

Controlling in-row weeds with post-plant applications of pre-emergent herbicides

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South Sacramento Valley Processing Tomato
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Situation

- Weeds concentrated in the plant row
 - PPI herbicides displaced by transplanting
 - no cultivation

trifluralin/pendimethalin (Treflan/Prowl) +
metolachlor (Dual Magnum) PPI
fb 2 oz rimsulfuron (Matrix) 1 week POST
fb 2 oz rimsulfuron 2 - 3 weeks POST







Current management for weeds in the plant row:

Banded post application of Matrix (rimsulfuron) 2 oz/A fb 2 oz (total 4 oz/A).

Hand weeding

Rimsulfuron issues

- Black nightshade
- Chemigation



In-row weed management alternatives



Robotic cultivators.



Precision sprayers.



Laser weeder.

In-row weed management: finger weeders





finger weeder - PRE



finger weeder - POST

CROP AND WEED SIZE
MEDIUM CROP, SMALL WEEDS

- Simple, safe, inexpensive.
- Very limited weed control window.
- Can also break crusts.

Can finger weeders be used to incorporate pre-emergent herbicides after planting?



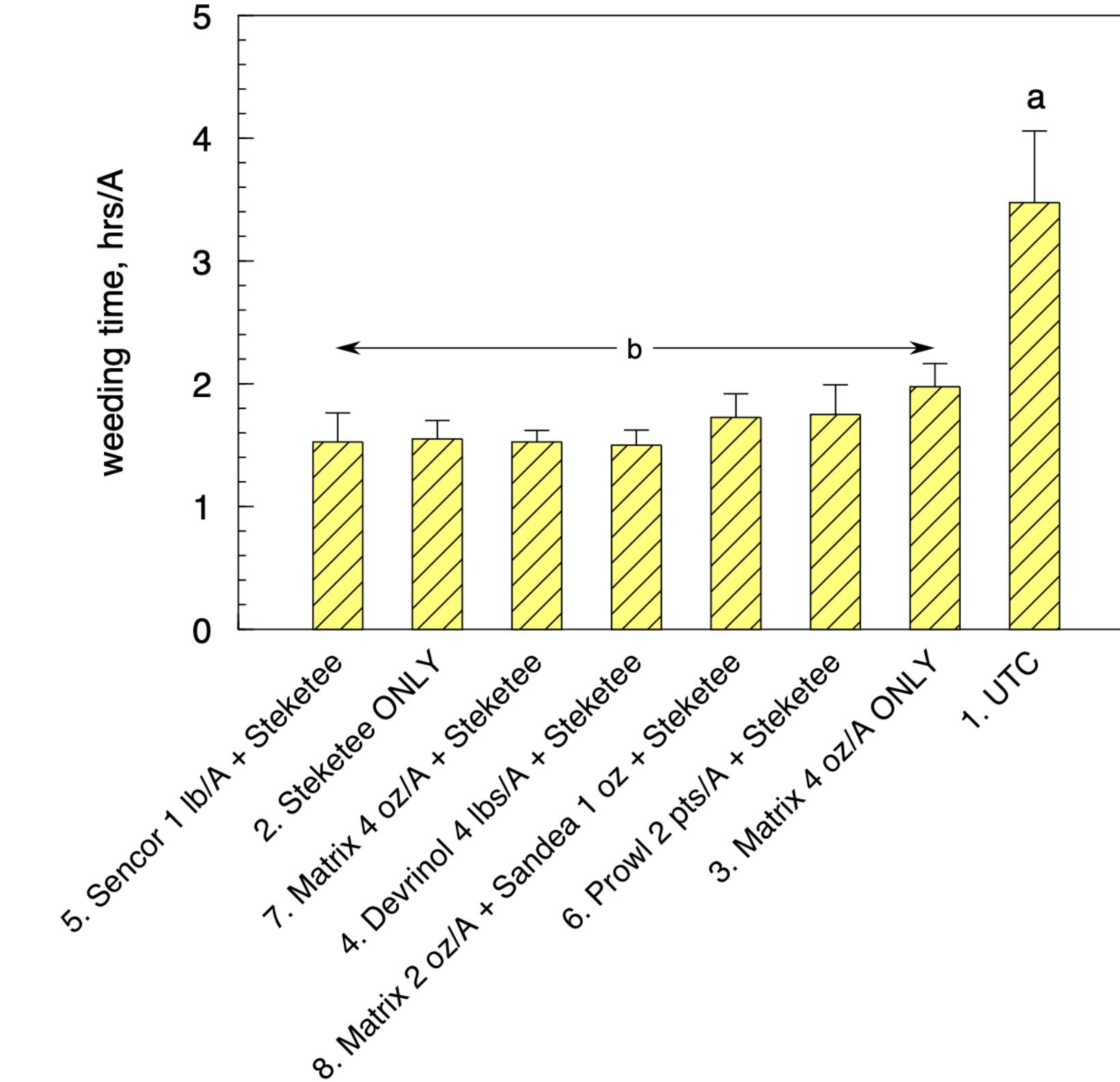
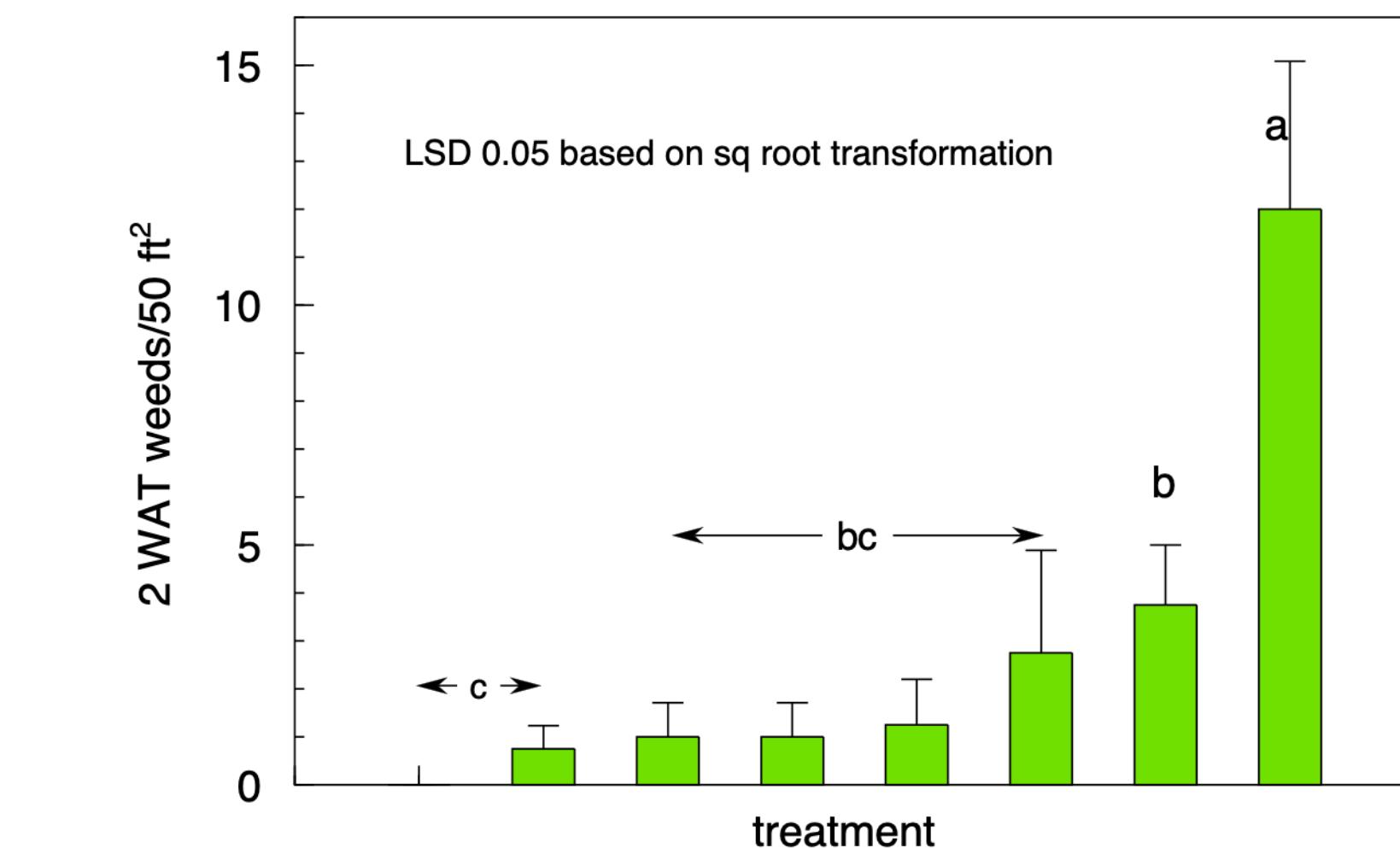
Preliminary work: 2023

1. UTC
2. Steketee ONLY
3. Matrix 4 oz/A ONLY
4. Devrinol 4 lbs/A + Steketee
5. Sencor 1 lb/A + Steketee
6. Prowl 2 pts/A + Steketee
7. Matrix 4 oz/A + Steketee
8. Matrix 2 oz/A + Sandea 1 oz + Steketee

Commercial FM tomato field. Dual PPI, cultivation, hand weeded.

