

Thrips, spider mite and seed bug control with insecticides

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Presentation available at:

<https://jmrlab.wordpress.com>



Recent Presentations

Chilli thrips (*Scirtothrips dorsalis*)



- Invasive
- Early-season, warm temperatures
- Foliar damage
- Fruit damage

Management of Radiant SC (spinetoram)

Flower thrips (*Frankliniella* spp.)



- Two species:
 - *F. bispinosa* (Florida flower thrips)
 - Common, native, less damage
 - *F. occidentalis* (Western flower thrips)
 - Uncommon, invasive, more damage
- Throughout the season
- Flower damage
- Fruit damage

What are the most effective rotations of insecticides?

How effective are unregistered insecticides?

Spray date	Rotation 1	Rotation 2	Rotation 3	Rotation 4	Insecticide 5	Insecticide 6	Rotation 7	Insecticide 8	Insecticide 9	Insecticide 10	Rotation 11	Control
17-Nov	Voliam flexi	Voliam flexi	Voliam flexi									
2-Dec	Radiant	Radiant	Radiant	Radiant	Apta	Exirel	Grandevo	Minecto Pro	Radiant	Closer	Radiant	water
5-Dec	Rimon											
20-Dec	Assail	Assail	Sivanto	Assail	Apta	Exirel	Radiant	Minecto Pro	Radiant	Closer	Closer	water
8-Feb	Radiant	Radiant	Assail	Trilogy	Apta	Exirel	Grandevo	Minecto Pro	Radiant	Closer	Radiant	water
16-Feb	Rimon			Trilogy								
24-Feb	Assail	Beleaf	Malathion	Trilogy	Apta	Exirel	Radiant	Minecto Pro	Radiant	Closer	Closer	water
10-Mar	Radiant	Sivanto	Actara	Radiant	Apta	Exirel	Venerate	Minecto Pro	Radiant	Closer	Radiant	water

Radiant – low rate, 6 fl oz/A

Radiant – high rate, 10 fl oz/A

Induce – non-ionic surfactant (0.25% v/v) used with all products & control except Grandevo, Venerate, Trilogy



Data:

- thrips on leaves
- aphids on leaves
- thrips in flowers
- thrips in green fruit
- seed bug on plants (Feb-Mar)
- leaf damage ratings
- marketable yield
- % damaged berries

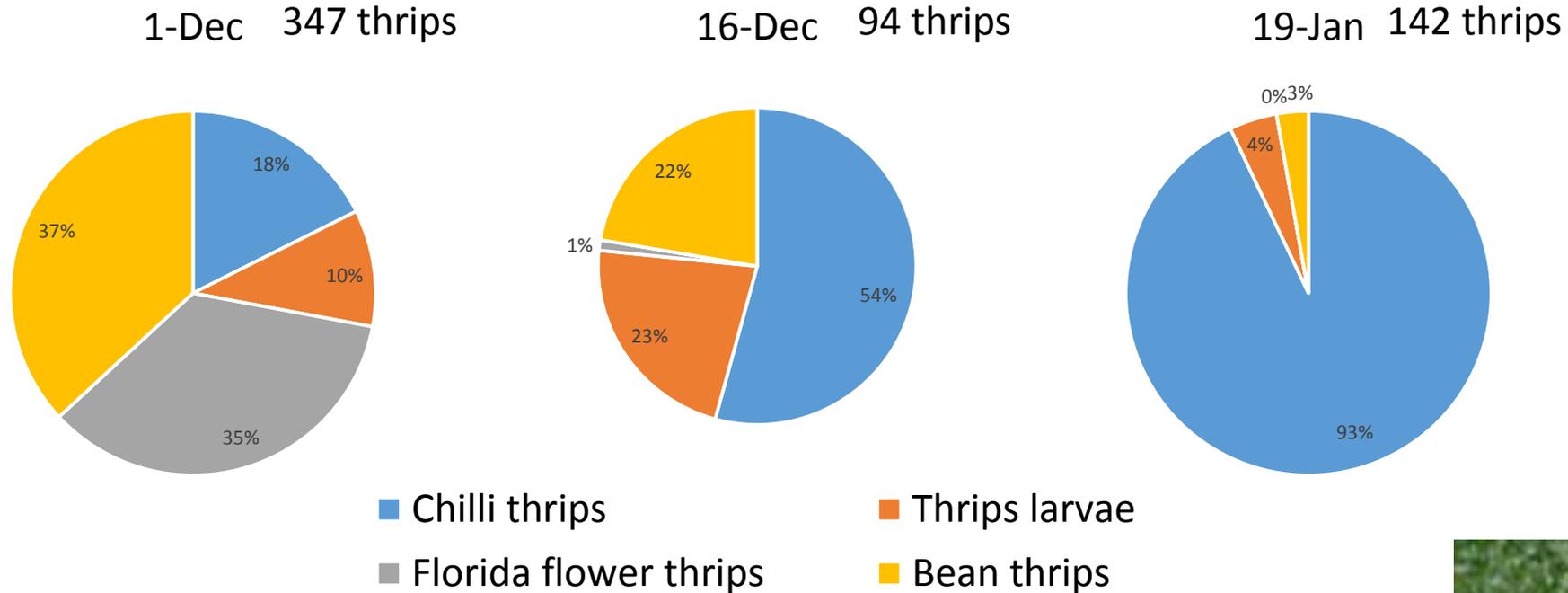


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Thrips species distribution on leaves



Caliothrips fasciatus – American bean thrips

- Found on strawberry in Brazil (one adult on a leaf in one location) (Pinent et al. 2011)
- A pest of citrus in S. California – moves from weeds in fall, concern on exported navel oranges



