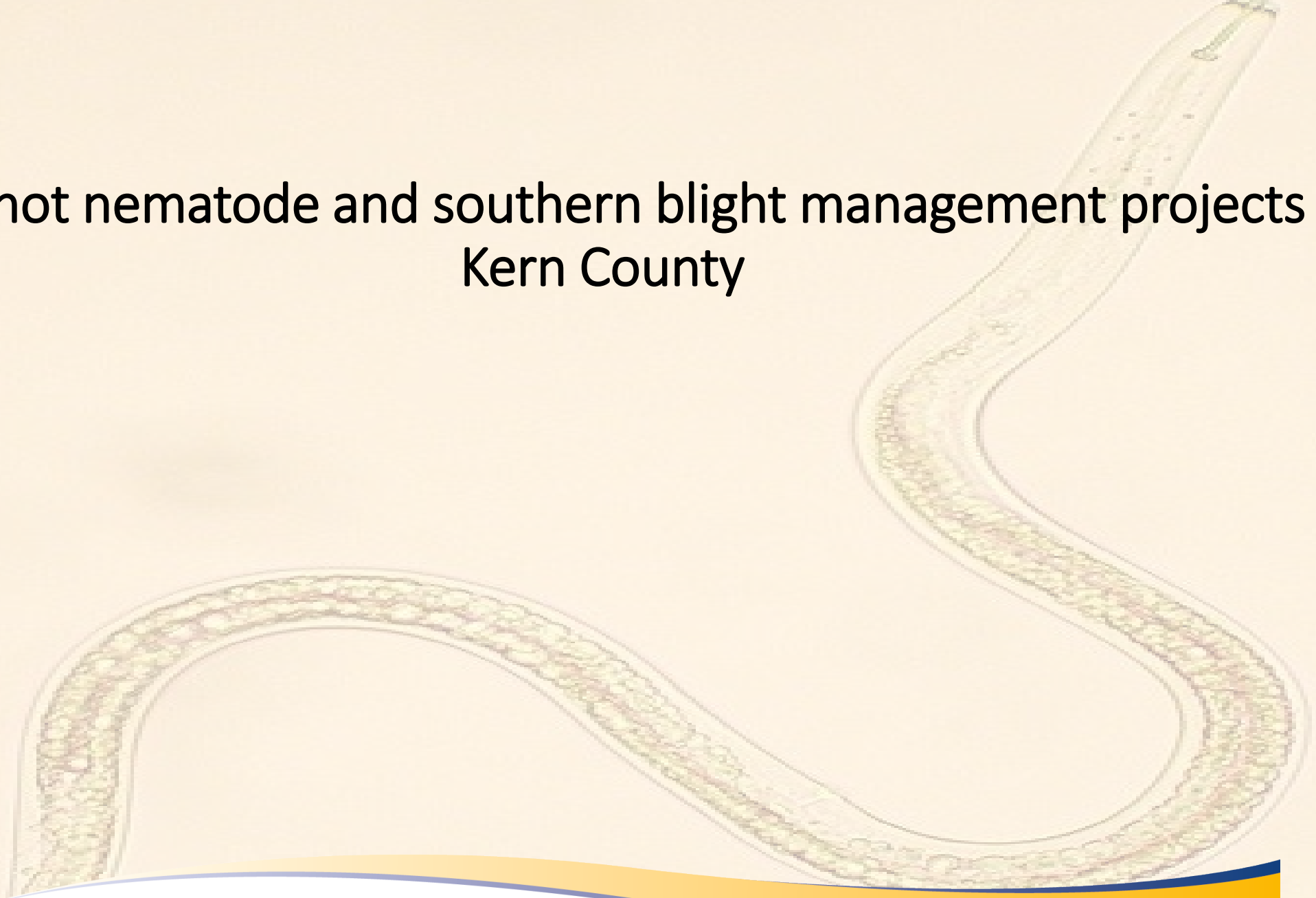


Root knot nematode and southern blight management projects in Kern County

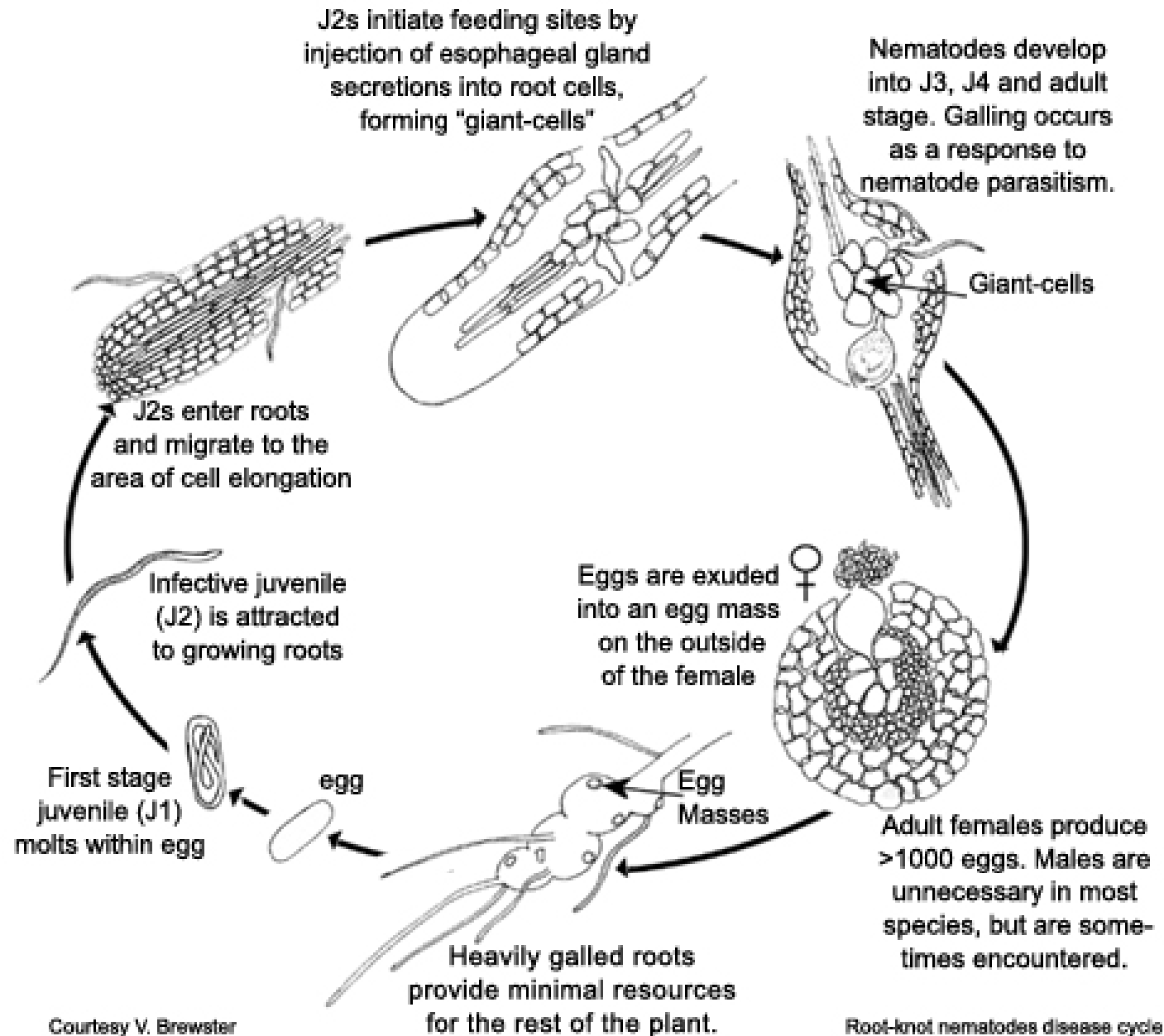


Symptoms

- Generally root galling
- Above-ground symptoms: stunted and less vigorous plants, wilting yellowing etc.
- Roots unable to sustain the water and nutrients needs
- Reduced yield and poor fruit quality
- Vulnerable to other soil-borne pathogens



Life Cycle: Temperature driven



Courtesy V. Brewster

Challenges in management

- Wide host range
- Mi gene resistance in tomato cultivars: Breakdown instances
- Management relied on pre-plant fumigation
