

Efficacy of Contact Insecticides Against *Thrips parvispinus* Under Laboratory Conditions



Alexandra M. Revynthi

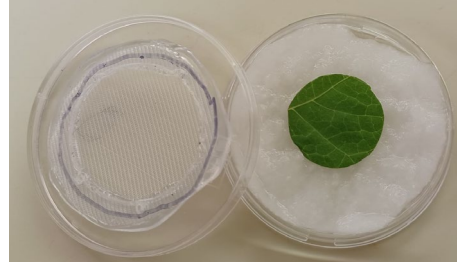
German Vargas, Livia Ataide, Yisell Velazquez-Hernandez, M. Alejandra Canon,
Isamar Reyes, Paola Villamarin & A. Daniel Greene

Tested Contact Insecticides – Group 1

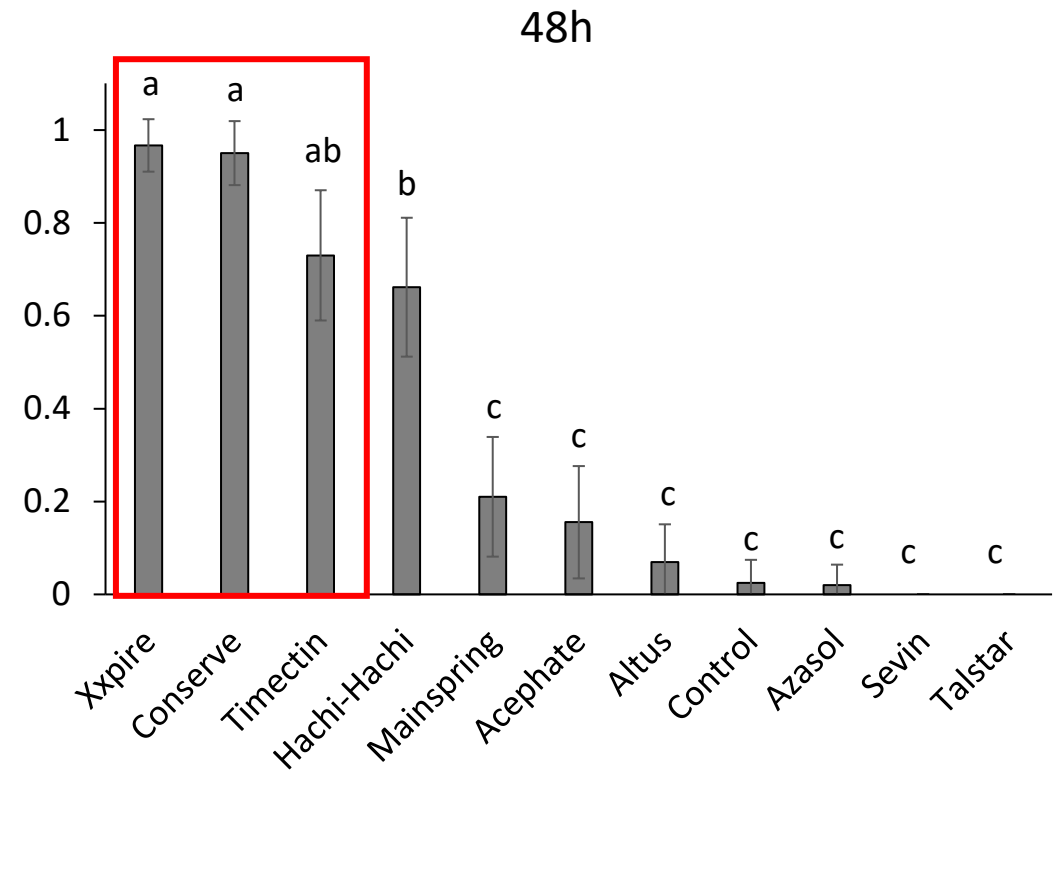
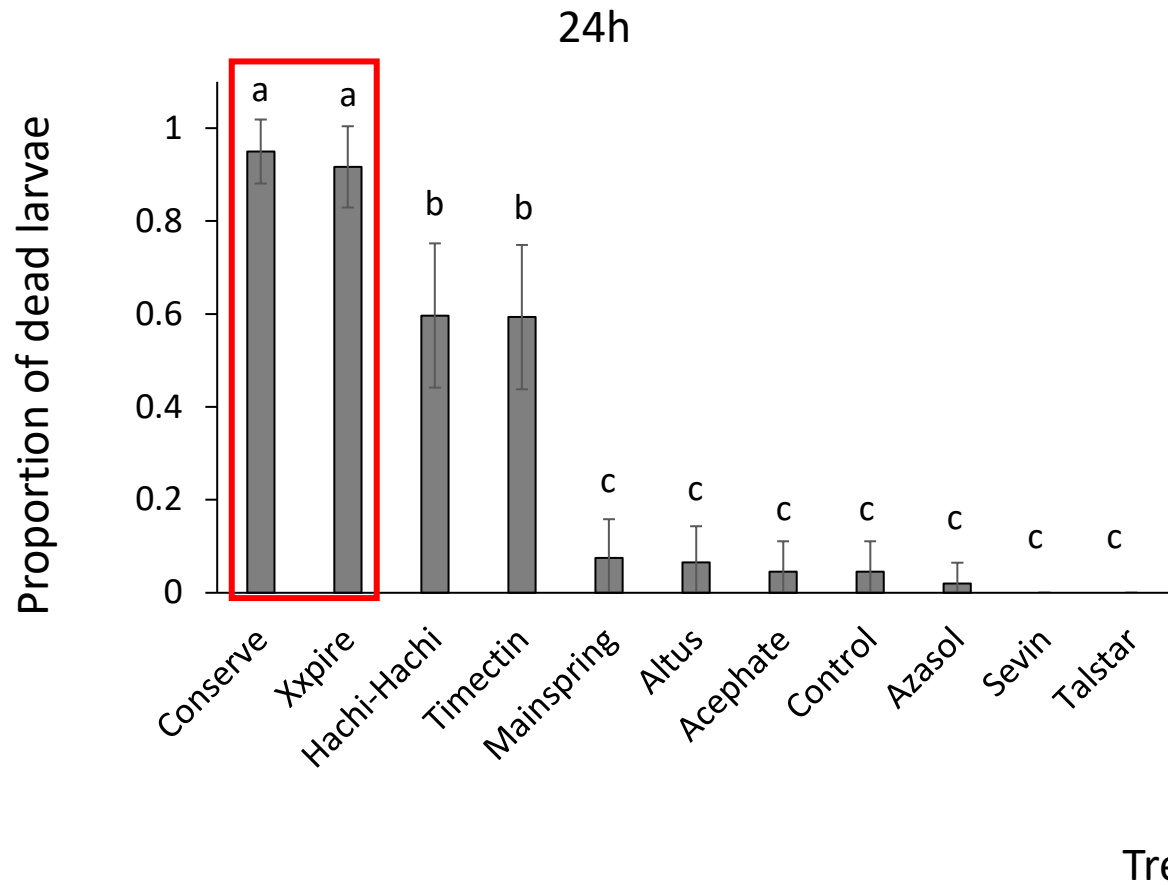
#	Product Name	Active Ingredient	Group	Rate	Site
1	Timectin 0.15 EC	Abamectin	6	8 fl oz/100 gal	S, G, N
2	Acephate 97 UP	Acephate	1B	8 oz/ 100 gal	G, N, L
3	Talstar Nursery Flowable	Bifenthrin	3A	21.7 fl oz/ 100 gal	G, N, L
4	Sevin SL	Carbaryl	1A	1 qt/ 100 gal	G, N, L
5	Conserve SC	Spinosad	5	0.1 fl oz/ 1 gal	G, N, L
6	Hachi-Hachi	Tolfenpyrad	21A	27 fl oz/ 100 gal	G, N, S
7	Mainspring GNL	Cyantraniliprole	28	8 fl oz/ 100 gal	G, N, I, L
8	Azasol	Azadirachtin	Unknown	6 oz/ 50 gal	G, N, I, L
9	Xxpire	Sufloxaflo-Spinetoram	4C-5	2.75 oz/ 100 gal	G, N, L not residential use
10	Altus	Flupyradifurone	4D	14 fl oz/ 100 gal	G, N, L not residential use

Direct spray on *Thrips parvispinus*

1. Bean leaf discs 24mm diameter
2. Five L1, L2 or adults
3. Treatment application → Potter Tower
4. Mortality at 24h and 48h post treatment
5. Feeding damage at 48h → Image J



First-instar Larval Mortality (Direct)



GLMM, $P < 0.05$

Feeding Damage - First-instar Larvae (Direct)



