

Arthropod management update

Ian Grettnerberger¹, Luis Espino²,
Kevin Goding¹, Madi Hendrick¹

¹UC Davis, Dept. of Entomology and Nematology

²UC Cooperative Extension, Colusa, CA

Tadpole shrimp



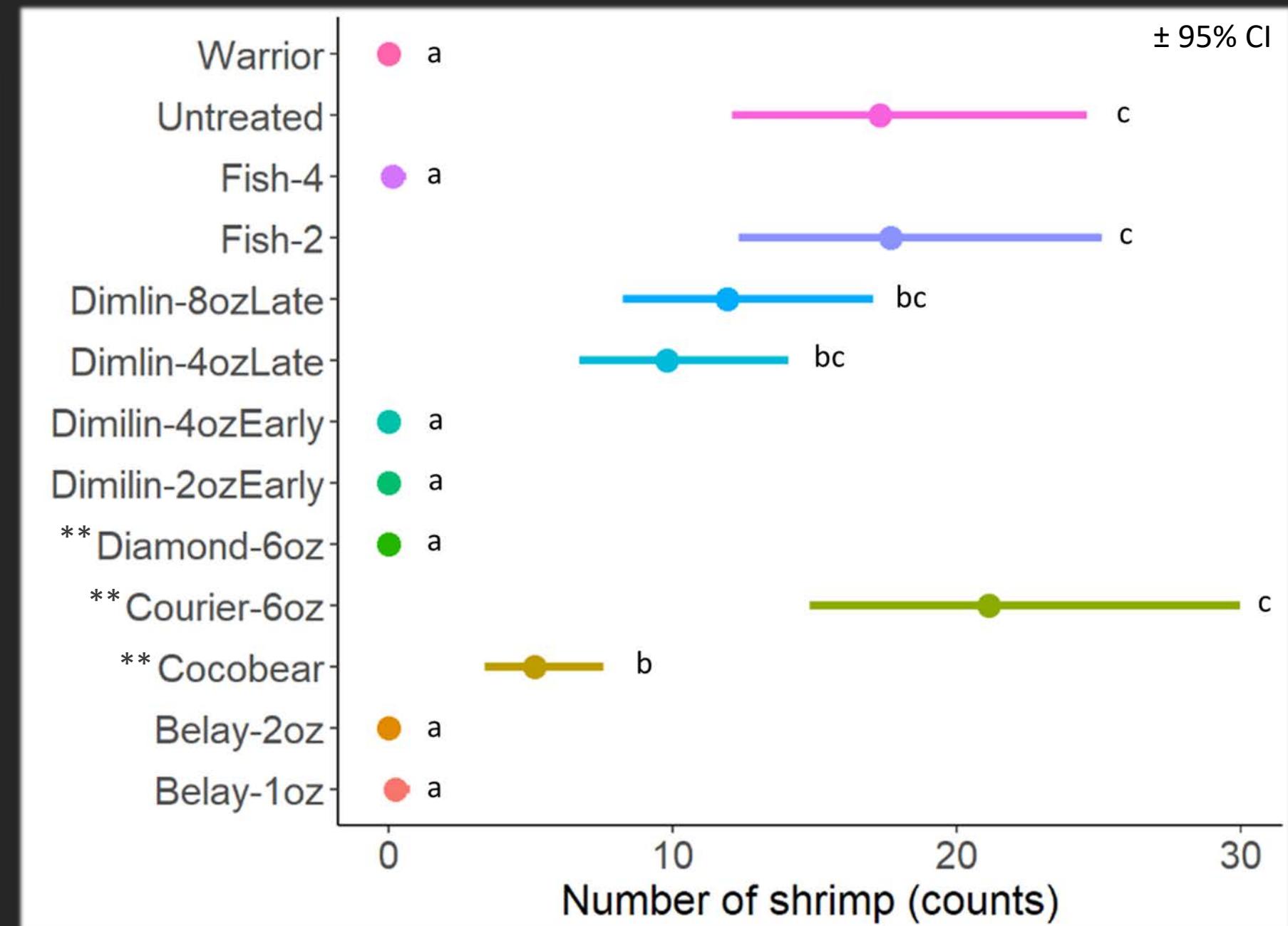


TPS insecticide ring trial

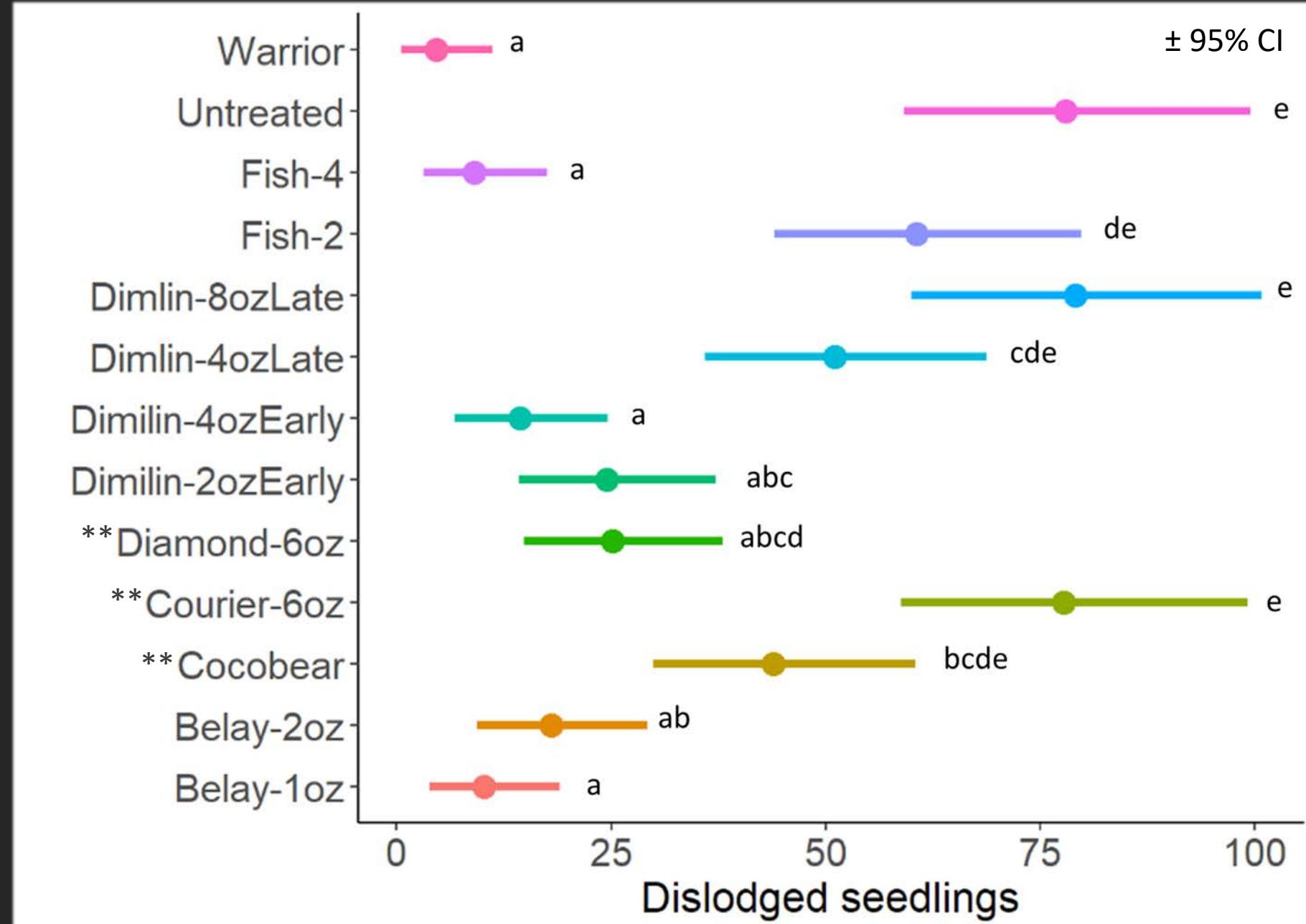


Treatment	AI	Rate (oz/A)	Timing	Est. cost
Untreated	--	--	--	Free!
Warrior II	Lambda-cyhalothrin	2.56	early	\$1.56
Dimilin 2L	Diflubenzuron	2	early	\$1.84
Dimilin 2L	Diflubenzuron	4	early	\$3.67
Dimilin 2L	Diflubenzuron	4	late	\$3.67
Dimilin 2L	Diflubenzuron	8	late	\$7.34
Diamond**	Novaluron**	6	early	\$7.08
Courier SC**	Buprofezin*	6	early	\$18.38
Belay	Clothianidin	2	early	\$4.53
Belay	Clothianidin	1	early	\$2.27
CocoBear**	oil**	192	earlyish	\$25.50
Fish		2 lg + 2 med	very early	??
Fish		1 lg + 1 med	very early	??





