Research updates from southern Sacramento Valley processing tomatoes

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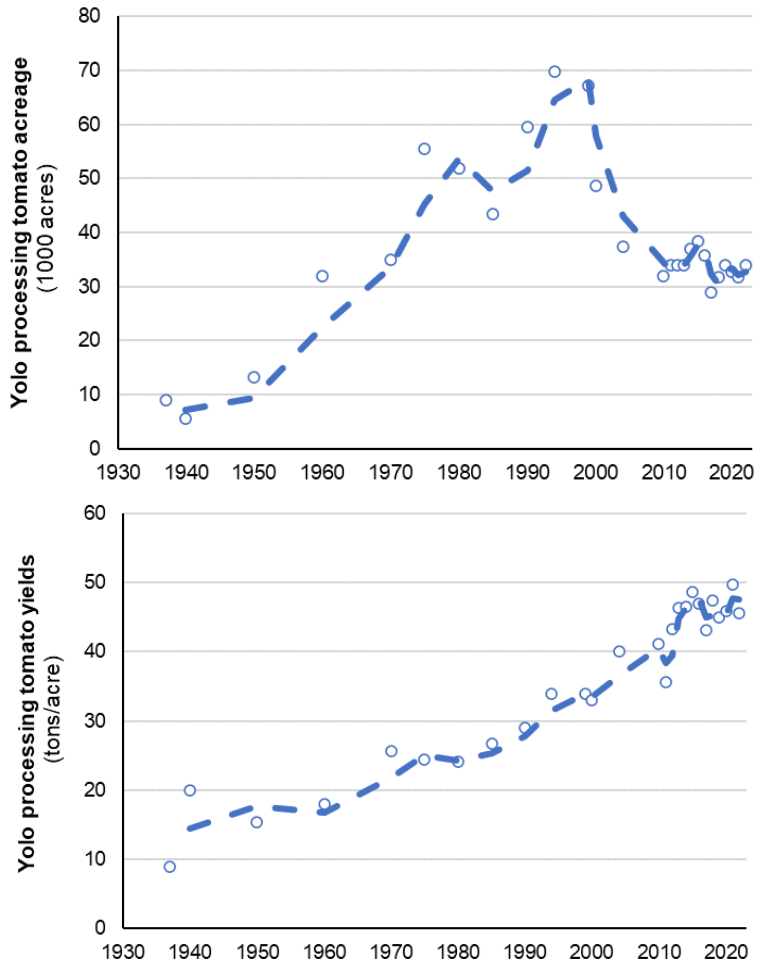
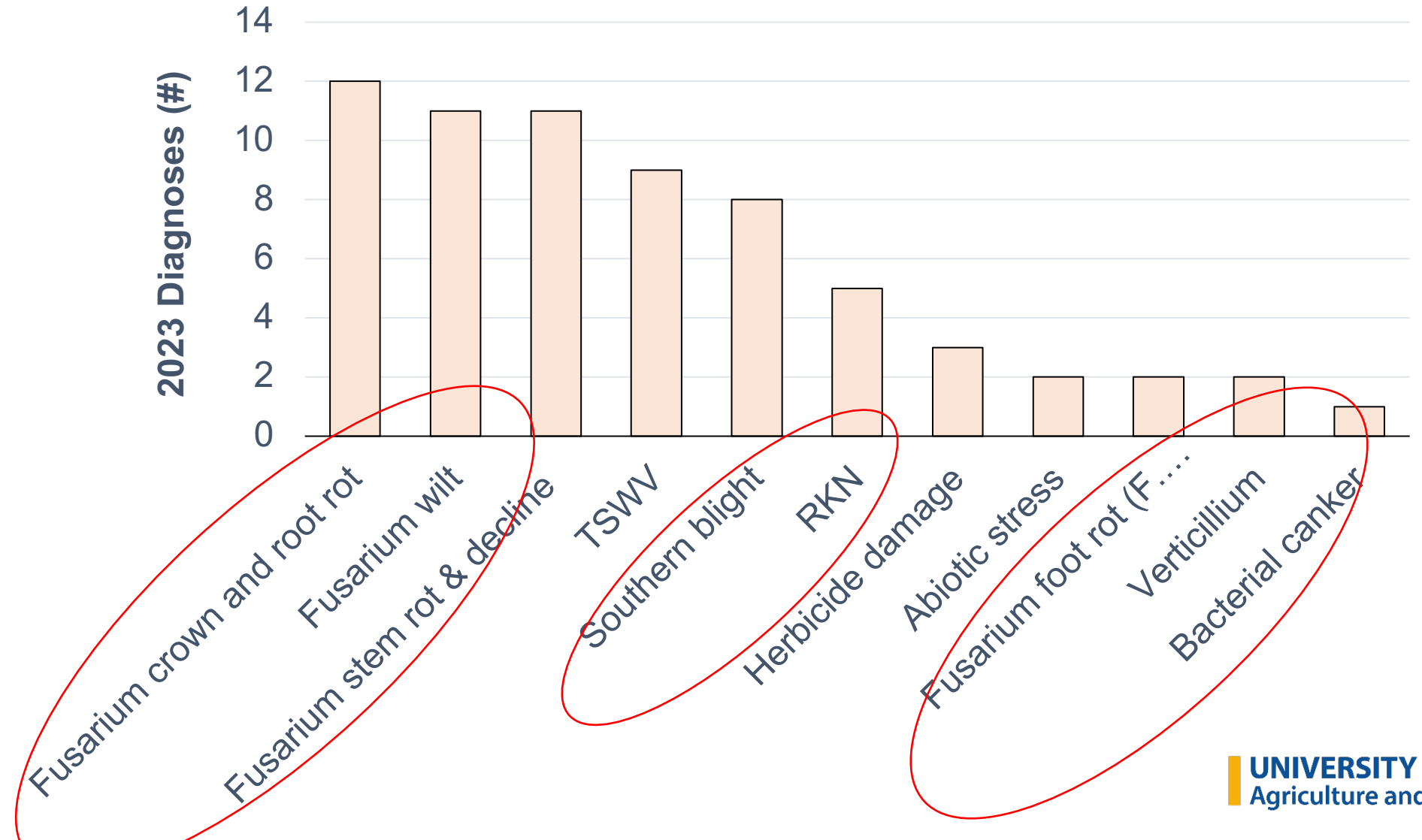
Processing tomatoes: a long history in S. Sac Valley