- New fumigant regulations by Department of Pesticide Regulation (DPR)
 - limits the amount used by a grower
 - caps on the amounts allowed in a township
 - expanded buffer zones

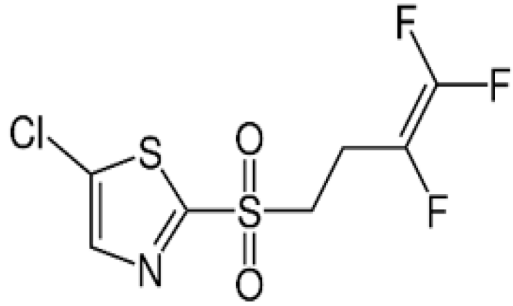
Objective

To evaluate alternative non-fumigant nematicides for managing RKN

- high efficacy
- economically viable
- environmentally safe

Product	AI	Manufacturer
Nimitz	Fluensulfone	Adama
Velum	Fluopyram	Bayer
Salibro	Fluazaindolizine	Corteva
Developmental product	----- Conventional-----
Organic products		

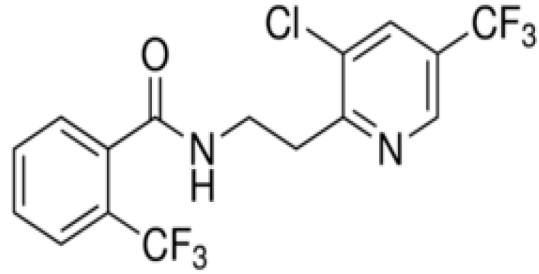
Nimitz (Adama)