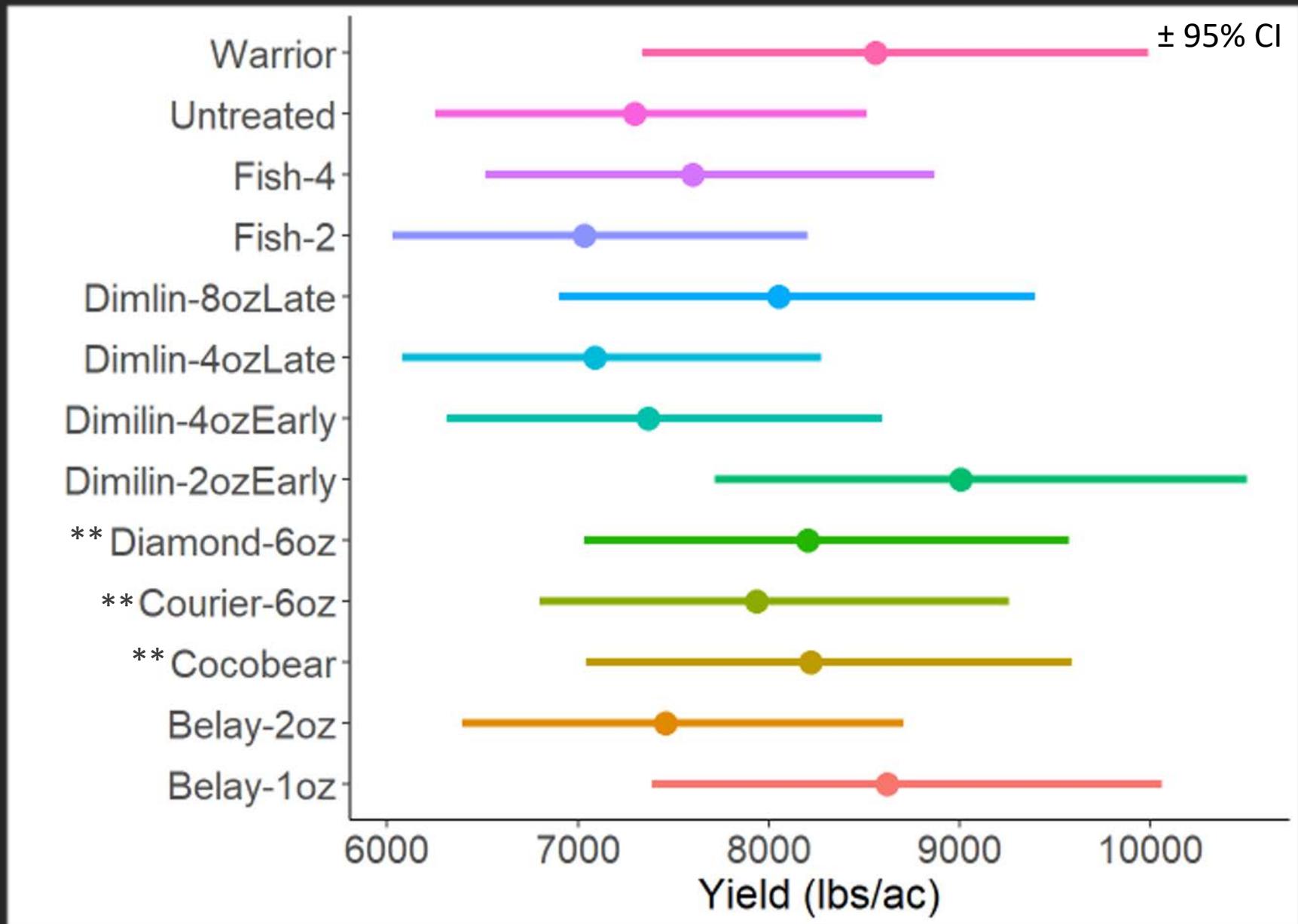
Dislodged seedlings



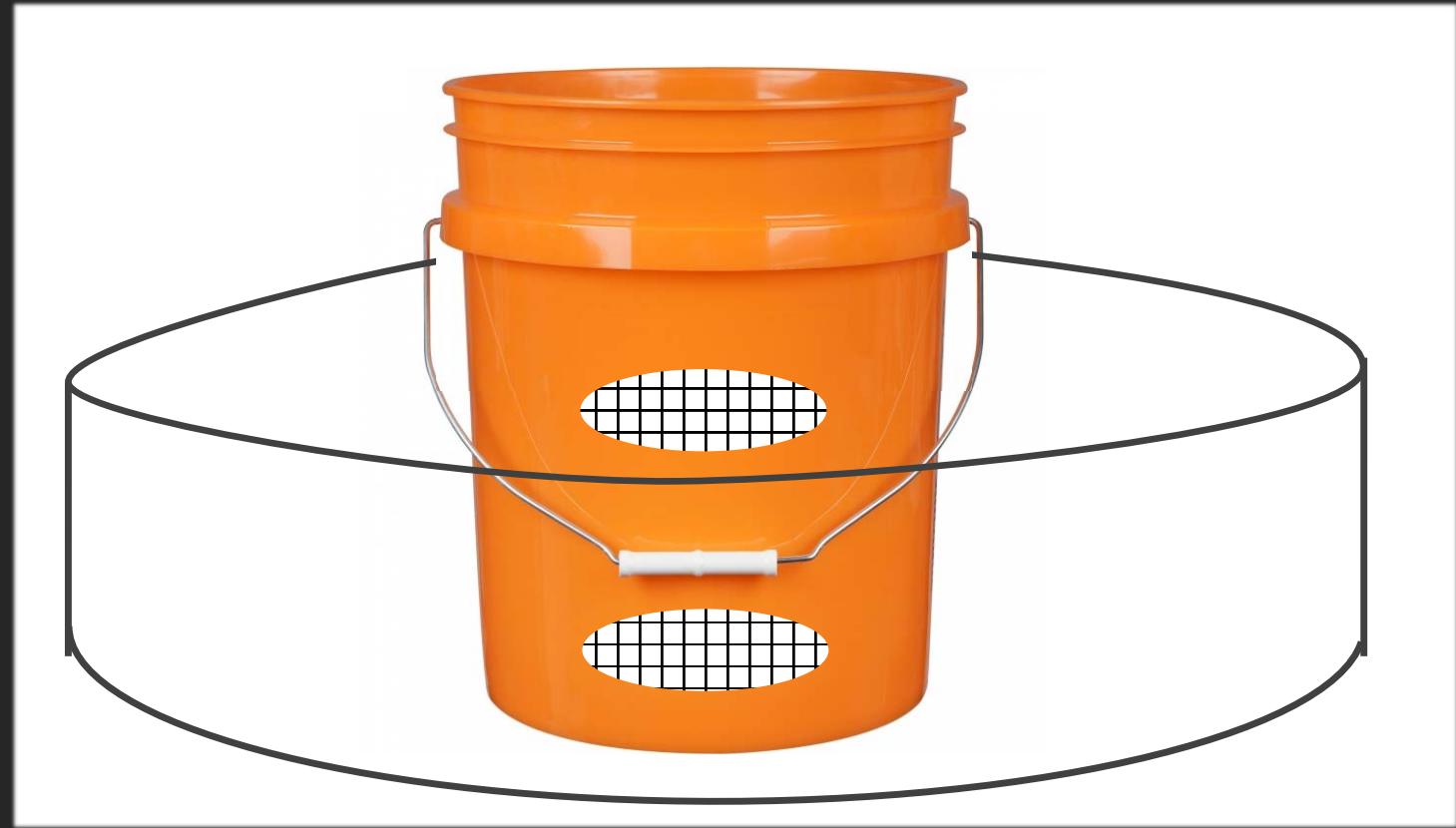
Yield



Keith Weller



Insecticide trial – rings with inner buckets

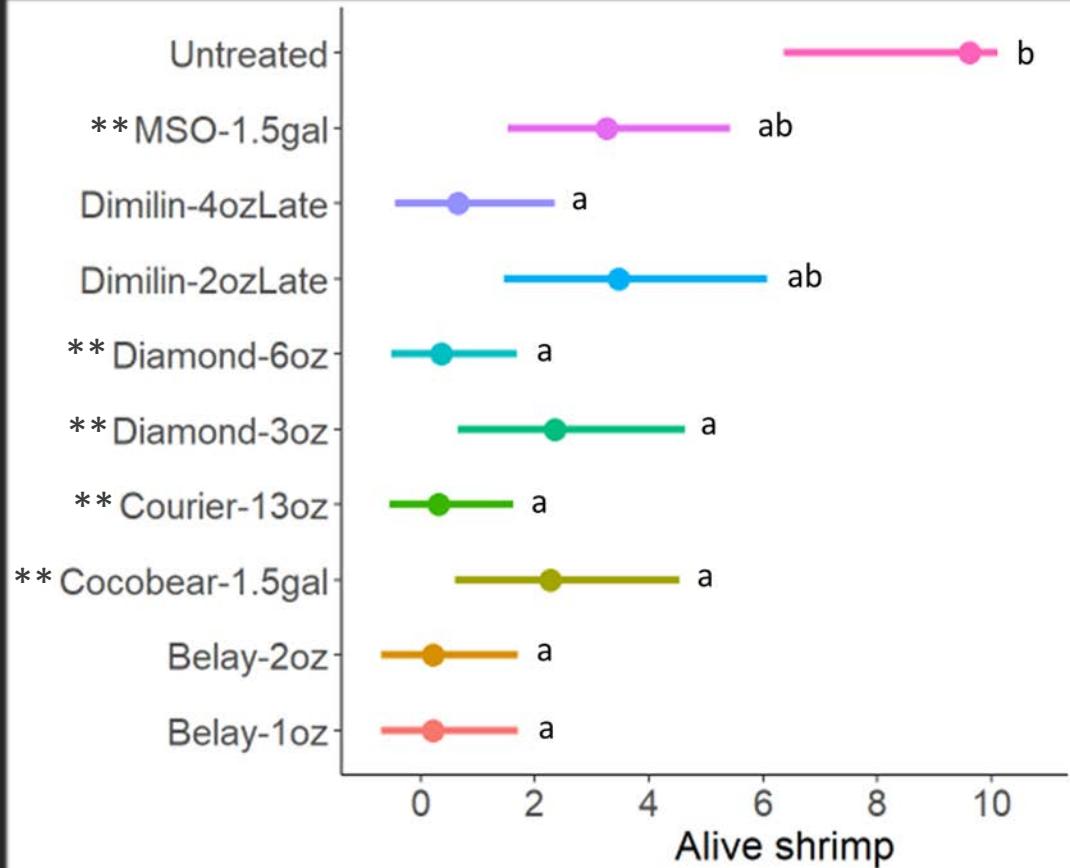




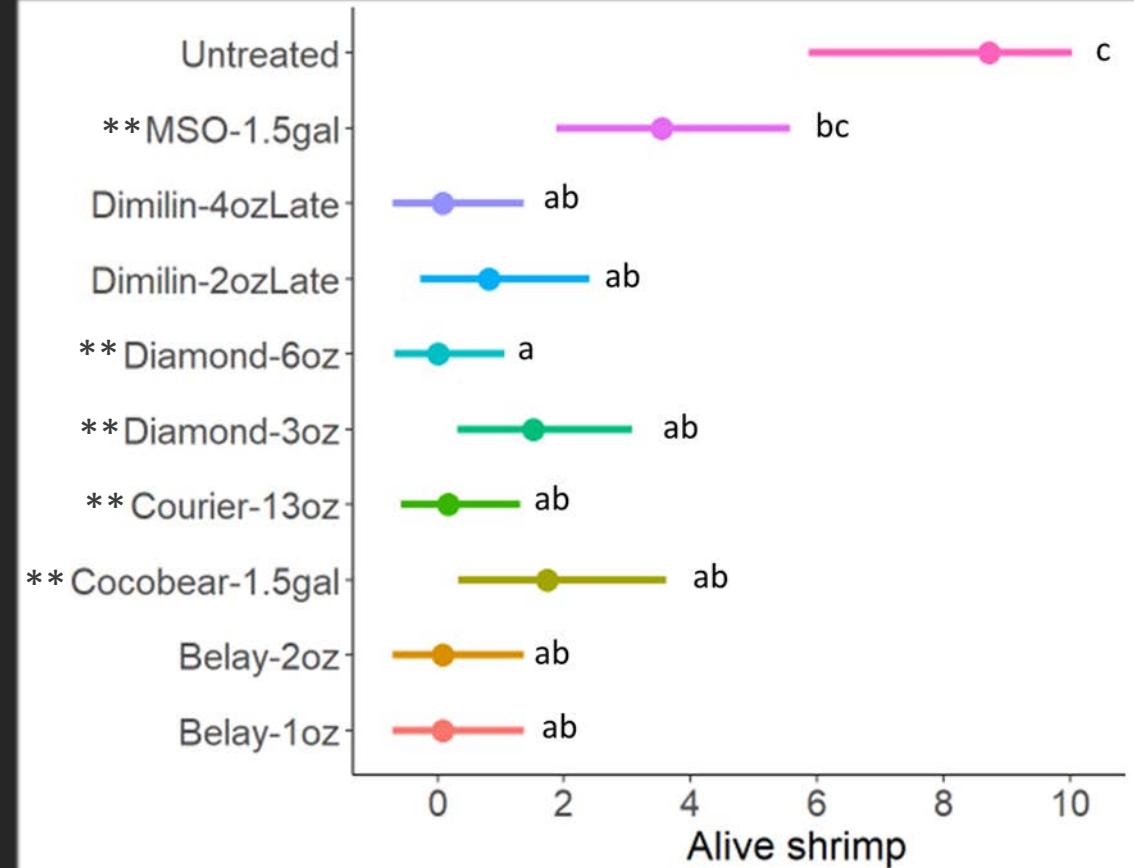
Treatment	AI	Rate (oz/A)	Timing	Est. cost
Untreated	--	--	--	
Belay	Clothianidin	1	late	\$2.27
Belay	Clothianidin	2	late	\$4.53
Dimlin 2L	Diflubenzuron	↓ 2	late	\$1.84
Dimilin 2L	Diflubenzuron	4	late	\$3.67
Diamond**	Novaluron**	↓ 3	late	\$3.54
Diamond**	Novaluron**	6	late	\$7.08
Courier SC**	Buprofezin**	↑ 13	late	\$39.81
Cocobear**	oil**	192	late	\$25.50
MSO**	oil**	192	late	\$39.00