Soilborne disease in the Sacramento Valley



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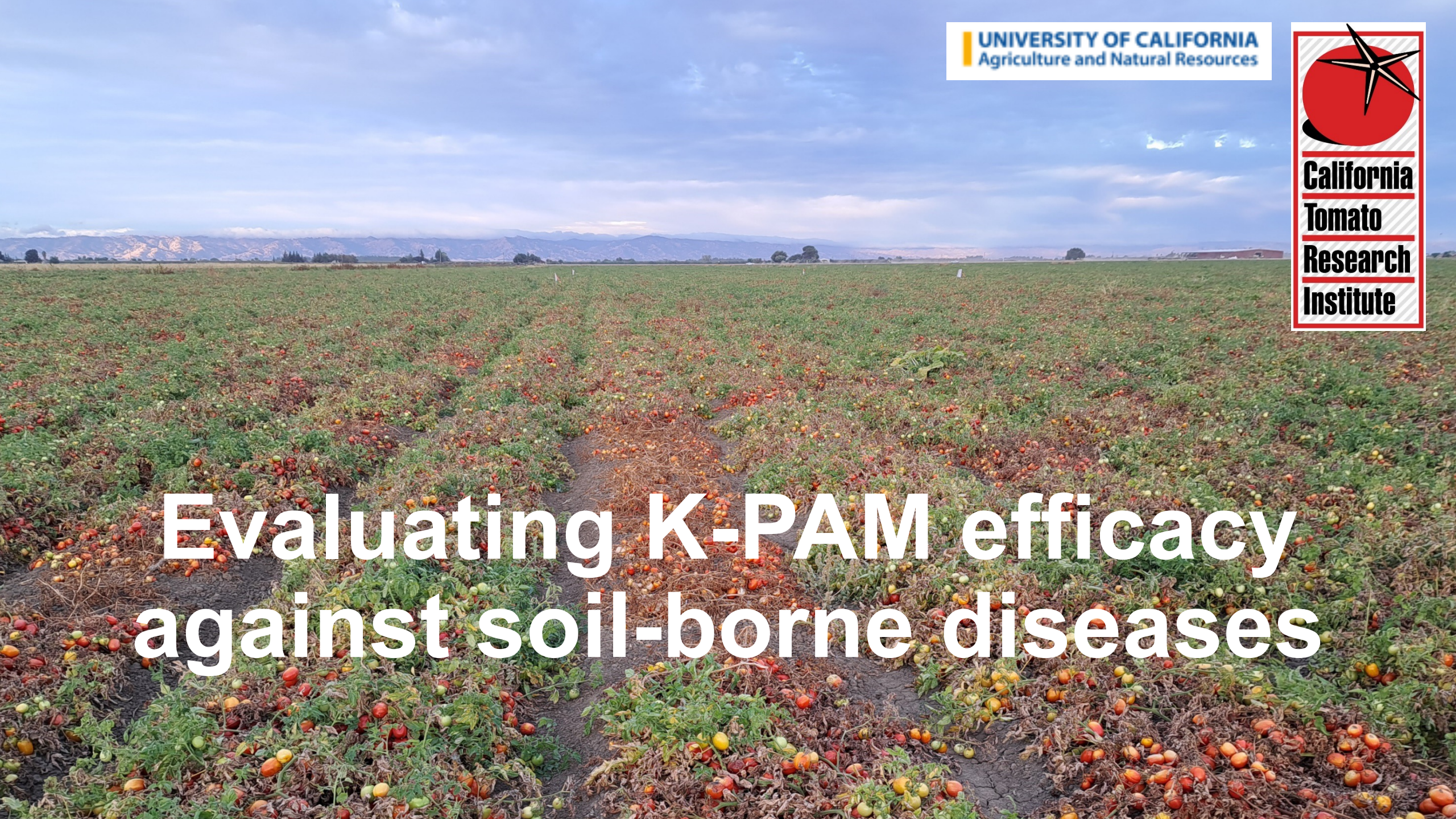
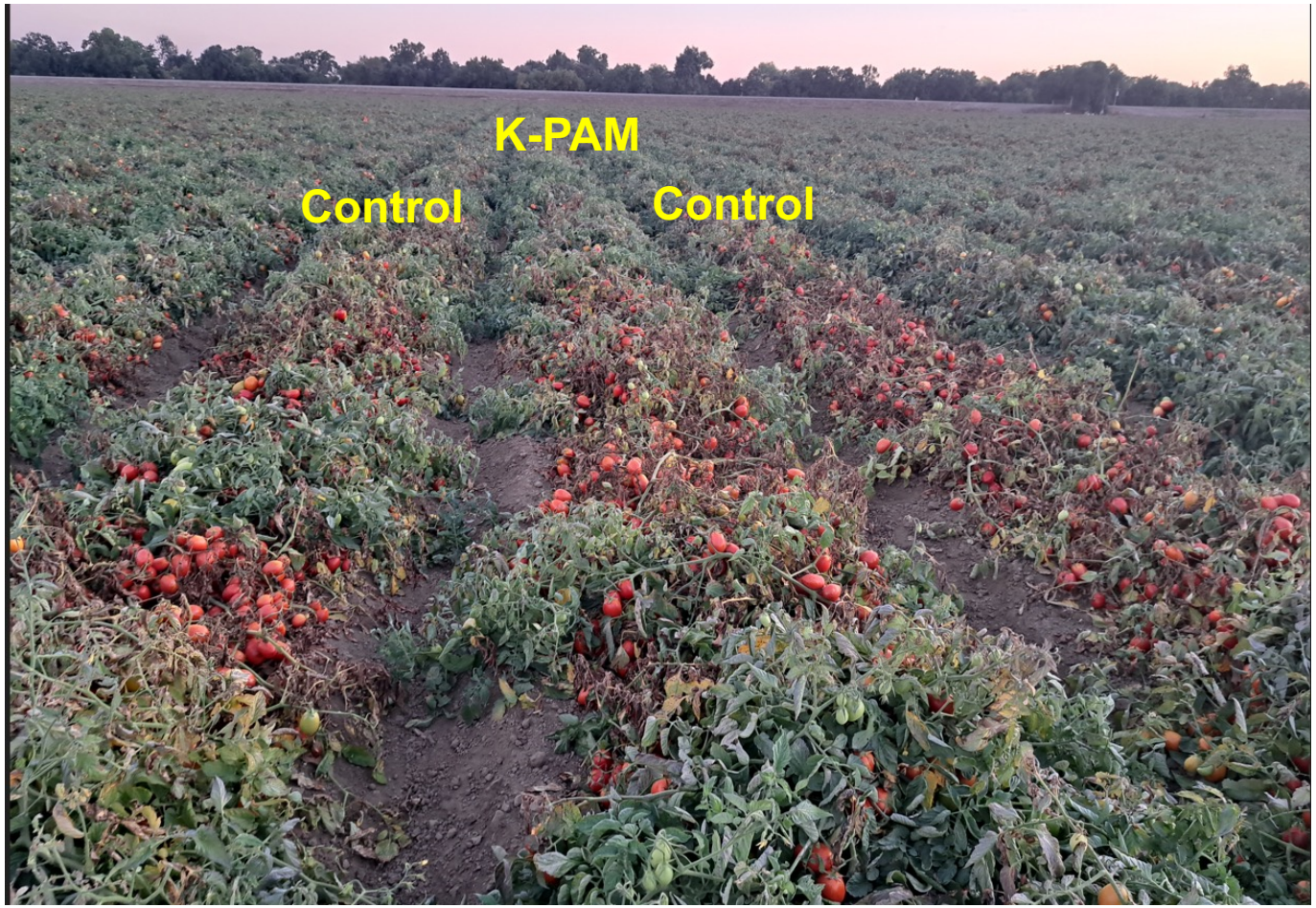