- Voliam flexi (thiamethoxam + chlorantraniliprole) may slow the rate of thrips increase
- Rimon (novaluron) + Radiant (spinetoram) has little added value over Radiant alone
- Grandevo (1 app.) is not highly effective
- Radiant low rate almost equally effective as Radiant high rate
- Sivanto is equally effective as Assail (acetamiprid) as a second option

Number of all thrips per 10 trifoliates

25
20
15
10
5
0

10-Nov 17-Nov 24-Nov 1-Dec 8-Dec 16-Dec 27-Dec 3-Jan 19-Jan

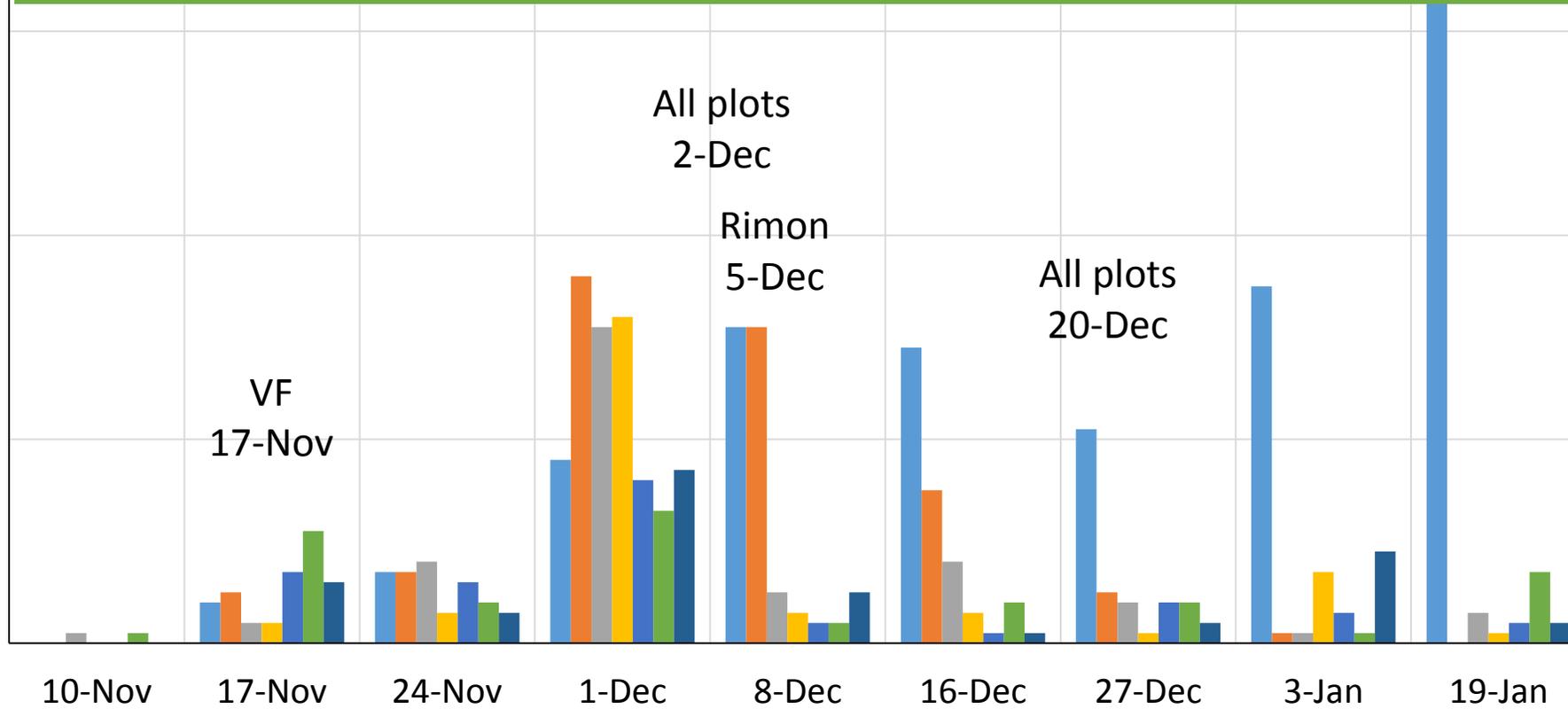
- Grandevo-Radiant
- Radiant-Assail
- Radiant-Closer
- VF-Radiant-Assail
- VF-Radiant-Rimon-Assail
- VF-Radiant-Sivanto