± 95% CI

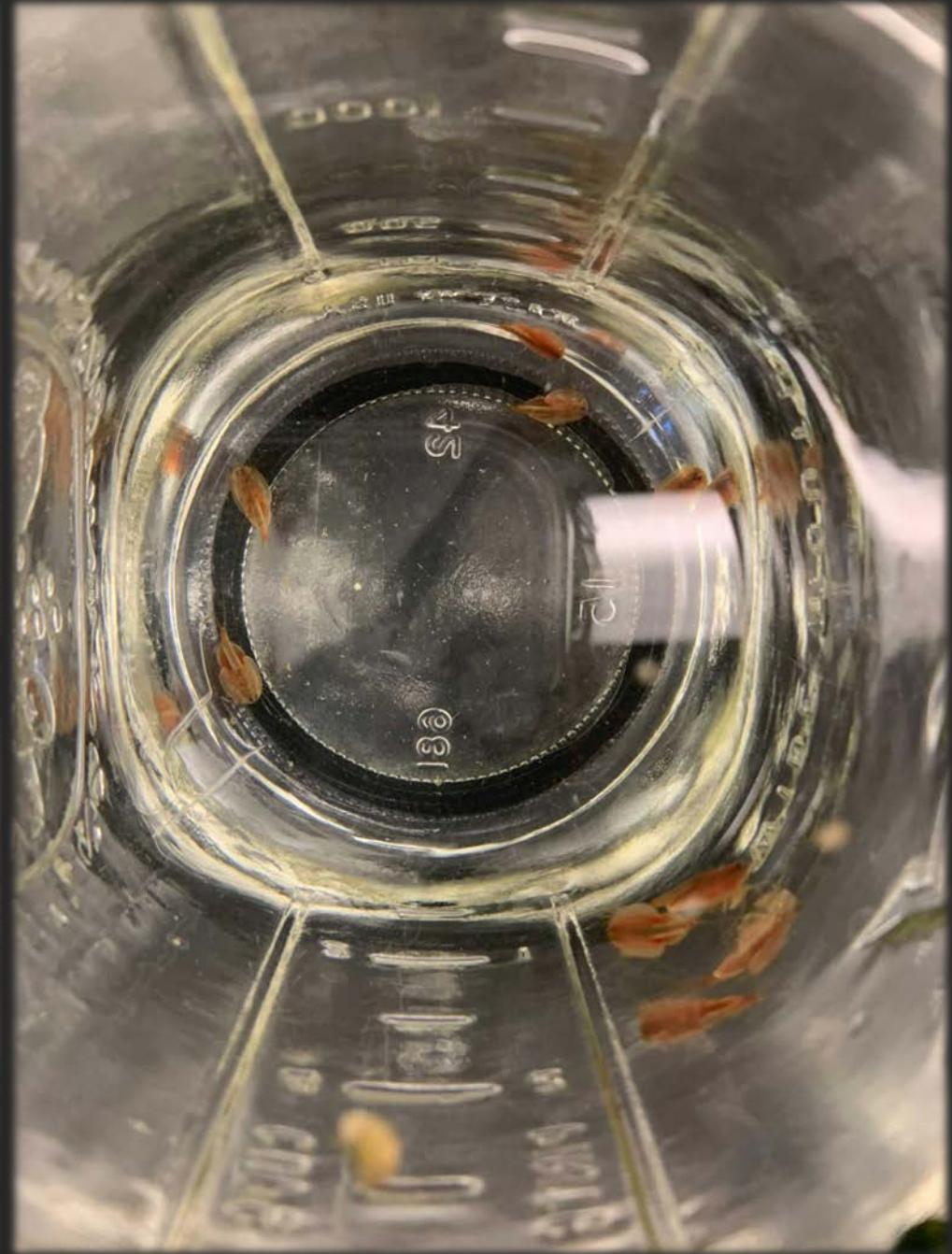
3 DAT



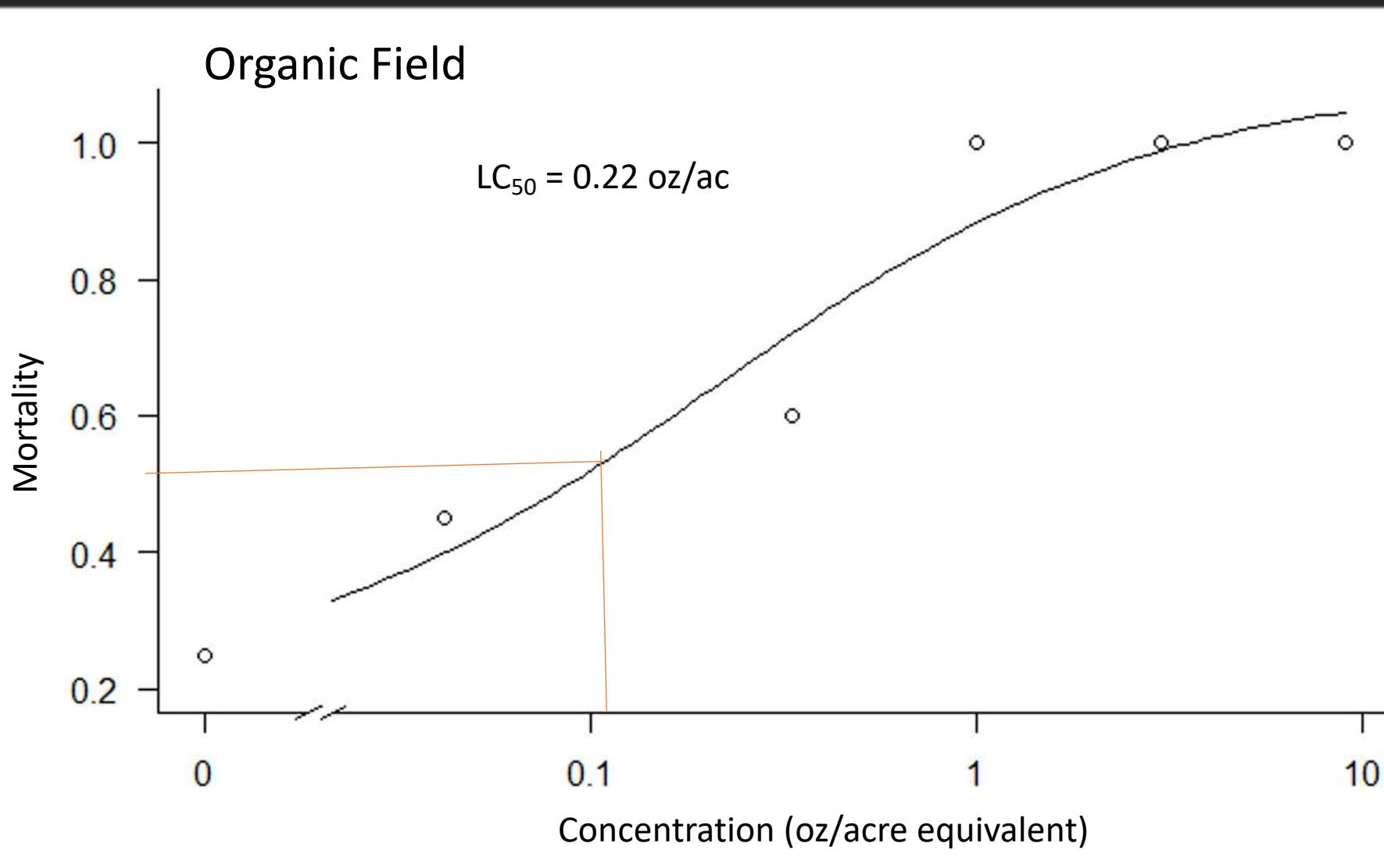
6 DAT



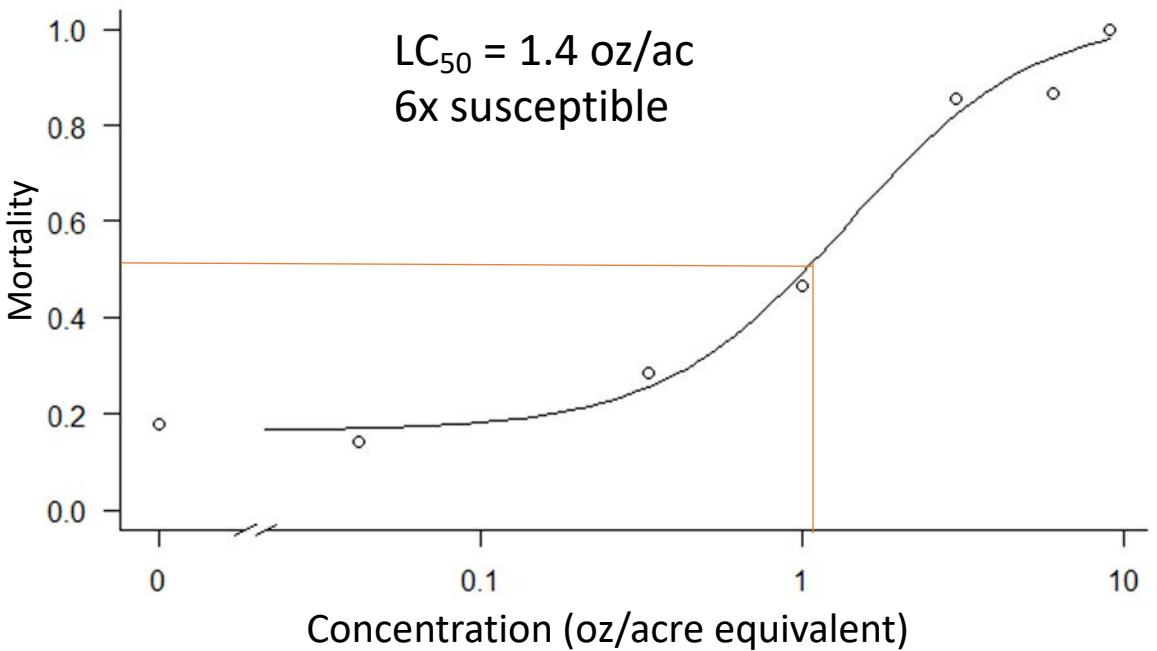
Pyrethroid resistance/ susceptibility for TPS



