



# CM and Mite Control in Pear & SWD and WAA Update



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# Discussion Overview

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- Codling moth and mite control in pears
- Spotted wing drosophila in cherry
  - Infestation by canopy height
  - Pre-harvest efficacy
  - Post-harvest efficacy
- Woolly apple aphid control in apple





# Experimental Design: CM and Mite Control

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- Bartlett orchard in Suisun Valley, CA
- Eight treatments replicated four times in a RCB
- At least one buffer tree between each replicate, two buffer rows from the remainder of the orchard



Trt.	Materials	Rate form./ac	No. appl.	Application Date & Timing
1	Imidan 70WP + Agri-Mek SC <sup>1*</sup>	7.125 lbs. 3.5 fl. oz.	2	9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
2	Imidan 70WP + Agri-Flex <sup>1*</sup>	7.125 lbs. 8.5 fl. oz.	2	9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
3	Imidan 70WP + Agri-Mek 0.15EC <sup>1*</sup>	7.125 lbs. 16.0 fl. oz.	2	9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
4	Altacor 35WDG*	4.0 oz.	3	26 April (94 DD after 1st biofix), 9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
5	Altacor 35WDG*	3.0 oz.	3	26 April (94 DD after 1st biofix), 9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
6	HGW86 10SE*	13.5 fl. oz.	3	26 April (94 DD after 1st biofix), 9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
7	Imidan 70WP*	7.125 lbs.	2	9 May (266 DD after 1 <sup>st</sup> biofix) & 10 June (540 DD after 1 <sup>st</sup> biofix)
8	Untreated Check	--	0	

<sup>1</sup>PureSpray Green horticultural oil was applied at 0.5% V/V

\*Guthion 50WP applied at 2.0 lbs/ac on 22 Jul 282 DD following the 2nd Biofix



# Evaluation

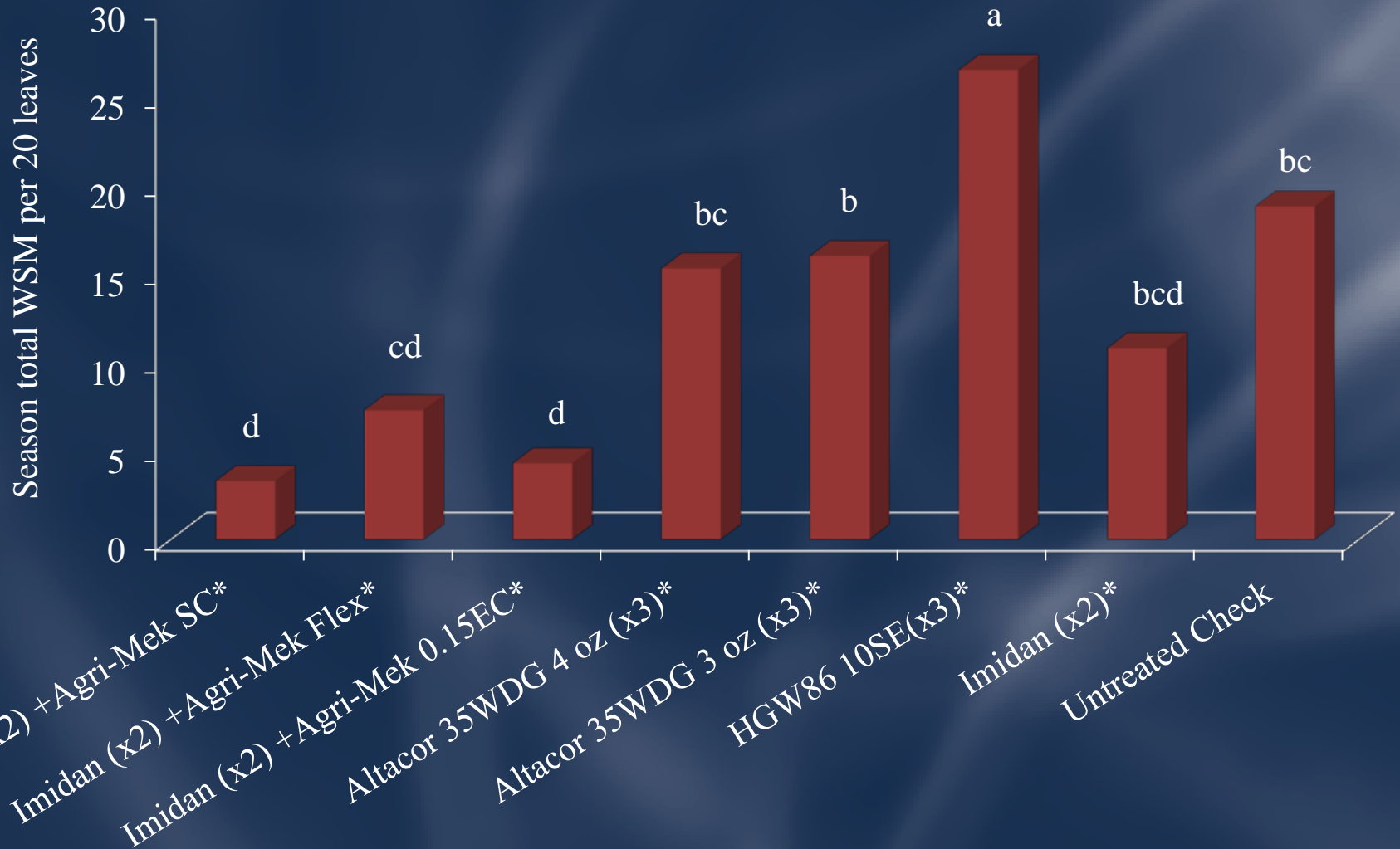
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- 10 leaves were sampled weekly from both the interior and exterior of foliage
- Leaves were brushed and counted under magnification (20X) at UCB.
- 250 fruit per replicate were inspected at harvest for damage