VF
17-Nov

All plots
2-Dec

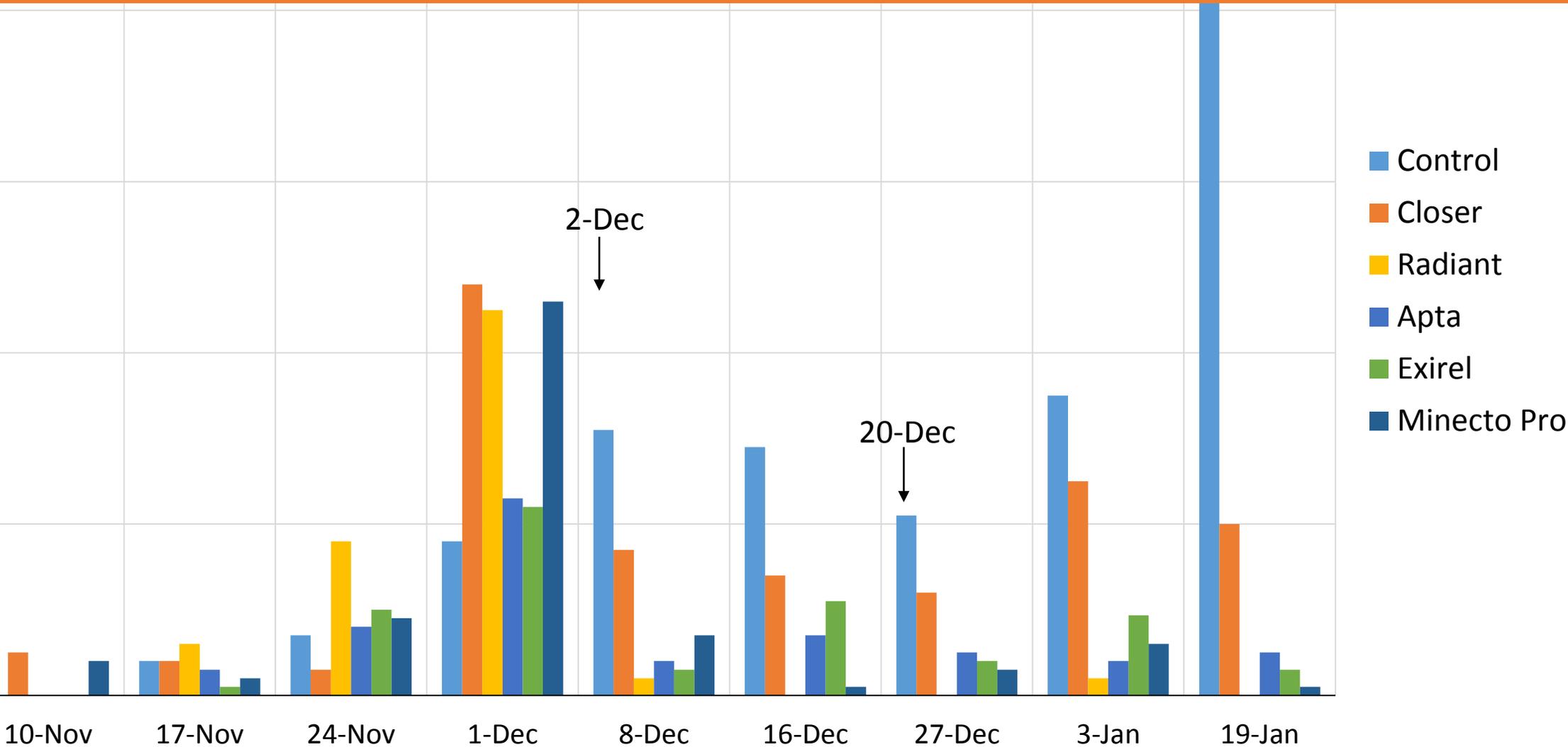
Rimon
5-Dec

All plots
20-Dec

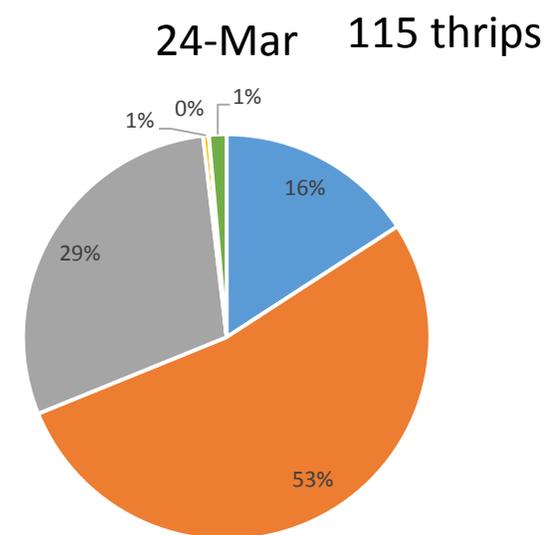
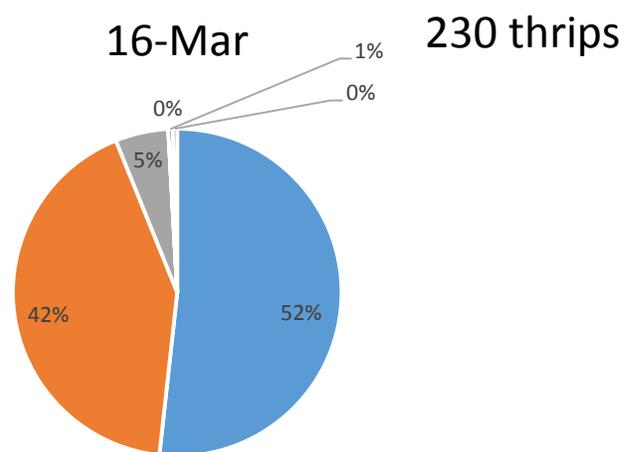
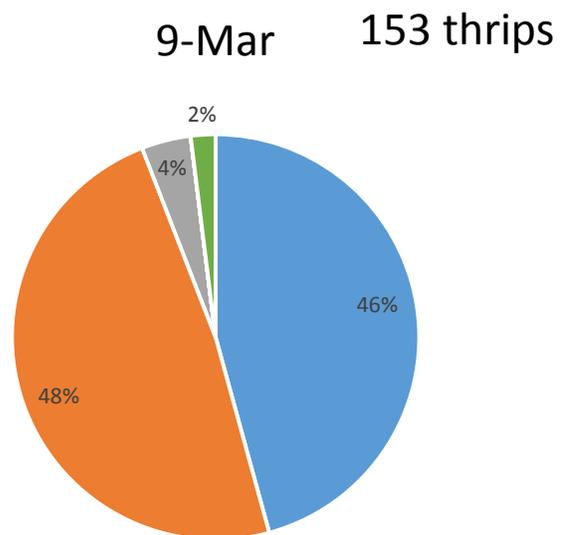


- Closer (sulfoxaflor) is less effective than other tested products
- Exirel (cyantraniliprole) & Apta (tolfenpyrad) & Minecto Pro (cyantraniliprole + abamectin) are almost as effective as Radiant