Lambda cyhalothrin

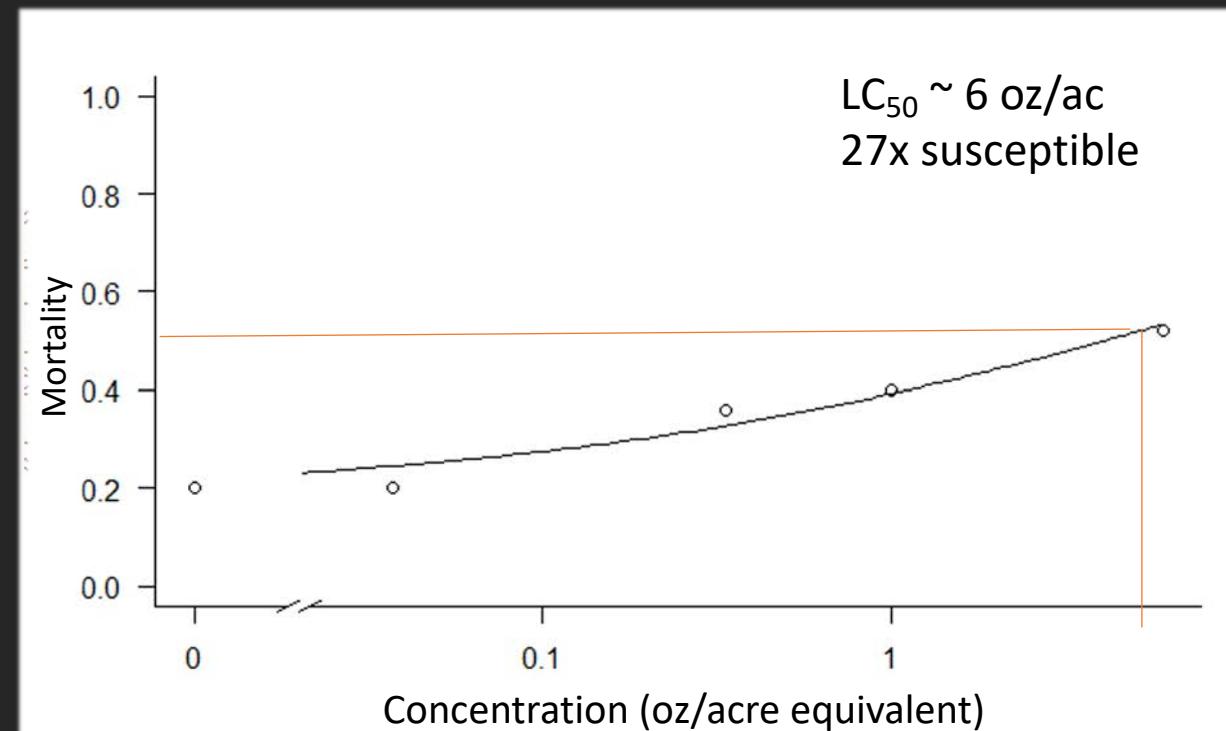


$LC_{50} = 1.4$ oz/ac
6x susceptible



Pyrethroid resistance/
susceptibility for TPS

$LC_{50} \sim 6$ oz/ac
27x susceptible



Armyworms



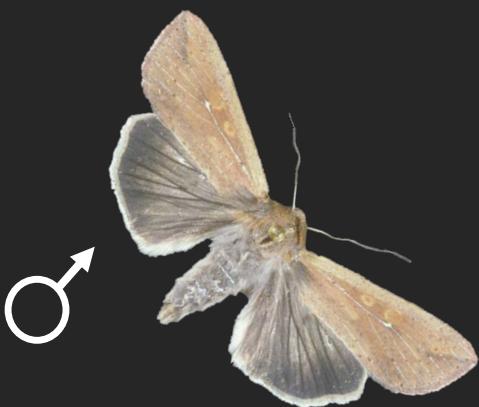
Armyworms 2020

- Similar moth captures to prior years
- Intrepid approved early, April 2020
- Larval pressure was low