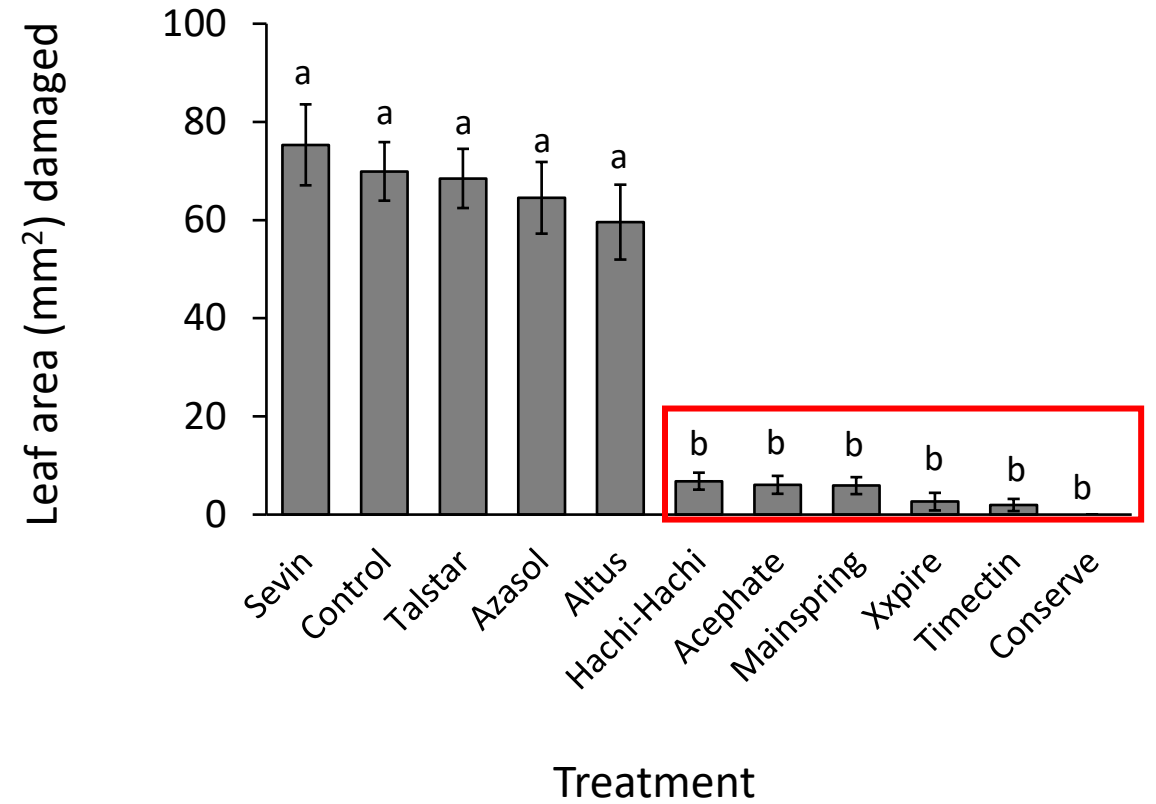
Control



Sevin



Conserve

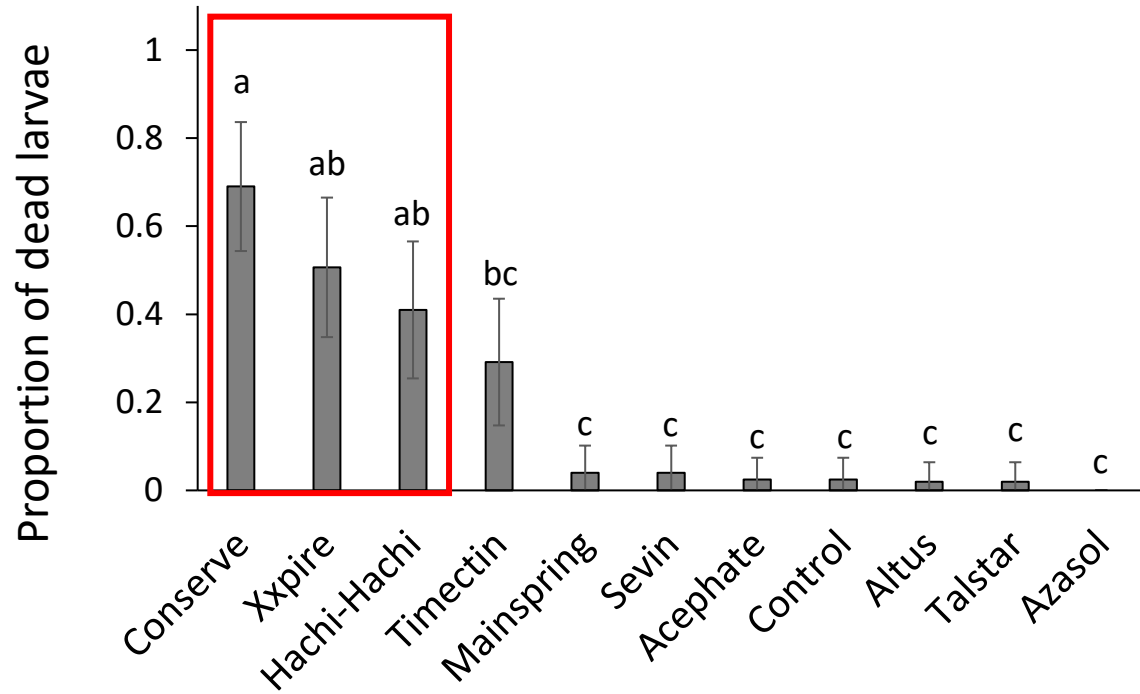


GLM, P<0.05

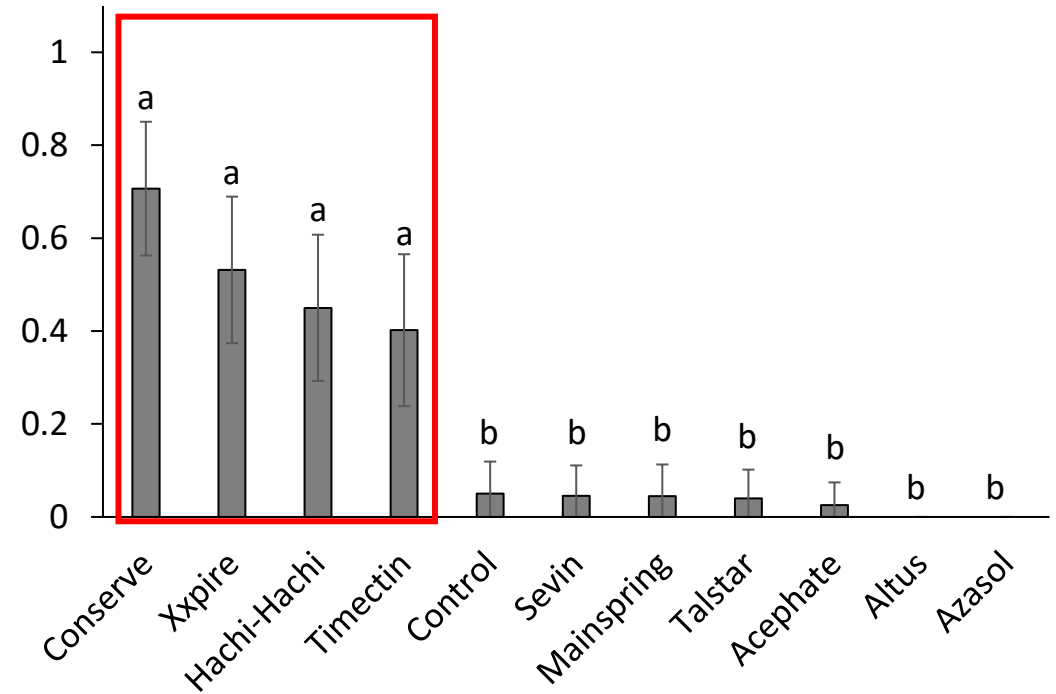
Second-instar Larval Mortality (Direct)



24h



48h



Treatment

GLMM, P<0.05

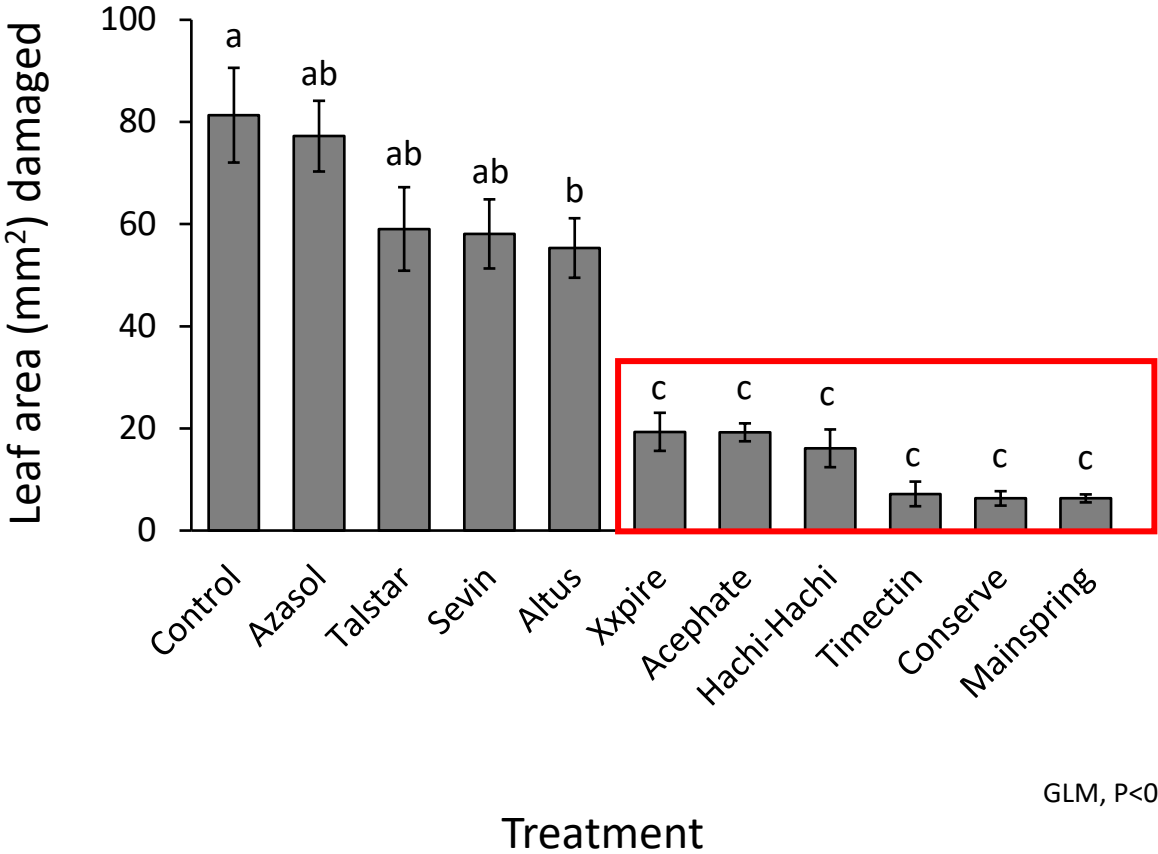
Feeding Damage - Second-instar Larvae (Direct)



Control

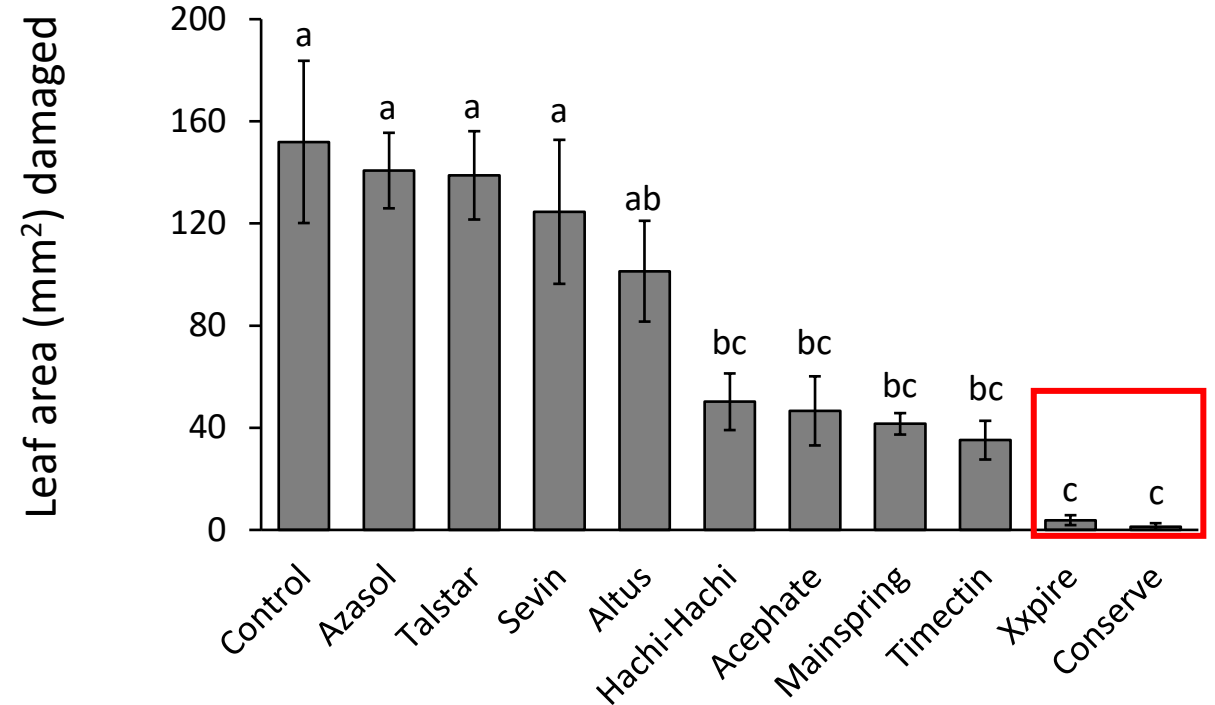
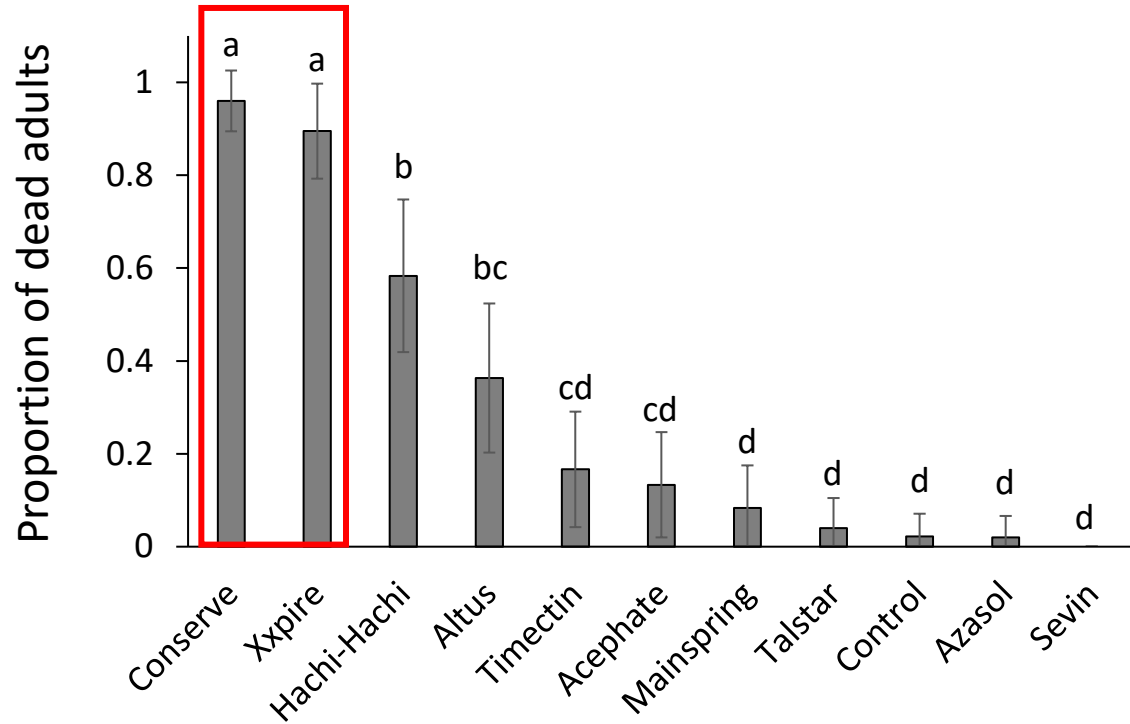


