

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

Scott Stoddard

Farm Advisor

UC Cooperative Extension, Merced County

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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 weeders.



# 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?





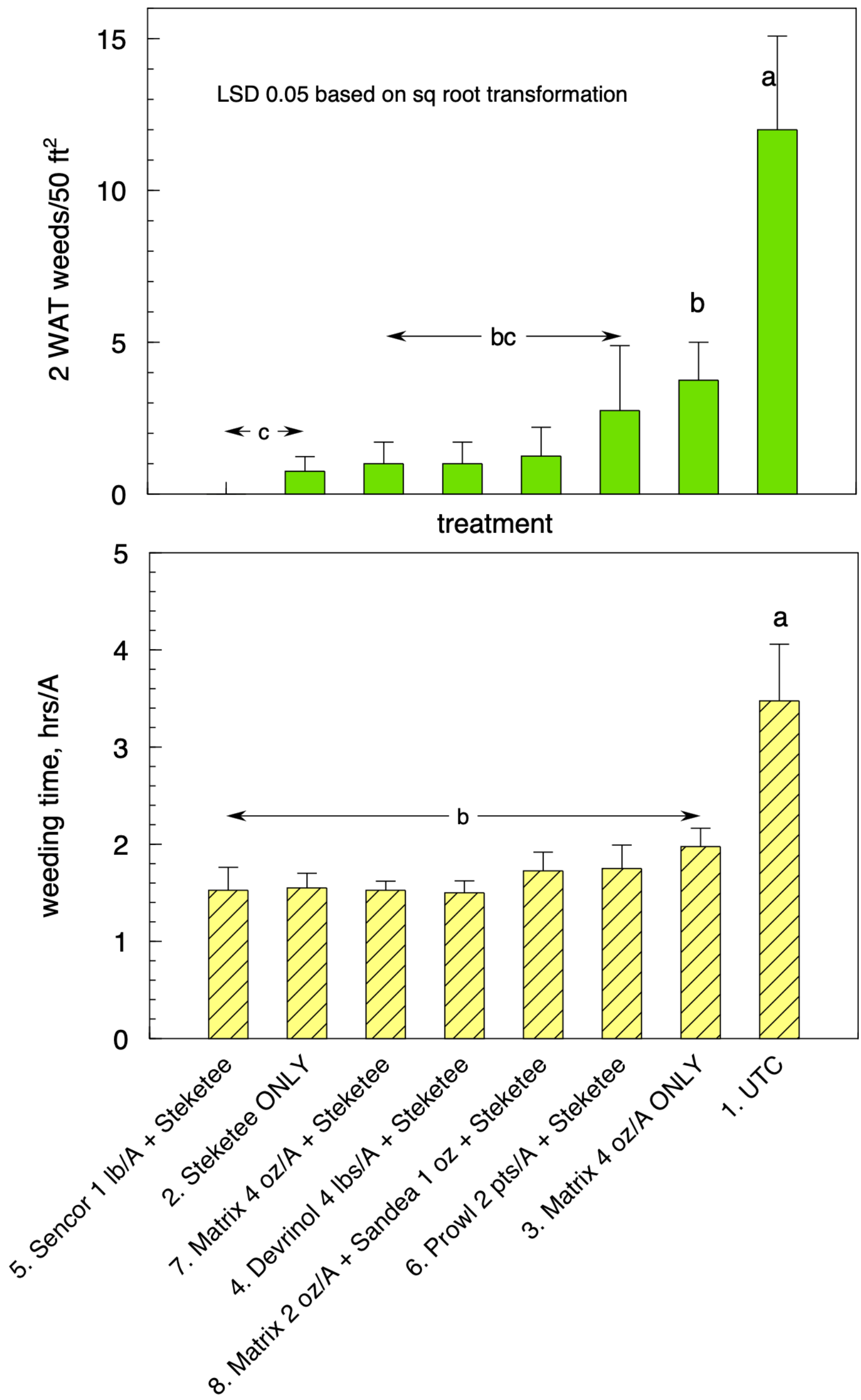
# Preliminary work: 2023

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 = Steketee 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