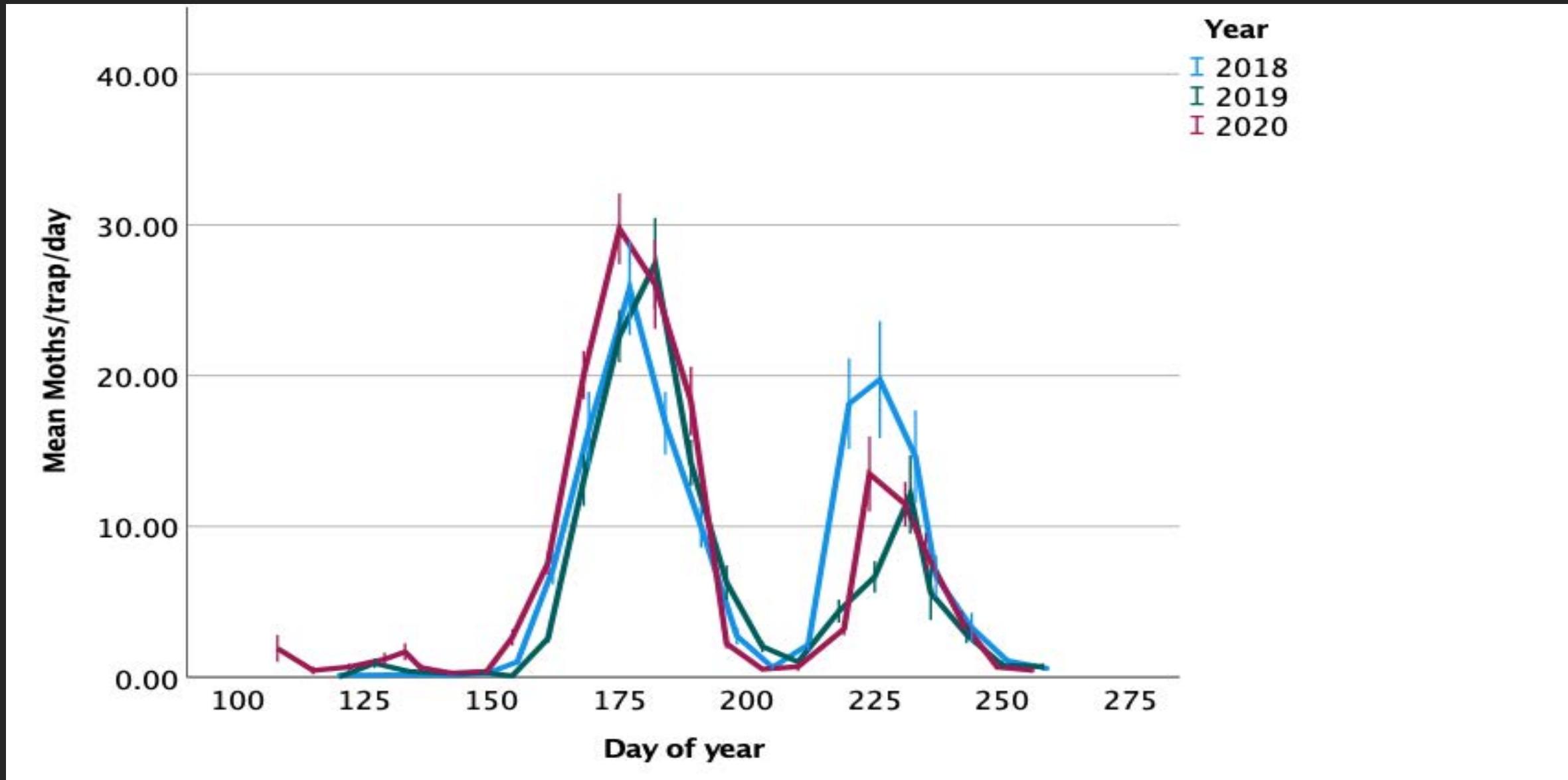


Pheromone Trapping

- 15 sites
- 2 species, 3 traps/species
- Information emailed and posted weekly



2018 – 2020 – True armyworm





06.26.2019 22:04:00



06.27.2019 22:03:00



06.28.2019 22:03:00



06.29.2019 22:03:00



06.30.2019 22:03:00

07.01.2019
22:02:00

07.02.2019 22:02:00



Image

Weather chart

Pest chart

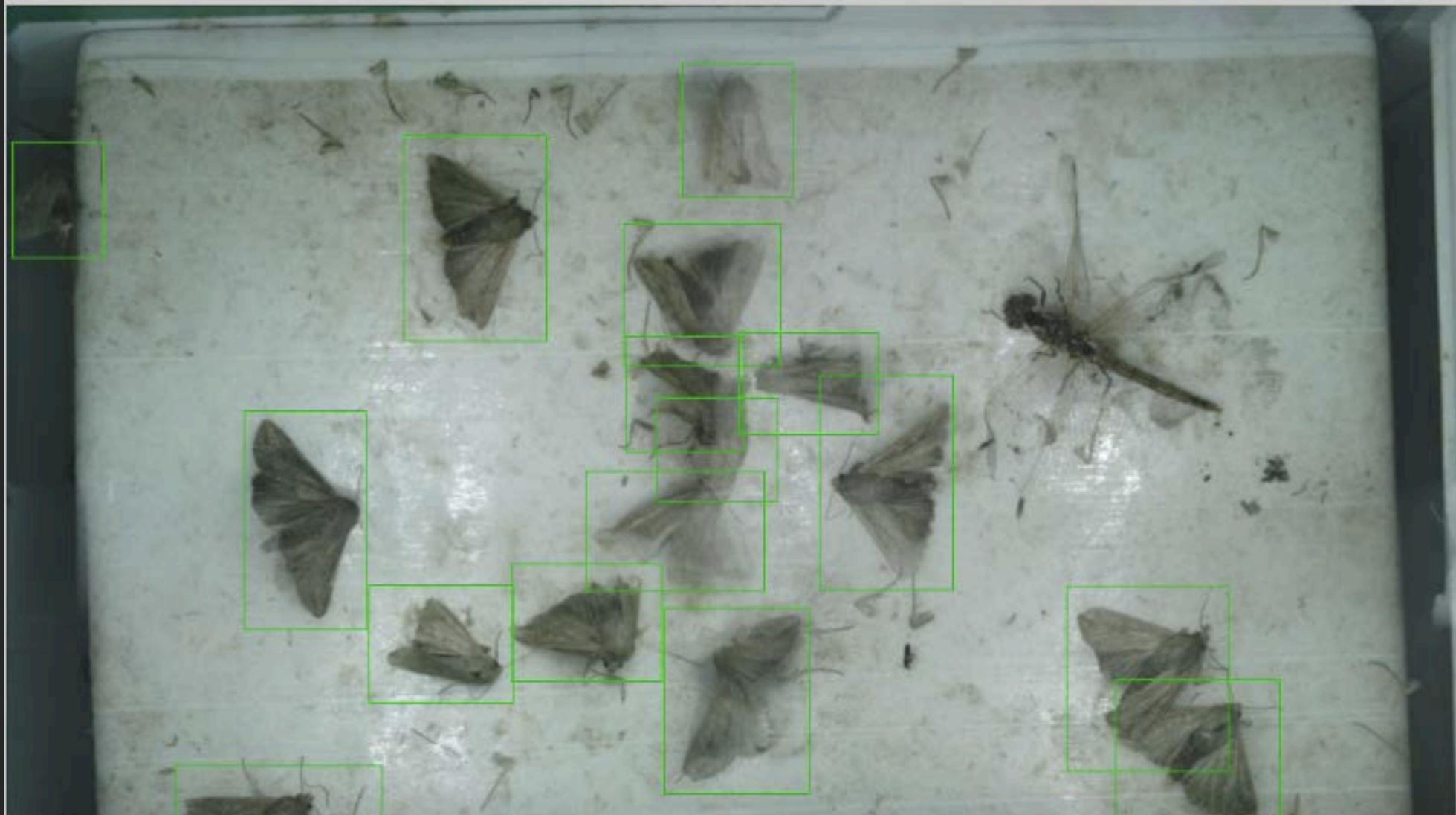
Pest by temperature chart

Degree days

Device events

Location events

Notes



2019

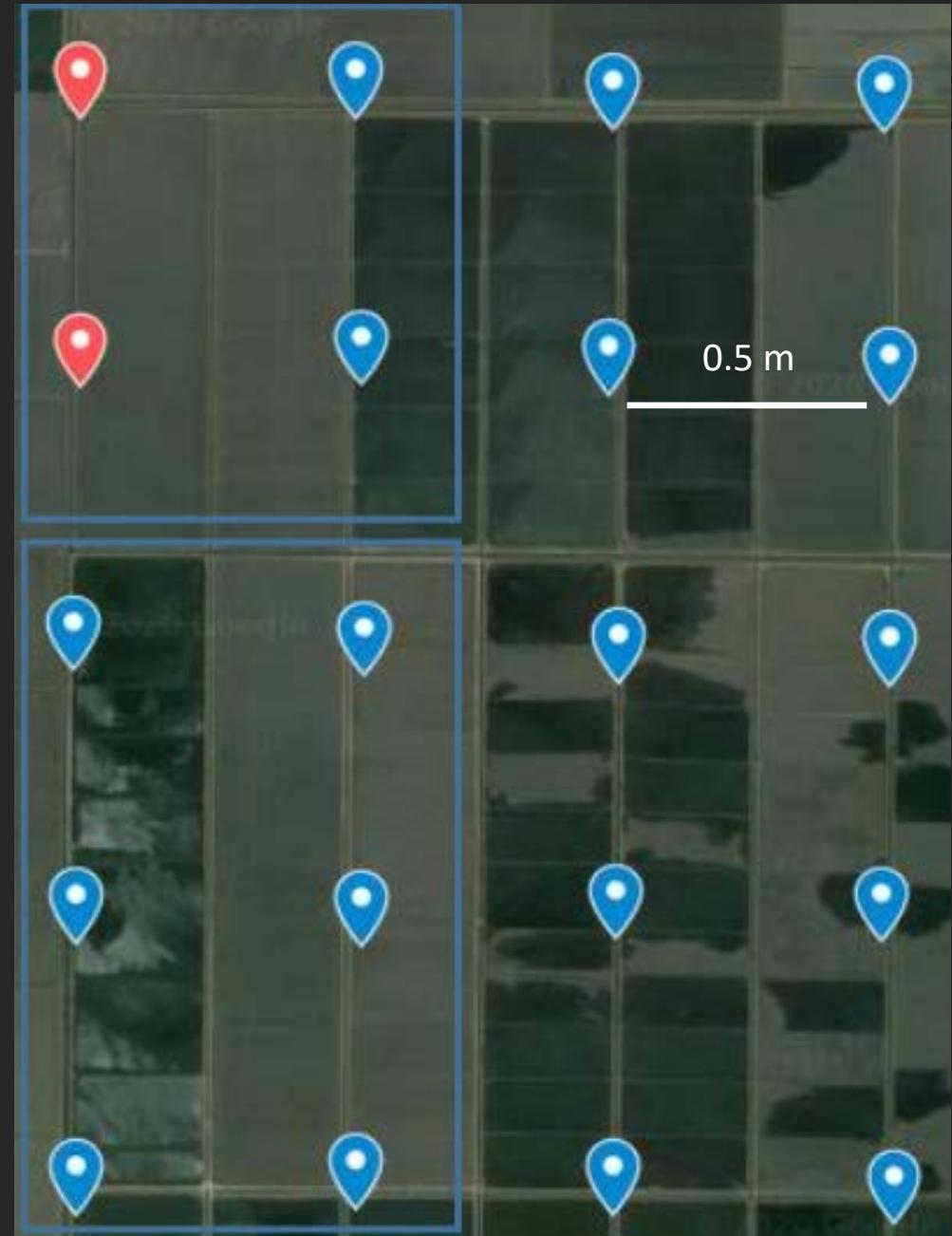


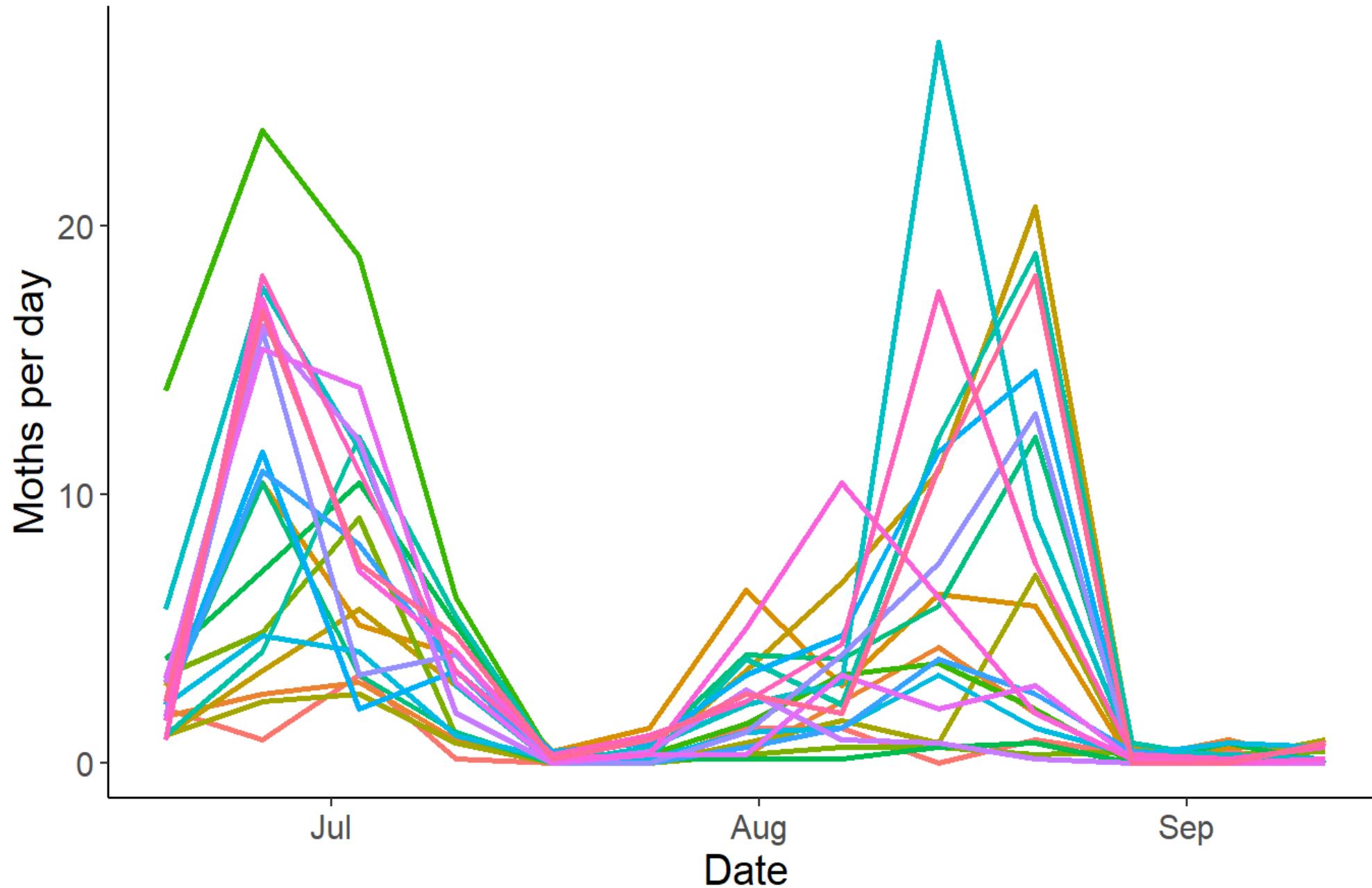
Questions for using traps for armyworm moths

1. Are the two peaks correlated for a given trap?
2. Do certain traps always catch the most moths?
3. Are trap captures aggregated spatially?