Number of all thrips per 10 trifoliates

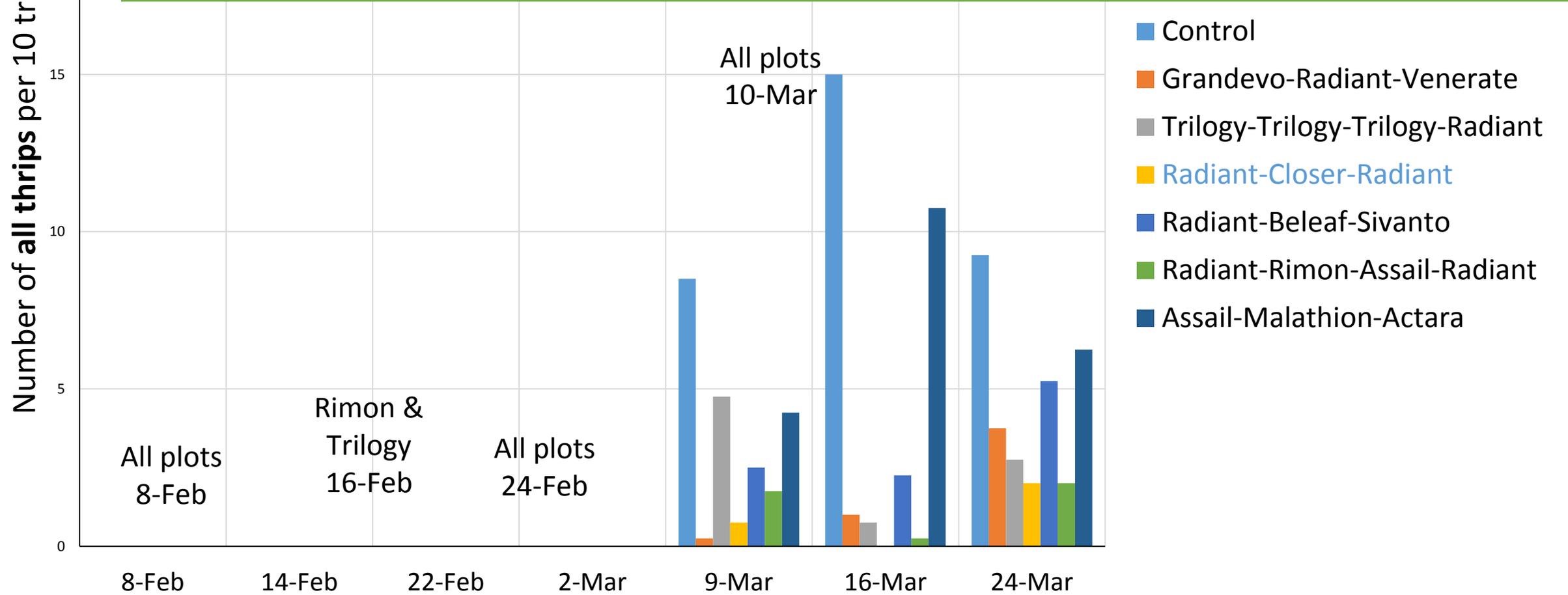


Thrips species distribution on leaves



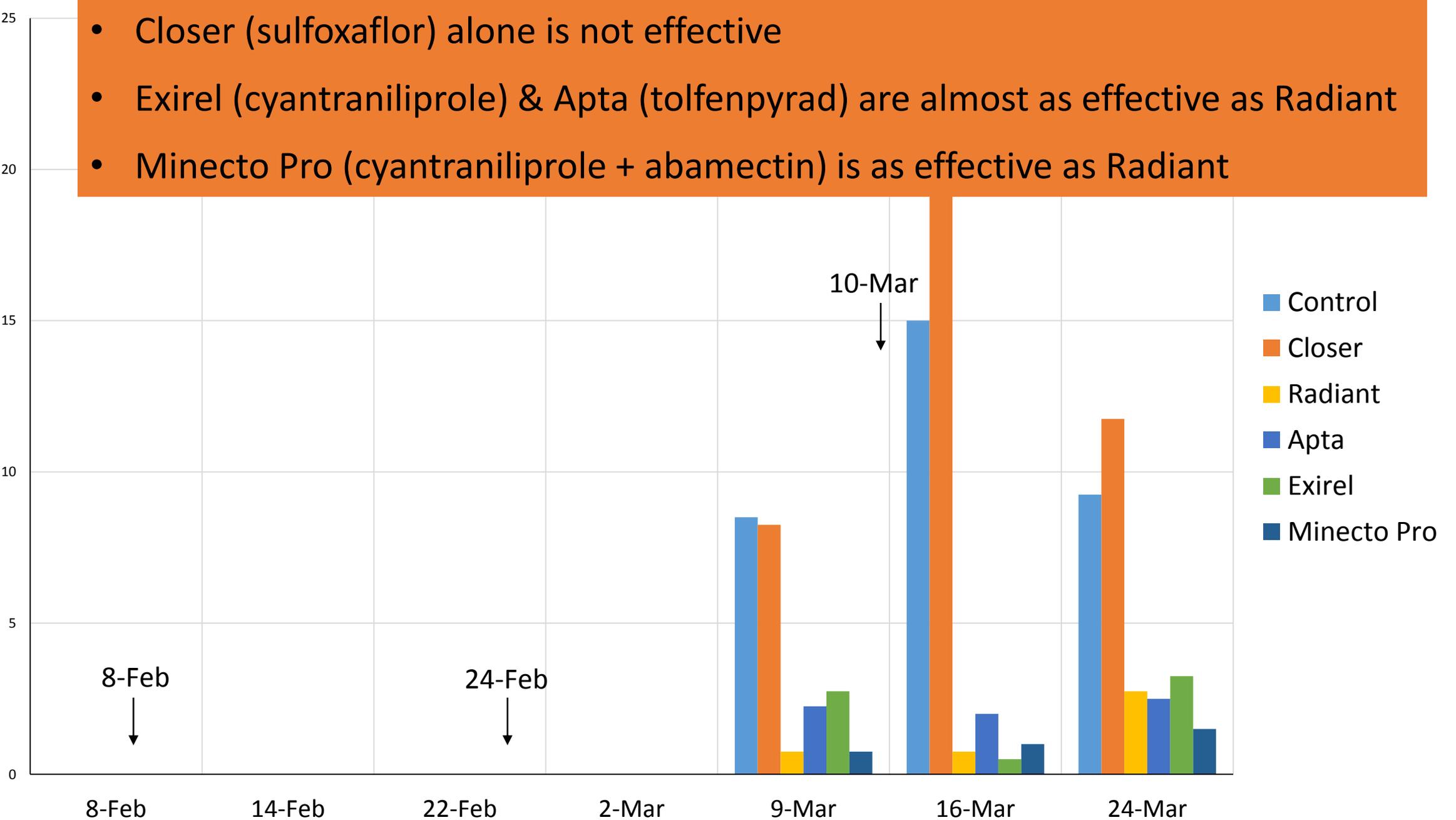
- Chilli thrips
- Florida flower thrips
- Bean thrips
- Thrips larvae
- Western flower thrips
- Sixspotted thrips

