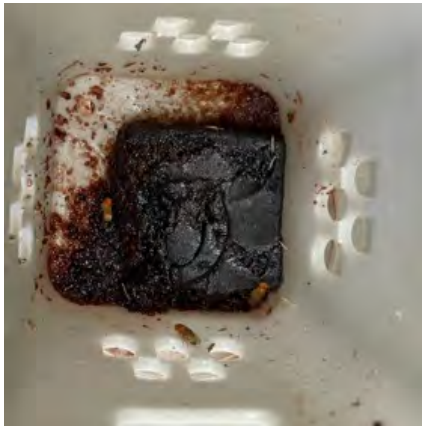


Hans Stuessi

A modeling perspective based on a ~50% egg reduction using Decoy: Real data



Tait et al 2023



Grower adoption of sustainable tools and reduction of pesticide use:

Decoy™ Food-grade gum

Lasts 3 weeks

As attractive as fruit

Not applied directly onto fruit

Minimum Risk Insecticide

Bait Sprays e.g. Combi-Protec

BAIT SPRAY

20-40 l spray volume / ha

2.5- 5.0 gal Spray Volume/acre

minimized insecticide use

3 – 10% of standard rates

minimized residues of actives

3-8% coverage of plant canopy

fast application

FULL COVERAGE APPLICATION

100-1000l spray volume / ha

20 – 100l gal spray volume / acre

up to 50% less insecticide use

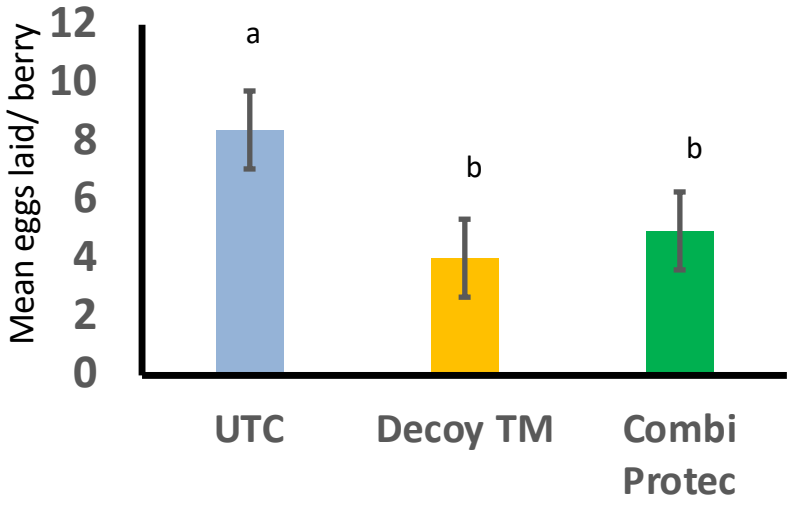
by equal efficacy

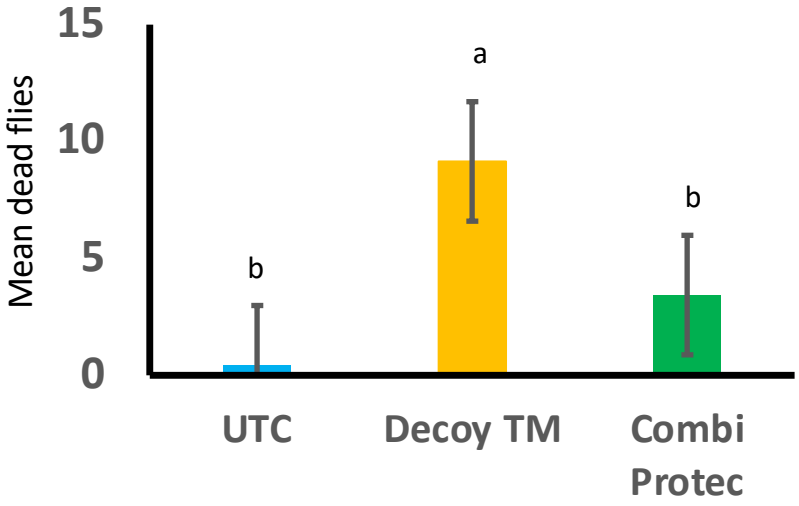
Reduces effectiveness loss due to washing off by rain

possible use of fungicides

in tank mix

Laboratory trials in actively ventilated arenas over 24 hrs





Treatment not applied directly on berry

Molokwu et al in prep; 7 replicates, ANOVA analysis, sig. dif. separated by Tukey's HSD

Summary

- Continuous change is guaranteed
- Knowledge of how to manage available
- Use Integrated Control
- Behavioral management and A&K shows tremendous promise
- ZA prepared
- Will continue to produce high quality fruit

Qualtrics presenter survey <30 seconds

Thank you

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