Mainspring



GLM, P<0.05

Adult Mortality & Feeding Damage (Direct)



Treatment

GLM, P<0.05

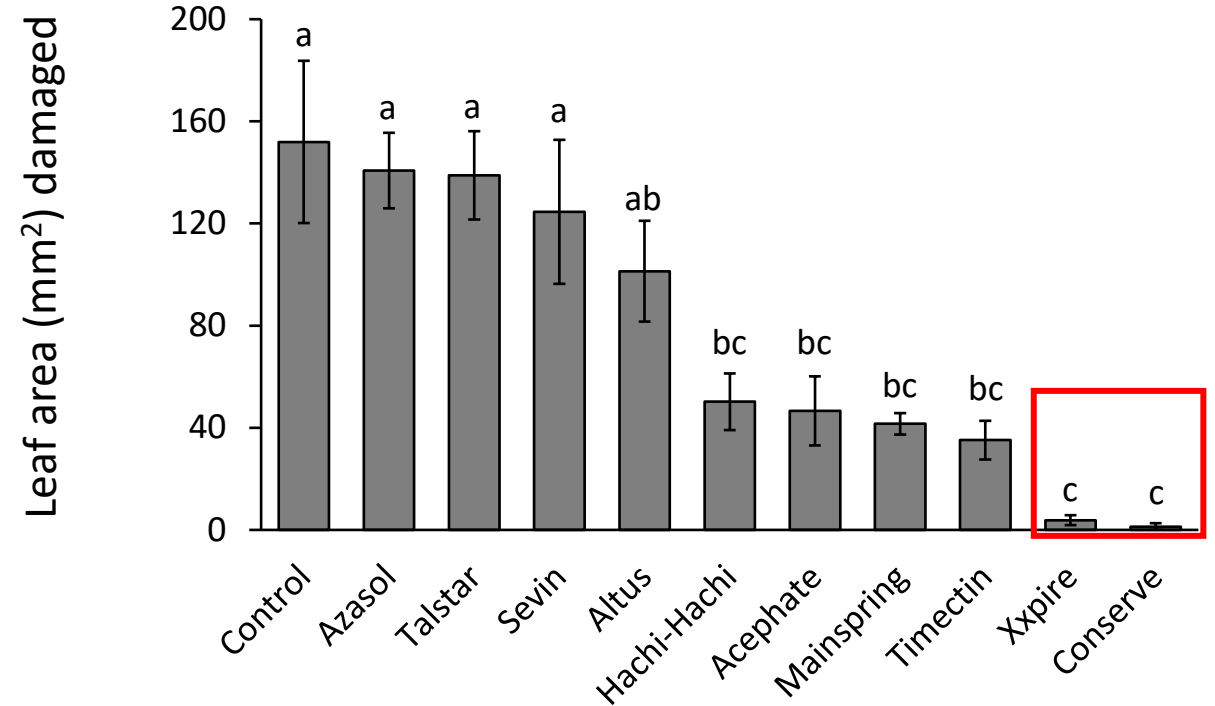
Adult Mortality & Feeding Damage (Direct)



Control



Conserve

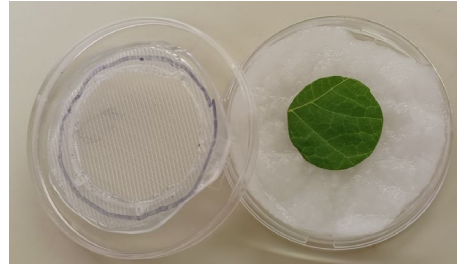


Treatment

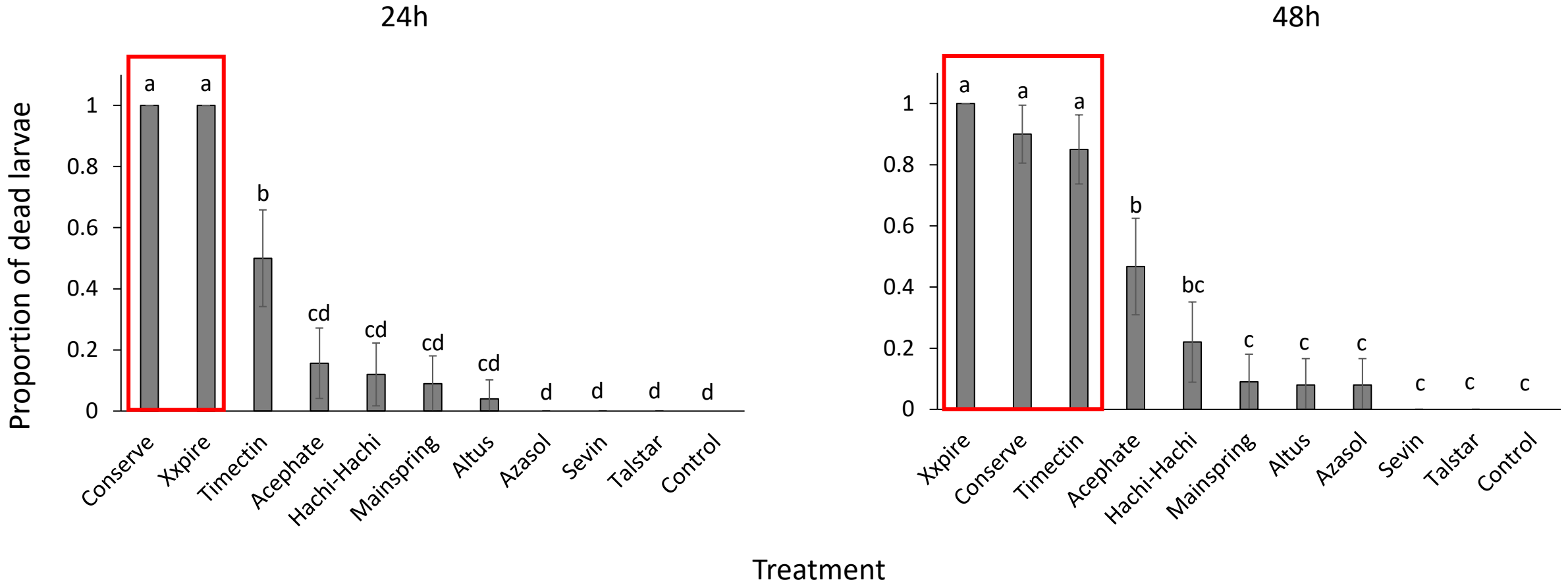
GLM, P<0.05

Spray on Plants – Indirect Spray

1. Treatment application → bean plants
2. Bean leaf discs 24mm diameter
3. Five L1, L2 or adults
4. Mortality at 24h and 48h post treatment
5. Feeding damage at 48h → Image J



First-instar Larval Mortality (Indirect)



GLMM, P<0.05

Feeding Damage - First-instar Larvae (Indirect)