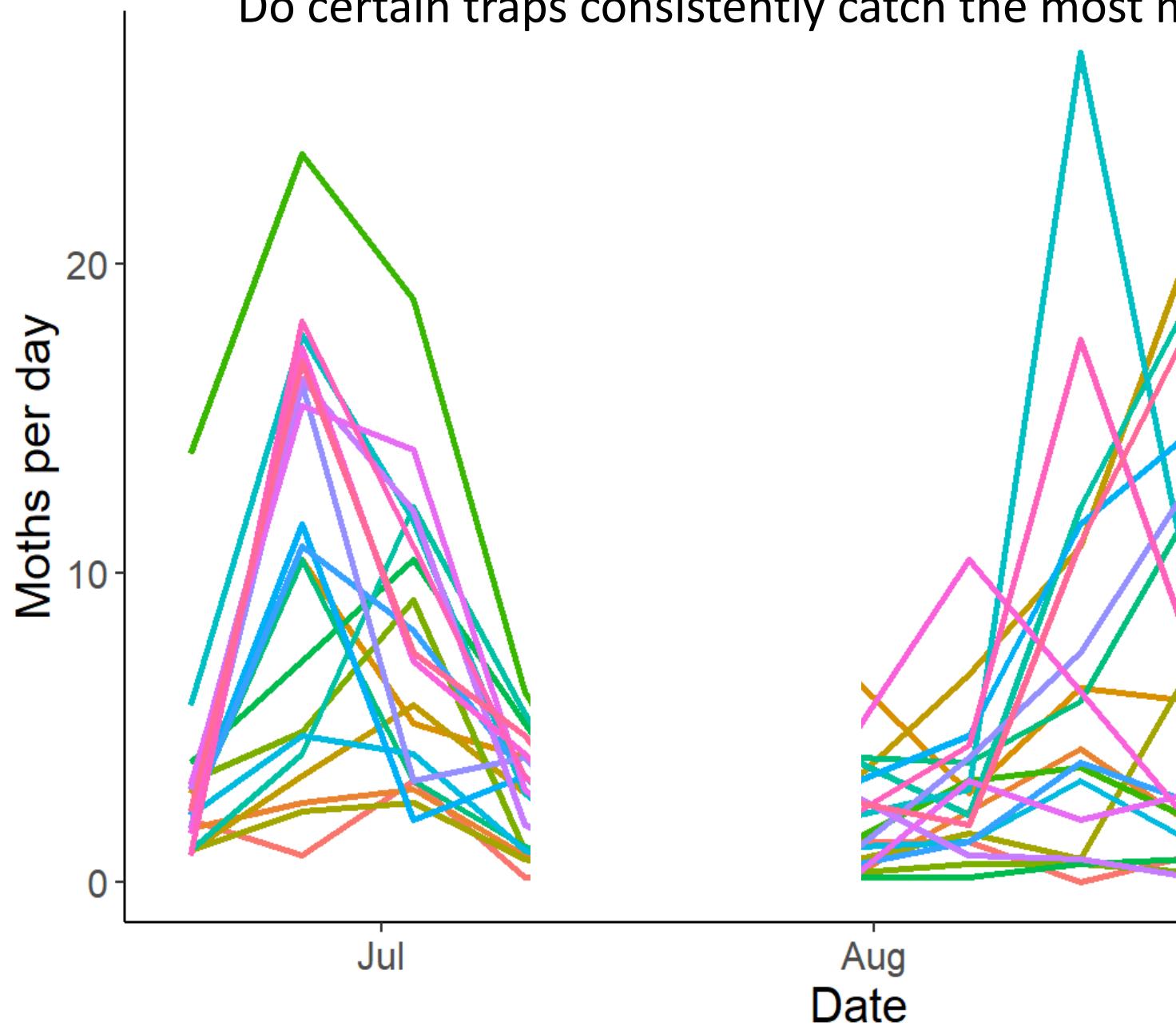
Pheromone trap setup

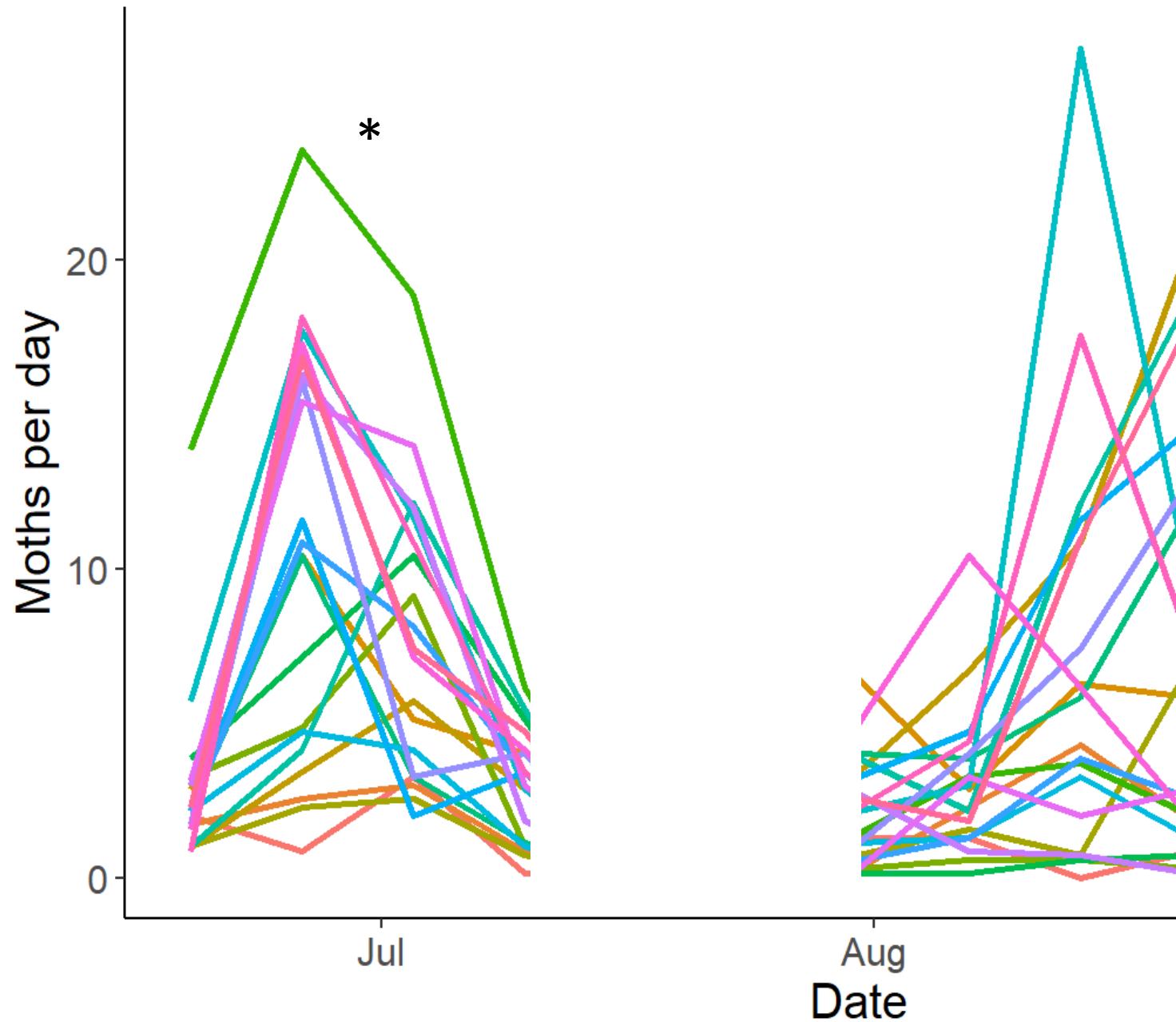
- Traps checked weekly
 - Larvae search weekly
- 2 traps bordering tomato fields (red)



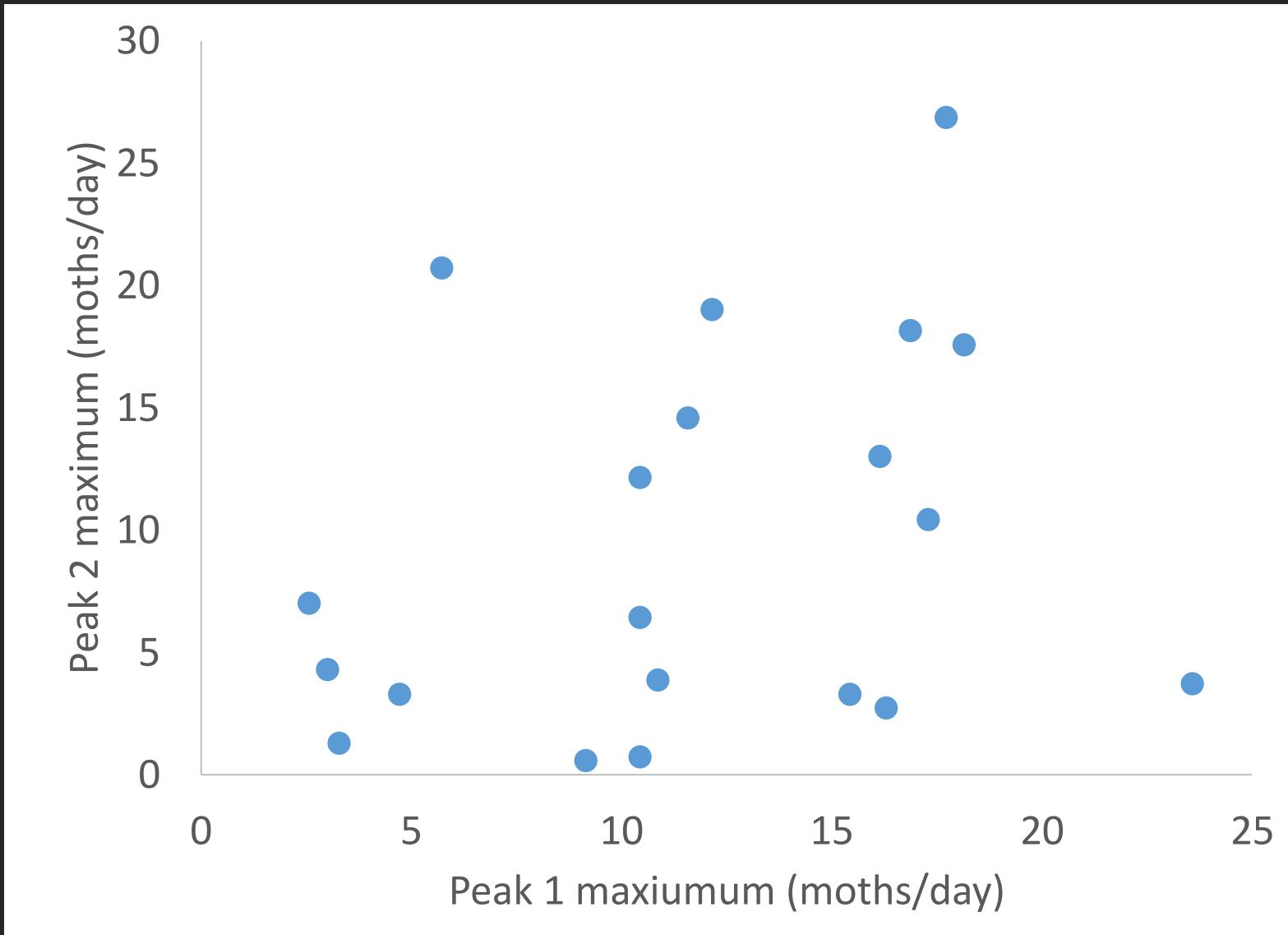


Do certain traps consistently catch the most moths (consecutive dates)?