Evaluating K-PAM efficacy against soil-borne diseases



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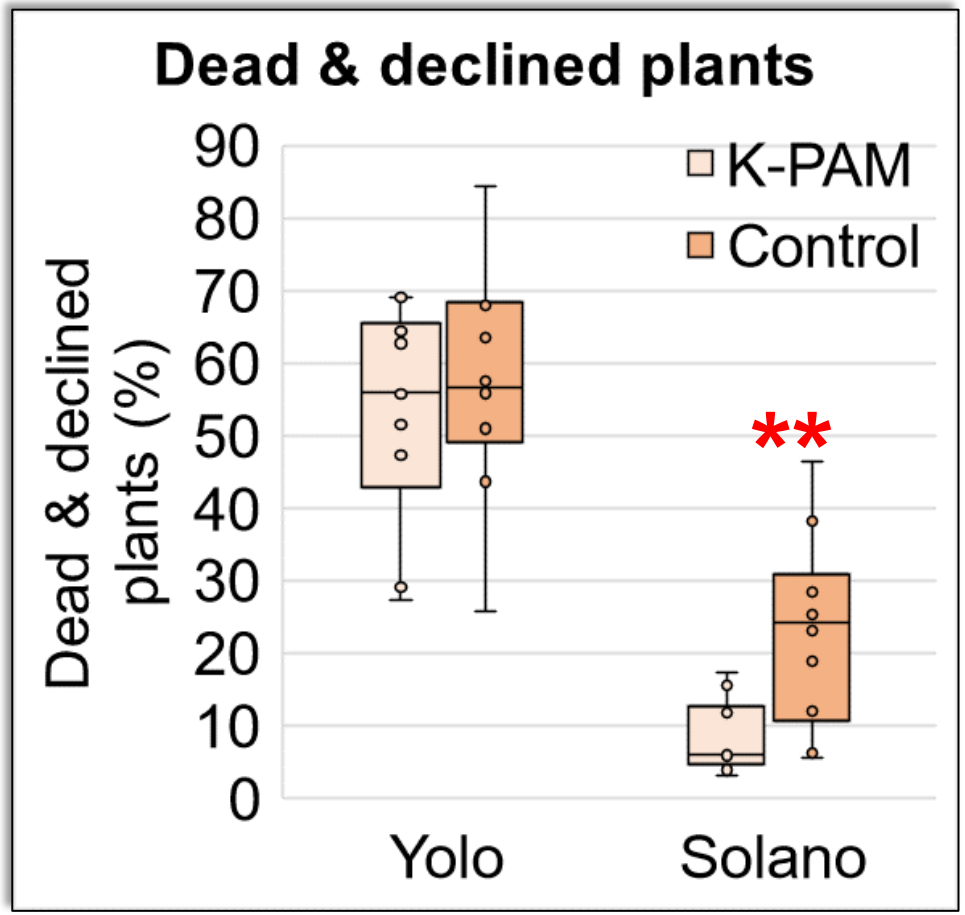
Disease pressures (week before harvest)

Pathogens present at both sites

- FRD, both strains
- F. stem and crown rot
- F. foot rot

Yolo site only

- Southern blight
- Fusarium wilt



-7% (NS) -60% (p<0.01)

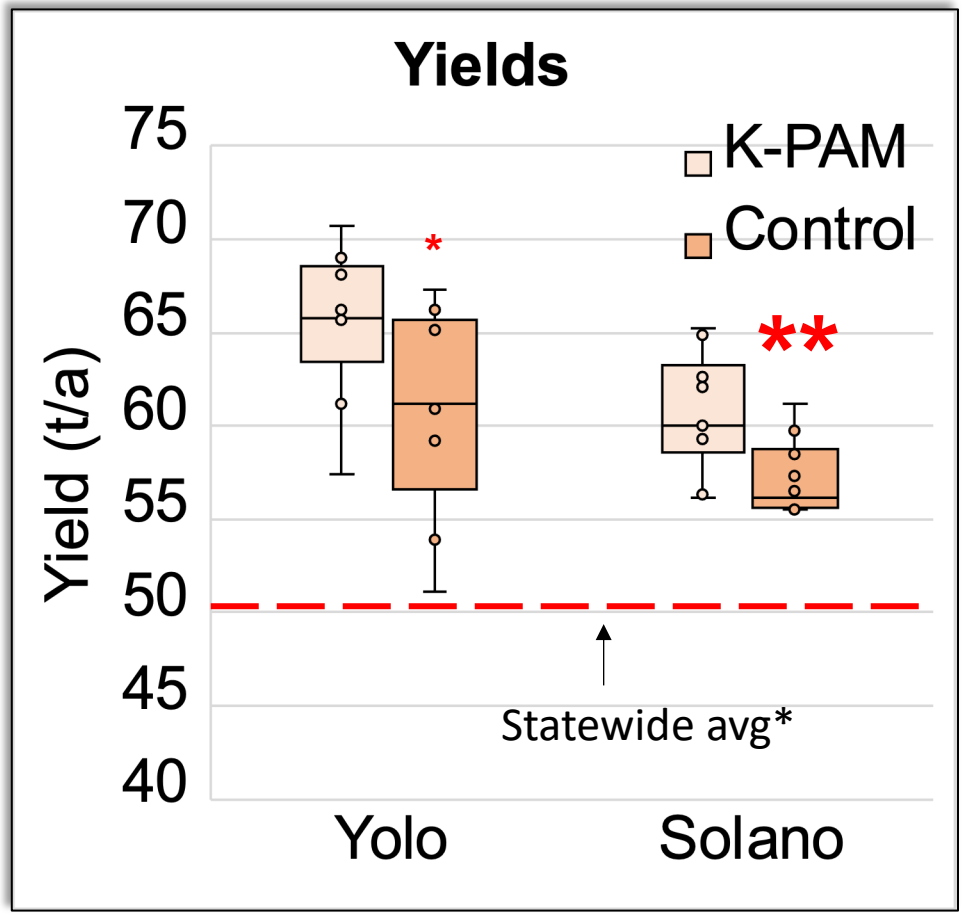
Yields

Yolo site

- Avg yield difference **4.7 t/acre**
- Variable, slight tendency to K-PAM>control ($p<0.1$)

Solano site

- Avg yield difference **3.5 t/acre**
- K-PAM >control ($p=0.01$)



At $138/ton, yield difference of ~2.5-3 t/acre needed to offset cost of K-PAM (~30-35 gal/acre rate)