Post plant pre-emergent herbicides

Le Grand, CA 2023





CTRI Proposal 2024: Evaluate using finger weeders to incorporate preemergent herbicides after planting

- directed spray
- band application ($\frac{1}{3}$ area)
- immediate incorporation
- LeGrand, Merced, WSREC
- Dual, Prowl, Devrinol, Matrix, Sencor



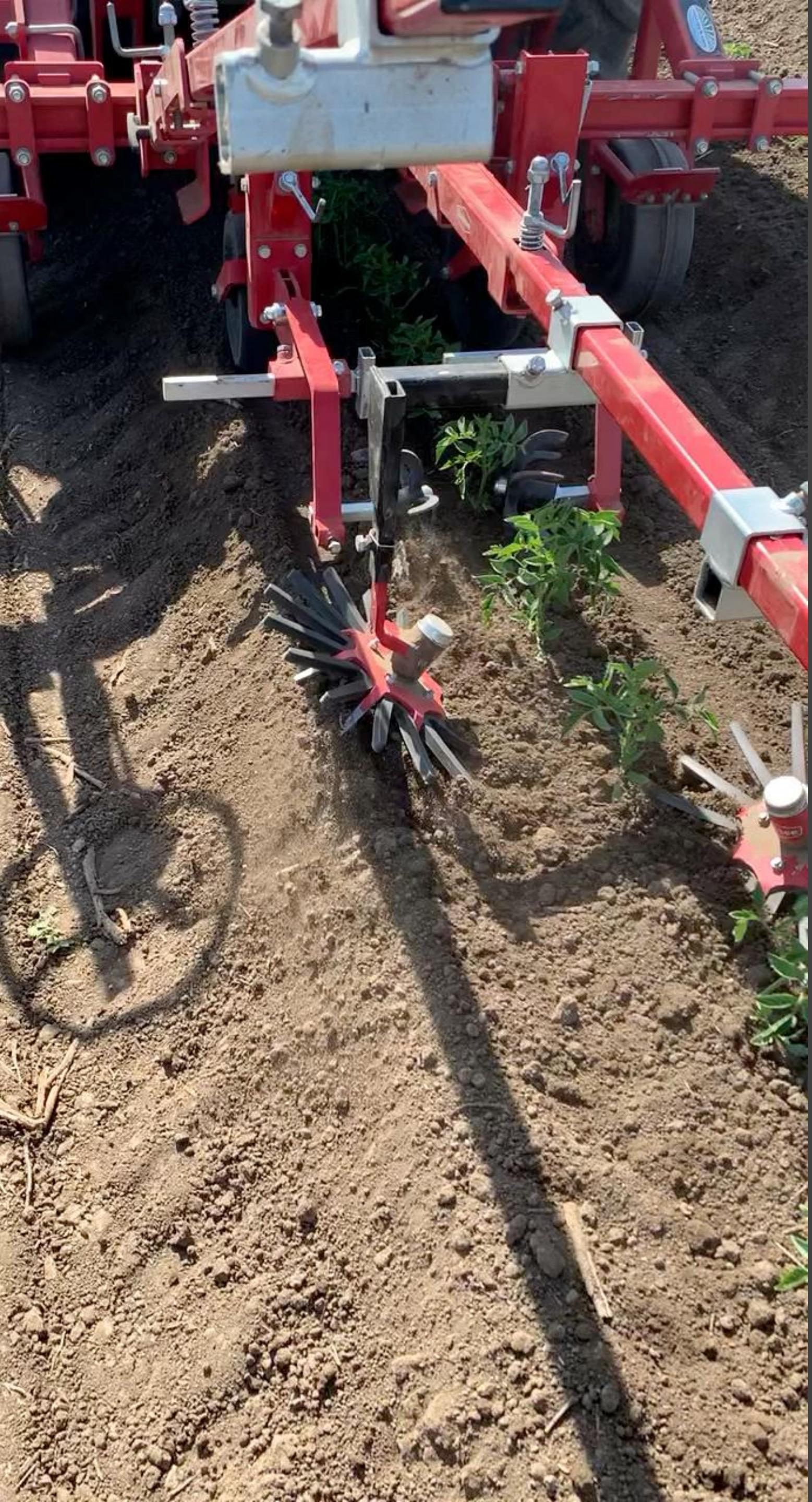
Combining cultivation with herbicides in procession tomatoes in 2024