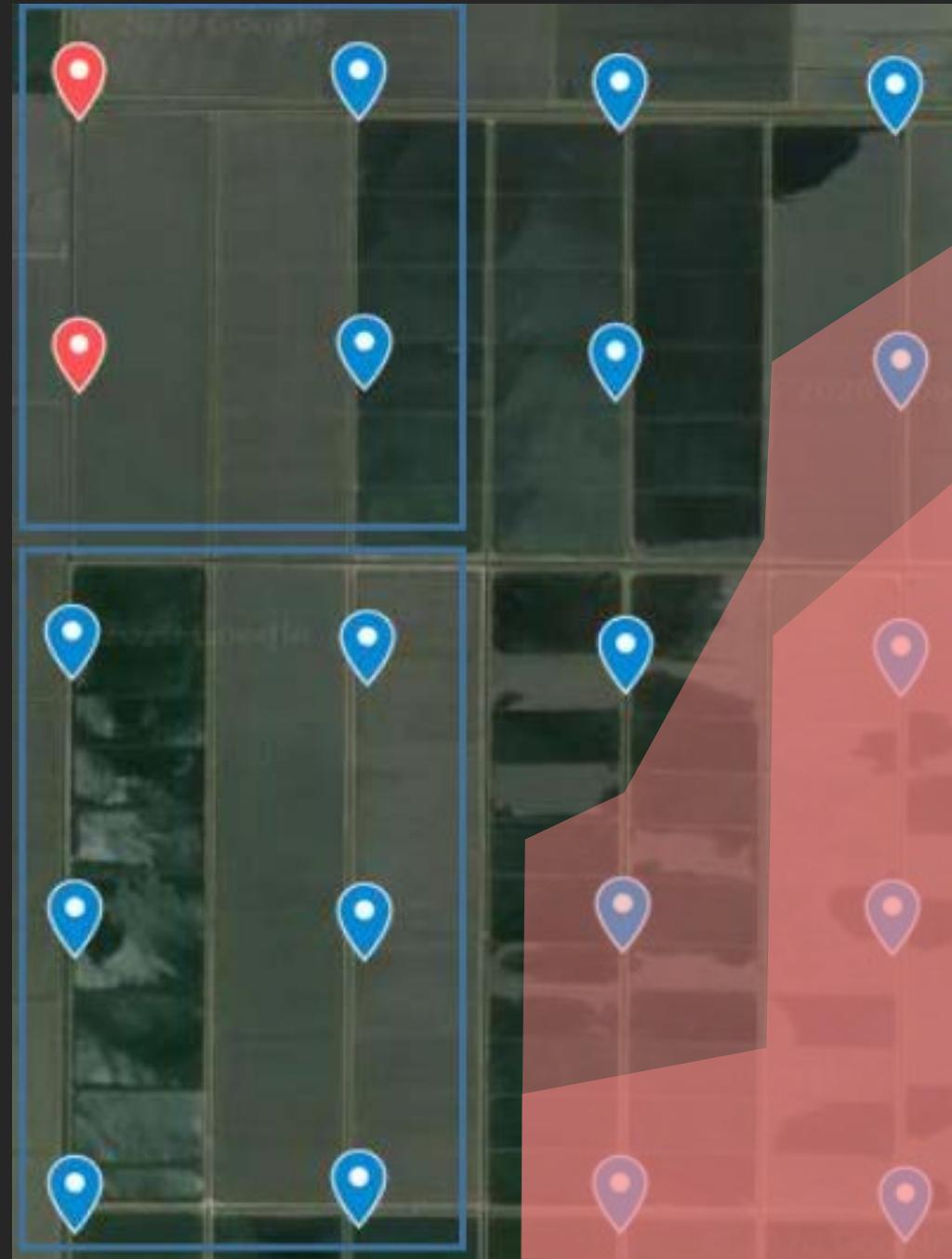




Are the two peaks correlated?



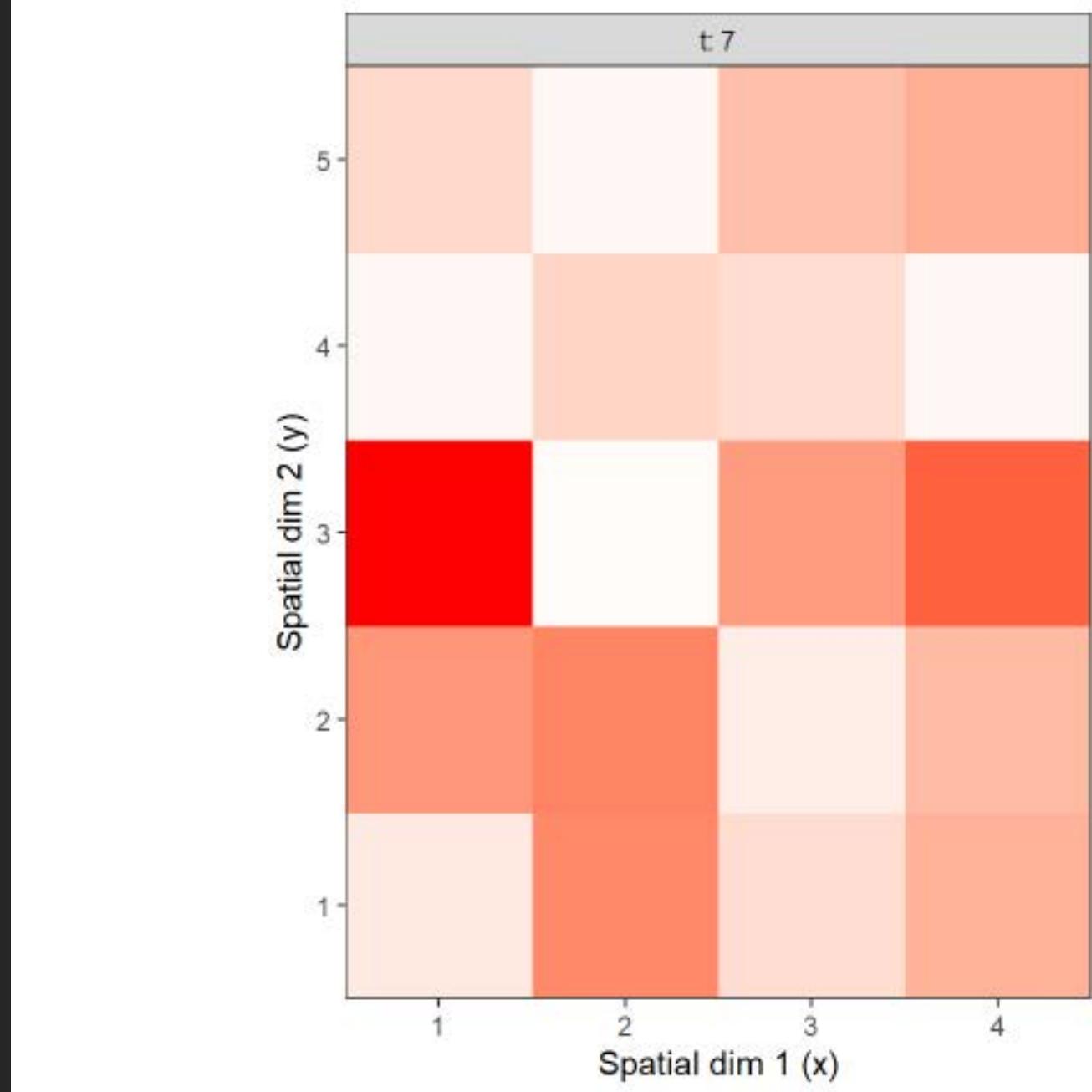
Are trap captures
aggregated spatially?



Aggregated pattern...at times

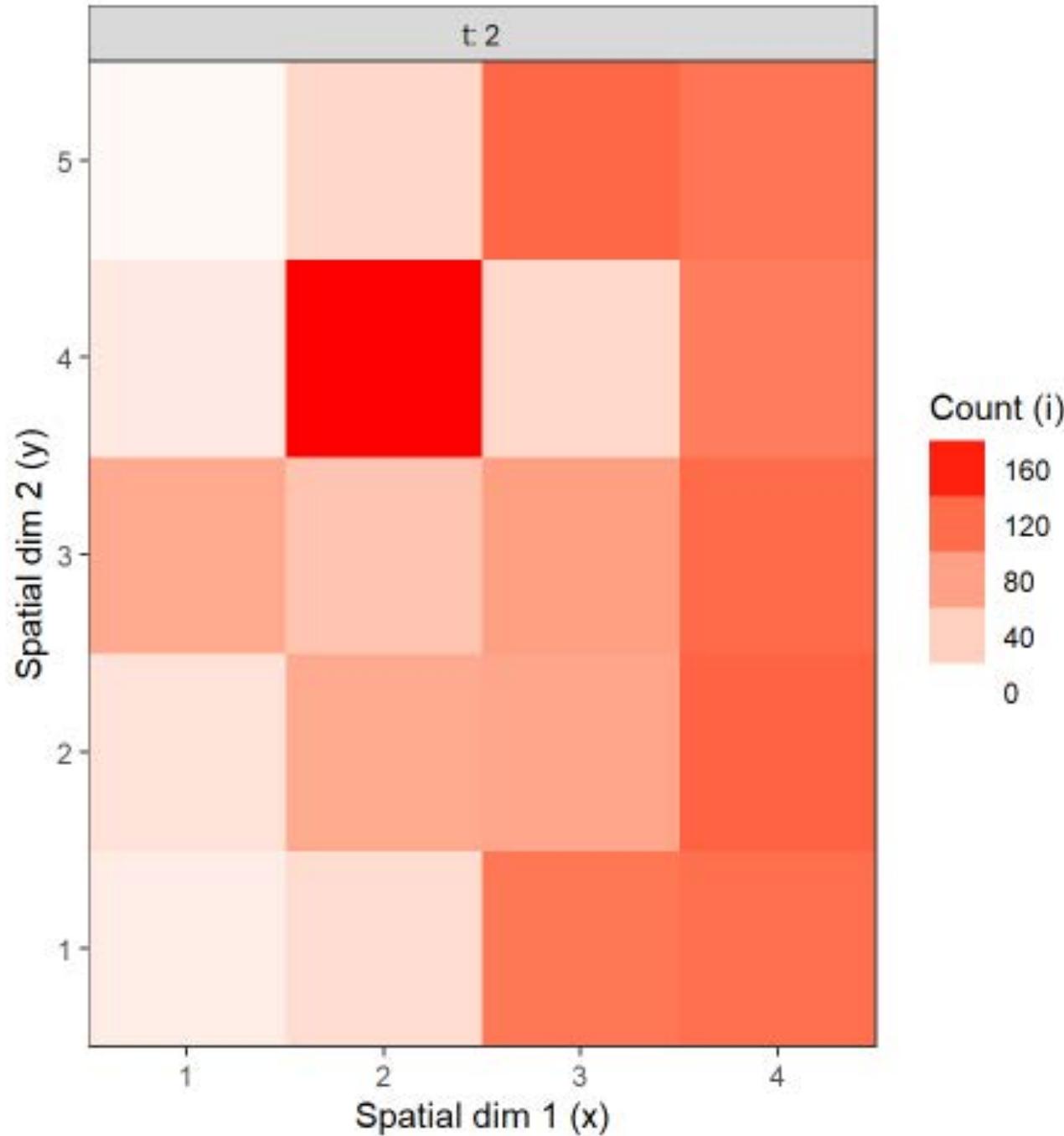
Time period	I_a	P
June 12-19	1.23	0.077
June 19-26	1.40 = aggregated	0.025
June 26-July 3	0.96	0.53
July 3-10	1.29	0.058
July 10-17		
July 17-24	1.05	0.29
July 24-31	0.96	0.53
July 31-Aug 7	0.96	0.54
Aug 14-21	1.12	0.18
Aug 21-28	1.45 = aggregated	0.008