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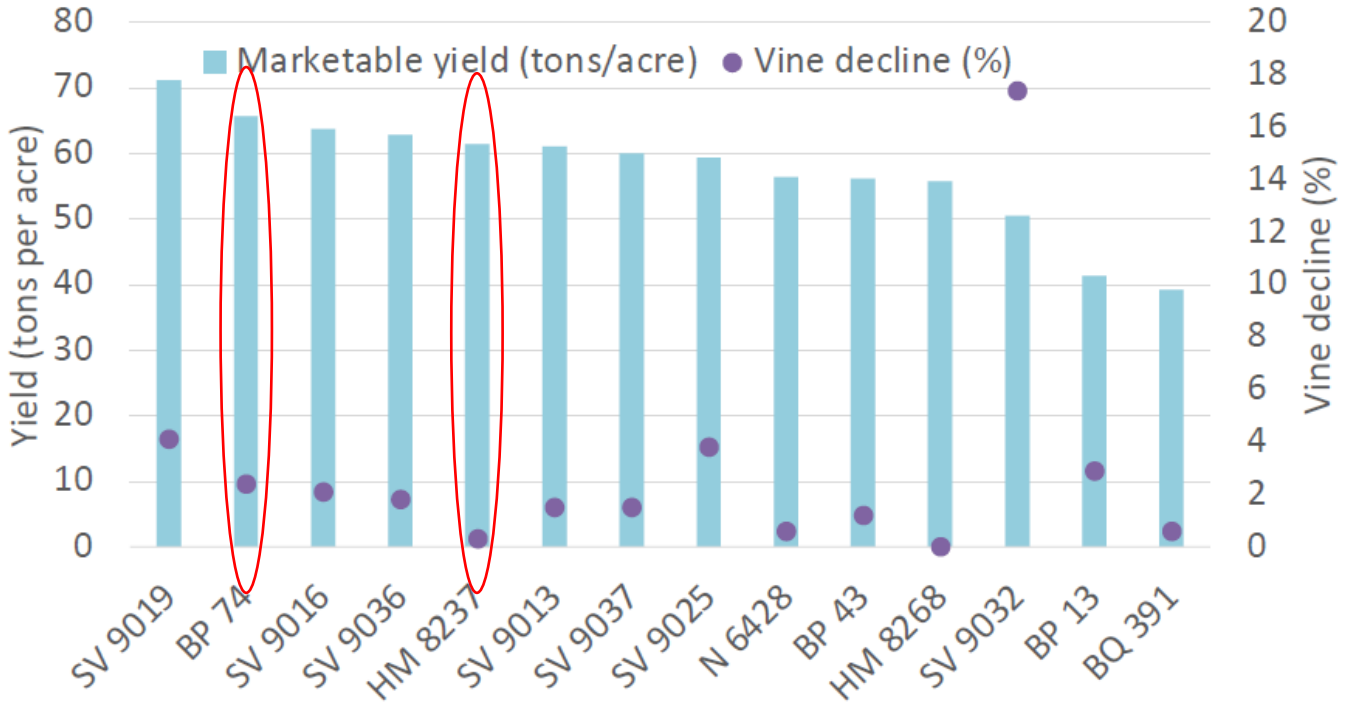
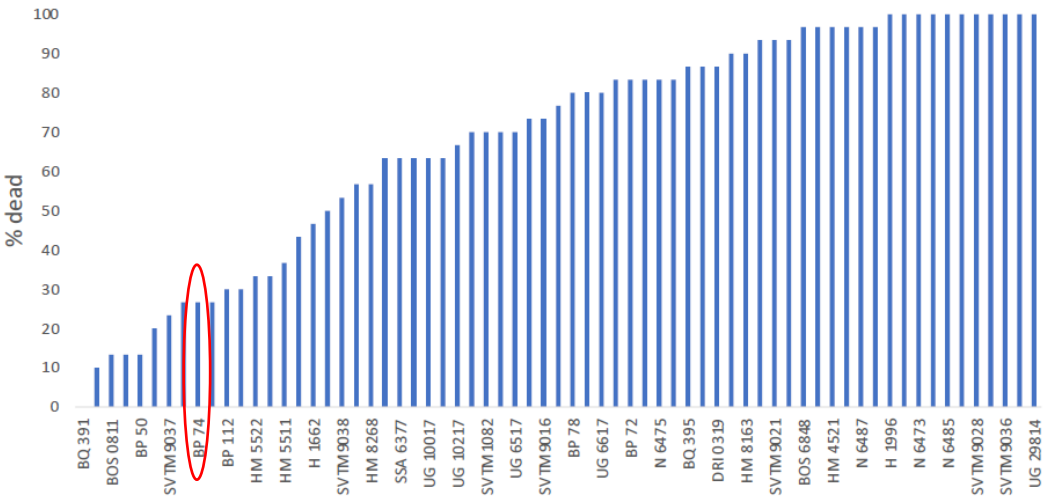
*Aug 2023
https://www.nass.usda.gov/Statistics_by_State/California/Publications/Specialty_and_Other_Releases/Tomatoes/2023/202308ptom.pdf

BP 74 (Yolo), HM 8237 (Solano)