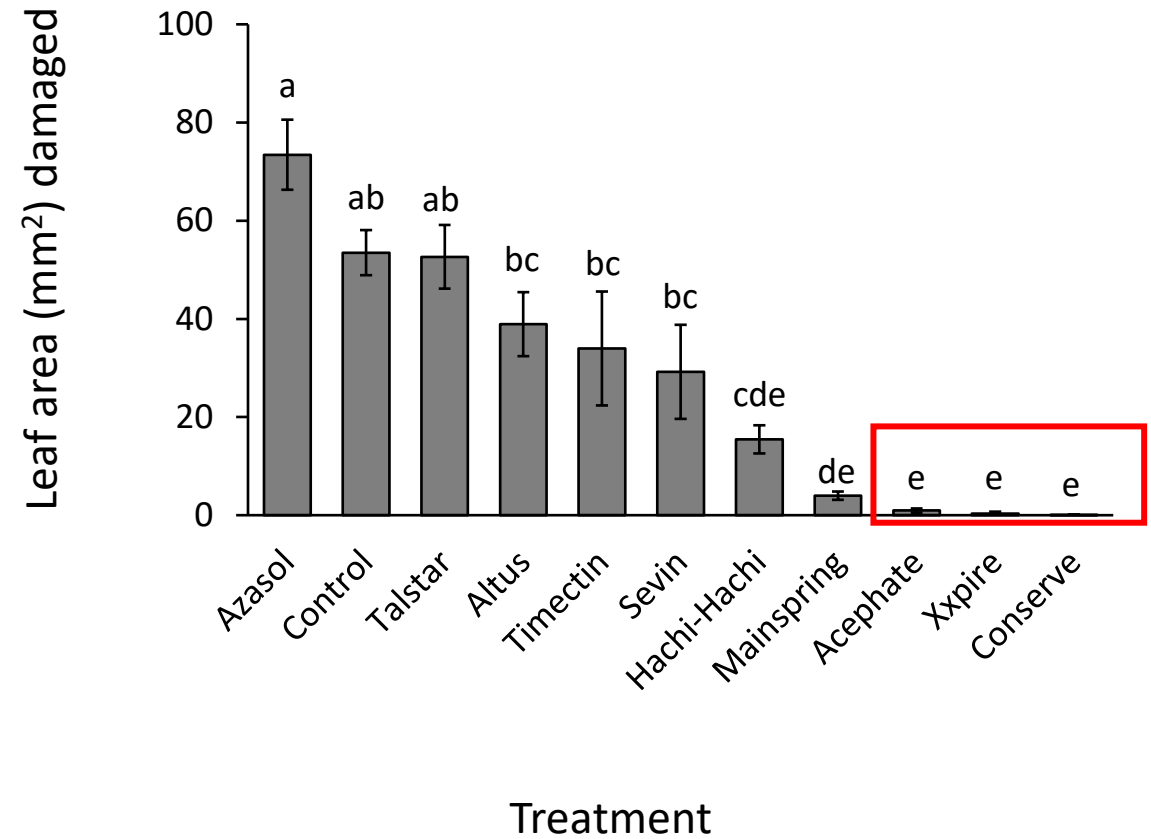
Azasol



Control

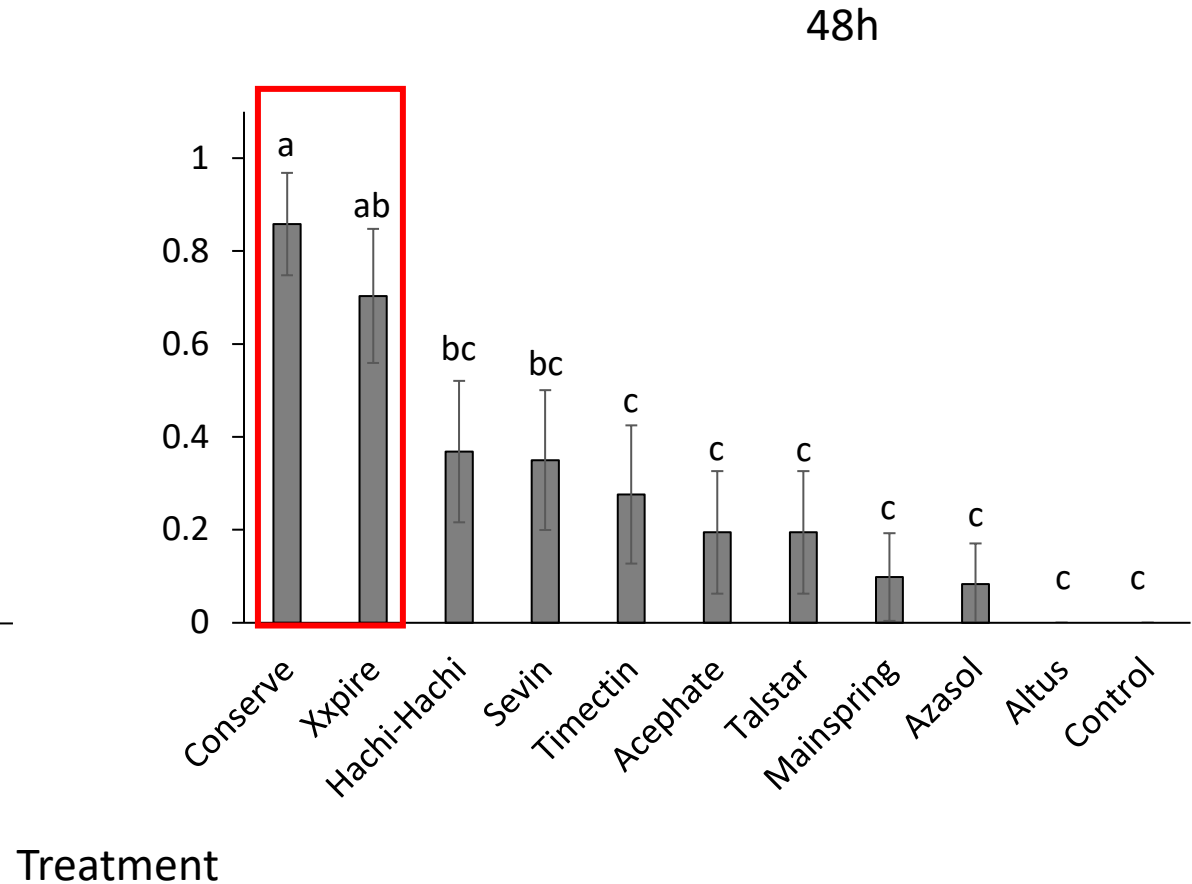
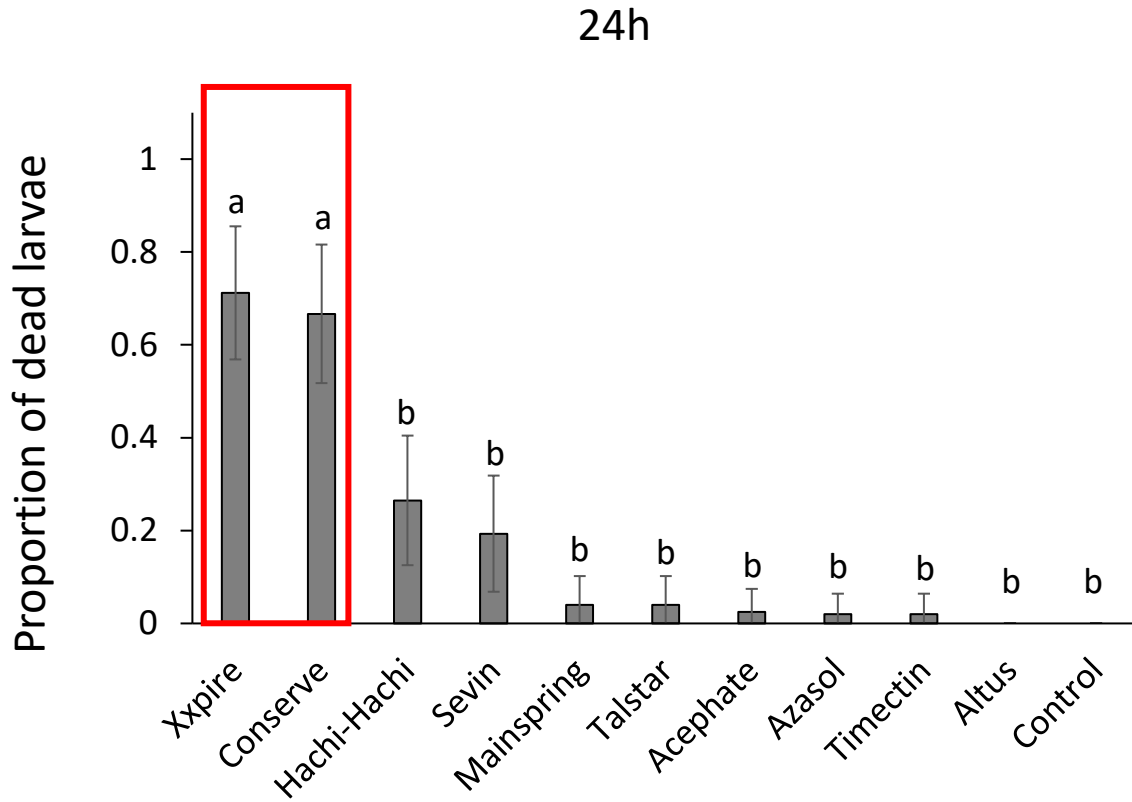


Conserve



GLM, P<0.05

Second-instar Larval Mortality (Indirect)



GLMM, P<0.05

Feeding Damage - Second-instar Larvae (Indirect)



Talstar

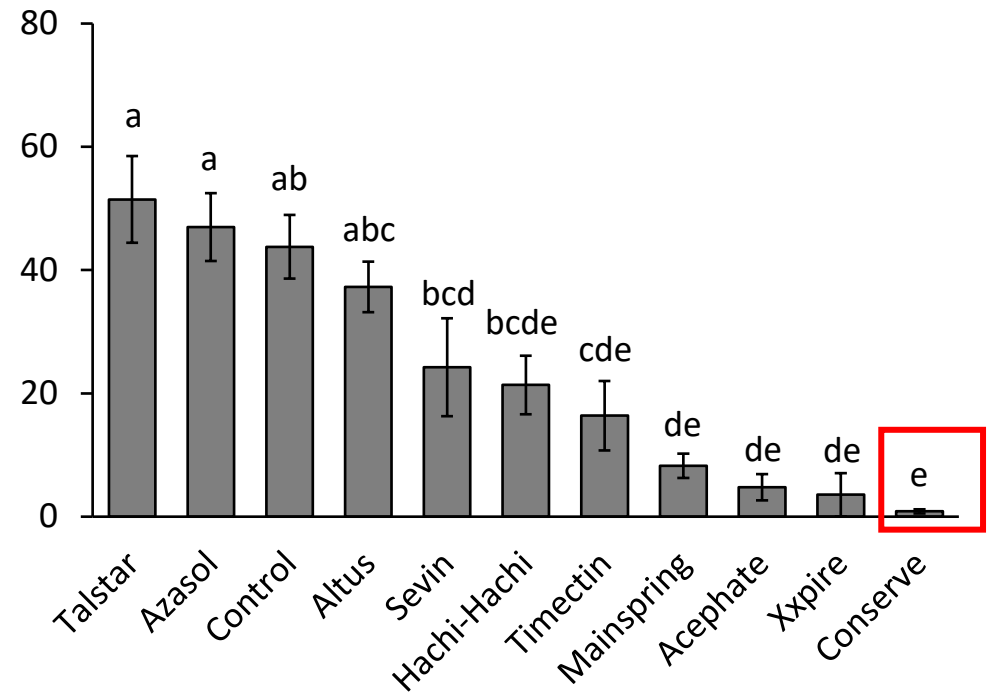


Control



Conserve

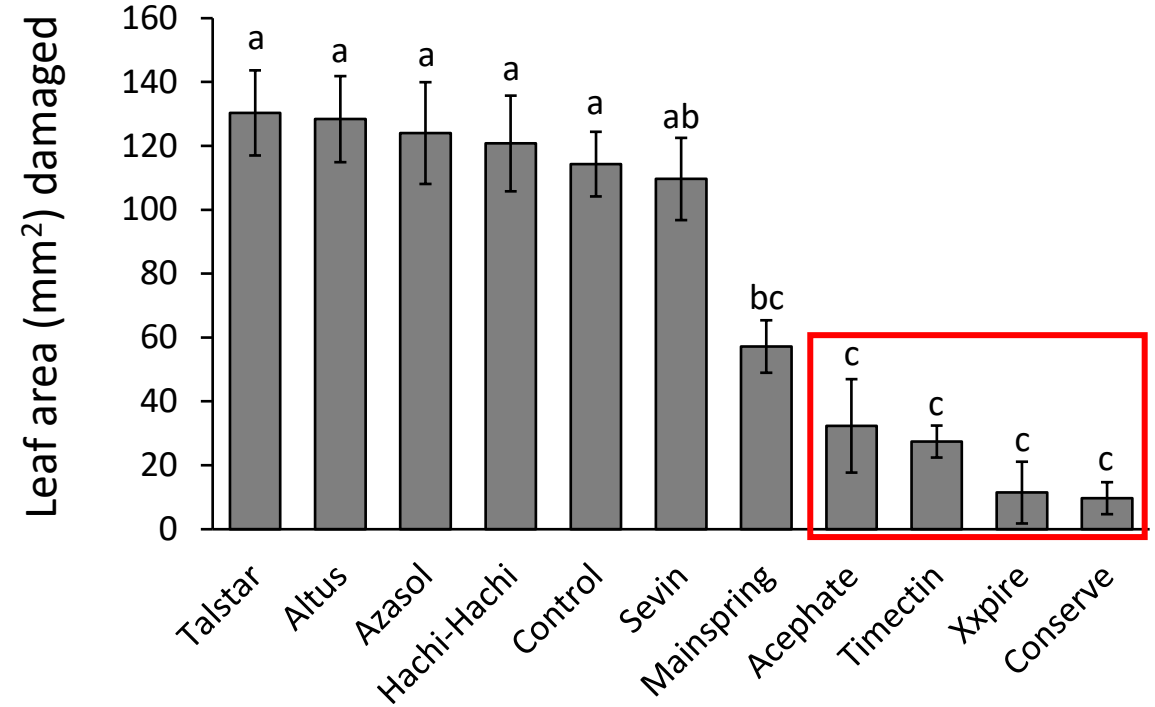
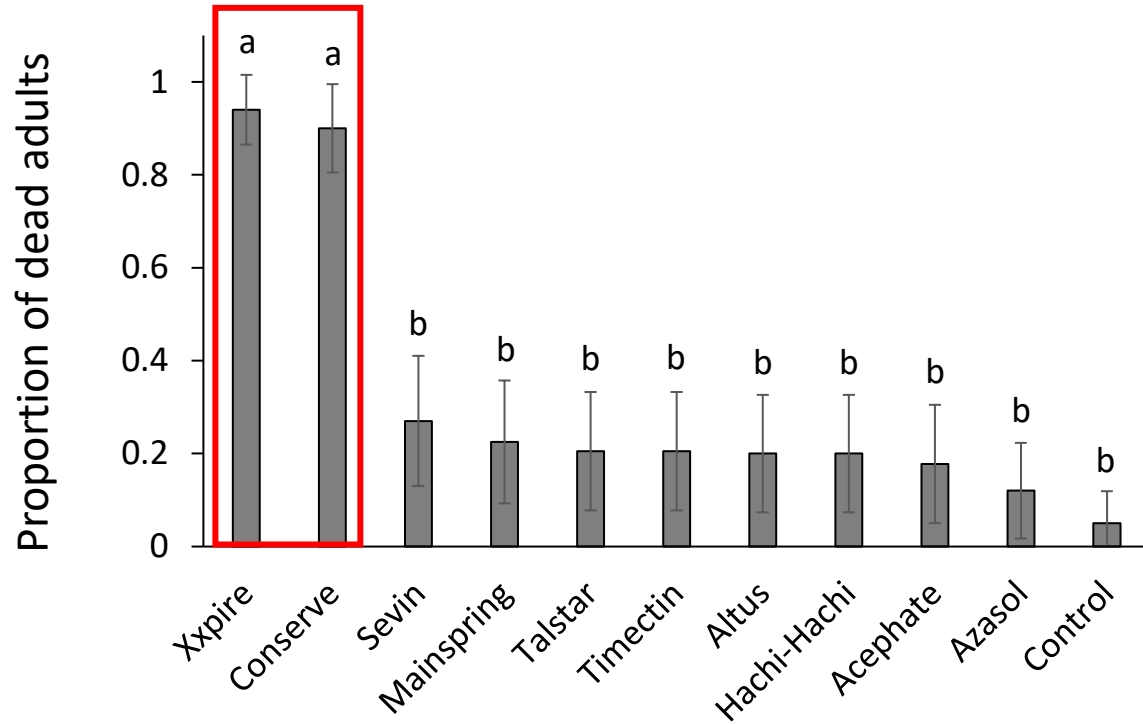
Leaf area (mm²) damaged



Treatment

GLM, P<0.05

Adult Mortality & Feeding Damage (Indirect)



GLMM, P<0.05

Treatment

GLM, P<0.05

Adult Mortality & Feeding Damage (Indirect)