Random

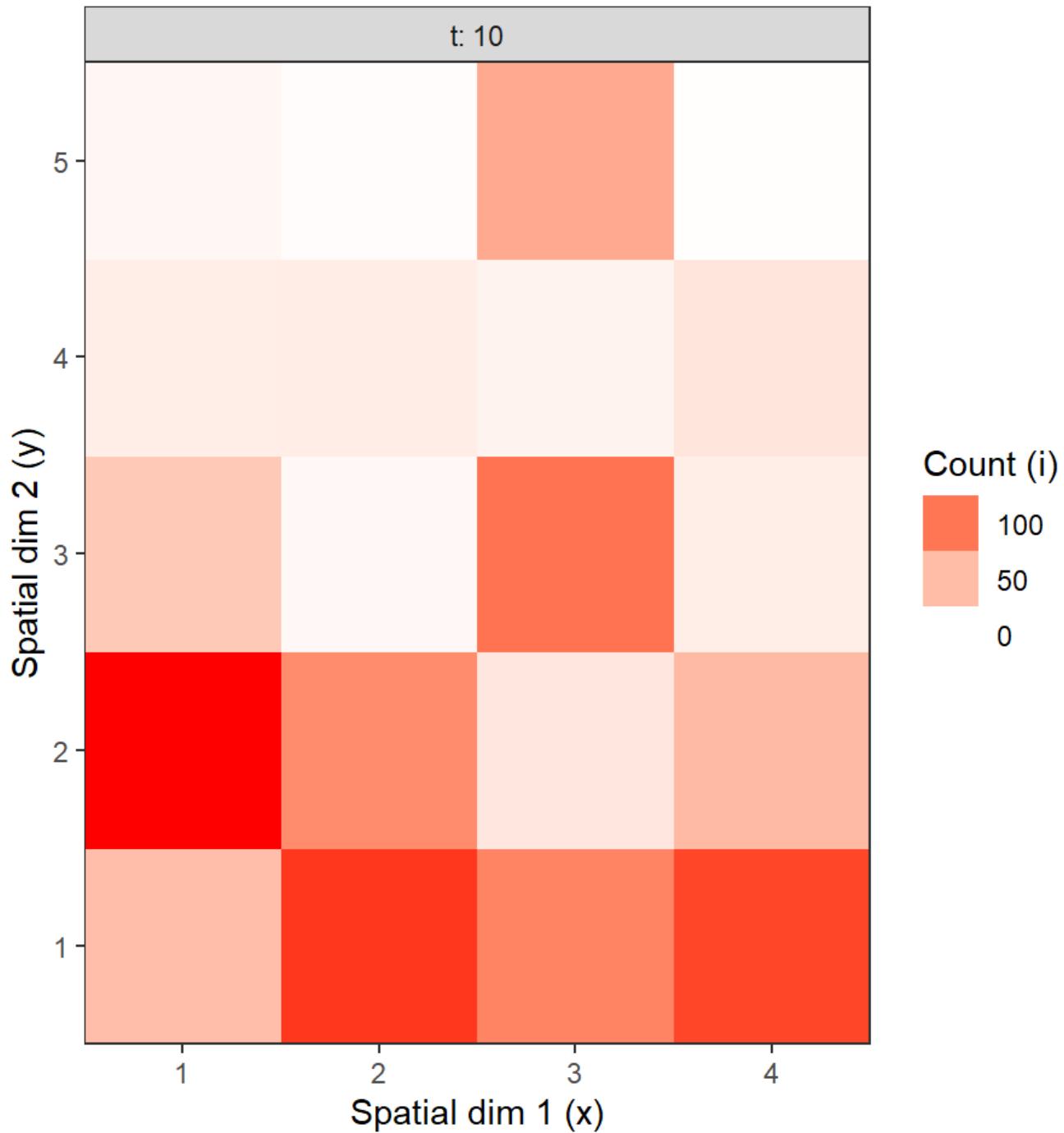


6/19-6/26

Aggregated



8/21-8/28
Aggregated



Insecticide trial – Glenn Co., 10x20ft plots (July 2nd appl.)

	Number of larvae/2 min search					% reduction from pre-trt	# injured panicles/ ft ² 64 DAT
		0 DAT	4 DAT	6 DAT	11 DAT		
Untreated	--						
Intrepid	10 oz						
Prevathon	14 oz						
DiPel	1 lb						

DAT=Days after treatment

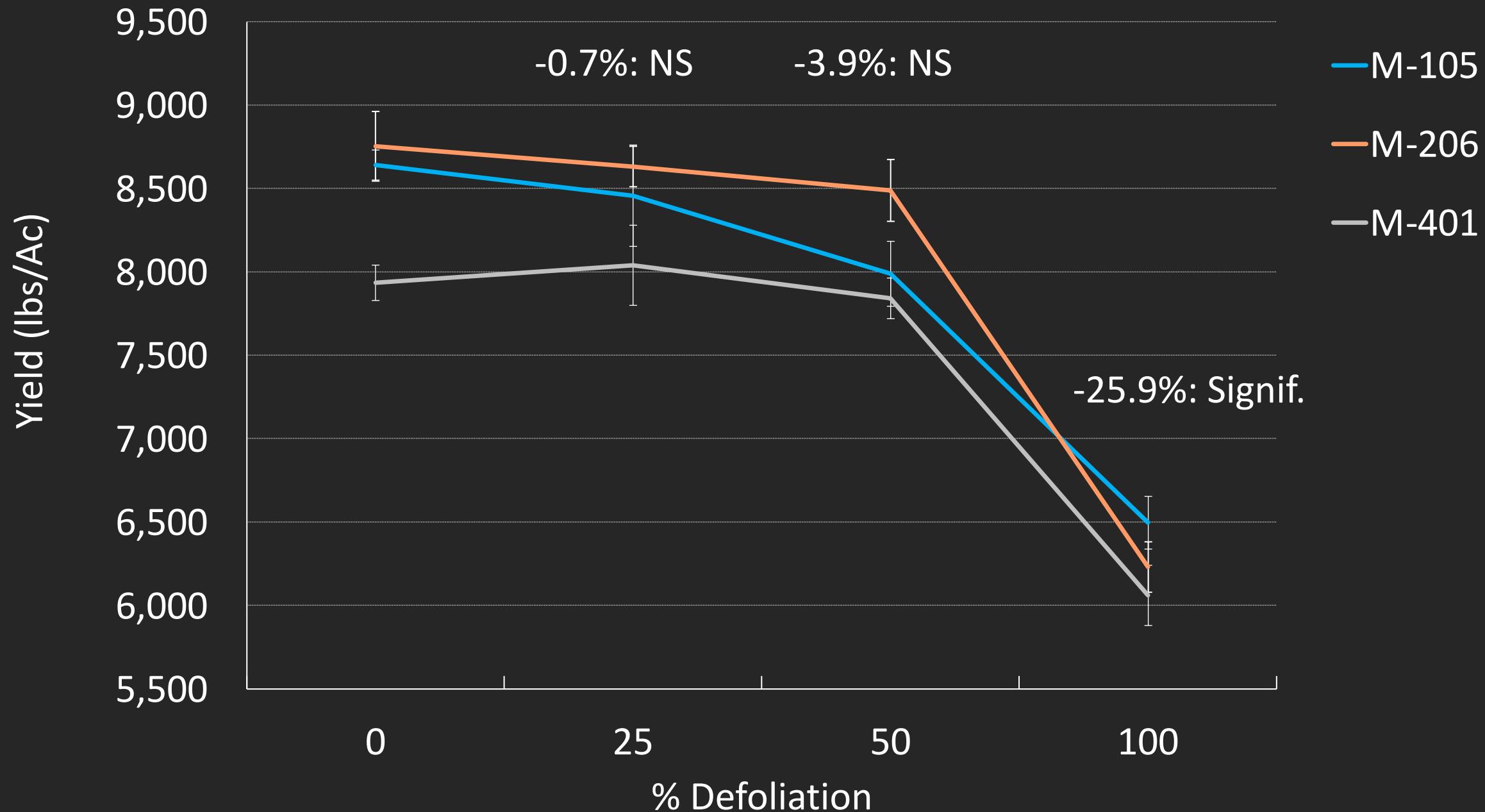
For each DAT, means followed by the same letter are not significantly different (Tukey HSD, P<0.05).



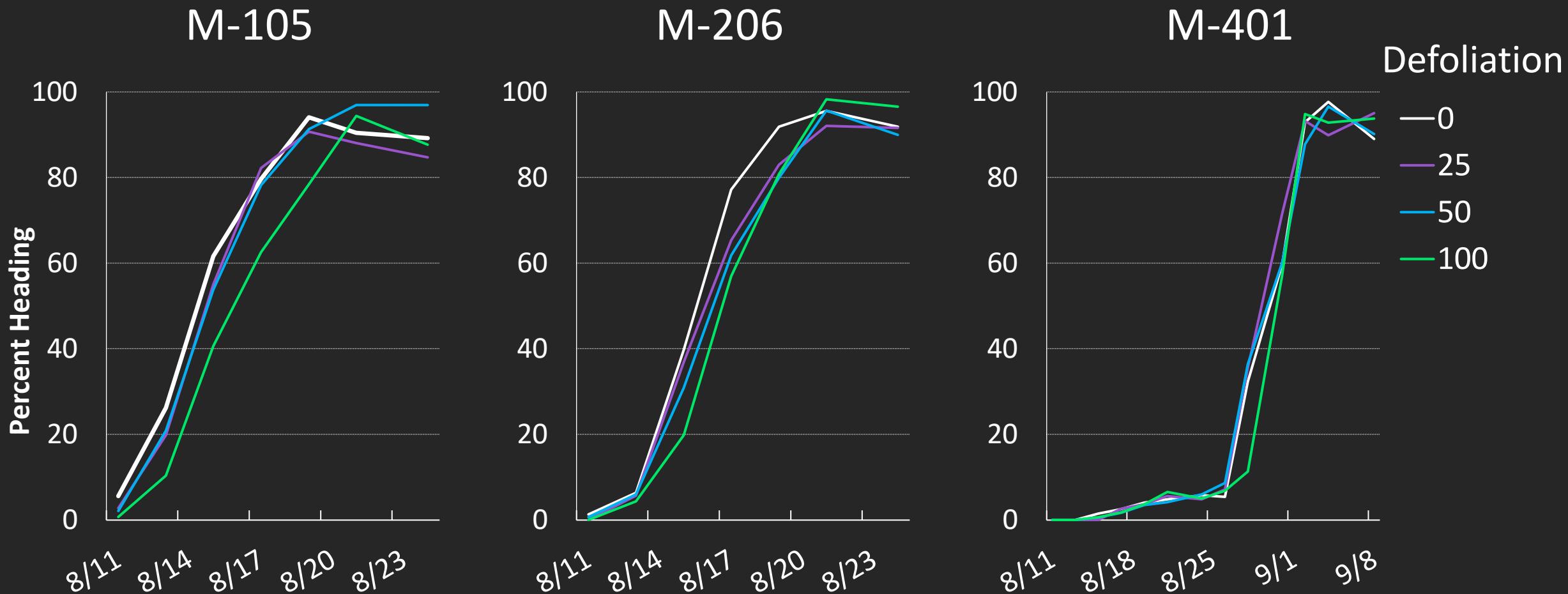
Defoliation trial(s)

- Varieties
 - M-105
 - M-206
 - M-401
- Defoliation treatments
 - No defoliation
 - 25% height above water
 - 50% height
 - 100% height





Percent heading: only a slight delay, for M-105, at 100% defoliation



Acknowledgements

- CA Rice Research Board
- Rice Experiment Station
- Grower/PCA cooperators