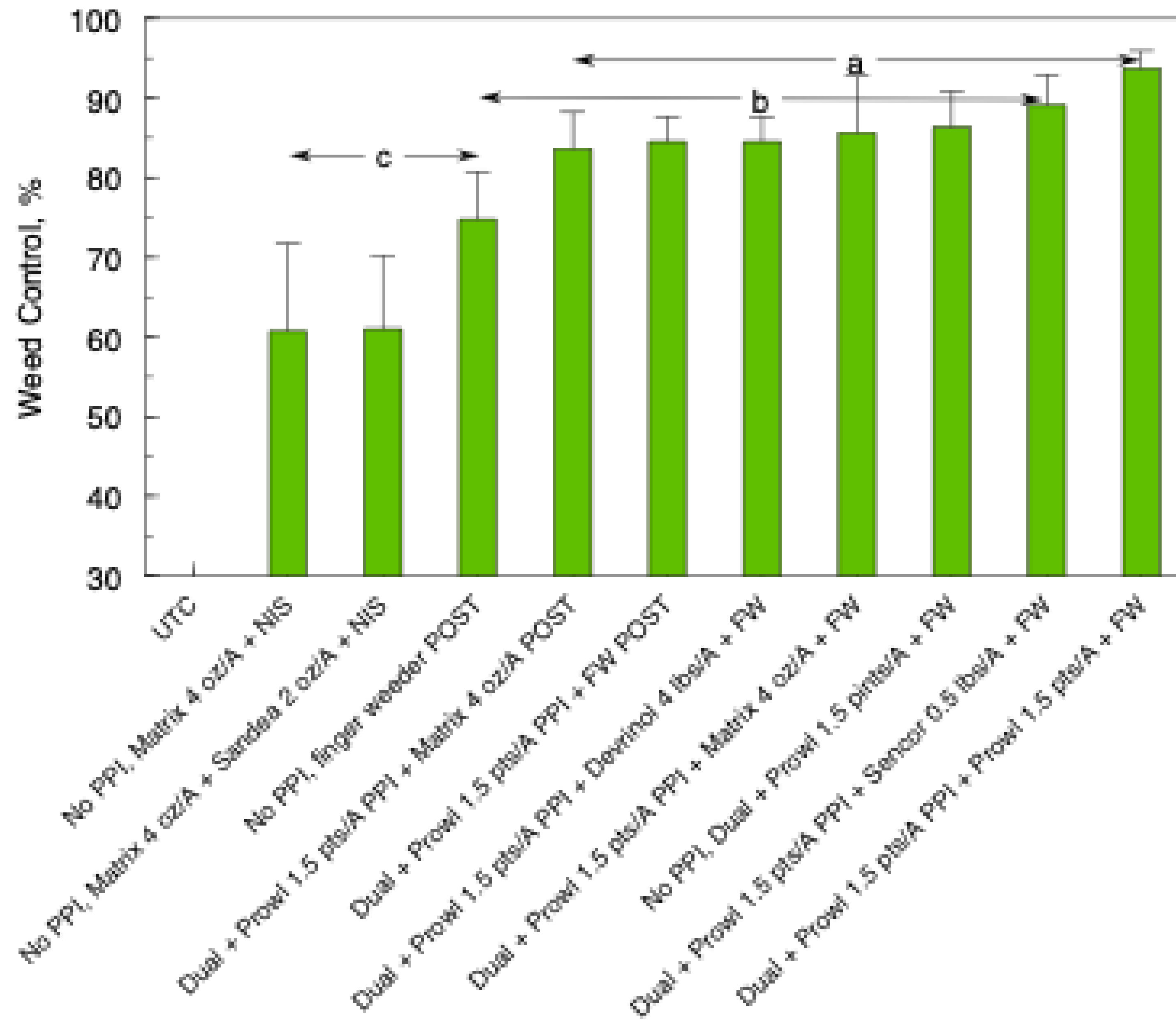






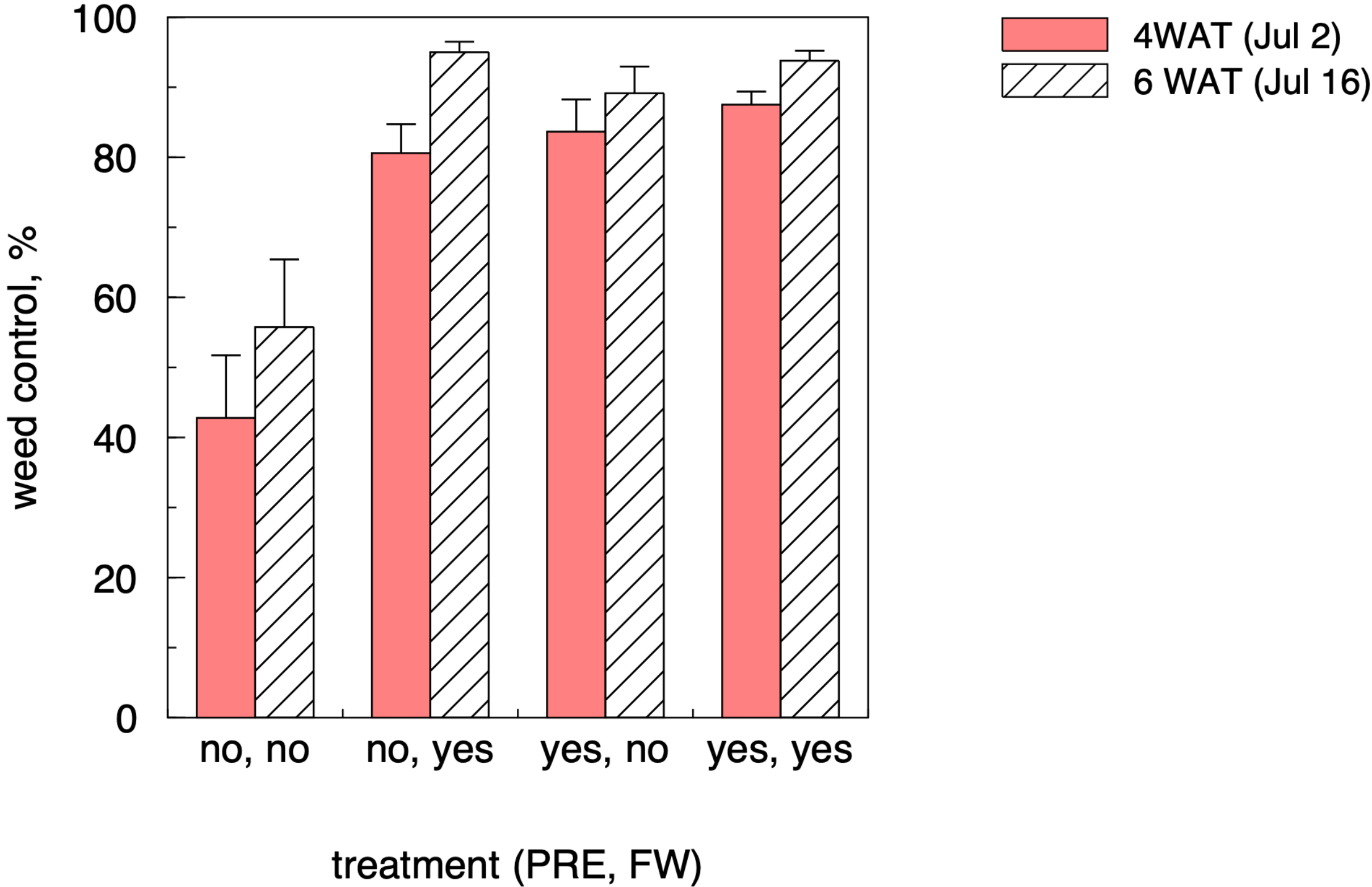
# In-Row Weed Control 4 WAT

WSREC 2024