Talstar

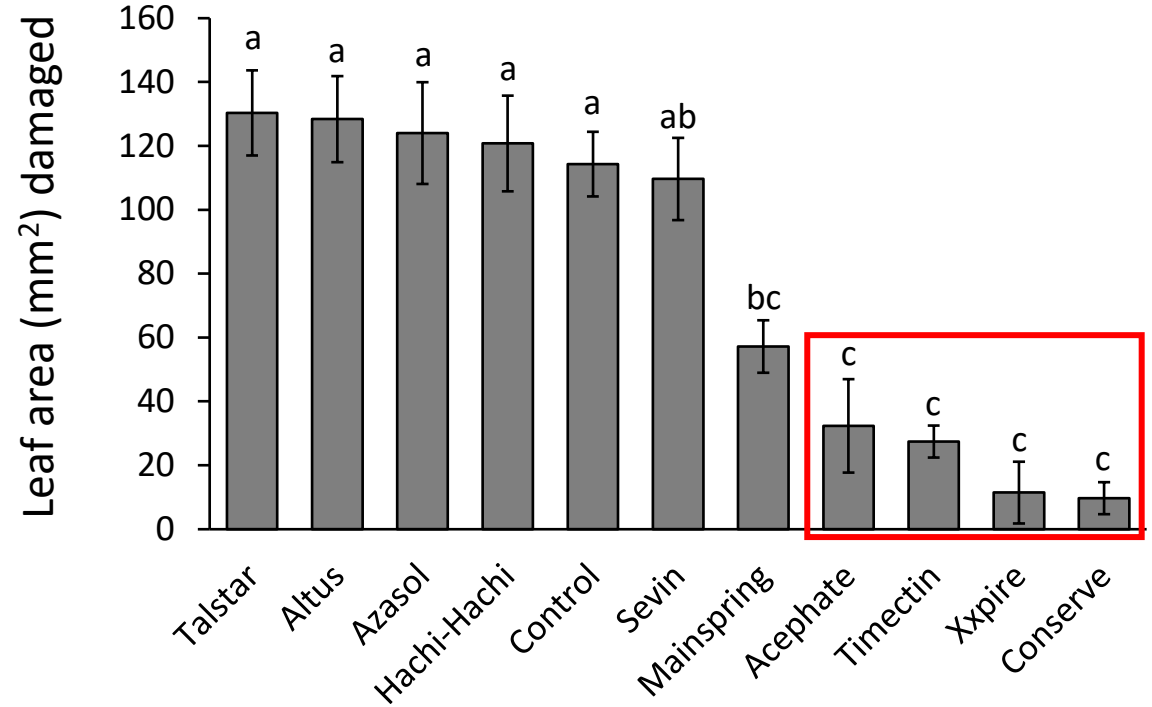


Control



Conserve

GLMM, $P < 0.05$



Treatment

GLM, $P < 0.05$

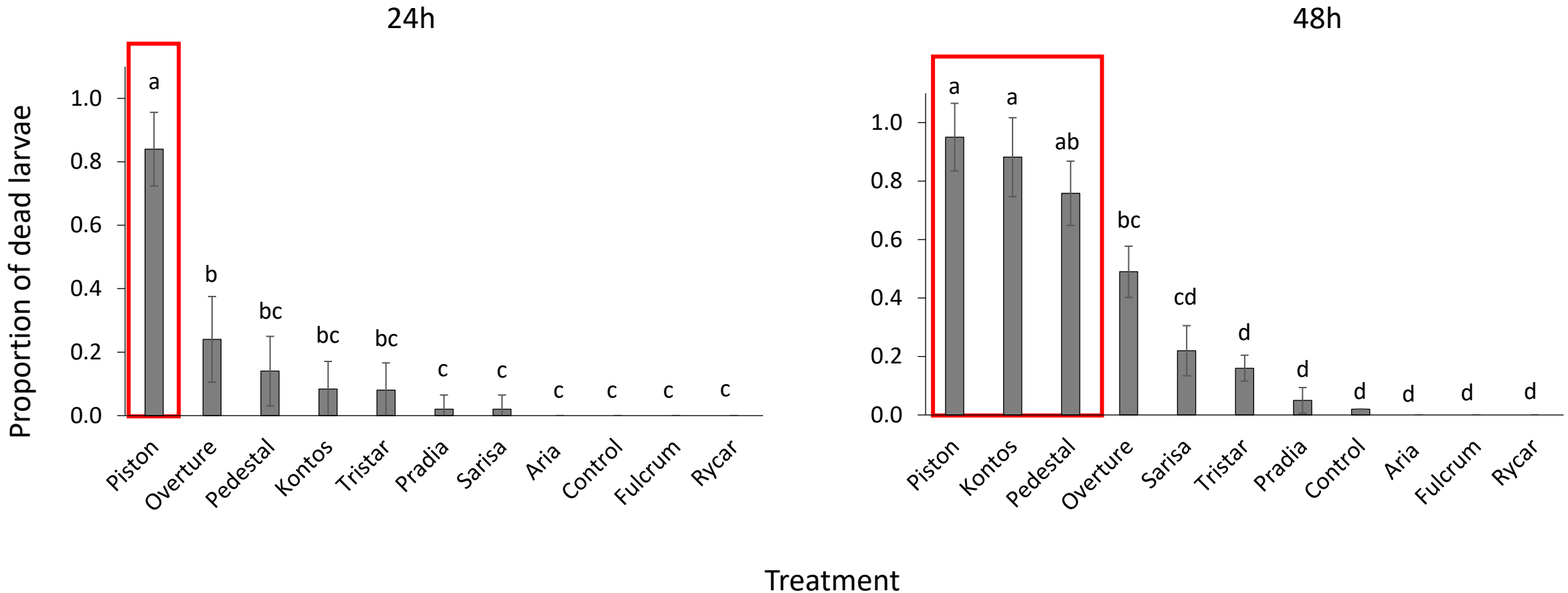
Tested Contact Insecticides – Group 2

#	Product Name	Active Ingredient	Group	Rate	Site
1	Rycar	Pyrifluquinazon	9B	3.2 fl oz/100 gal	G
2	Kontos	Spirotetramat	23	3.4 fl oz/ 100 gal	G, N, I
3	Sarisa	Cyclaniliprole	28	27 fl oz/ 100 gal	G, N, S
4	Pradia	Cyclaniliprole-Flonicamid	28-29	17.5 fl oz/ 100 gal	G, N, S
5	Fulcrum	Pyriproxyfen	7C	12 fl oz/ 1 gal	G, N, L, S*
6	Tristar	Acetamiprid	4A	25.3 fl oz/ 100 gal	G, N, S, L
7	Aria	Flonicamid	29	2.9 oz/ 100 gal	G, N, L
8	Pedestal	Novaluron	15	8 fl oz/ 50 gal	G, N, S
9	Piston	Chlorfenapyr	13	10 fl oz/ 100 gal	G
10	Overture	Pyridalyl	Unclassified	8 oz/ 100 gal	G

S: shadehouse, G: greenhouse, N: nursery, L: landscape, I: interior

* Not for Gardenia and Schefflera

First-instar Larval Mortality (Indirect)



GLM, $P < 0.05$

Feeding Damage - First-instar Larvae (Indirect)



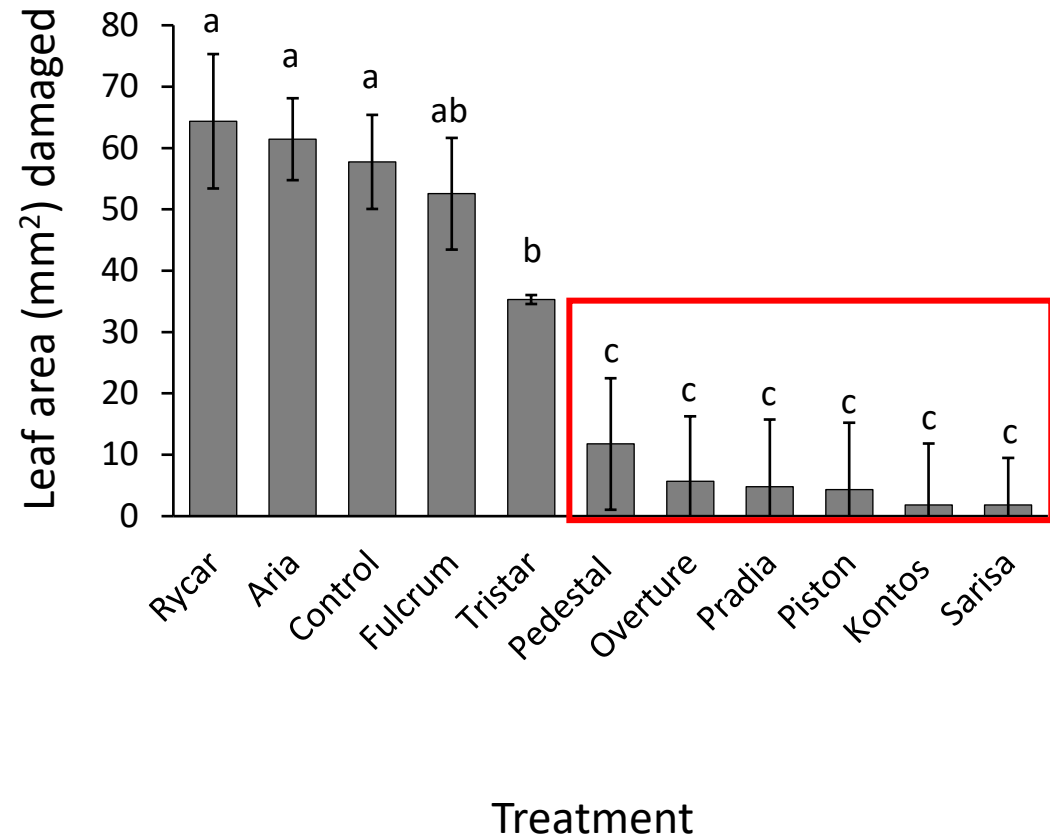
Sarisa



Kontos

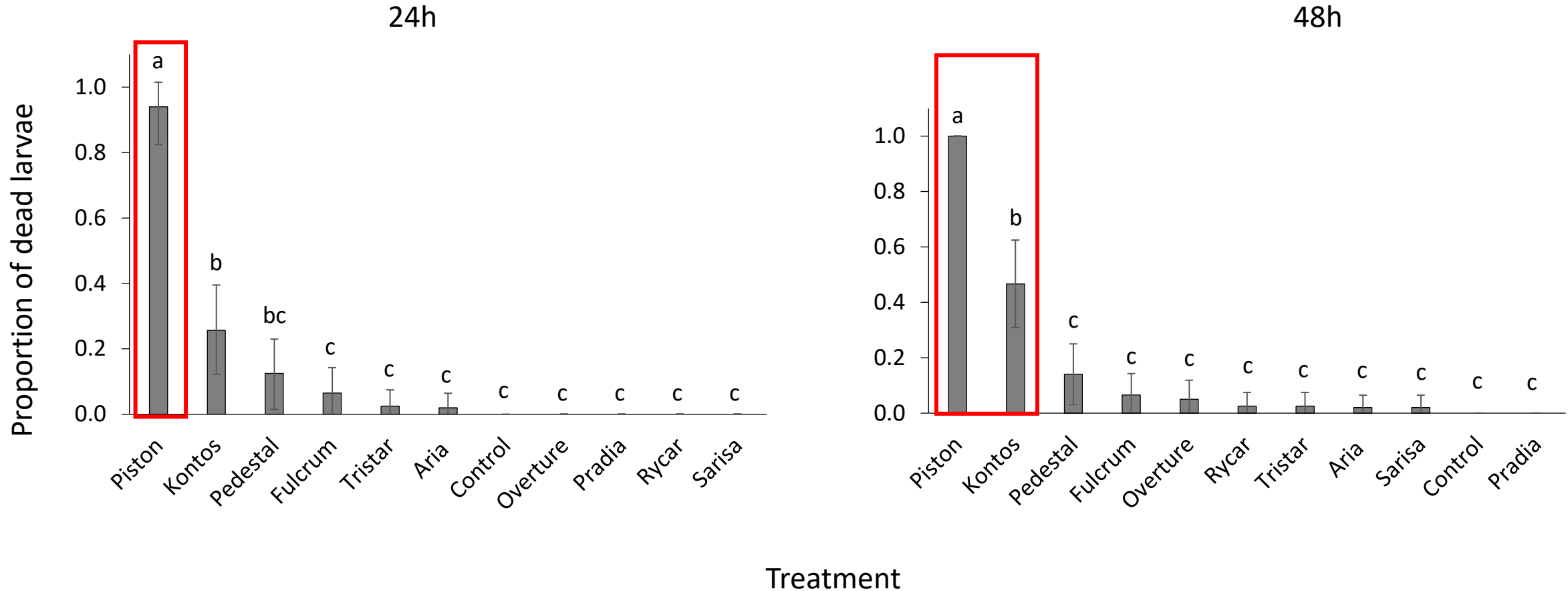


Control



GLM, P<0.05

Second-instar Larval Mortality (Indirect)