Fluensulfone

Caution

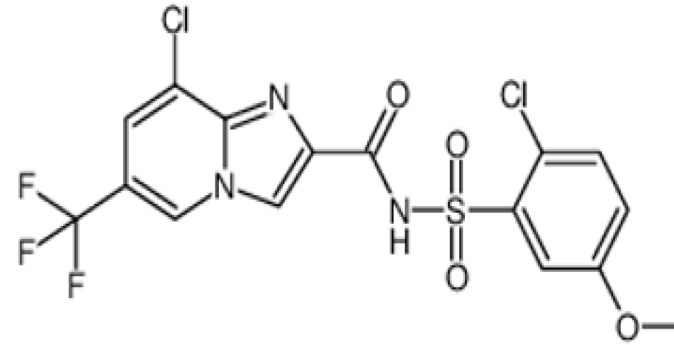
Velum(Bayer)



Fluopyram

Caution

Salibro (Corteva)



Fluazaindolizine

Caution

DP

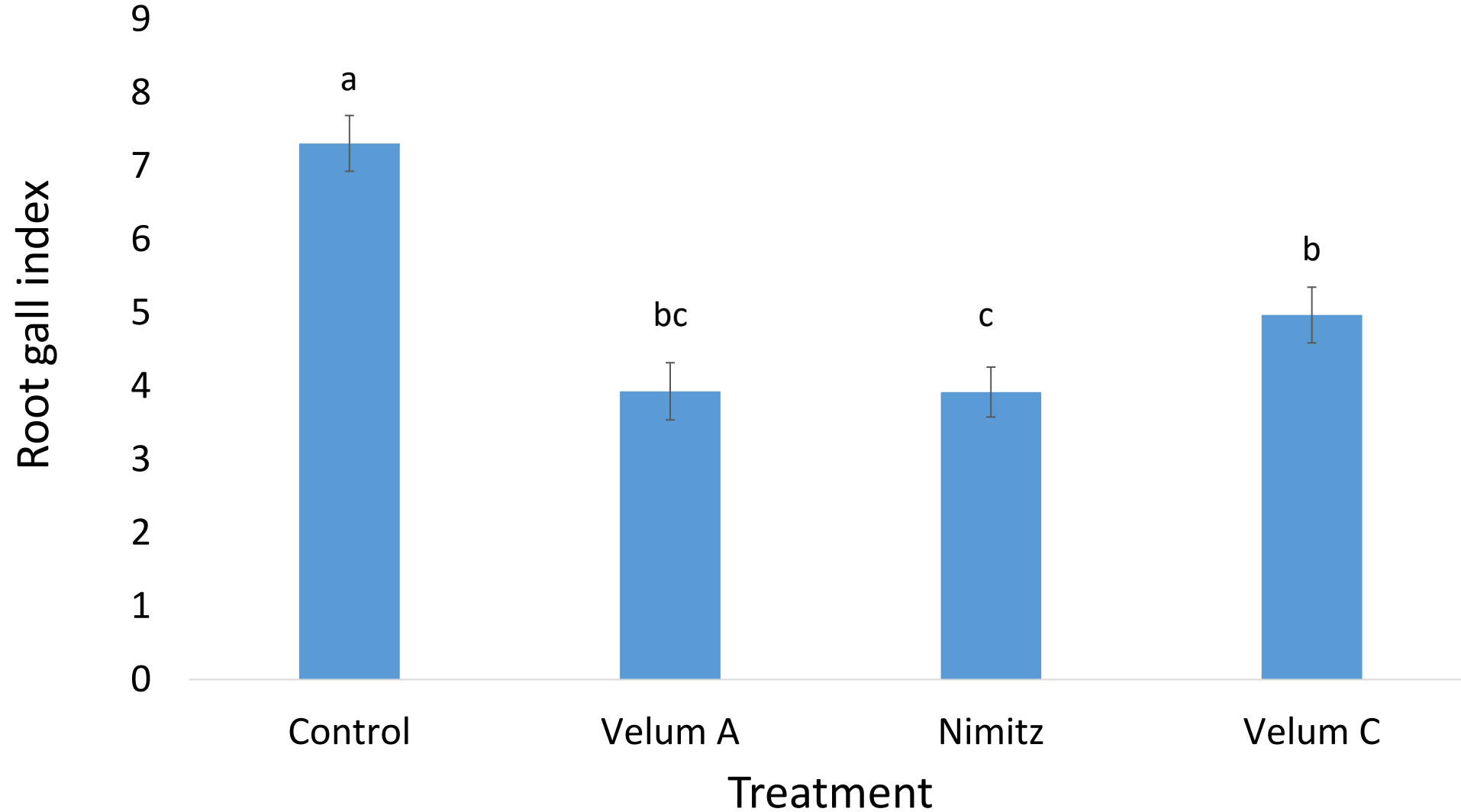
"?"