Treatments: WSREC Herbicides	POST FW	timing	pre/post
1 UTC	no	---	---
2 No PPI, finger weeder POST	yes	none	June 4
3 No PPI, Dual + Prowl 1.5 pints/A + FW	yes	none	June 4
4 No PPI, Matrix 4 oz/A + NIS	no	none	June 4
5 No PPI, Matrix 4 oz/A + Sandea 2 oz/A + NIS	no	none	June 4
6 Dual + Prowl 1.5 pts/A PPI + FW POST	yes	May 21	June 4
7 Dual + Prowl 1.5 pts/A PPI + Matrix 4 oz/A POST	no	May 21	June 4
8 Dual + Prowl 1.5 pts/A PPI + Matrix 4 oz/A + FW	yes	May 21	June 4
9 Dual + Prowl 1.5 pts/A PPI + Devrinol 4 lbs/A + FW	yes	May 21	June 4
10 Dual + Prowl 1.5 pts/A PPI + Prowl 1.5 pts/A + FW	yes	May 21	June 4
11 Dual + Prowl 1.5 pts/A PPI + Sencor 0.5 lbs/A + FW	yes	May 21	June 4

FW = Staketeer Finger Weeder with 14" fingers
 POST Herbicide treatments applied as directed spray at 50% band rate
 Herbicide treatments applied at 25 gpa with 8002 nozzles
 RCB design with 4 reps

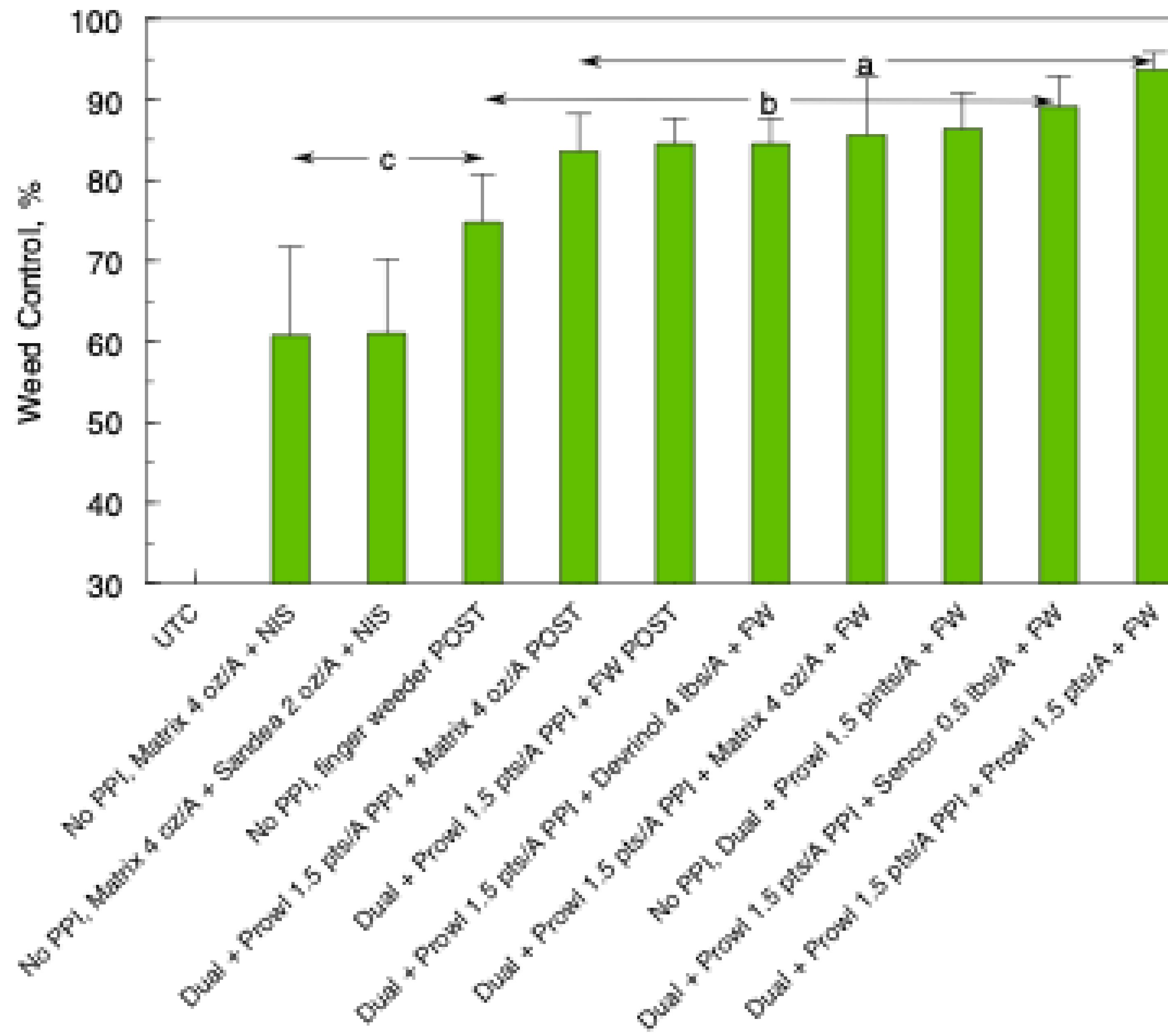
Treatments: Seasholtz Farms Herbicides	POST FW	timing
1 Matrix 4 oz/A POST (grower std)	no	5/17/24
2 UTC	no	---
3 Prowl 1.5 pts/A + FW POST	yes	18-May
4 Devrinol 4 lb/A + FW POST	yes	18-May
5 Sencor 0.5 lbs/A + FW POST	yes	18-May
6 No PPI, FW POST	yes	18-May
7 Matrix 4 oz/A POST fb Dual + Prowl 1.5 pts/A + FW	yes	May 17 and 18