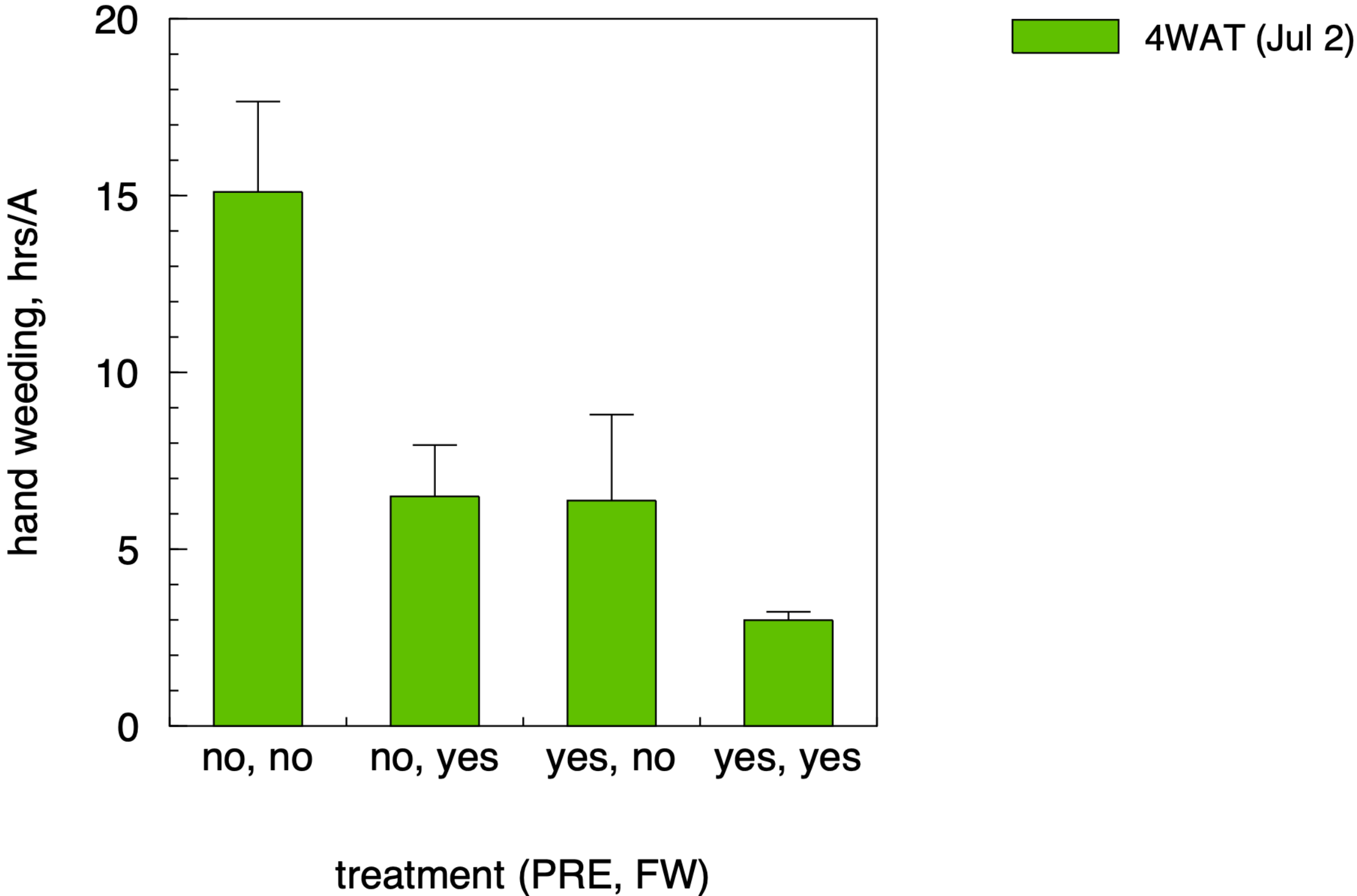




Processing Tomato Cultivation by Herbicides  
WSREC 2024