New products are less toxic, more selective, and Safer to use – true nematicides

Modes of action – New or unknown

Trials in 2019, 2021, 2024.

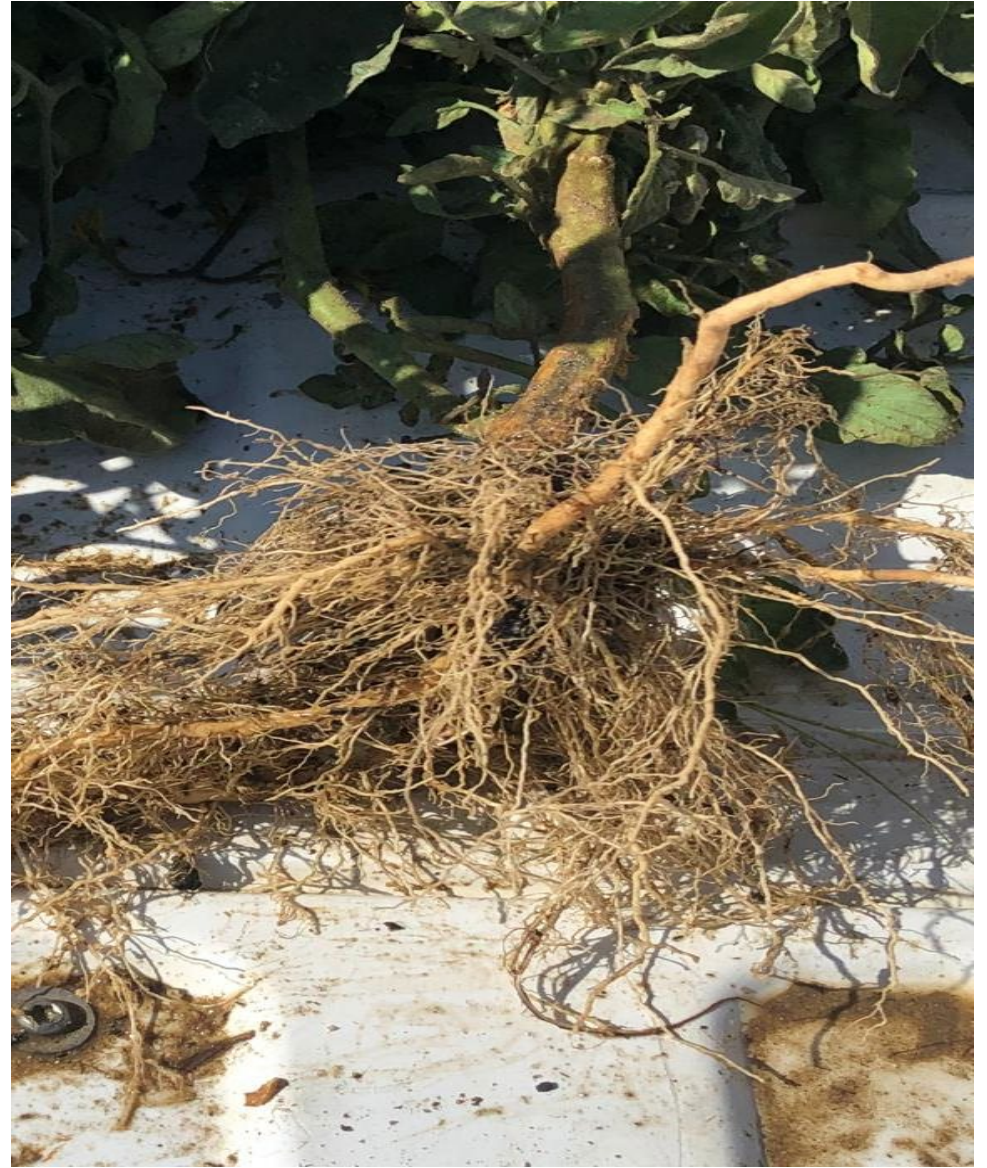
2019 Galling on tomato roots caused by root knot nematode