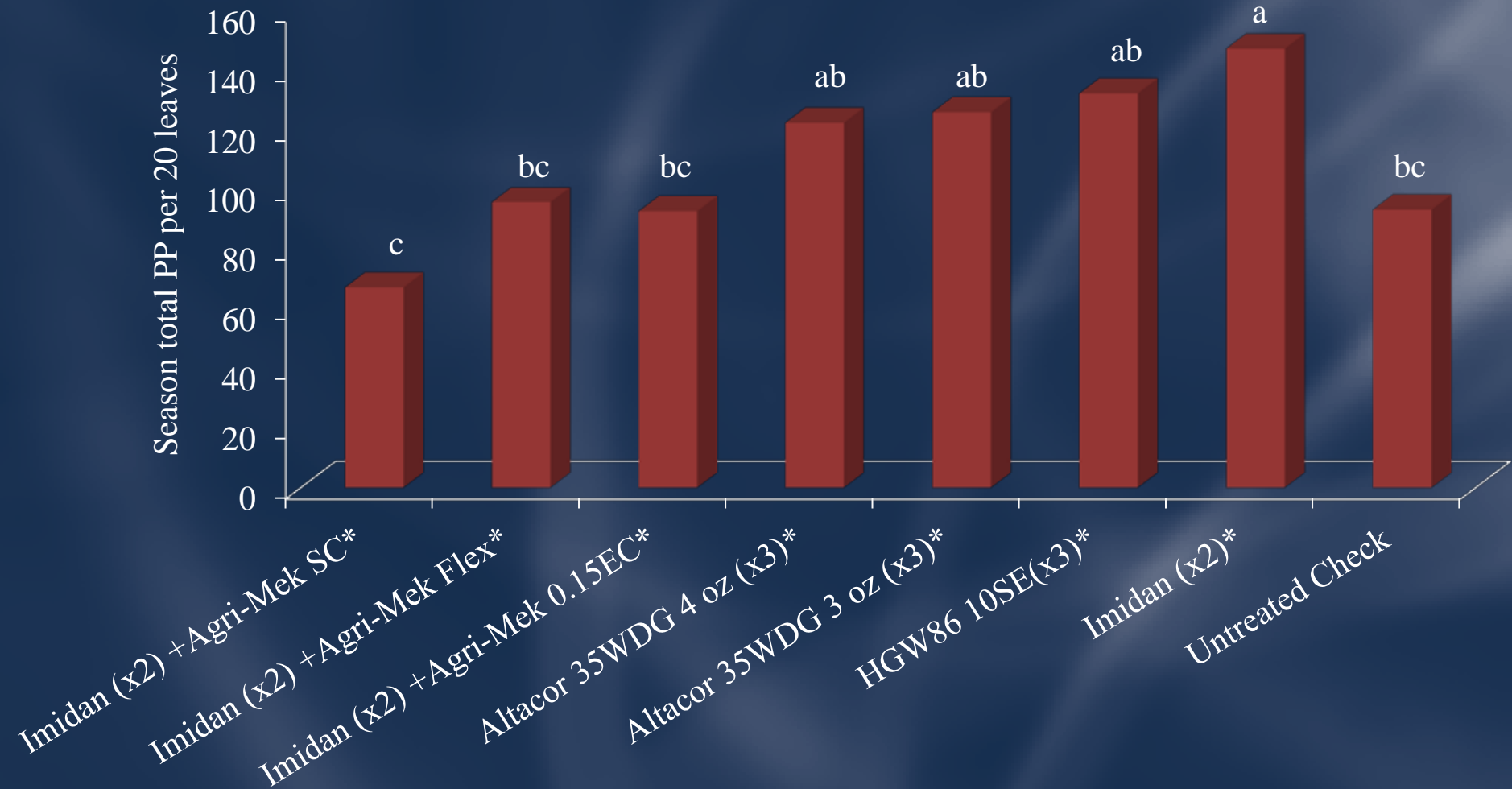


# Web Spinning Mites



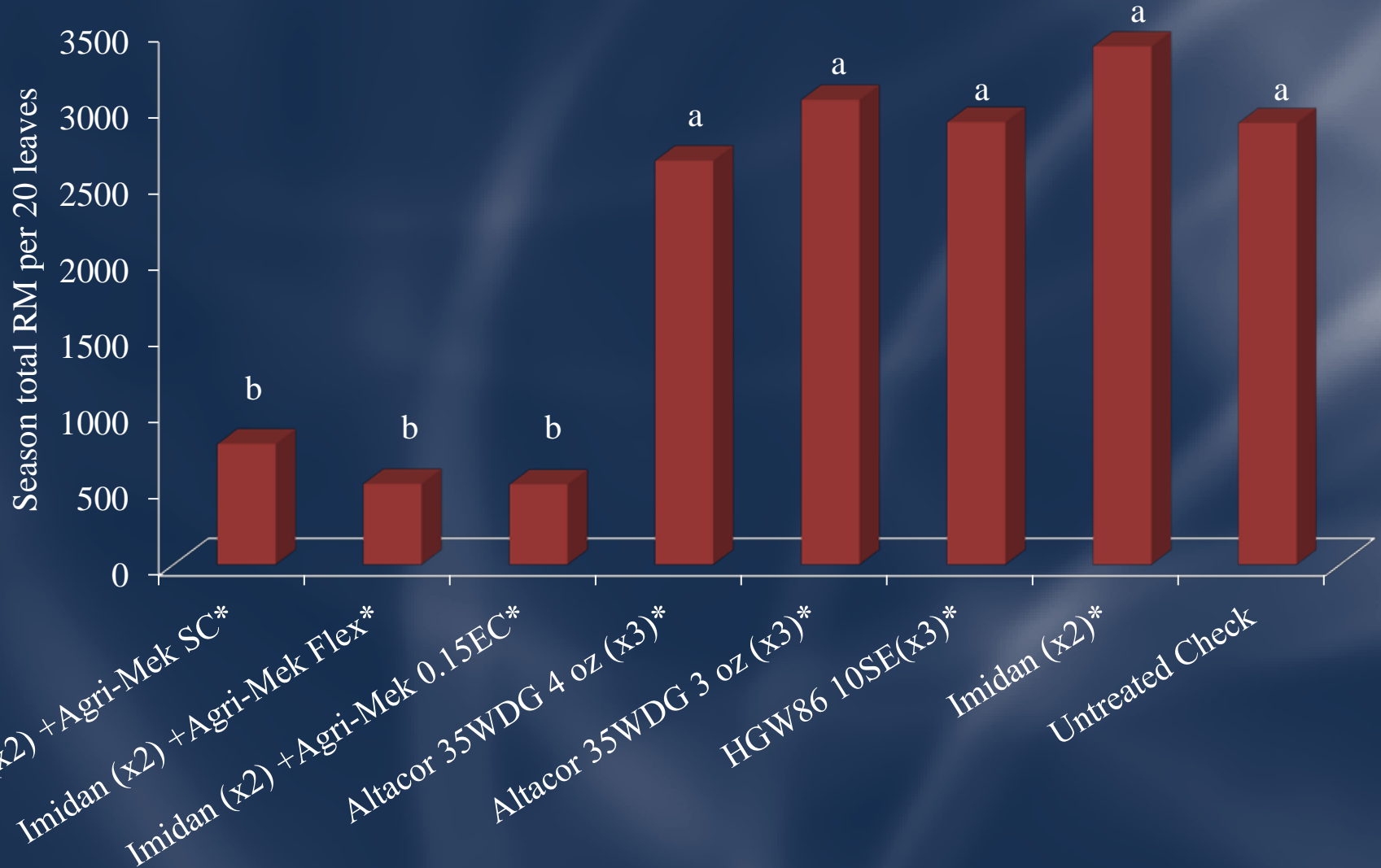


# Pear Psylla





# Rust Mites

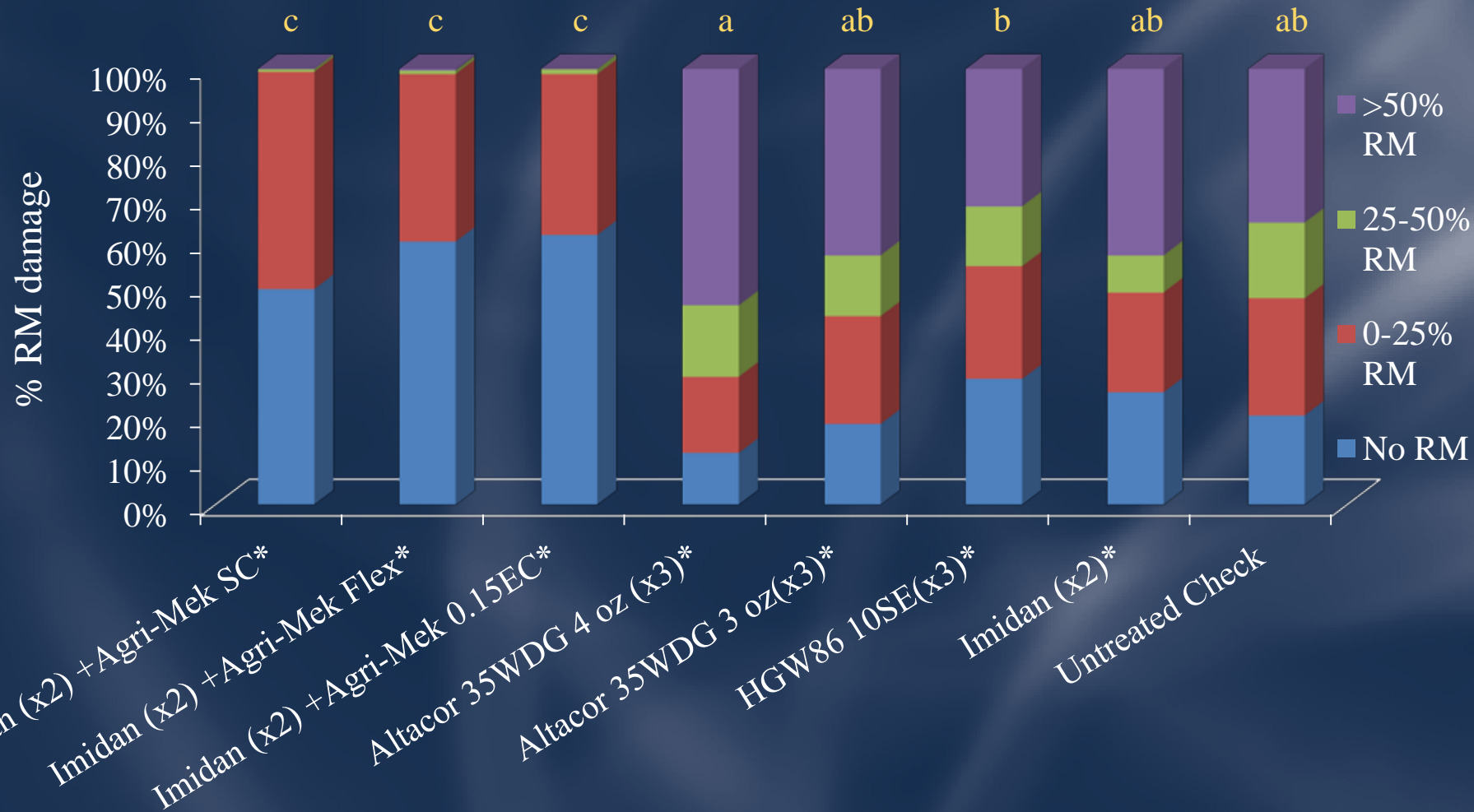