Processing Tomato Cultivation x Herbicides  
WSREC 2024







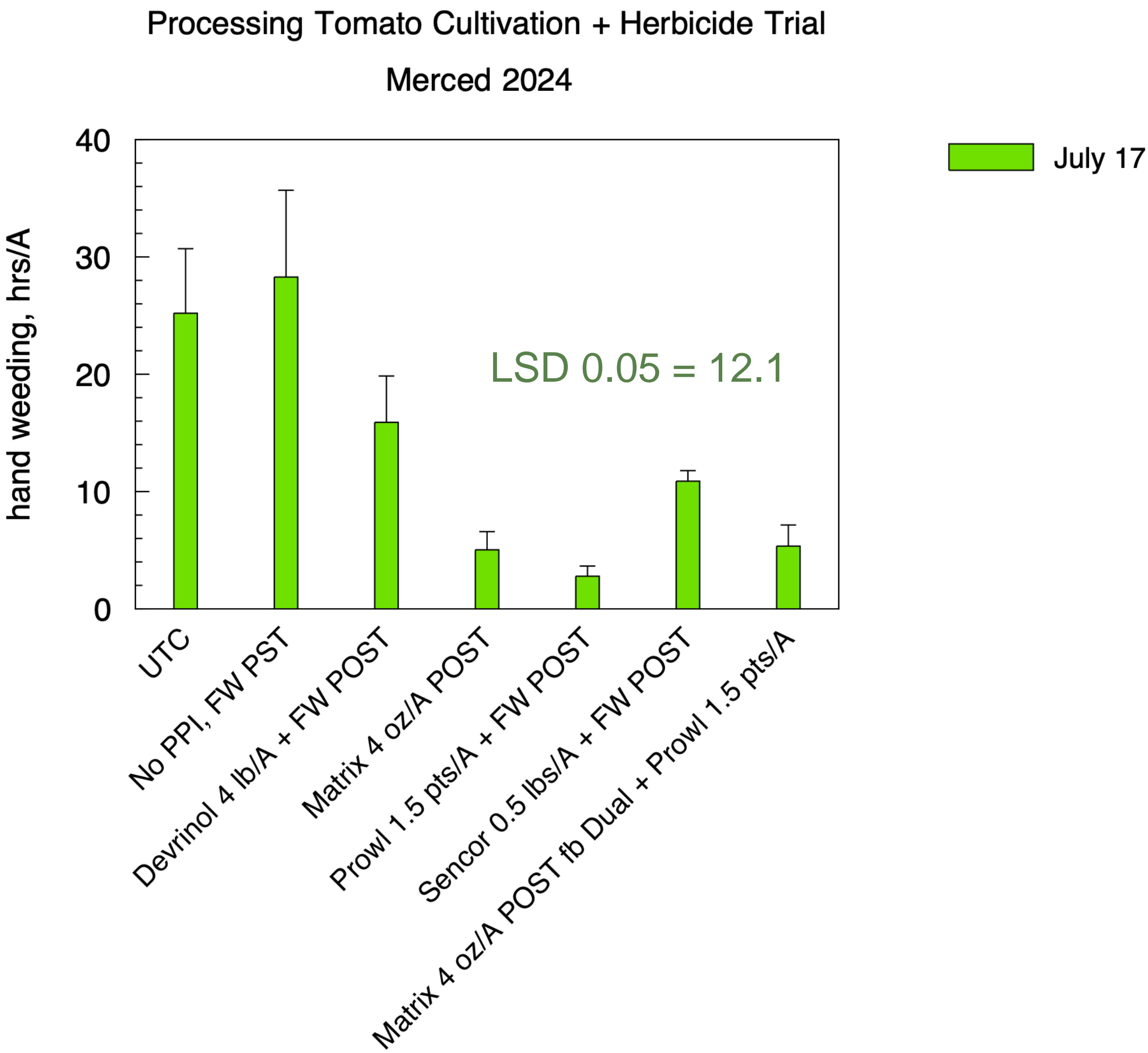