P<0.0001



Control



Nimitz

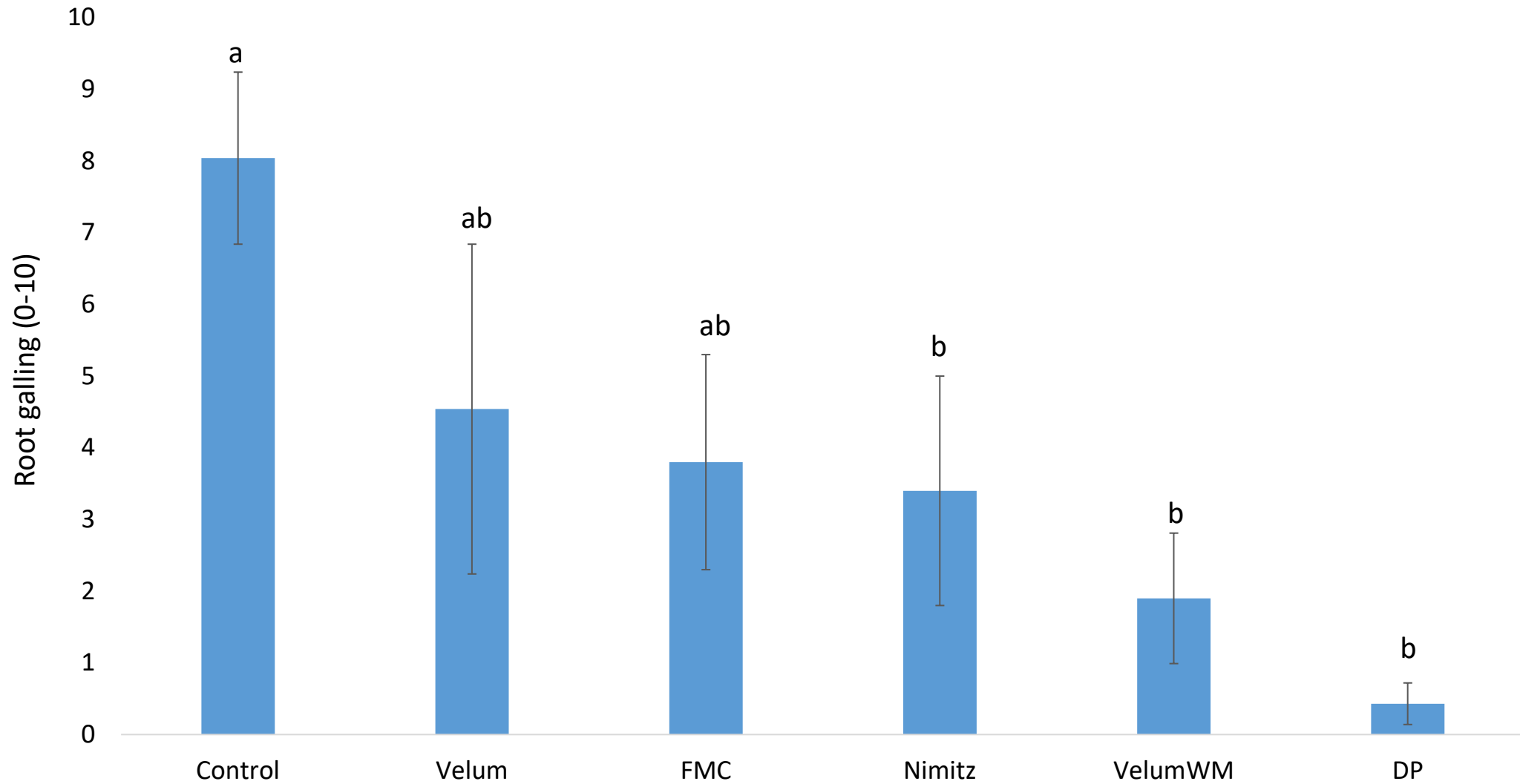


Nimitz



Velum C

2021 galling on tomato roots





1= Control

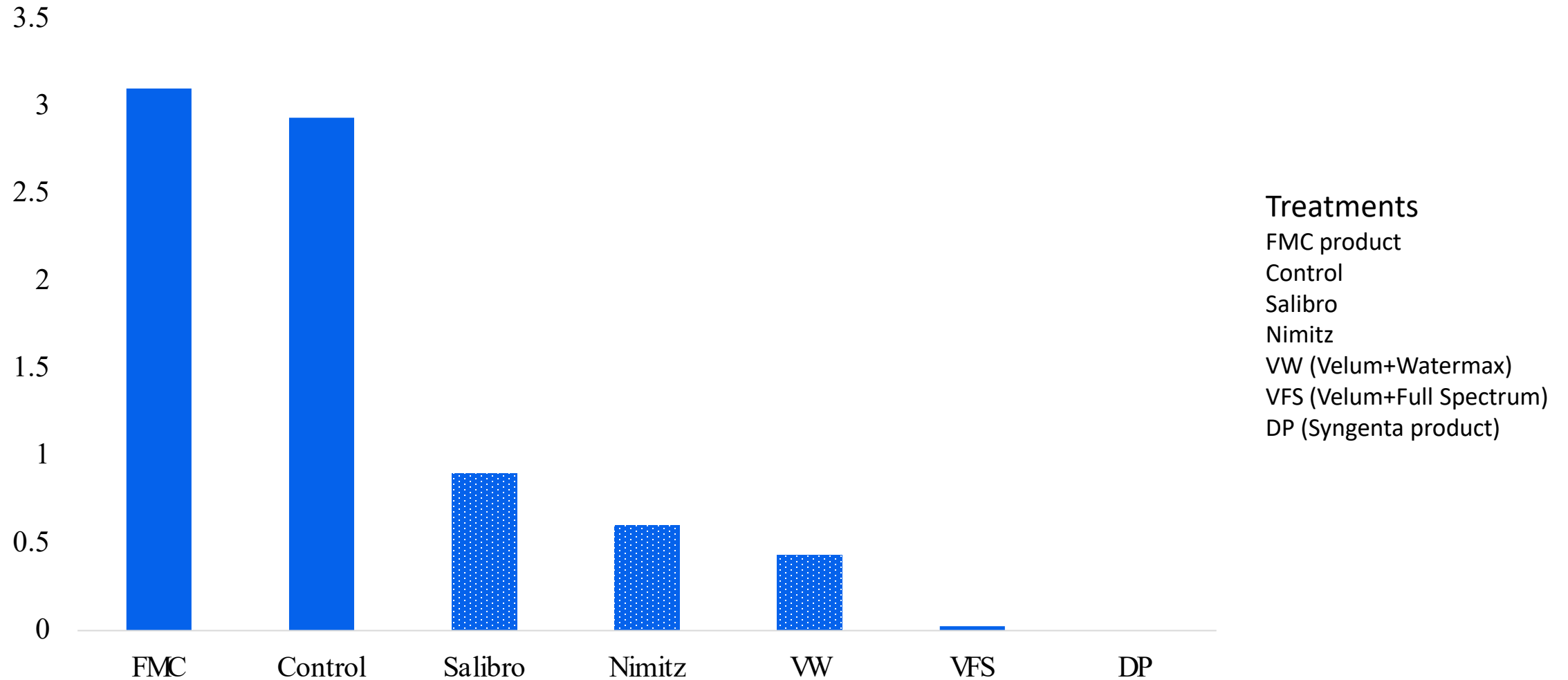
3= Velum+WM

4= Nimitz

7= DP



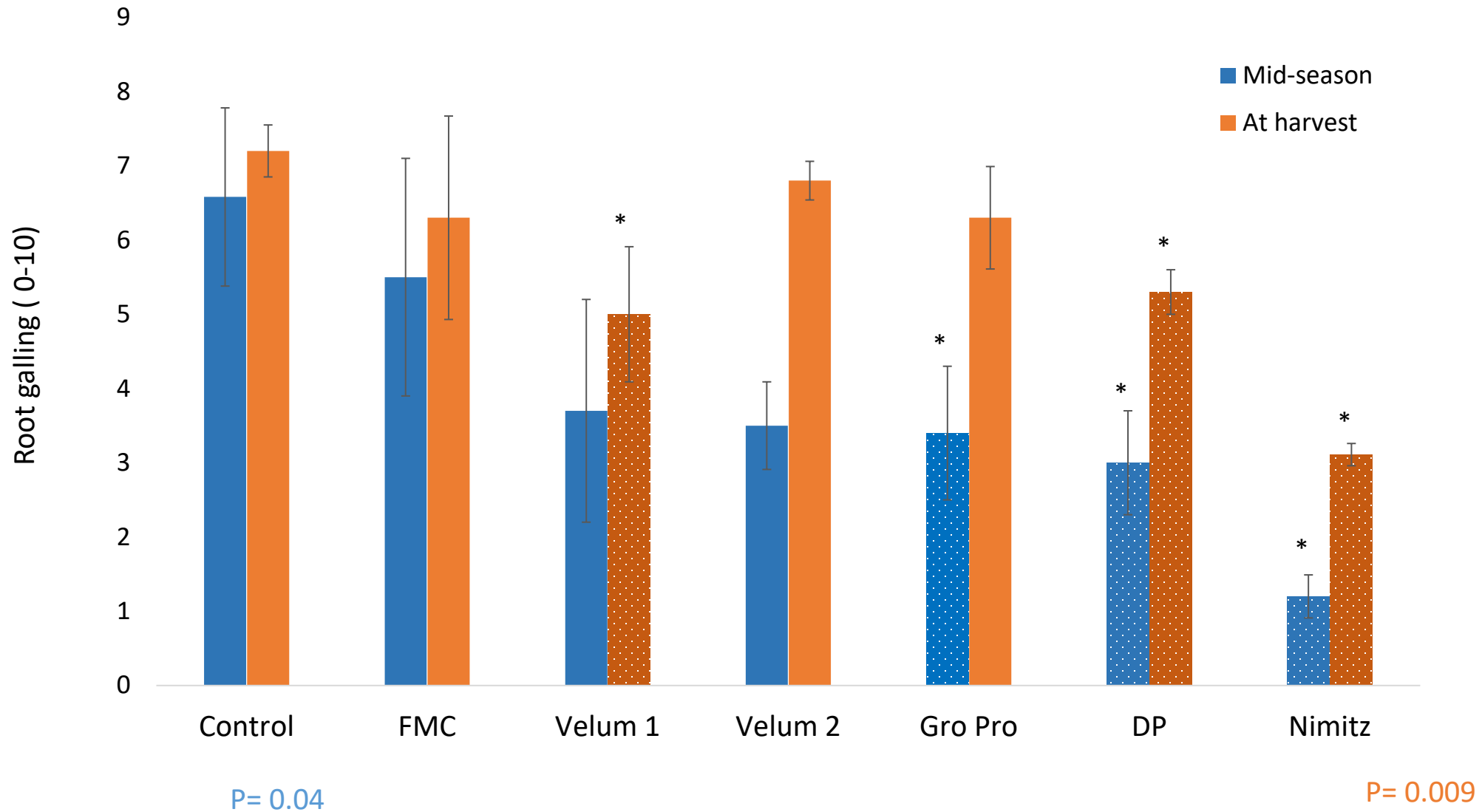
2024 galling on tomato roots



Nutsedge control



2021 Average root galling





1= Control

2= Nimitz

3= Vigilante