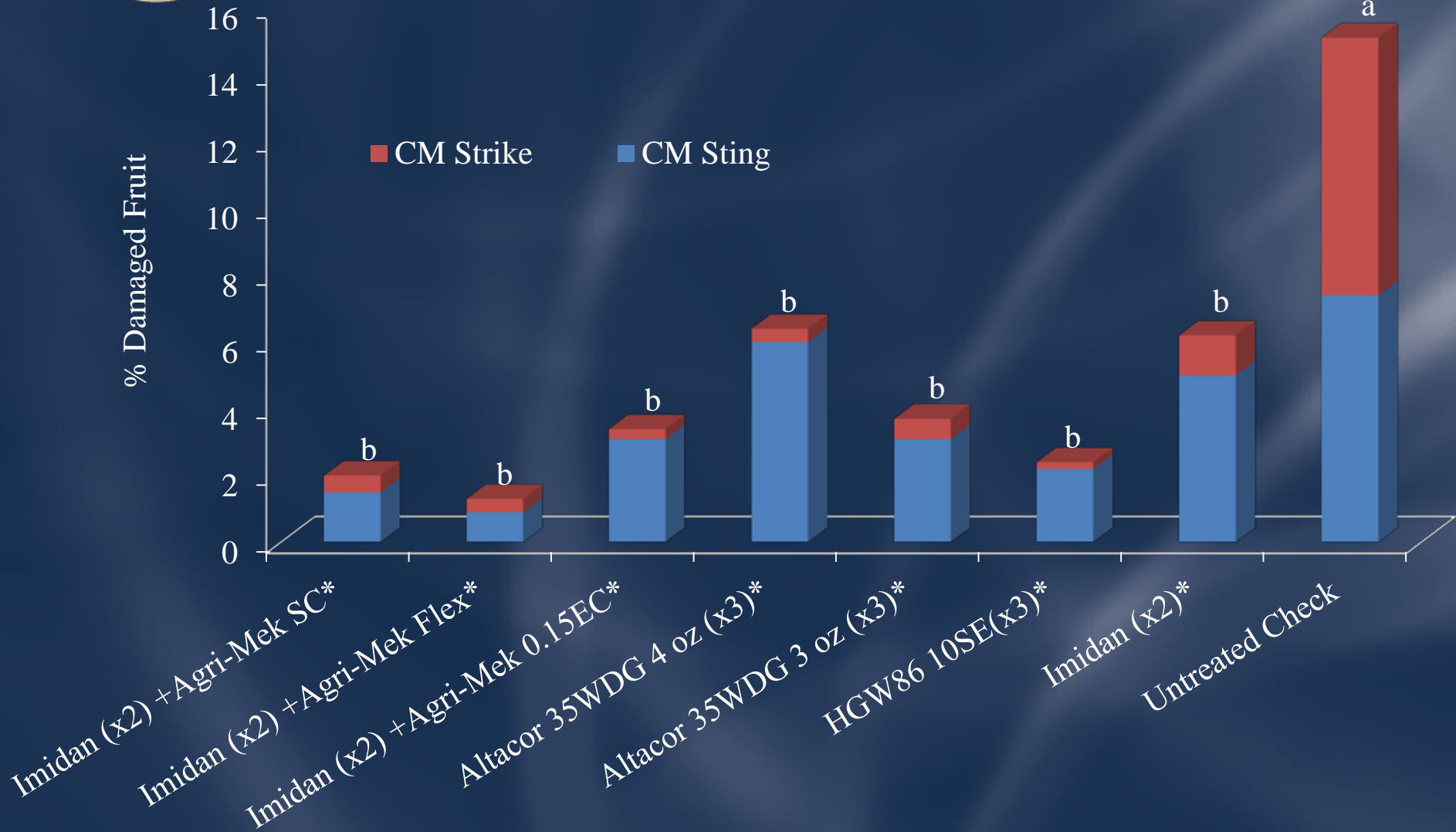
# Rust Mites Harvest Evaluation

Percent unmarketable fruit (>25% RM)





# % Coddling Moth Damage Harvest Evaluation





## Methods:

# SWD Infestation by Height

- Fruit sampled from three heights on 31 May and 6 June
- Replicated 4 times in Bing and Rainier/Larian in San Joaquin, CA
- Larval infestation per 100 fruit determined by brown sugar floatation