- Rotations without Radiant have higher thrips numbers than rotations with Radiant
- Beleaf, Sivanto, (& Closer) are as effective as Assail as second options
- Trilogy is moderately effective
- Venerate suppresses thrips after a Radiant application

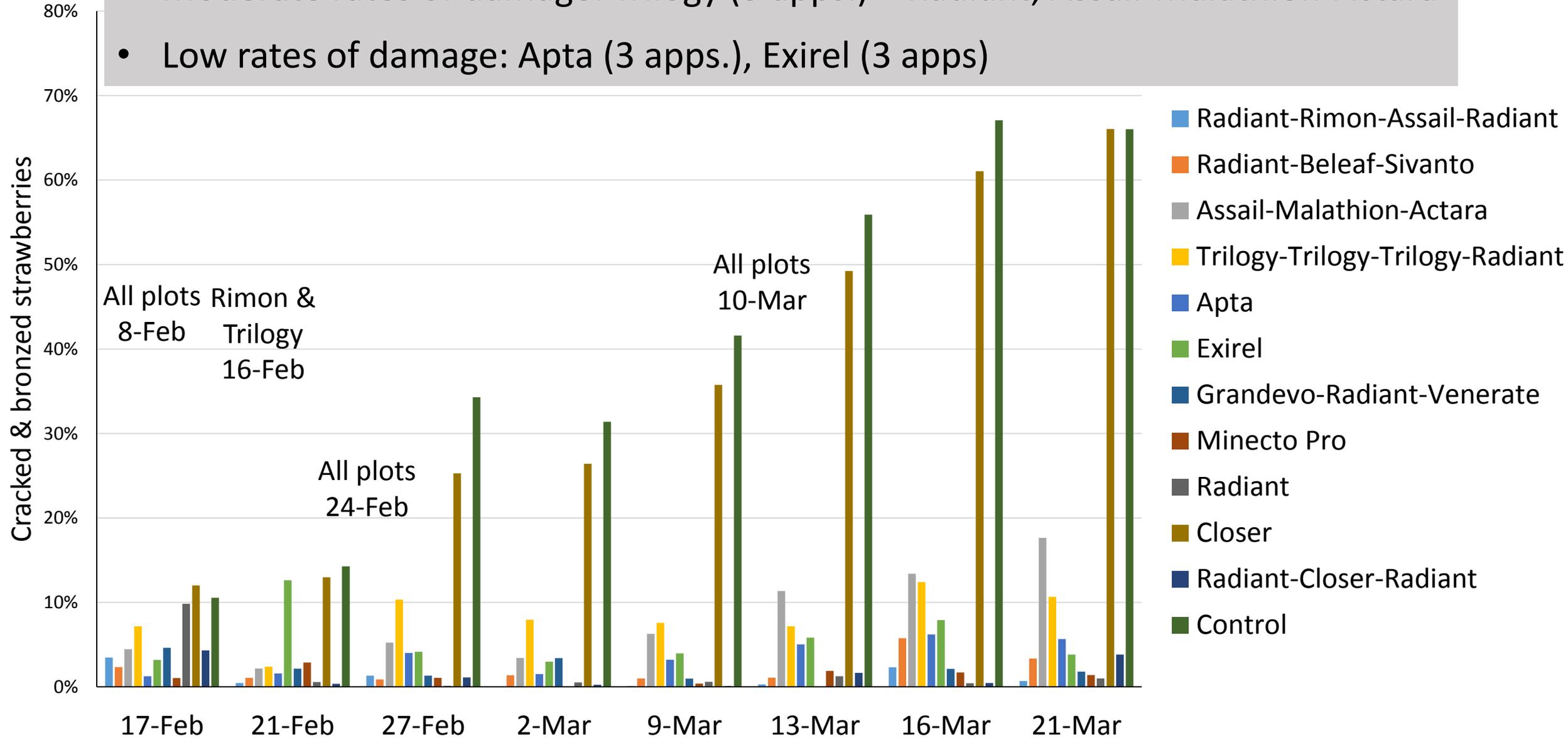


- Closer (sulfoxaflor) alone is not effective
- Exirel (cyantraniliprole) & Apta (tolfenpyrad) are almost as effective as Radiant
- Minecto Pro (cyantraniliprole + abamectin) is as effective as Radiant