2022 San Joaquin County trial



TS&L variety trial in a commercial field, Yolo County 2022

Slides courtesy of Brenna Aegerter

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Summary of seven field trials including fungicides and/or fumigants

year	2019	2019	2019	2019	2019	2020	2021
location	UC Davis	UC Davis	Yolo Co	San Joaquin Co	San Joaquin Co	San Joaquin Co	San Joaquin Co
disease(s)	Fol	Ff	Ff	Fol	Ff	Fol & Ff	Fol & Ff
Product							
K-Pam ~30 gal	++	NT	NT	++	+ 7.2 t/a	+	+ 26 t/a
K-Pam ~15 gal	-	NT	+ 11.9 t/a	NT	NT	+	+ 13.6 t/a
Miravis	++	+	NT	++	NT	+	+ 9.2 t/a
Rhyme	-	NT	NT	-	NT	+	+ 10 t/a
Velum	-	+	NT	-	NT	-	NT
Disease level in non-treated control	68% vine decline	47% rot	73% rot	37% vine decline	20% vine decline	31% vine decline	30% vine decline
Disease *P value*	P < 0.05	NS	NS	0.01	not tested	0.06	0.0004
Yield *P value*	NS	NS	0.01	NS	0.016	NS	0.015

NT = not tested " + " = weak (statistically speaking) positive effect " ++ " and green shading = statistically significant positive effect, NS = not significant

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Slide courtesy of Brenna Aegerter

Transplanter comparison pilot study

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California Tomato Research Institute

Side-by-side field trials, survey of Agriplanter fields

Measured

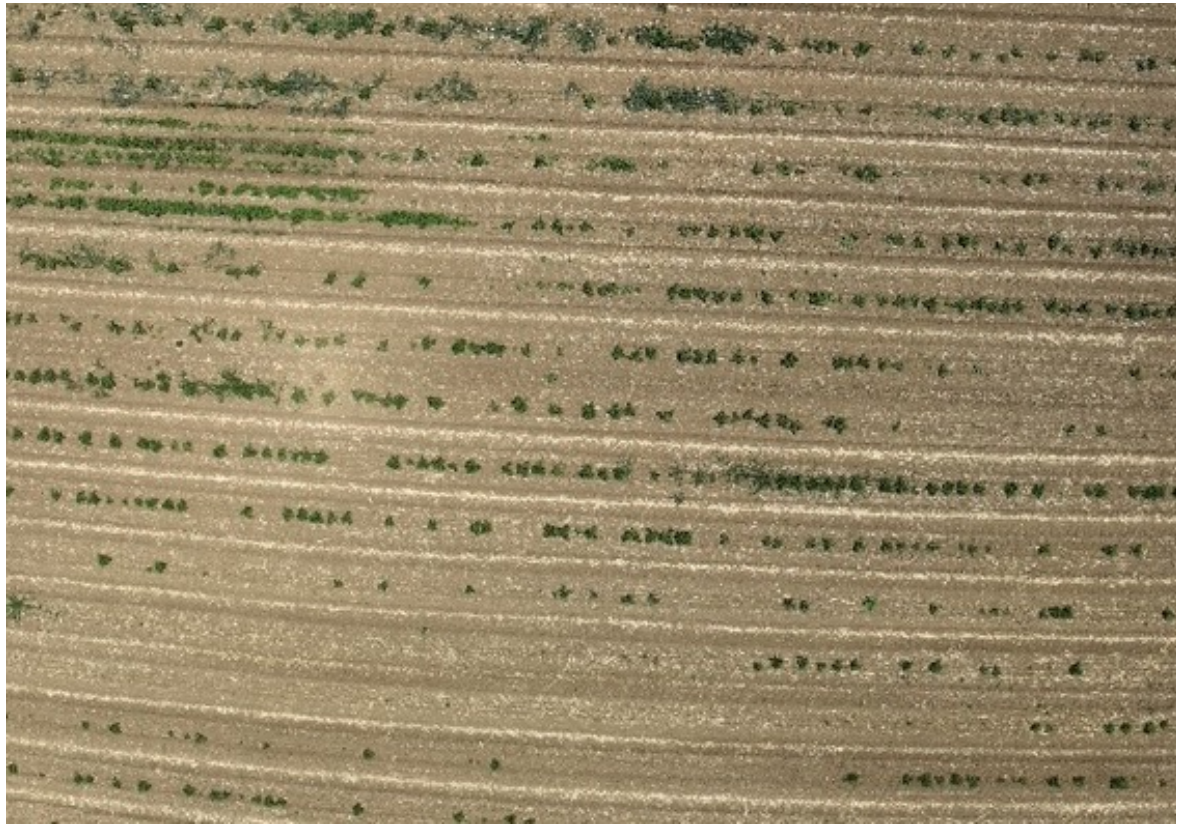
- Skips just after planting
- Stand establishment a few weeks after planting
- Average planting depth
- Survival after severe heat damage (field trial only)
- Yield, quality (field trial only)