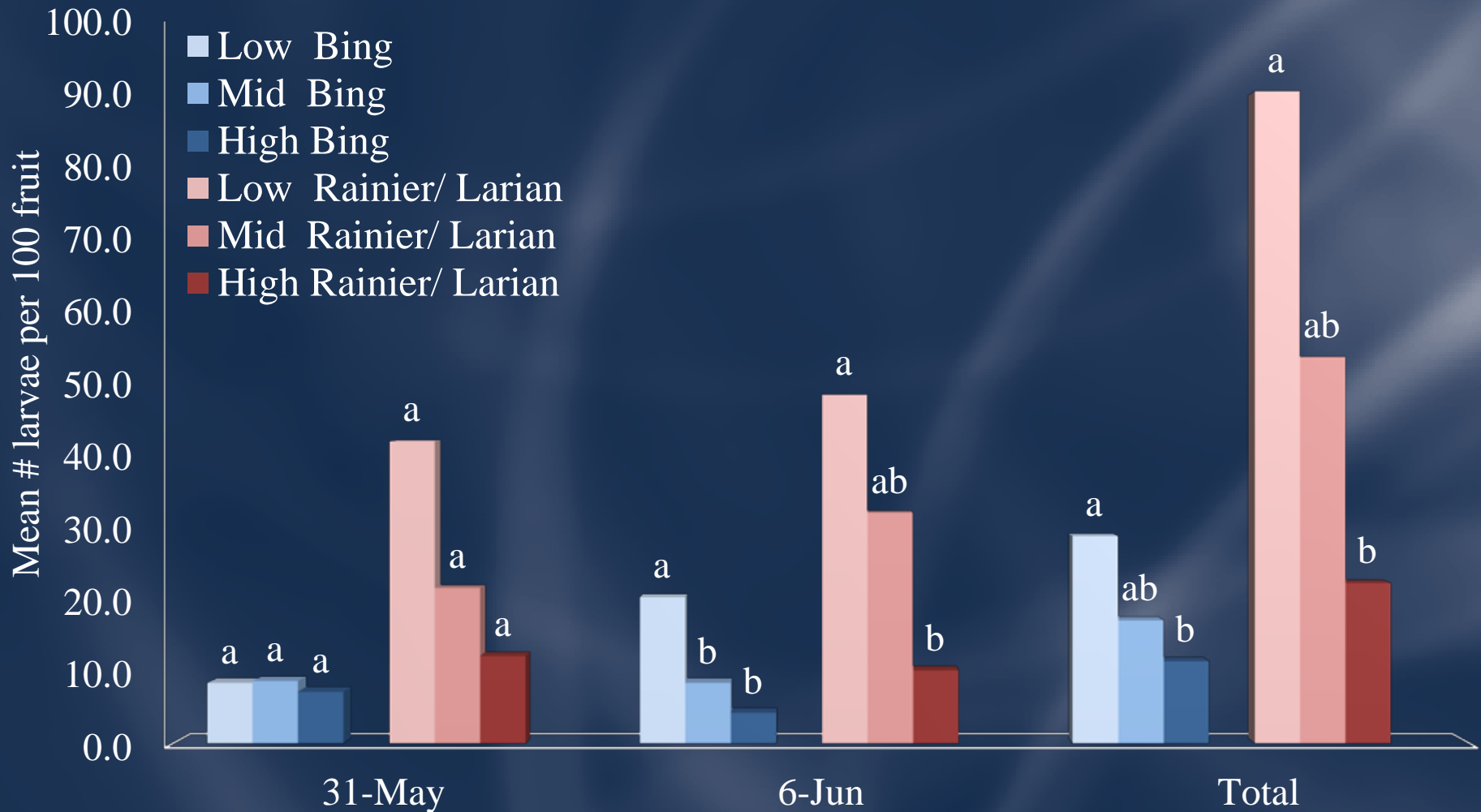


Low	< 4.5 ft
Mid	4.5-8 ft
High	8-12 ft





# Infestation by Canopy Height





# Pre-Harvest Efficacy Trial

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- 10 treatments replicated 6 times
- Single tree reps in a RCB design
- Individual trees were treated on 27 May (maximum label rate)