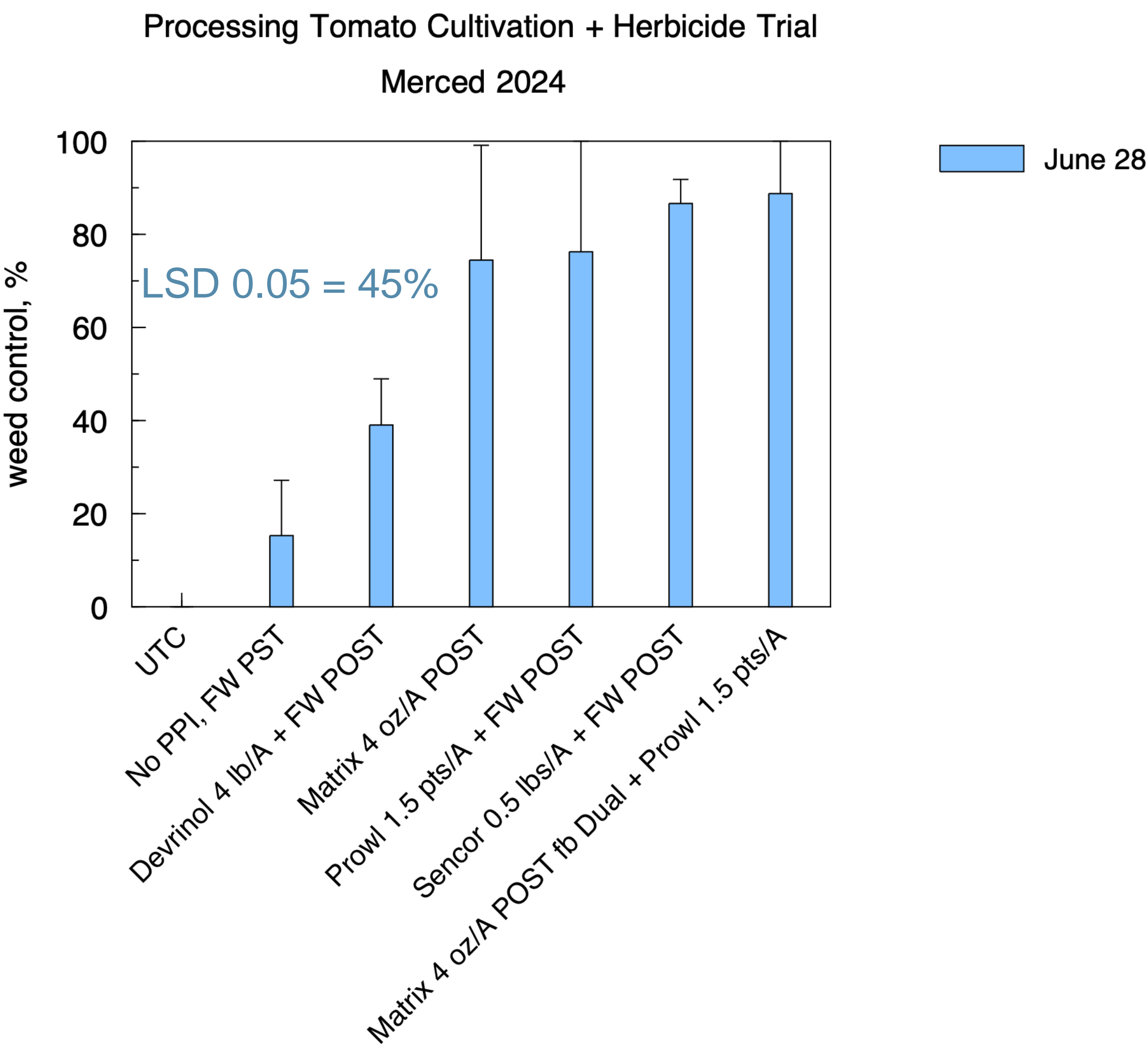
UTC



Dual + Prowl PPI fb Sencor +  
FW



# Merced location, commercial field 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.





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