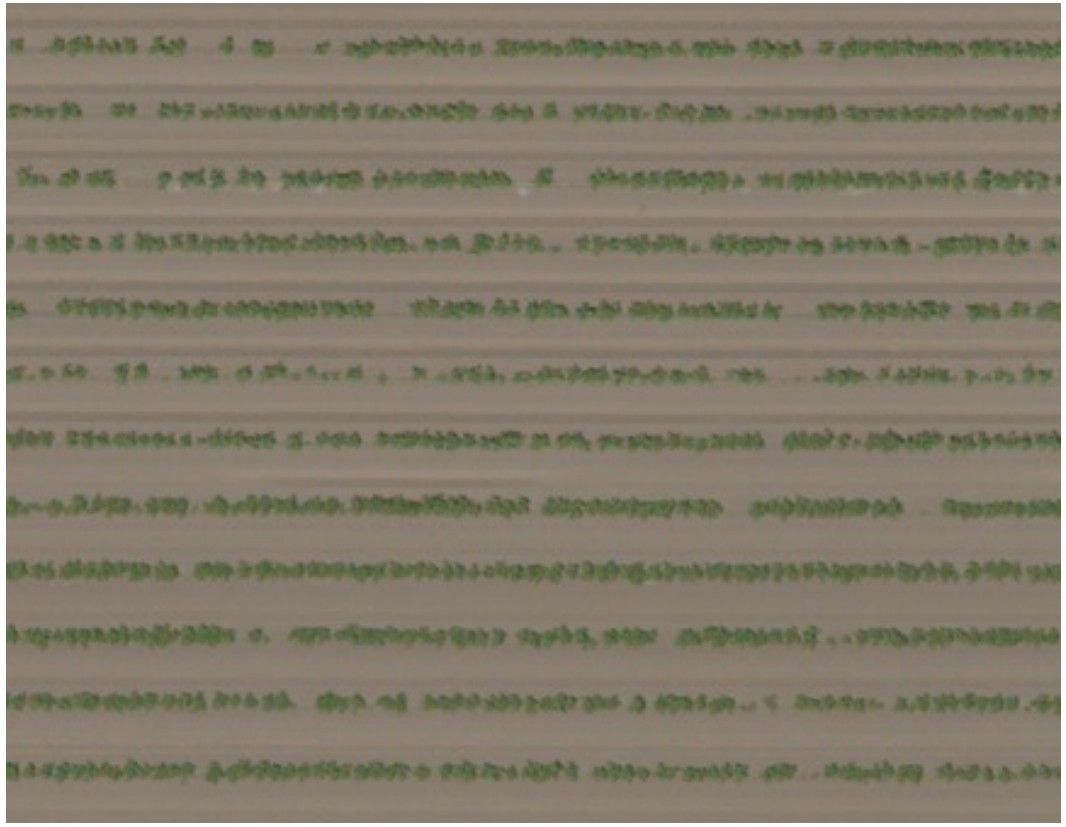
Agriplanter speed (seasonal average est.)

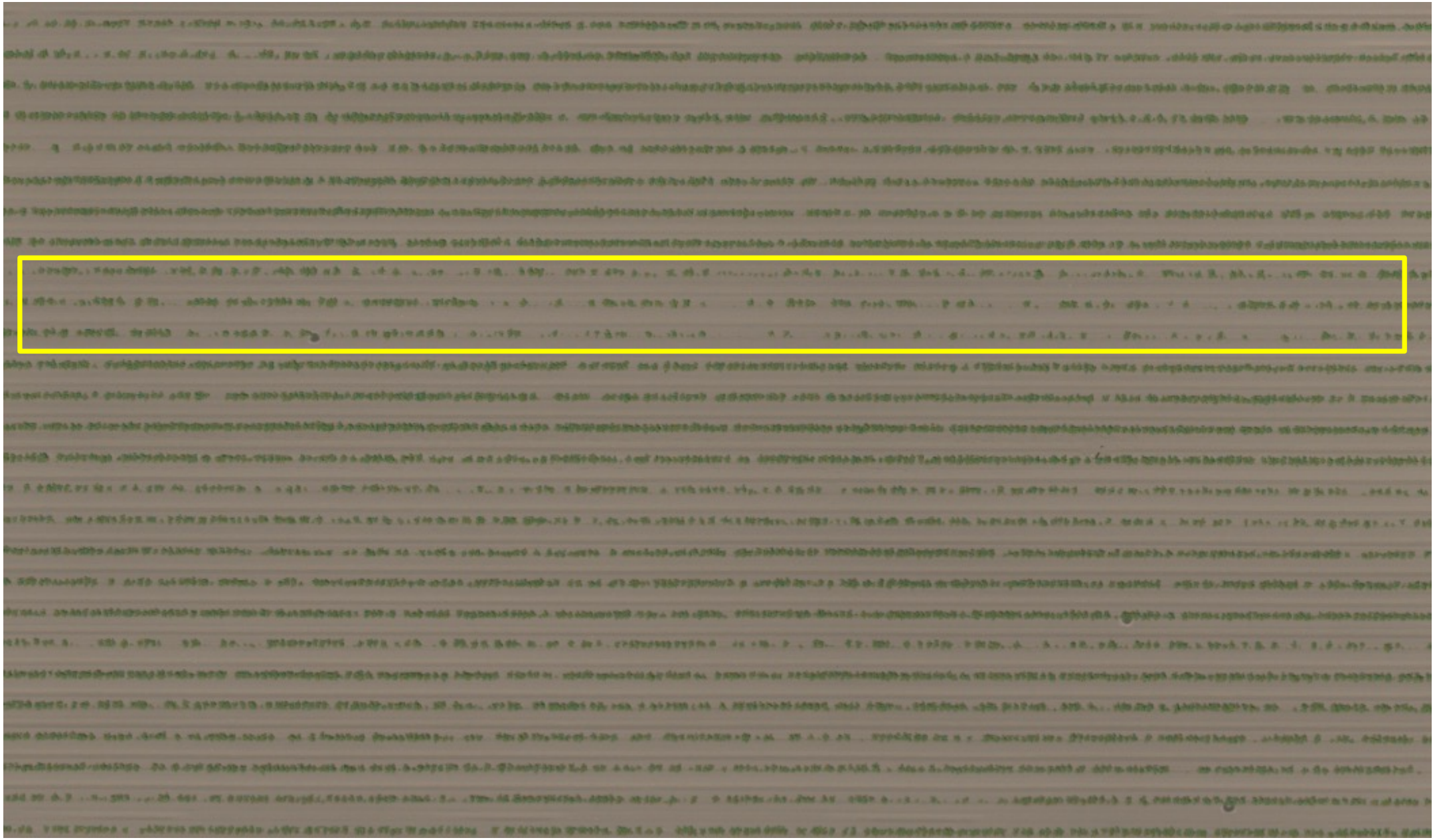
	GROWER 1	GROWER 2	GROWER 3
Planter model	5-row	3-row	3-row
Average acres per day	35 if issues, 45 when going better (thinks 45-50 should be the norm)	Averaged 25, maximum of ~33	30-45
Crew size	4	3	4
Shift length	10 hr	10.5-11 hr	12
Acres per man-hour	0.9-1.3	0.8-1.0	0.8-0.9