# Pre-Harvest Efficacy Trial

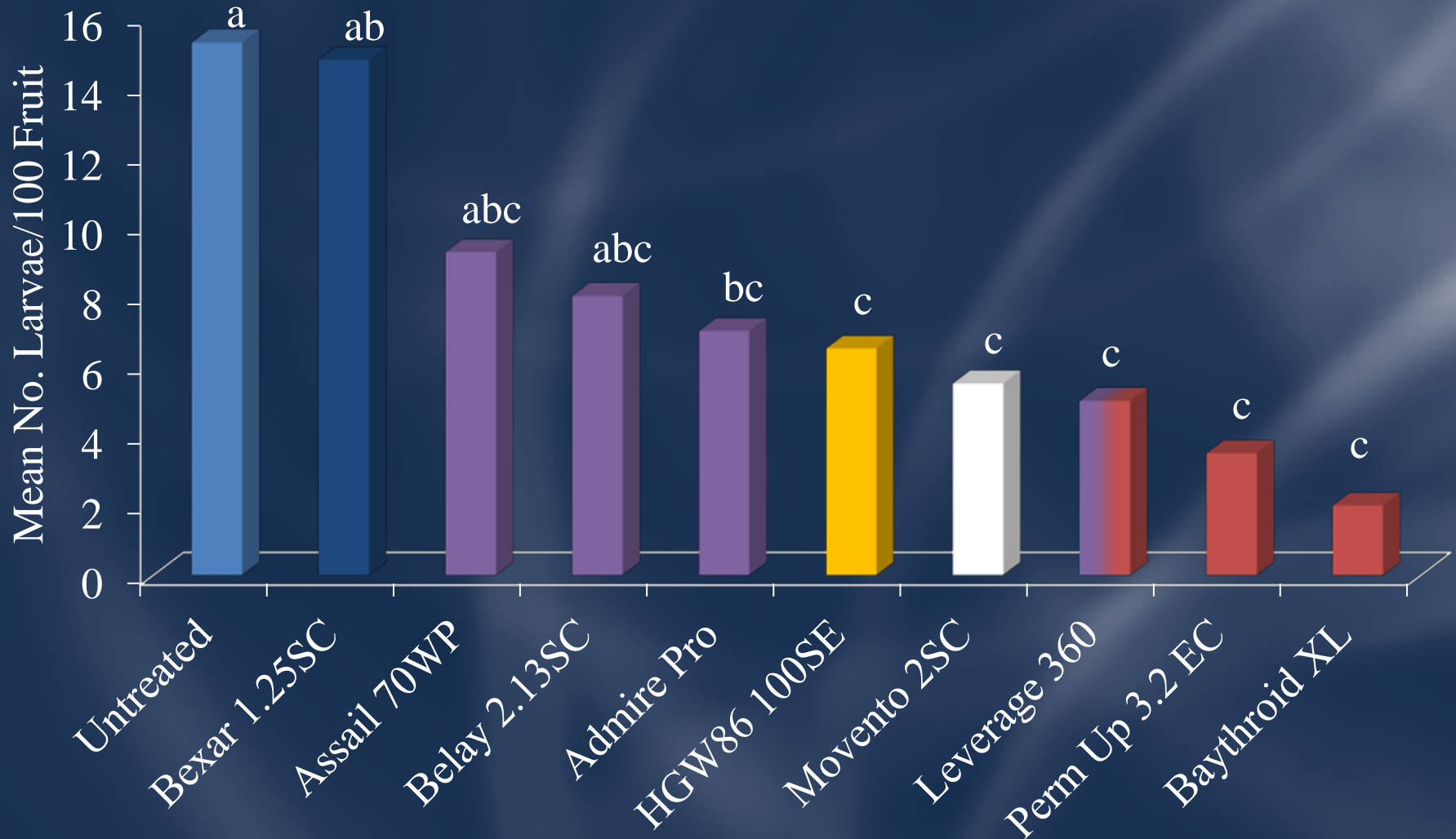
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- 100 fruit per replicate collected on 24 May, prior to treatment on 27 May
- Fruit collected again on 2 & 9 June to assess efficacy
  - Brown sugar flotation method





# Mean Number of Larvae Found per 100 Fruit – 9 June





# Post-harvest Efficacy Trial

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- Insecticides applied post-harvest at high label rates except where noted
- Multiple trials, each with 5-6 treatments
- Each treatment was replicated 6 times
- Leaves were collected at 1, 3 and 7 DAT





# Post-harvest Efficacy Trial

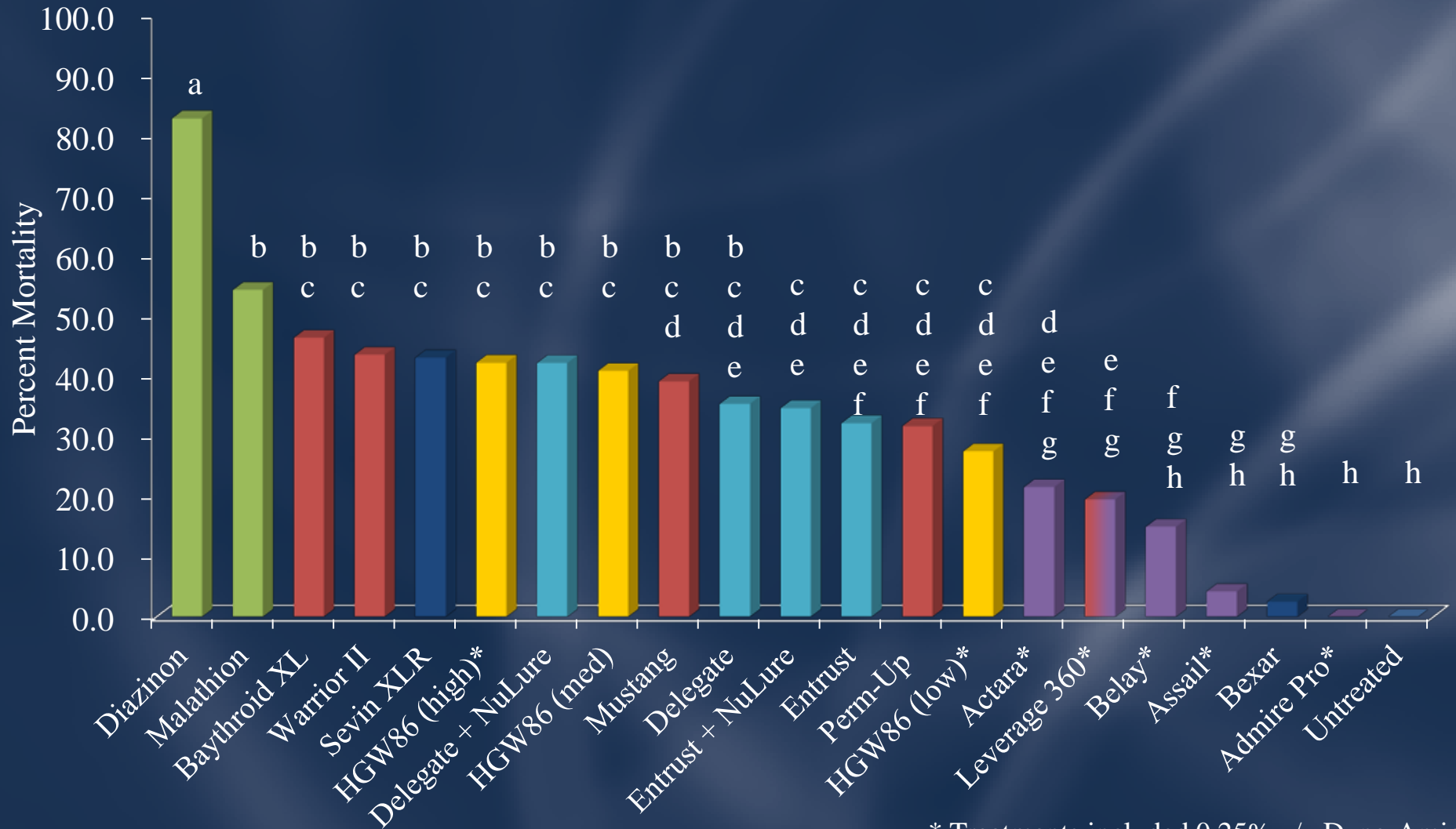
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- 10 laboratory-reared female SWD were exposed for 24 hrs, then scored for mortality