GLMM, $P < 0.05$

Feeding Damage - Second-instar Larvae (Indirect)



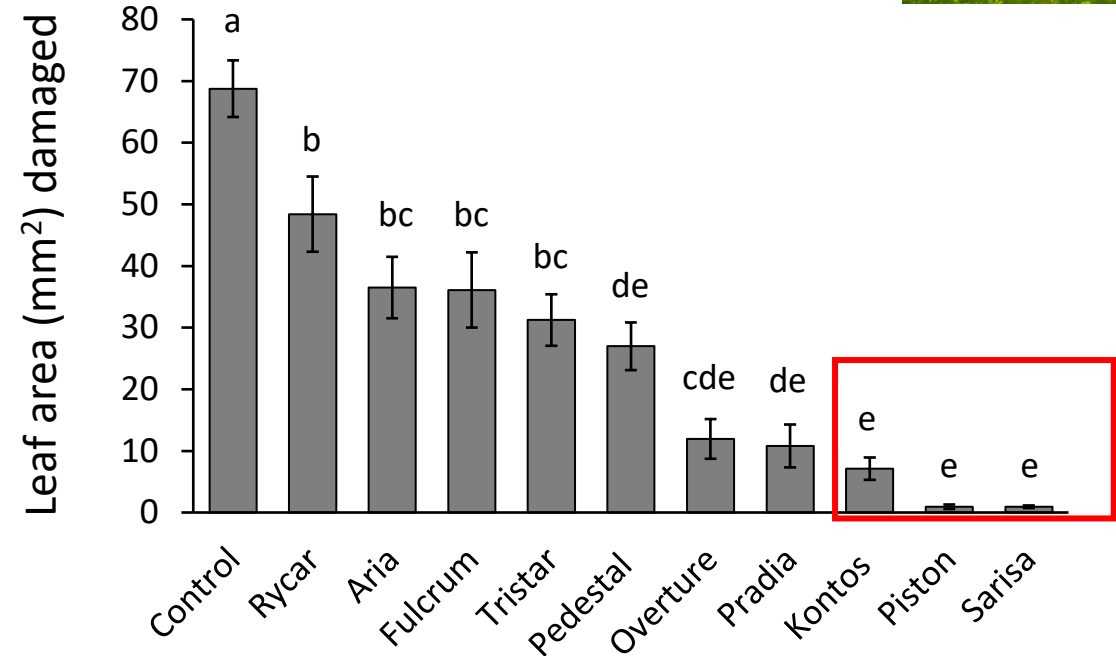
Piston



Sarisa



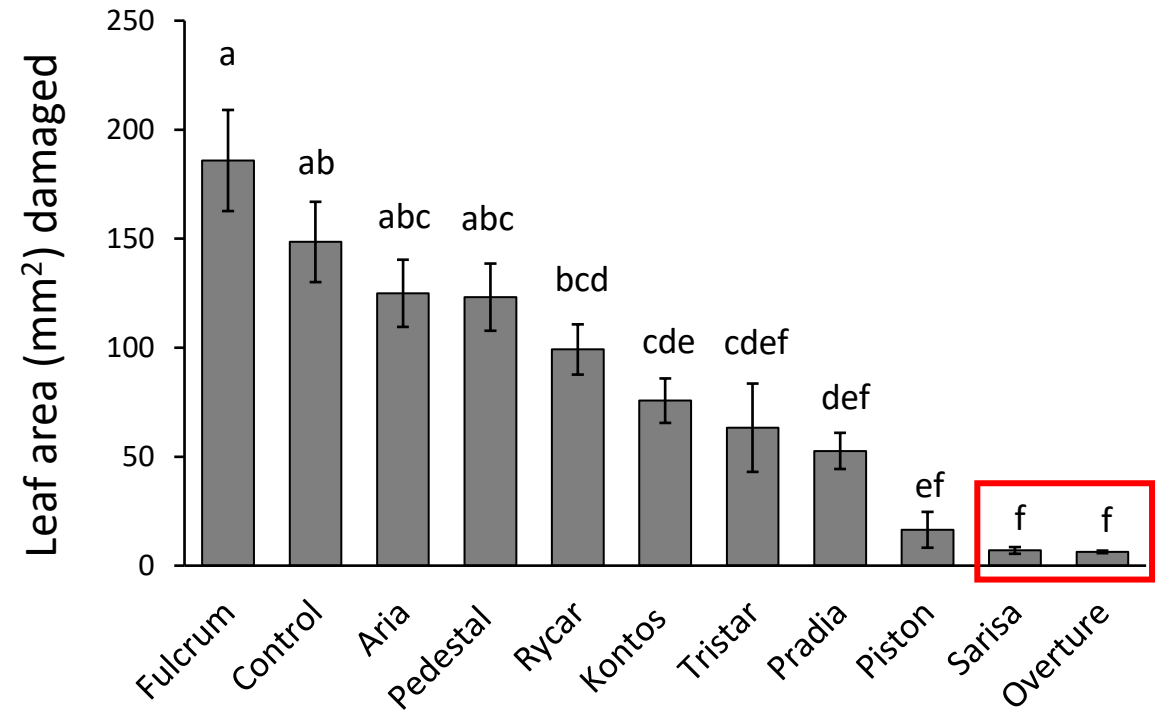
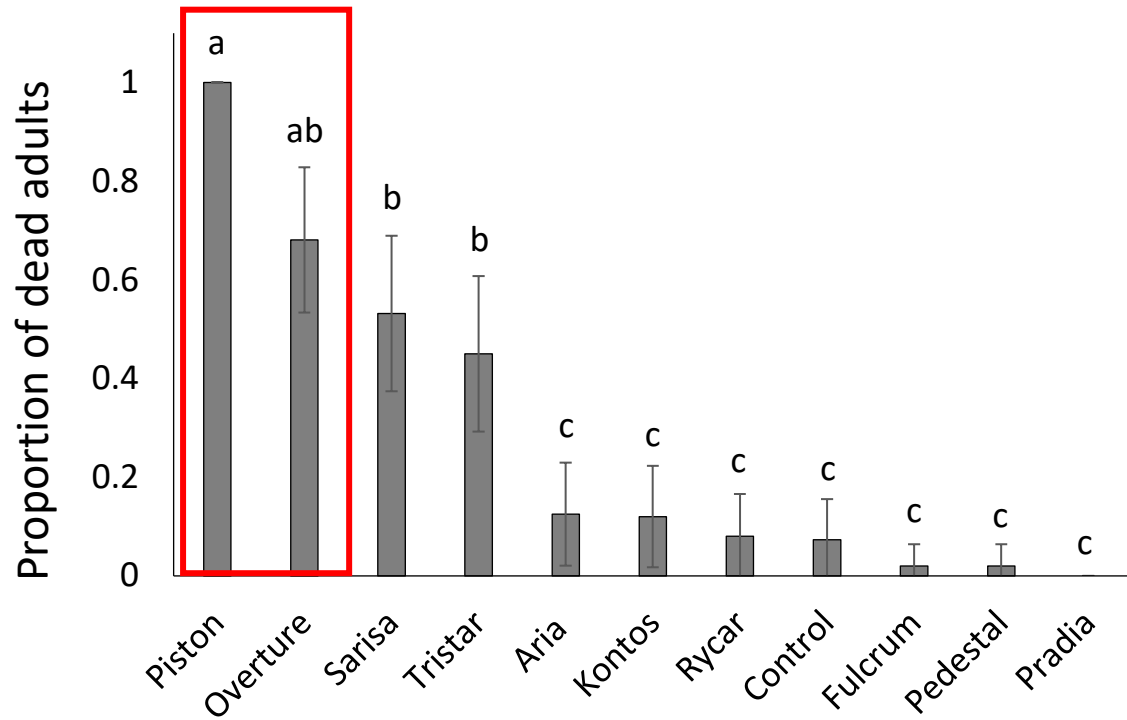
Control



Treatment

GLM, P<0.05

Adult Mortality & Feeding Damage (Indirect)



Treatment

GLM, P<0.05

Adult Mortality & Feeding Damage (Indirect)