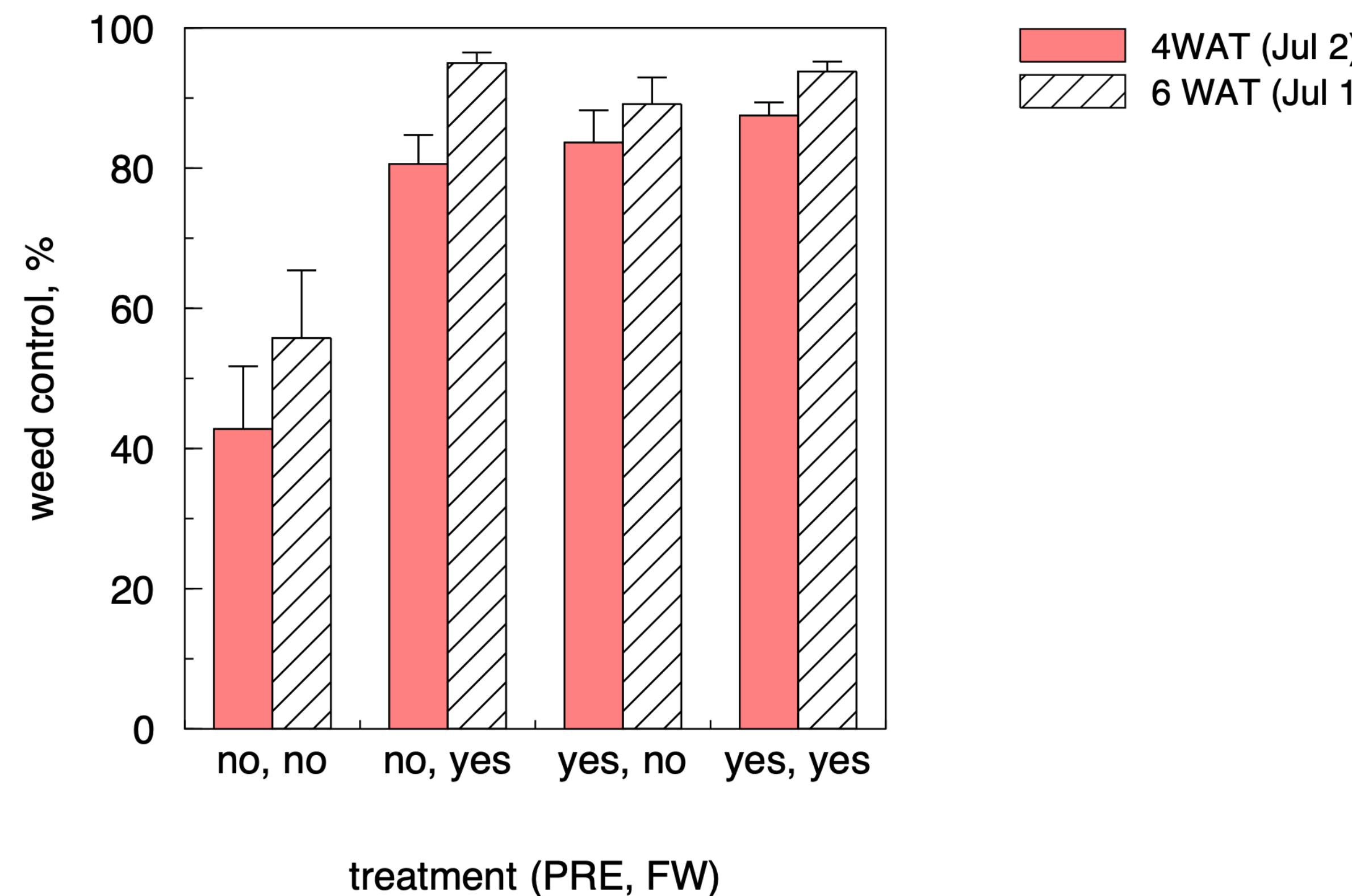


In-Row Weed Control 4 WAT

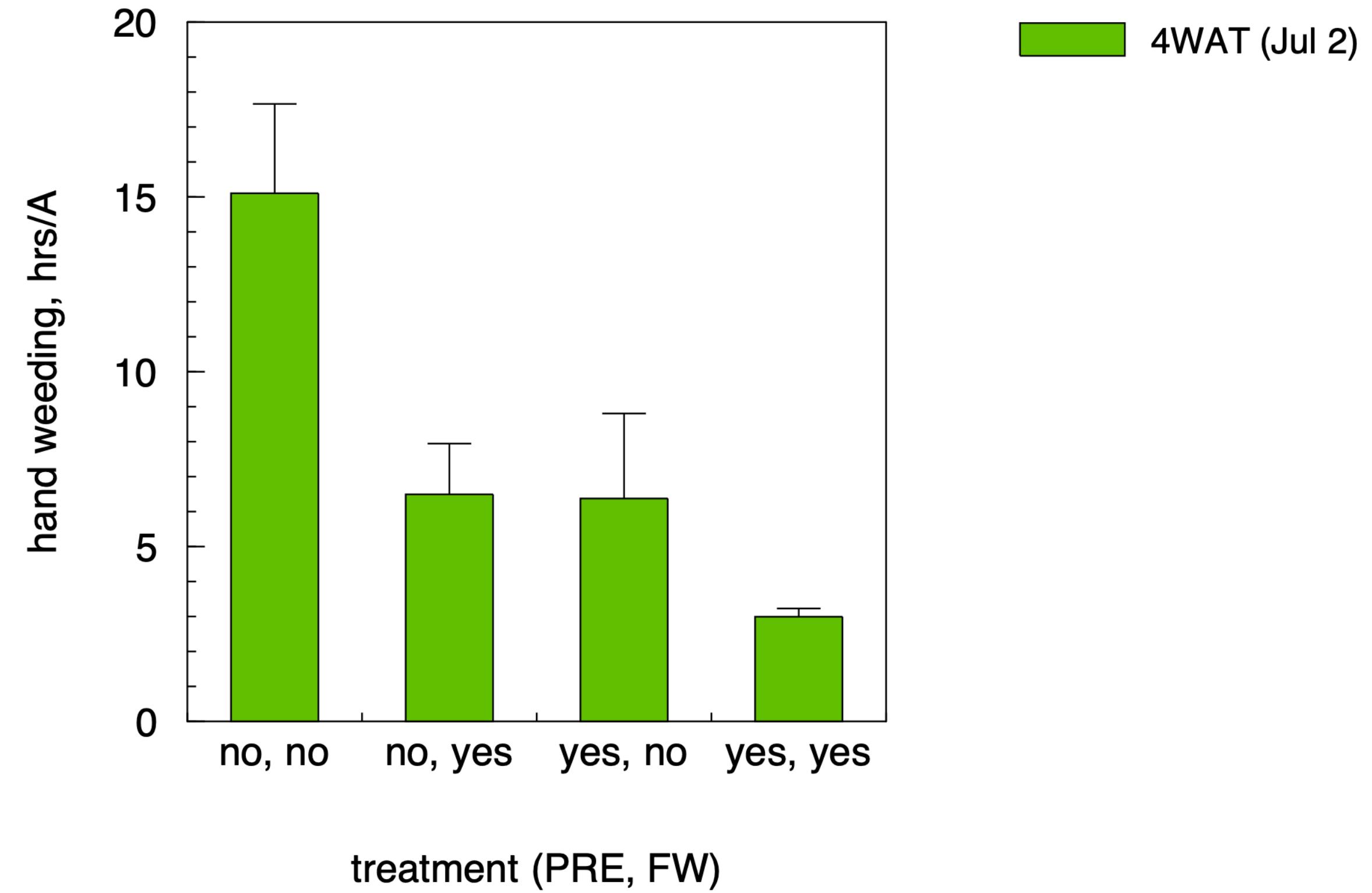