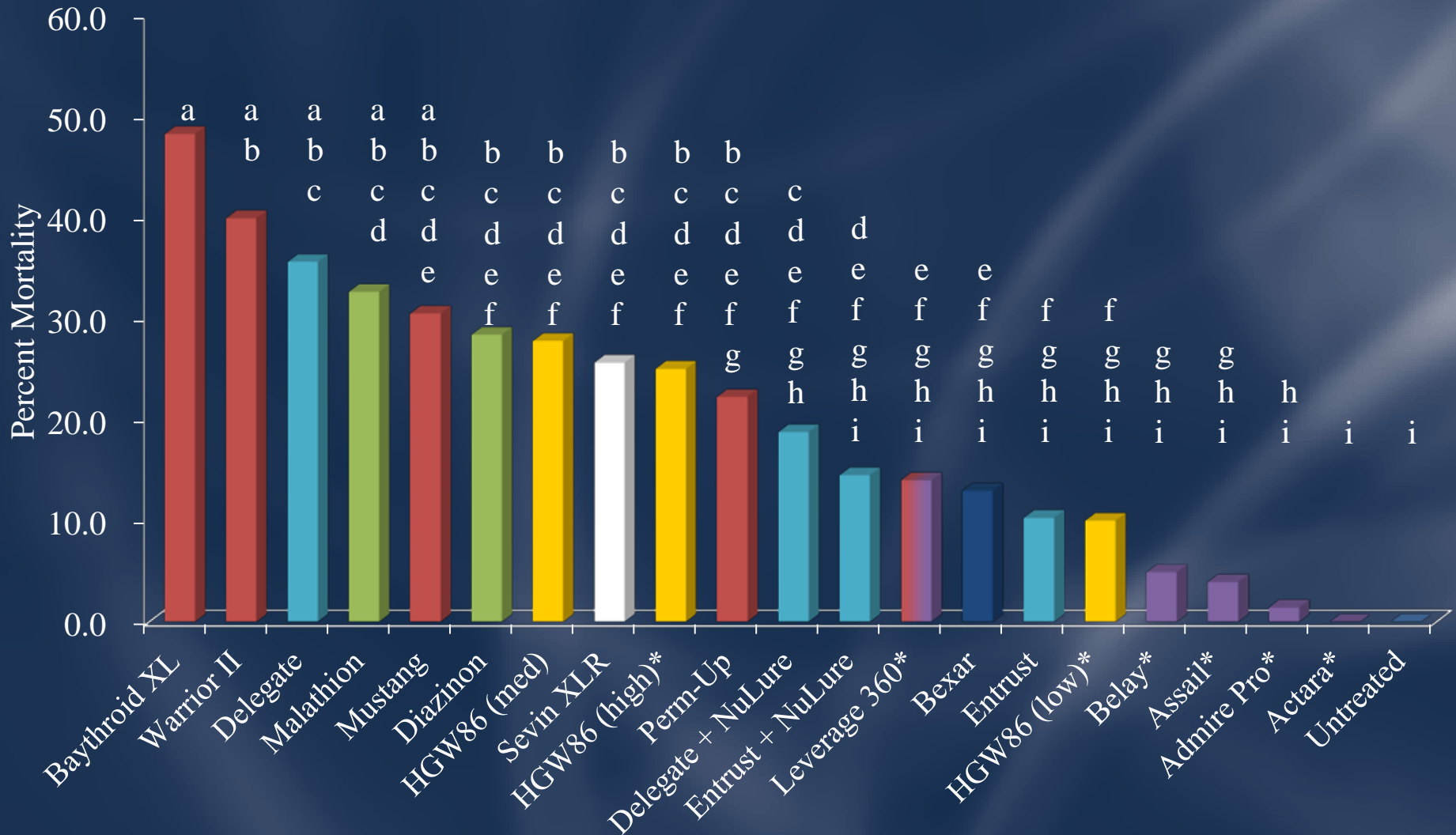
# Mean Percent Corrected Mortality at 1 DAT