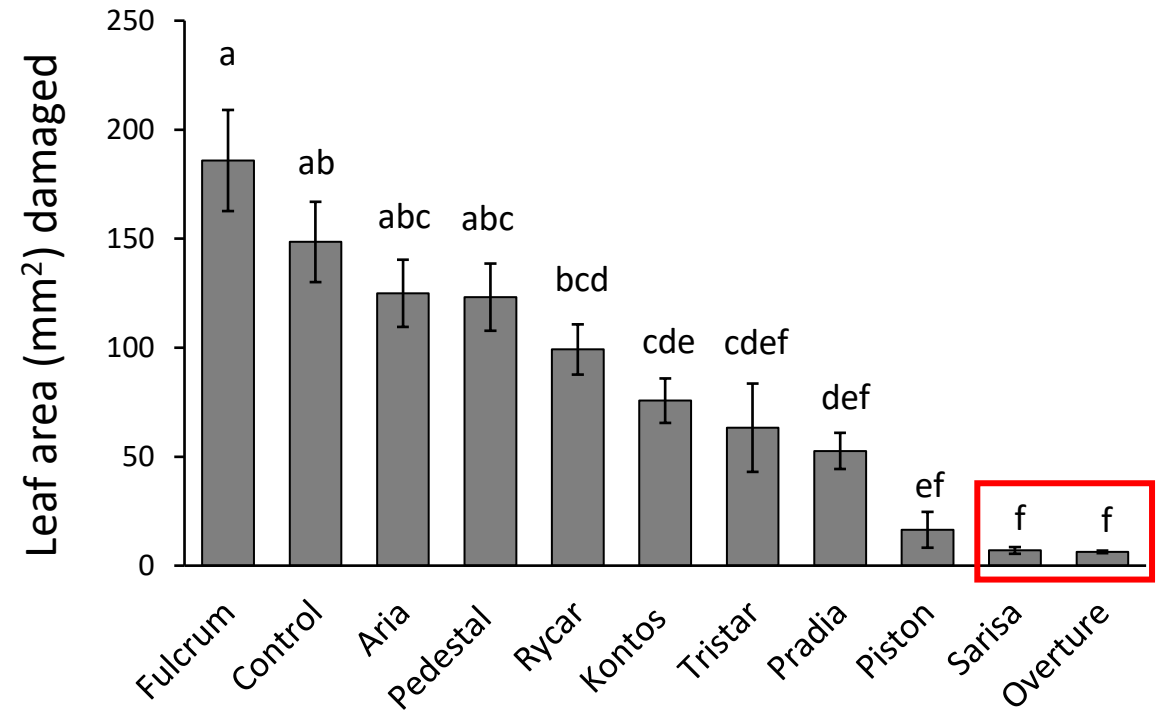
Sarisa



Overture



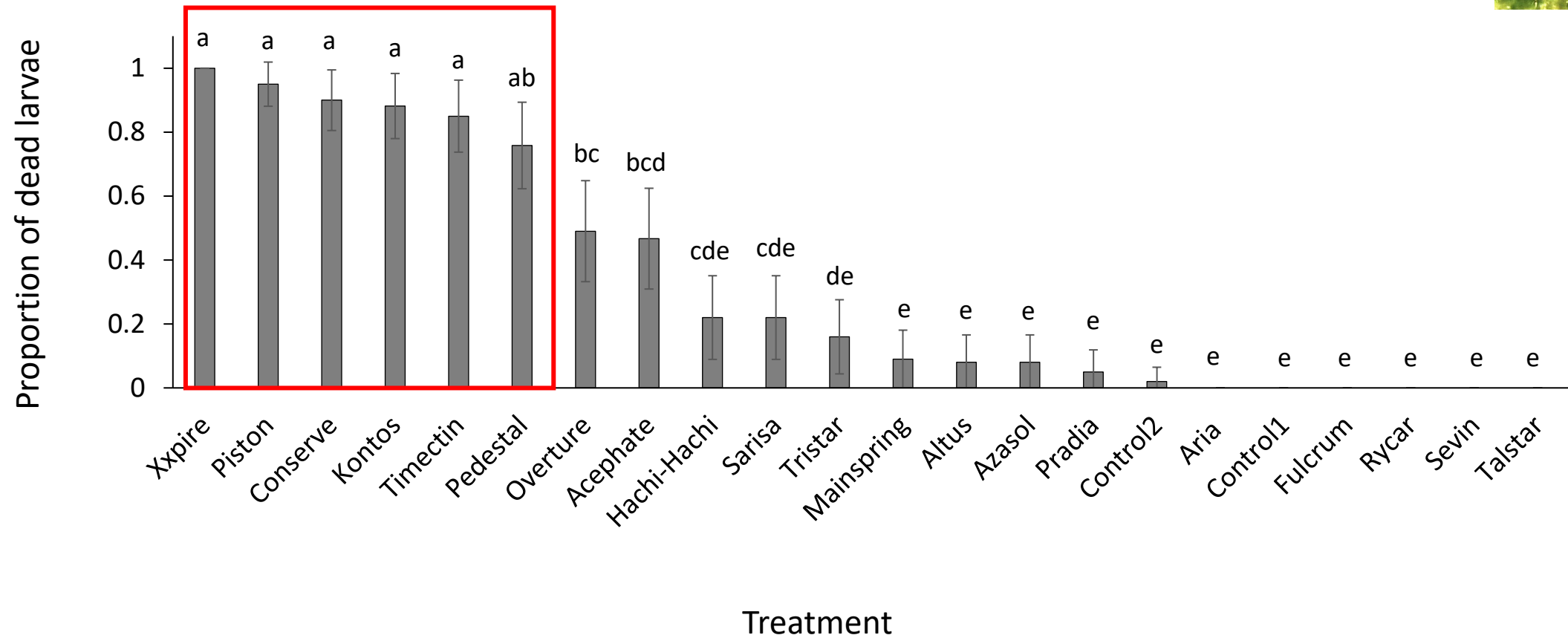
Control



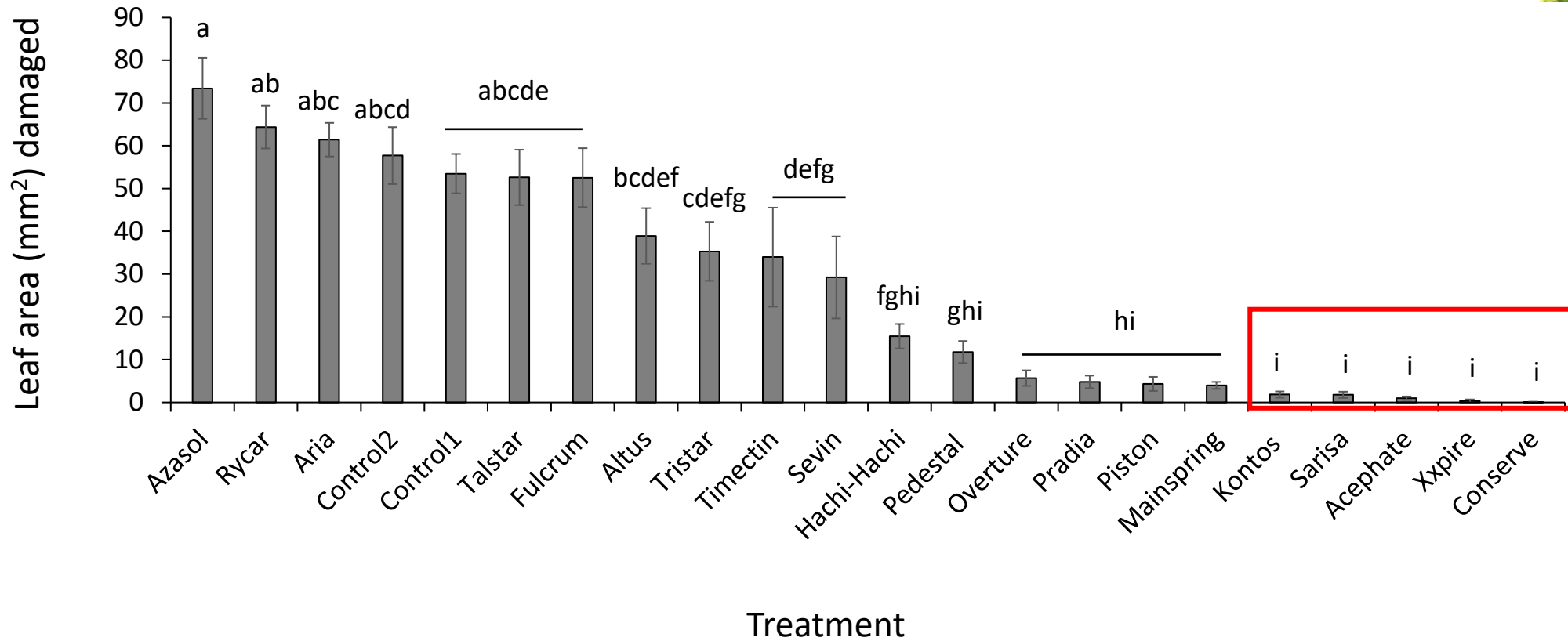
Treatment

GLM, P<0.05

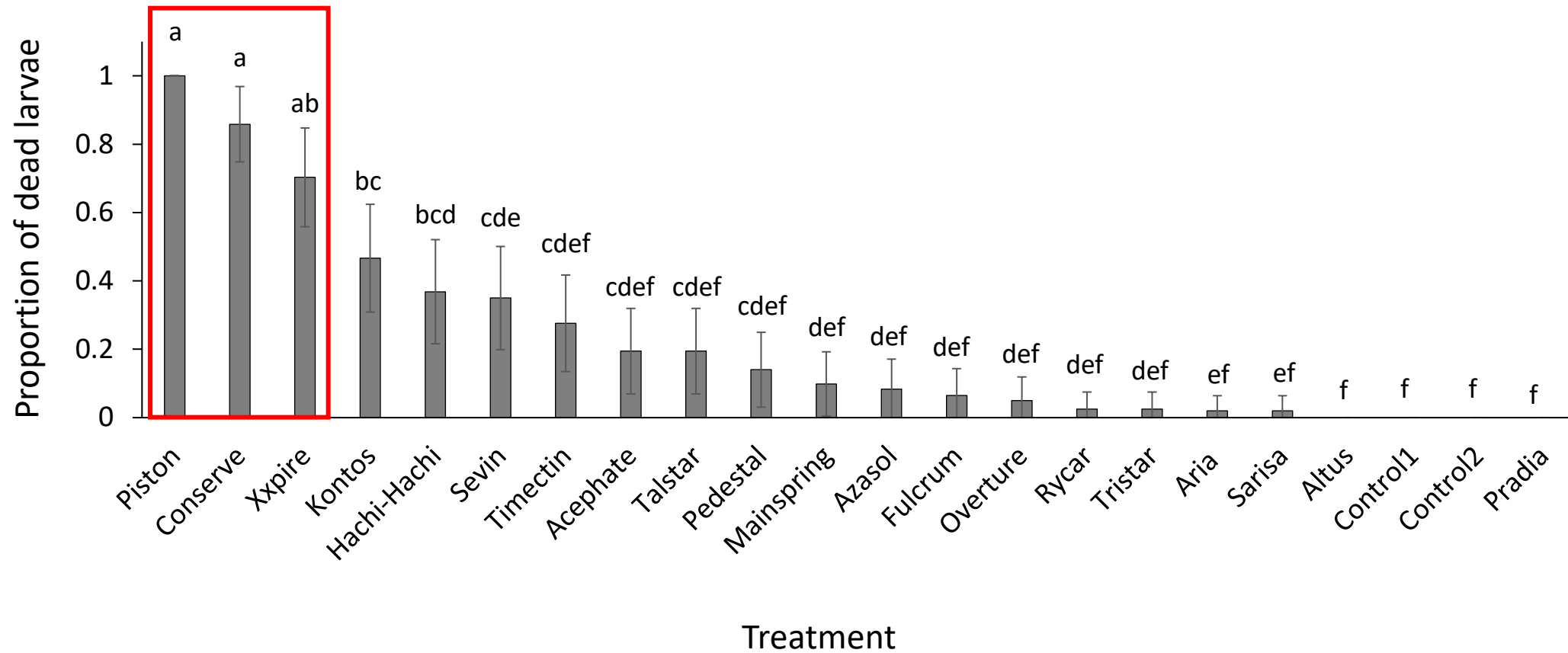
Overall Mortality – Comparison Groups 1 & 2 First-instar Larvae (Indirect)



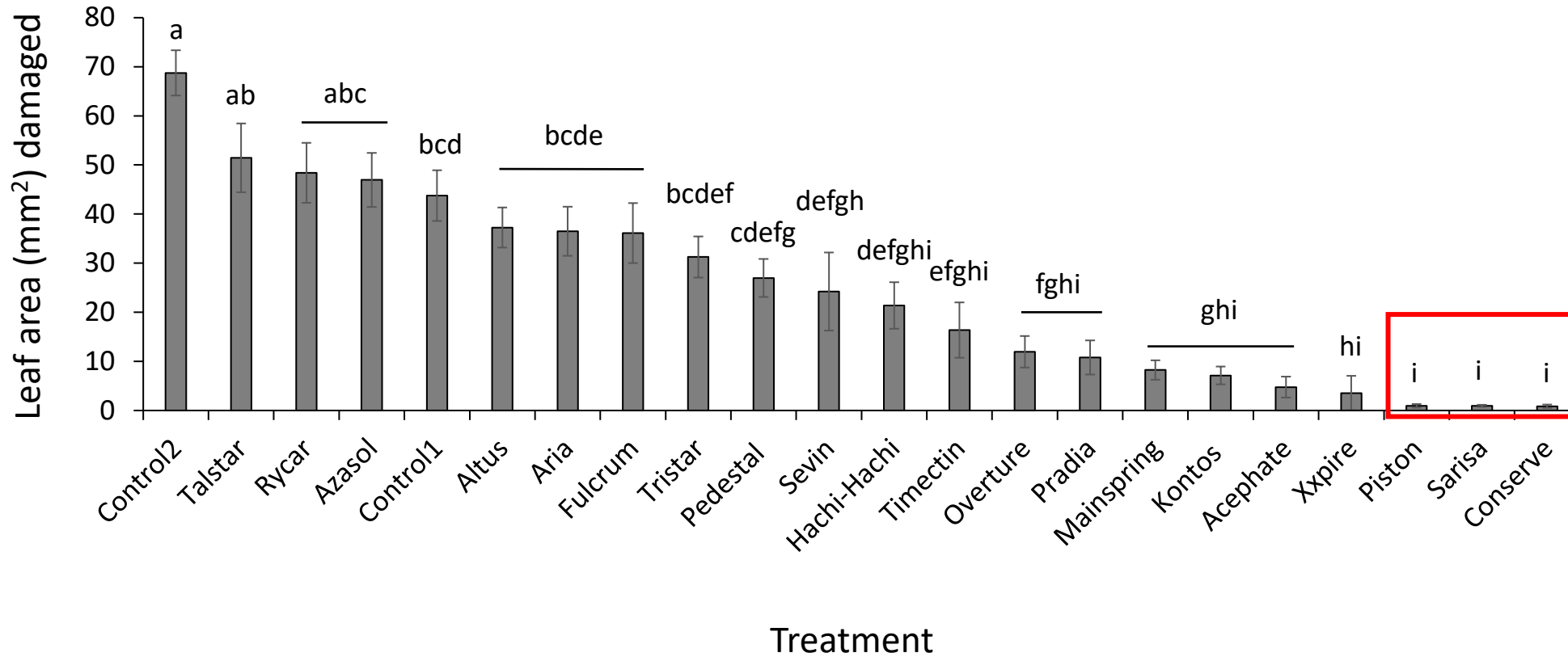
Overall Feeding Damage – Comparison Groups 1 & 2 First-instar Larvae (Indirect)