4= FMC

5= DP

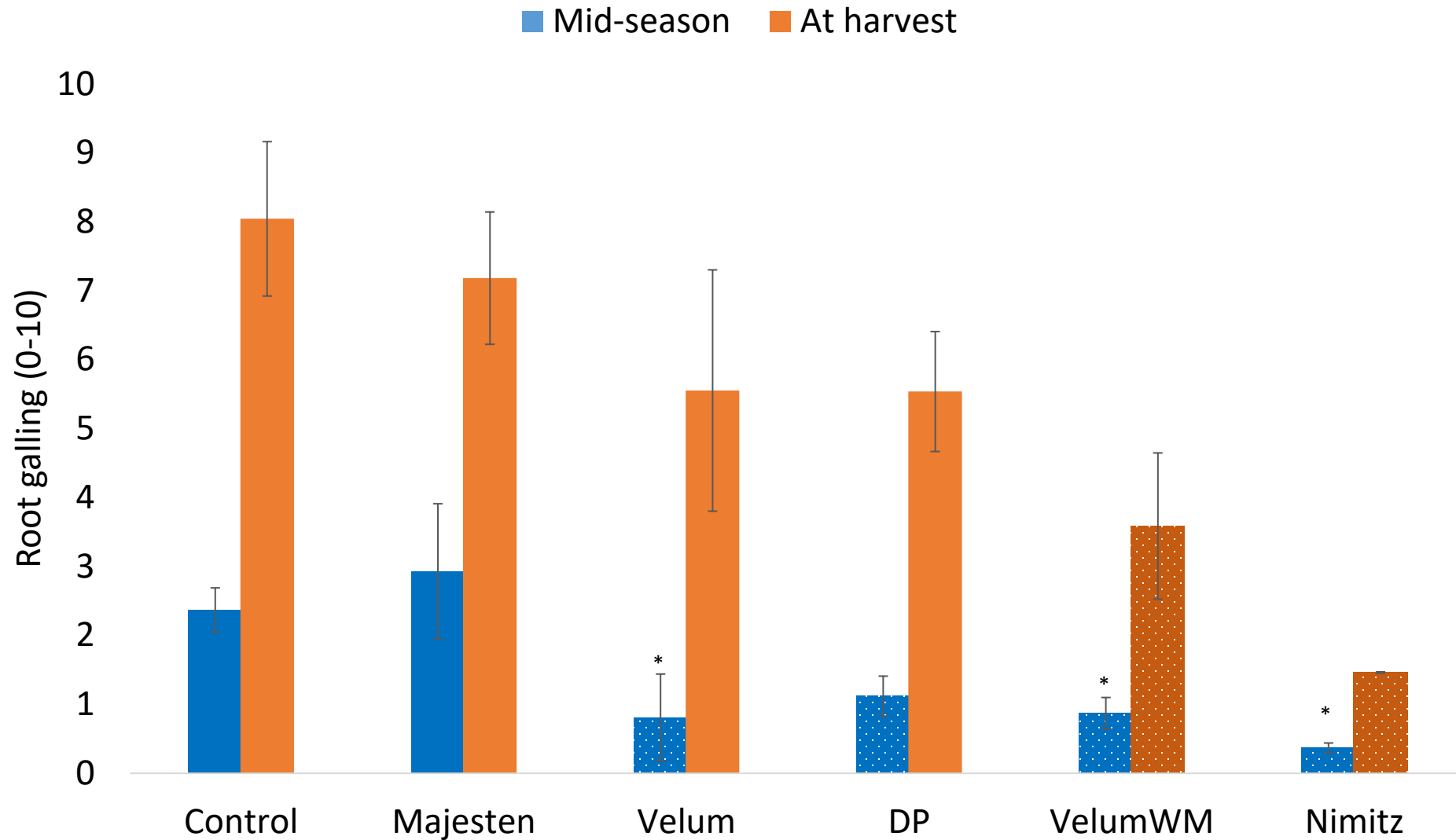
6= Velum1

7= Velum2

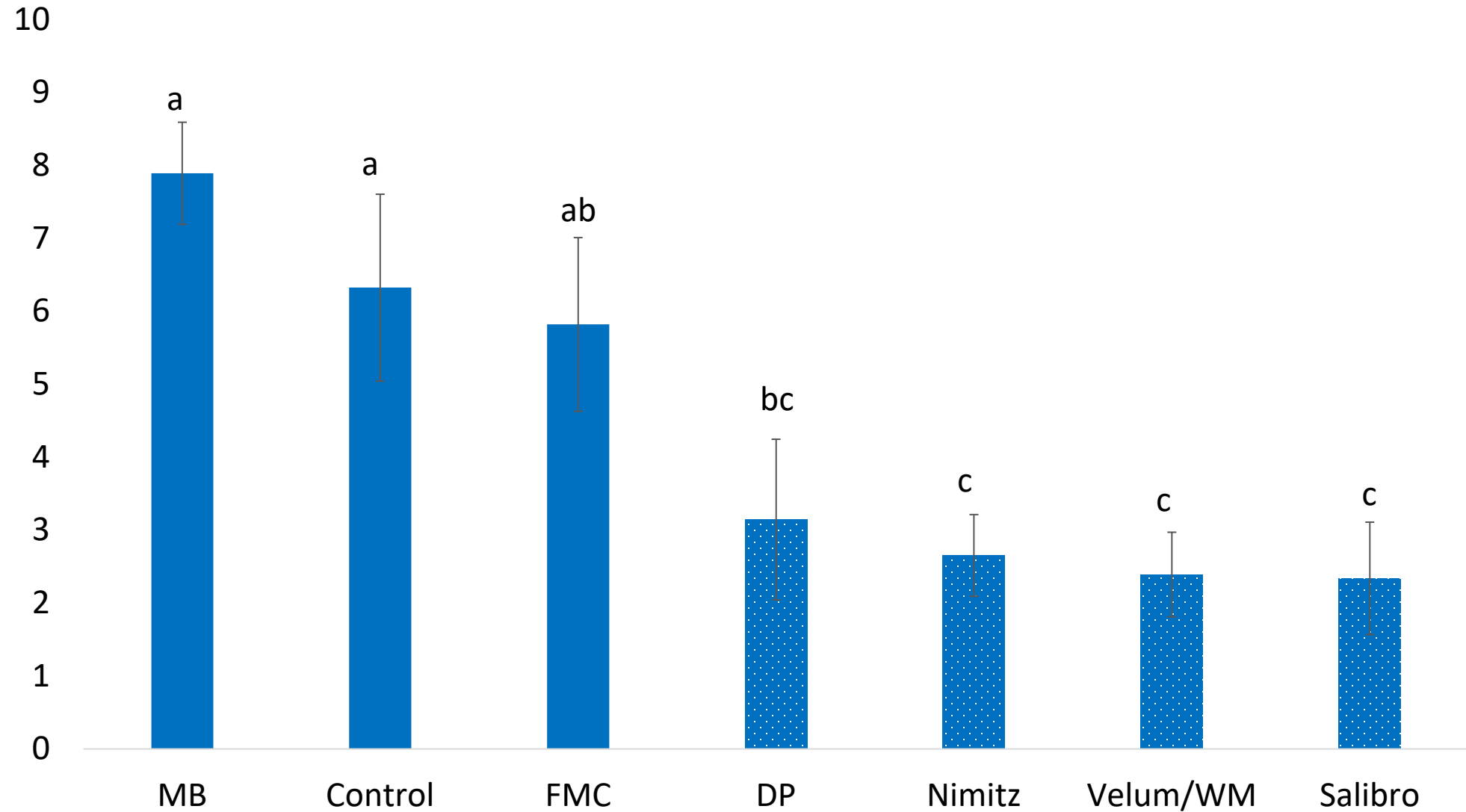
2022 Treatments

Treatment	Trt code	Time of application	Rate/A
Untreated control	1		
Nimitz	2	At planting	5pt/A
Majestene	4		2 gal/A
DP	5	At planting	9.12 fl oz/A
Velum	6	At planting	6.5 oz/ A
Velum+Watermaxx	7	At Planting	6.5 oz/ A 2 qtz/ A

2022 Average root galling



2023 Average root galling



Summary

- Nimitz continued to show excellent performance. Only CAUTION label, no reentry interval. Registered on carrots in California.
**Needs further research to improve the application and thereby the performance in carrots
- Velum appeared to provide good protection against RKN in these trials but further optimization is needed for velum applications.
- Salibro showed great potential, registered now!!
- DP showed good potential in these trials; registration status???

Next generation non-fumigant nematicides will continue to be the main nematode-control method applied in the high-value crops followed by other crops

Acknowledgements



Jed Dubose
Jennifer Fernberg