WSREC 2024



Processing Tomato Cultivation by Herbicides
WSREC 2024



Processing Tomato Cultivation x Herbicides
WSREC 2024

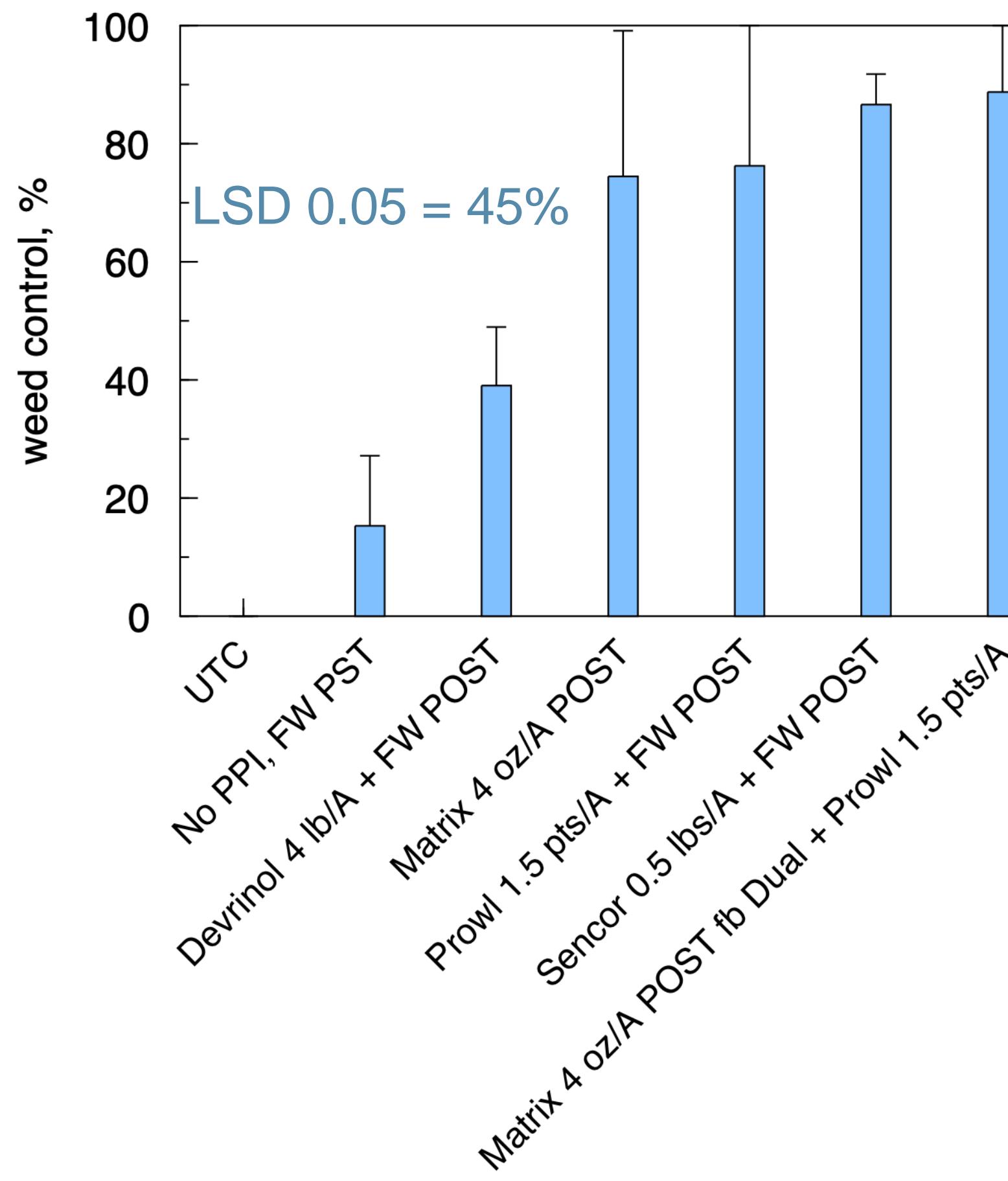




Merced location, commercial field 2024.