Number of all thrips per 10 trifoliates



- High rates of damage: control & Closer (3 apps.)
- Moderate rates of damage: Trilogy (3 apps.) + Radiant, Assail-Malathion-Actara
- Low rates of damage: Apta (3 apps.), Exirel (3 apps)



Pamera seed bug

(*Neopamera bilobata*)

Active on plastic,
underneath leaves



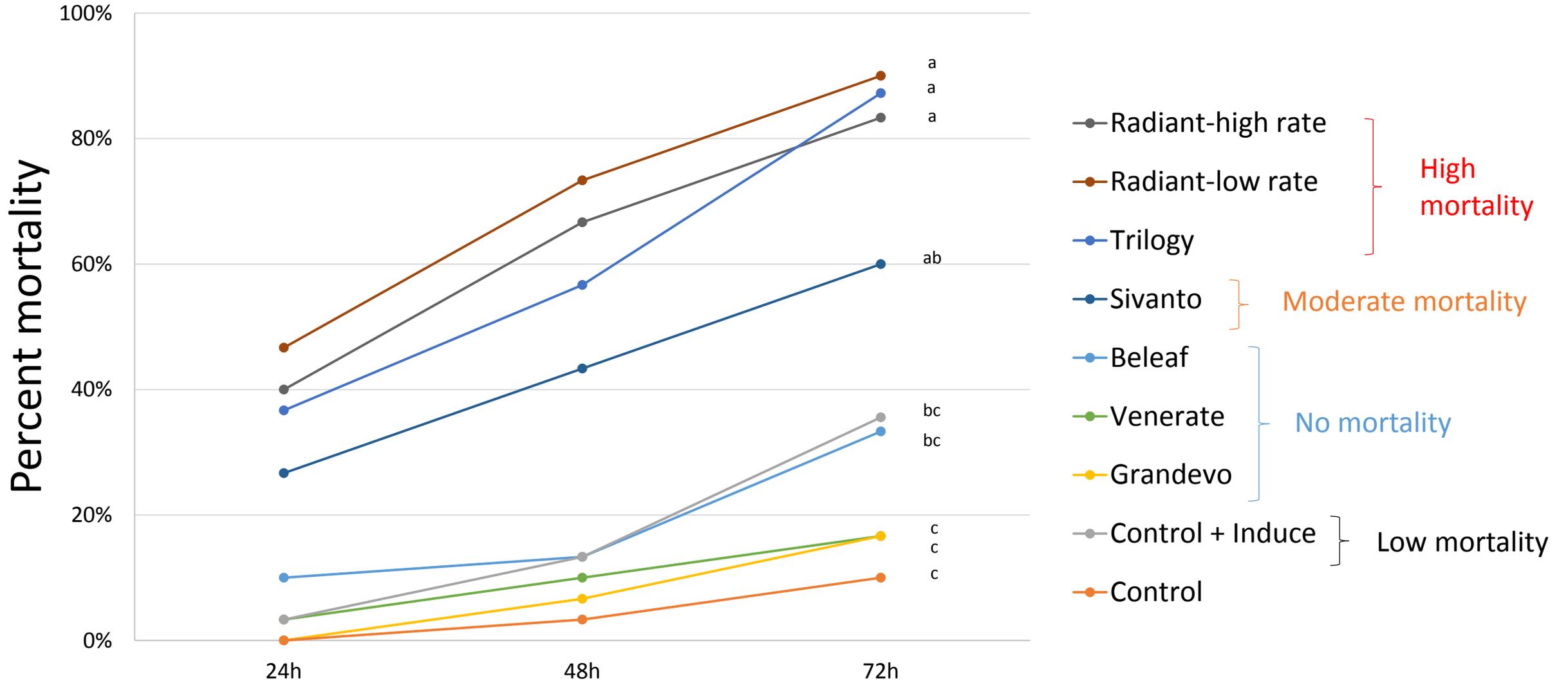
Compare mortality of seed bug exposed to insecticides on ripening fruit in the laboratory

Product	active ingredient	IRAC-MOA	Rate	% ai	Surfactant (0.25%)
Radiant SC	spinetoram	5	6 oz/A	11.7	Induce
Radiant SC	spinetoram	5	10 oz/A	11.7	Induce
Sivanto 200 SL	flupyradifurone	4D	14 oz/A	17.1	Induce
Beleaf 50 SG	flonicamid	9C	2.8 oz/A	50.0	Induce
Trilogy	neem oil		256 oz/A (2%)	70.0	(none)
Grandevo	<i>Chromobacterium subtsugae</i>		3 lbs/A	30.0	(none)
Venerate XC	<i>Burkholderia</i> spp.		256 oz/A	94.5	(none)
Control	water	-	-	-	Induce
Control	water	-	-	-	(none)

Washed, semi-ripe strawberries dipped for 15 s in insecticide solutions and dried before being placed with **seed bug adults**