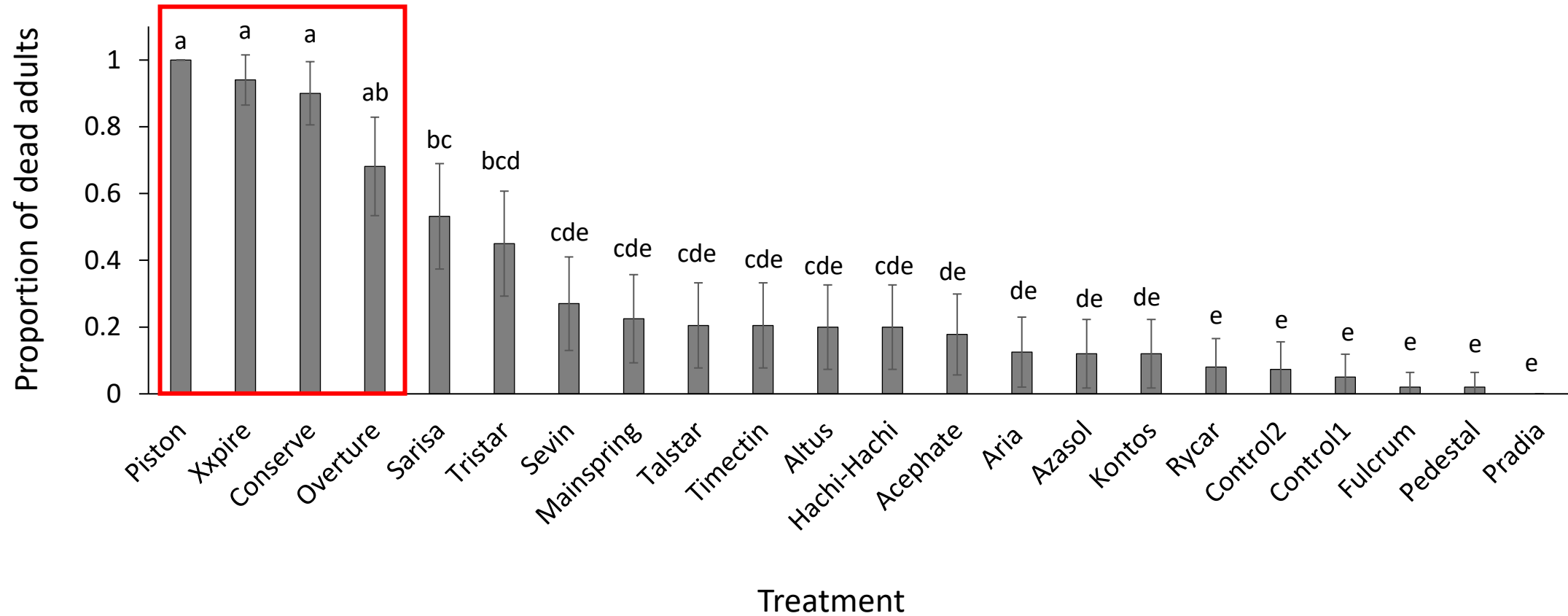
Overall Mortality – Comparison Groups 1 & 2 Second-instar Larvae (Indirect)



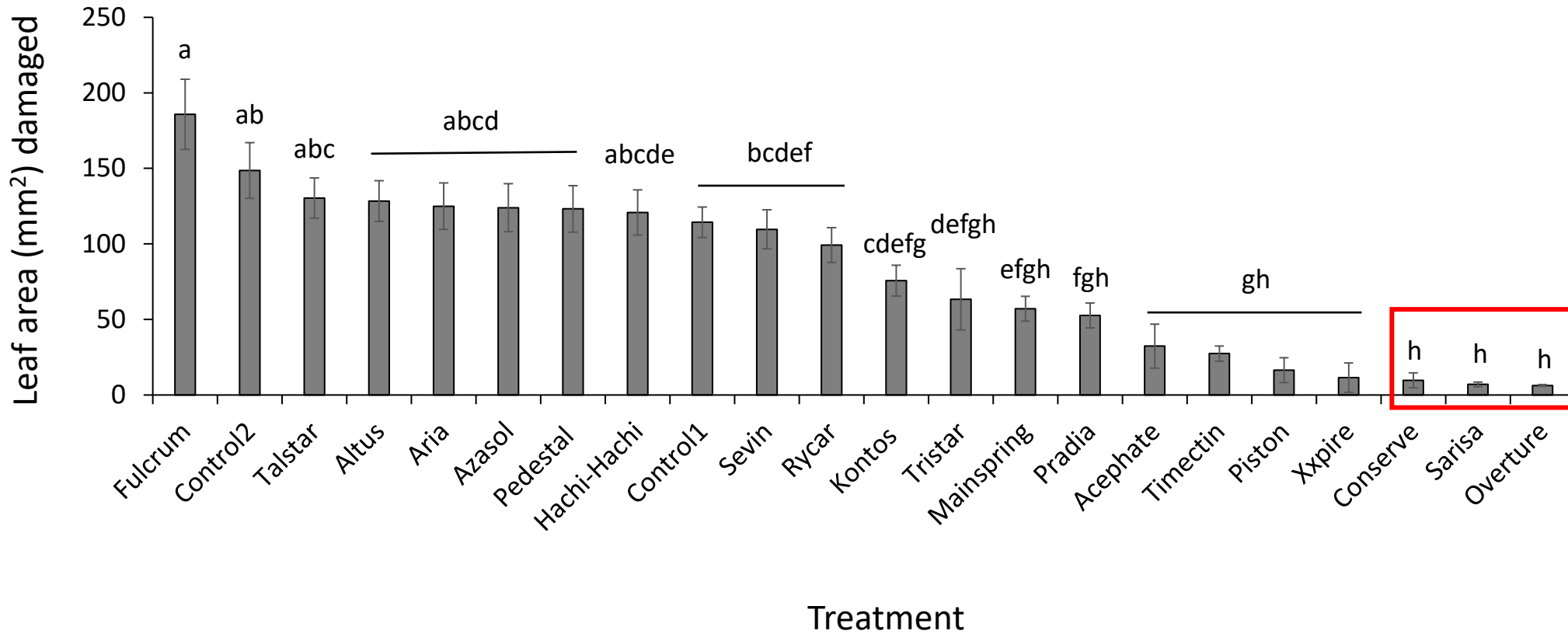
Overall Feeding Damage – Comparison Groups 1 & 2 Second-instar Larvae (Indirect)



Overall Mortality – Comparison Groups 1 & 2 Adults (Indirect)



Overall Feeding Damage – Comparison Groups 1 & 2 Adults (Indirect)



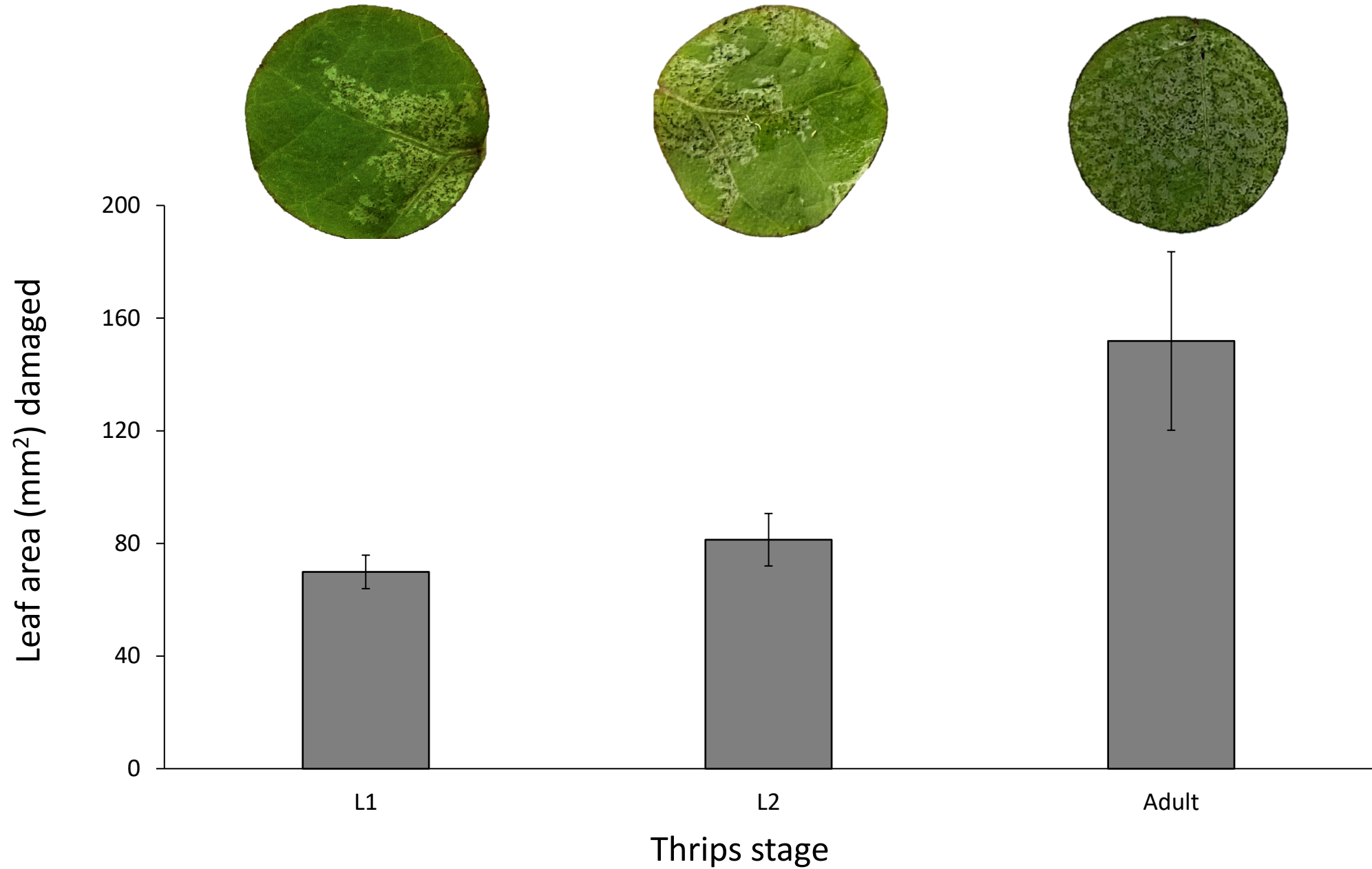
Overall Efficacy

Treatment	L1 Direct	L1 Indirect	L1 Feeding	L2 Direct	L2 Indirect	L2 Feeding	Adult Direct	Adult Indirect	Adult Feeding
Xxpire	X	X	X	X	X		X	X	X
Conserve SC	X	X	X	X	X	X	X	X	X
Timectin	X	X	X	X		X			X
Piston		X			X	X		X	
Kontos		X	X			X			
Pedestal		X							
Sarisa			X			X			X
Acephate			X						X
Hatchi-Hatchi SC			X	X	X				
Mainspring GNL			X			X			
Overture								X	X

Overall Efficacy

Treatment	Group	L1 Direct	L1 Indirect	L1 Feeding	L2 Direct	L2 Indirect	L2 Feeding	Adult Direct	Adult Indirect	Adult Feeding
Xpire	4C + 5	X	X	X	X	X		X	X	X
Conserve SC	5	X	X	X	X	X	X	X	X	X
Timectin	6	X	X	X	X		X			X
Piston	13		X			X	X		X	
Kontos	23		X	X			X			
Pedestal	15		X							
Sarisa	28			X			X			X
Acephate	1B			X						X
Hatchi-Hatchi SC	21A			X	X	X				
Mainspring GNL	28			X			X			
Overture	Unclassified								X	X

Feeding Damage



Take-home Messages

- Piston, Conserve and Xxpire highest efficacy
- Kontos, Timectin, Hatchi-Hatchi and Sarisa good alternatives for rotation
- 1st instar larvae more susceptible
- Adults cause more feeding damage than larvae

Thank You!

Alexandra Revynthi, PhD
Assistant Professor
Ornamental Entomology & Acarology

University of Florida, IFAS
Tropical Research and Education Center
18905 SW 280 Street
Homestead, FL 33031

arevynthi@ufl.edu
T: +1 786-217-9244



USDA **oas**
NACA: 58-6038-8-004



Thrips parvispinus Task Force