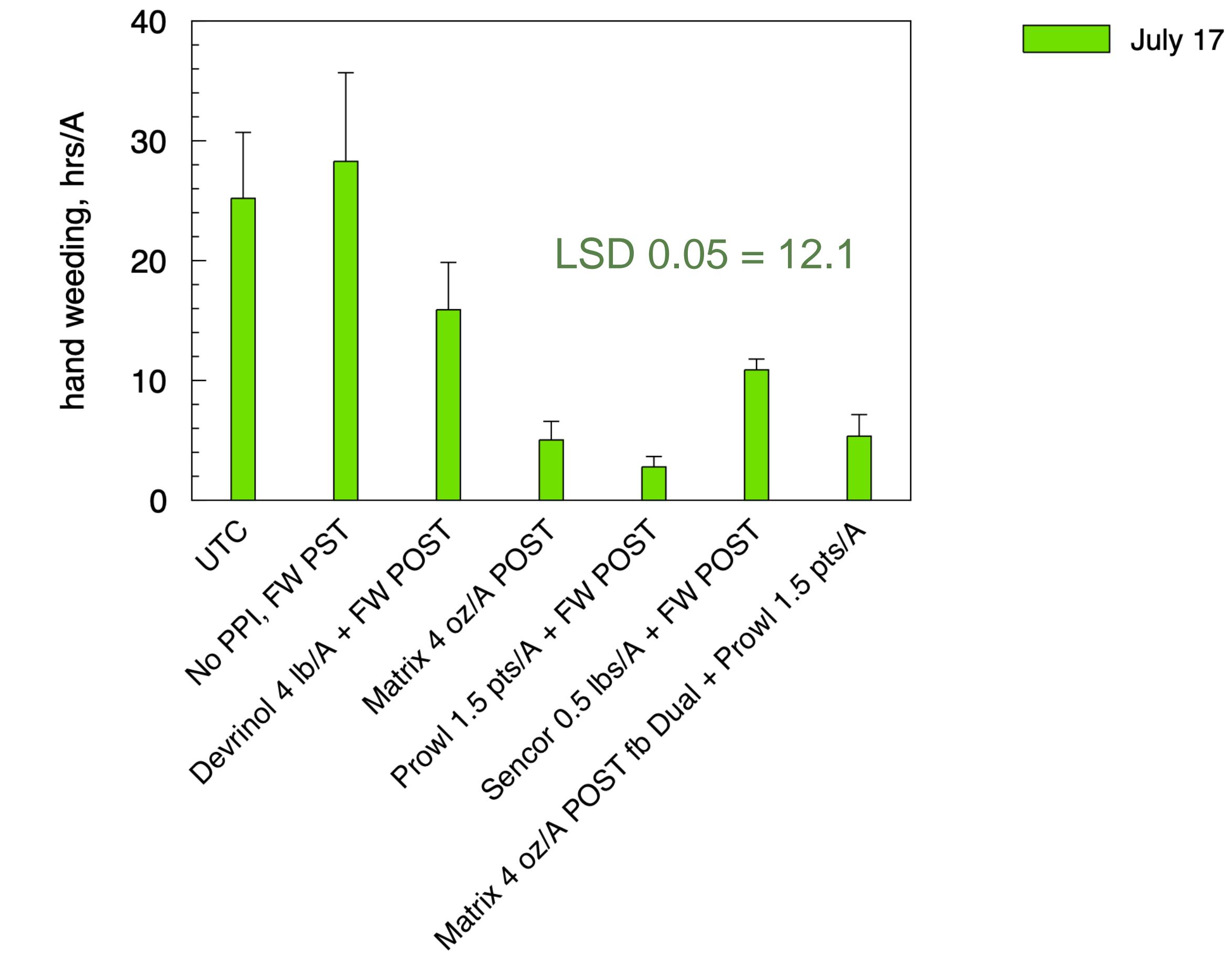
Processing Tomato Cultivation + Herbicide Trial

Merced 2024



Processing Tomato Cultivation + Herbicide Trial

Merced 2024





FW + Matrix + Prowl



Finger Weeder only

Summary

- The finger weeder significantly reduced in-row weeds.
 - ~ 40 - 60% if properly timed
 - No significant difference in crop stand
- Adding a pre-emergent herbicide and incorporating with the finger weeder further improved weed control.
 - 20 - 40% in tomatoes
 - PPI + (Prowl/Matrix/Dual/Sencor) + finger weeder gave best weed control and lowest weeding cost.



Acknowledgements

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