Finger planter avg. ~0.25 acres per man-hour

Large range of skips/ stand establishment







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Field trial: sig. differences in heat damage

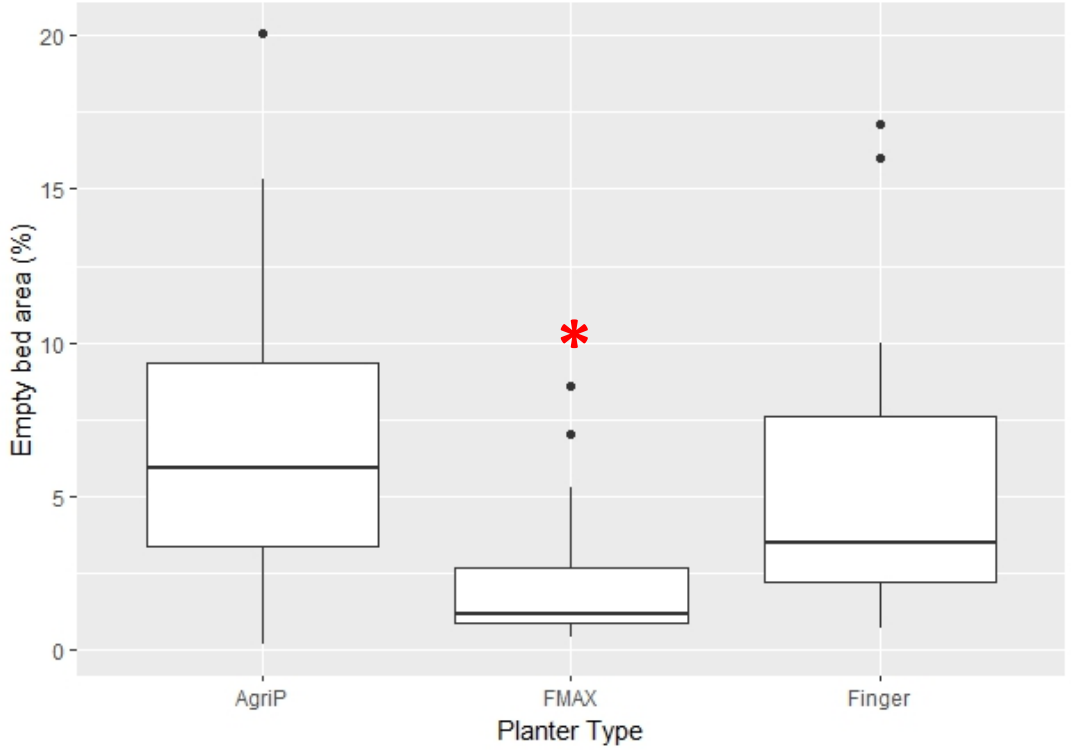
Planted June 2

95 F in the days after planting

Sig. heat damage on Agriplanter, finger planter; less likely on FMAX

Field trial results

Empty bed area before harvest



Yields

	Total	Paid
	Tons/acre	
Finger	56-75	50-68
FMAX	57-73	47-64
Agriplanter	56-67	50-62

No significant difference (n=3)

Main issues reported (Agriplanter)

- Trays need to be perfect, uniform quality within tray important
- Very large plants not ideal
- Heat damage
  - Co-location of water and plant
  - Pile-up of warm soil around plant

Questions?

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