Results



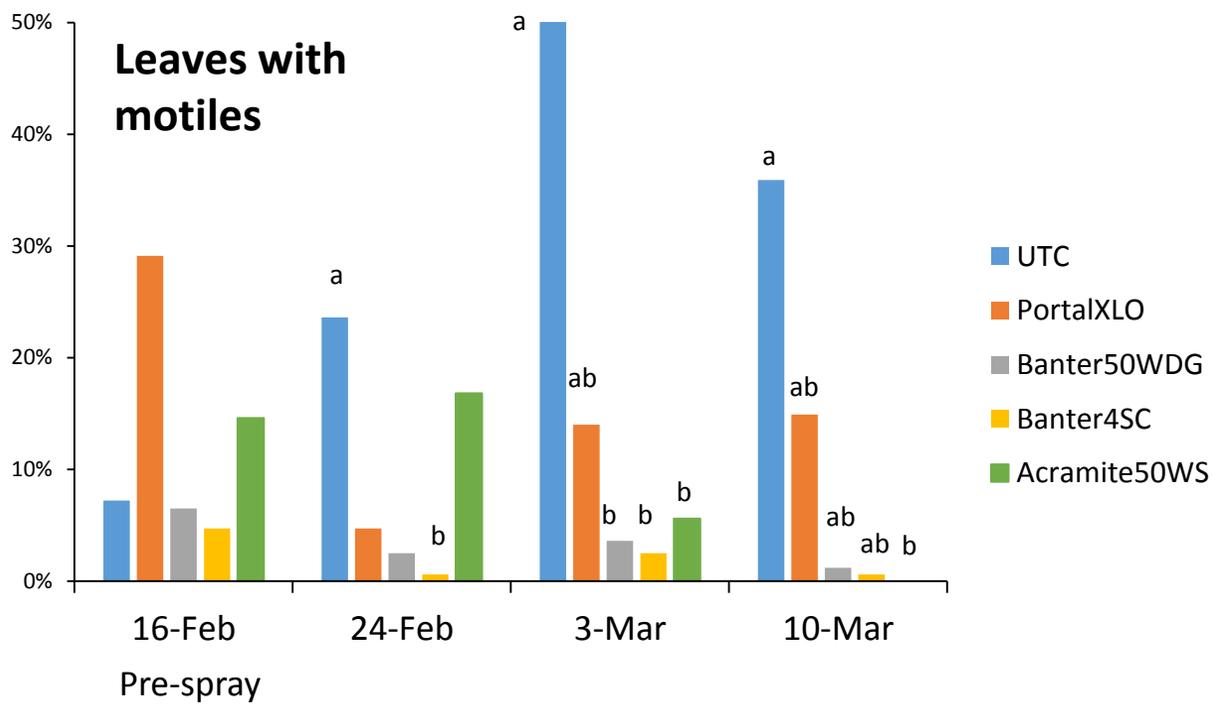
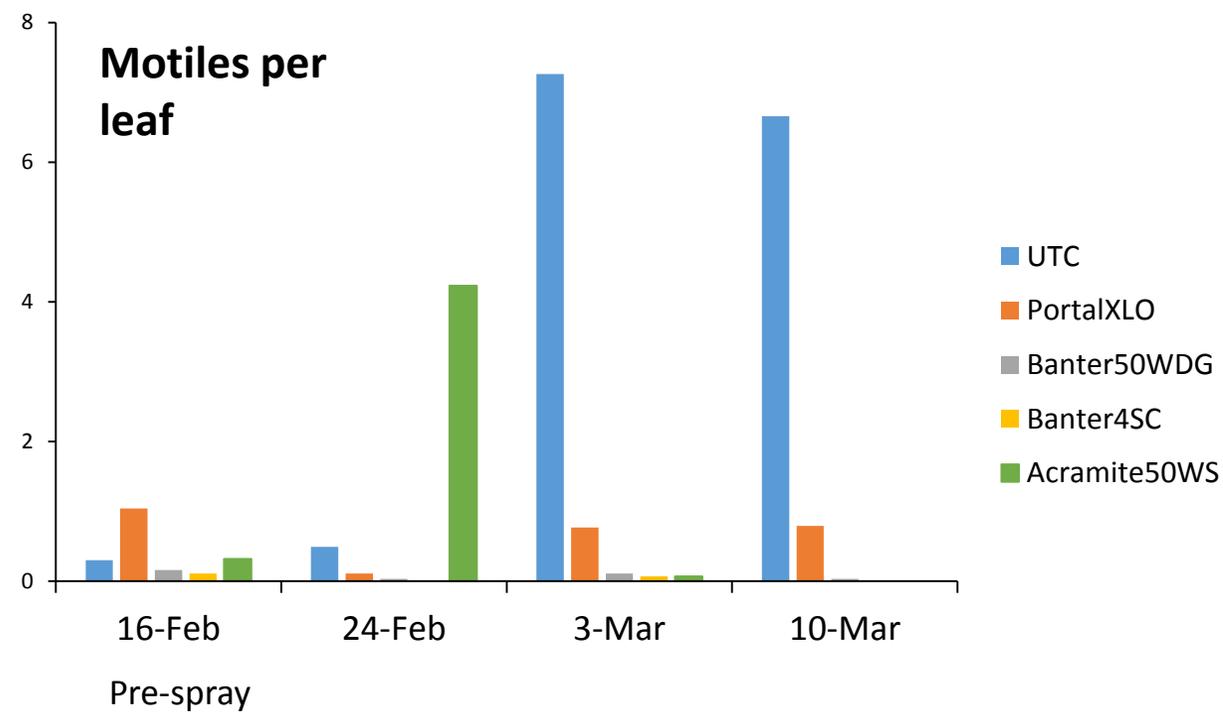
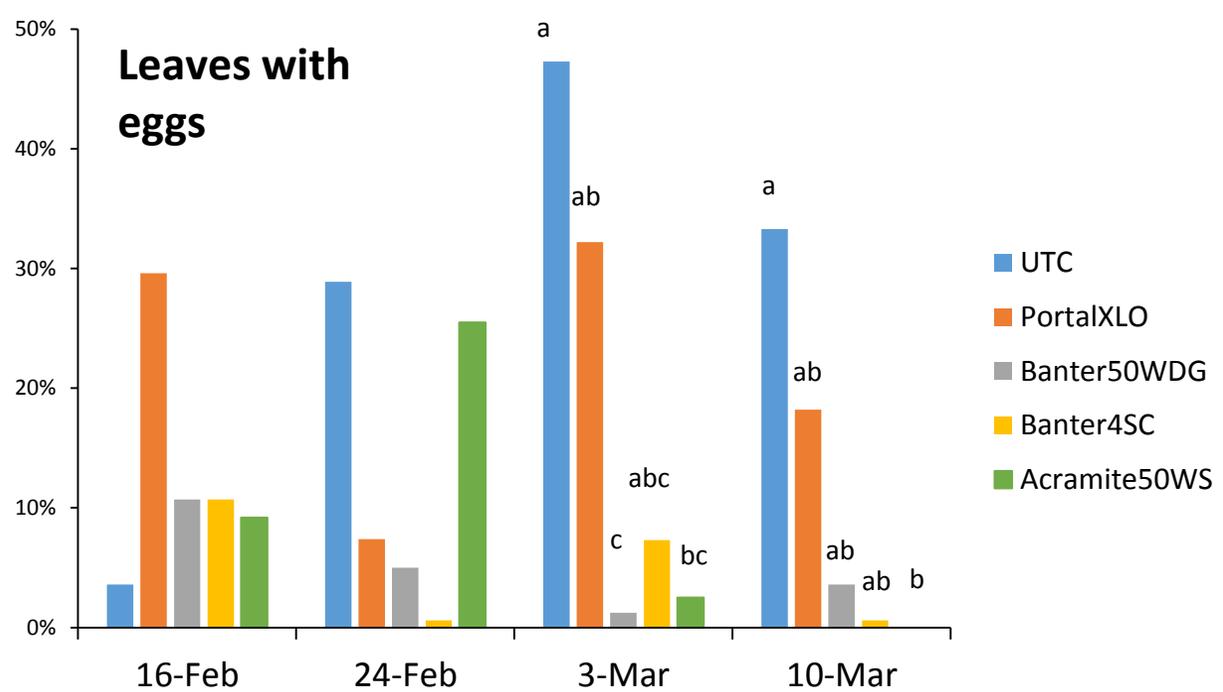
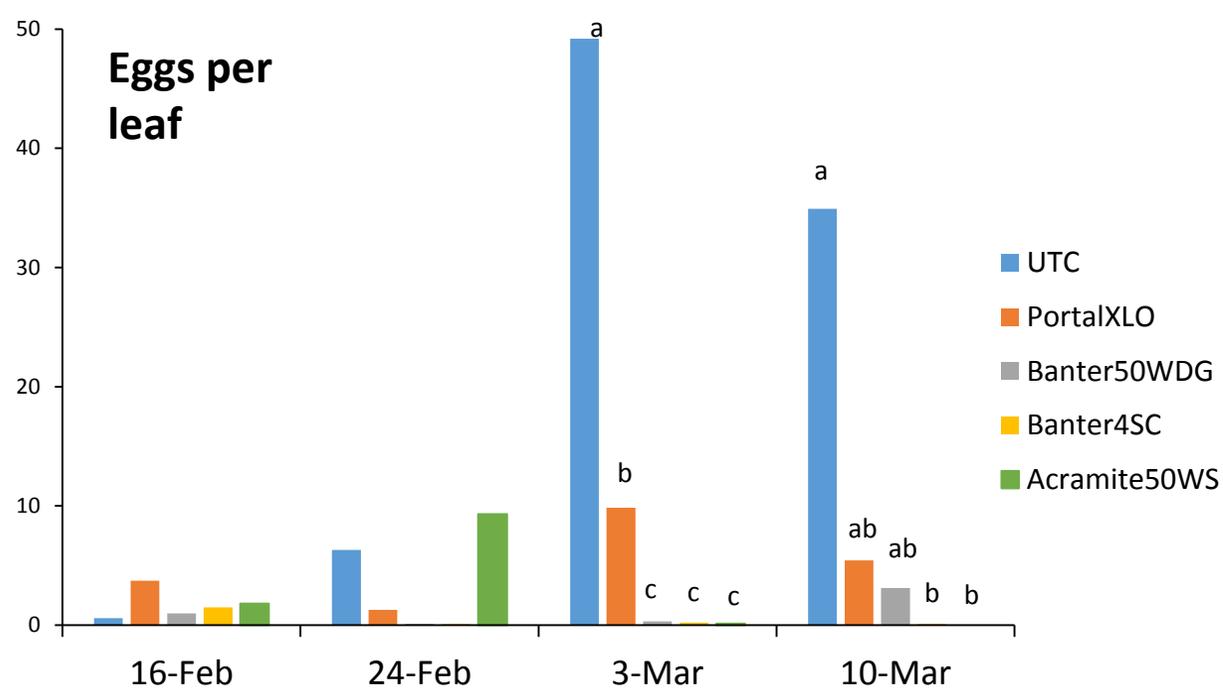
Compare formulations of the active ingredient **bifenazate** for control of twospotted spider mite

<u>Product</u>	<u>% active ingredient</u>	<u>Rate</u>
1) Banter WDG	50 bifenazate	1 lb/A
2) Banter SC	43.2 bifenazate	16 fl oz/A
3) Acramite 50WS	50 bifenazate	1 lb/A
4) Portal XLO	5 fenpyroximate	32 fl oz/A
5) Untreated control (UTC)	water	



Products applied 17 February to small plots (10 m x 1 row) with a CO₂ pressurized sprayer at 100 gal/A

Spider mite motiles and eggs counted weekly from 10 trifoliates per plot



Acknowledgements



Shashan Devkota
Marc Santos
Ryan Batts
Deb Farr

Braden Evans
Babu Panthi
Iris Strzyzewski
Michael Hull
Phanie Bonneau
Rosa Ynfante



Dow AgroSciences
Bayer Crop Science
DuPont Crop Protection
United Phosphorus Inc.



Specialty Crop
Block Grant
Program

Nichino America
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