\* Treatments included 0.25% v/v Dyne-Amic



# Mean Percent Corrected Mortality at 7 DAT



\* Treatments included 0.25% v/v Dyne-Amic



# WAA

## Experimental Design

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- A commercial Gala orchard in San Joaquin County
- Seven treatments were replicated four times RCB
  - Each replicate was an individual tree
  - At least one buffer tree between each replicate





# Treatments

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<u>Treatment</u>	<u>Rate /ac</u>
1. Movento 2SC *	6.0 oz
2. Movento 2SC *	9.0 oz
3. Diazinon 50W *	32.0 oz
4. HGW86 10SE	10.1 oz
5. HGW86 10SE	13.5 oz
6. HGW86 10SE	20.5 oz
<u>7. Untreated check</u>	<u>----</u>



\*Treatment included Dyne-Amic at 0.25% v/v



# Evaluation

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- Infestation Rating
- Colony Composition



*Aphelinus mali* and woolly apple aphids

- Live adults or nymphs, dead WAA, and *A. mali* parasitized WAA



# Evaluation

## Woolly Apple Aphid Infestation Rating Criteria

Numeric  
value

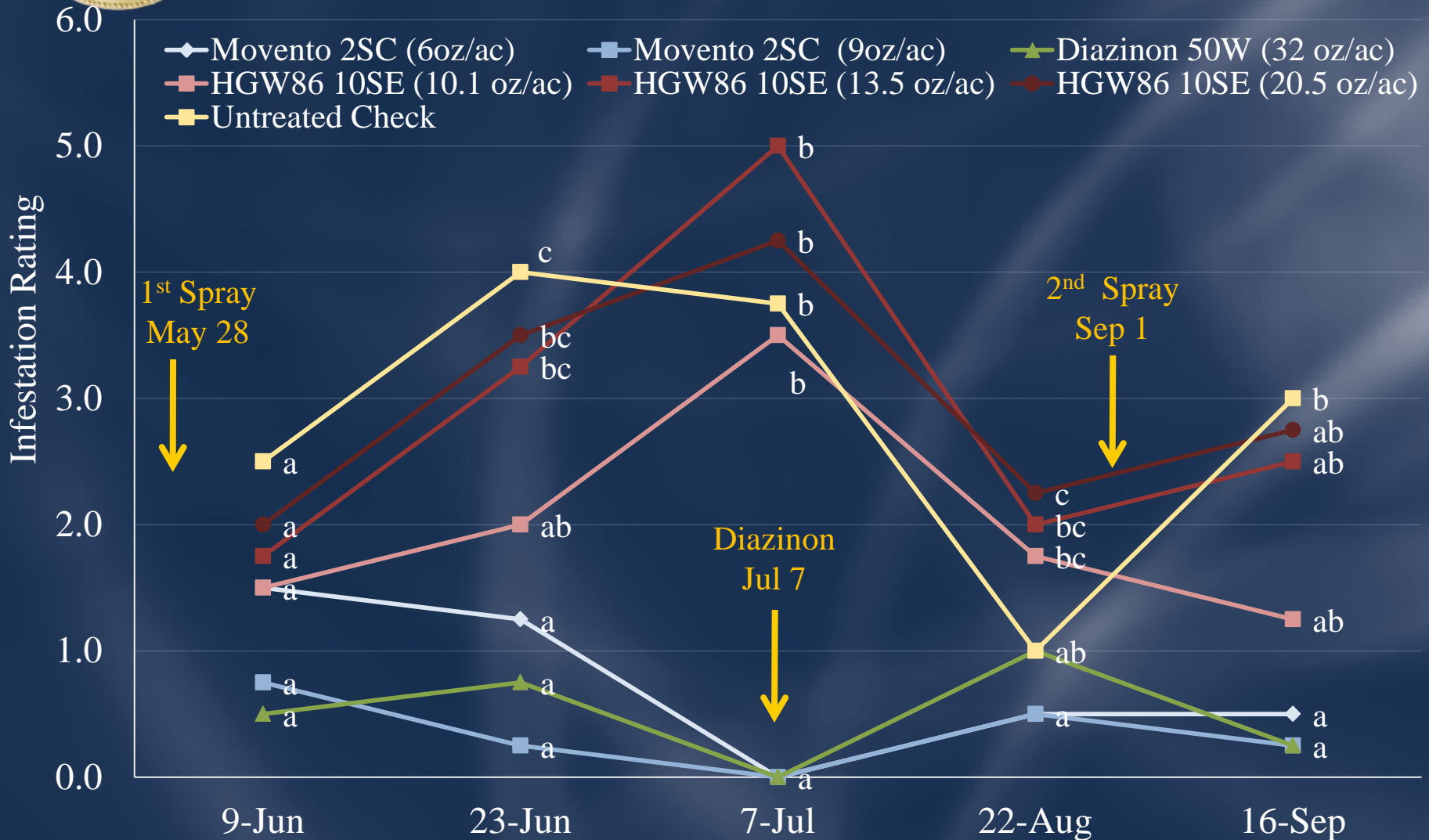
Infestation criteria

- |   |   |
|---|---|
| 0 | No visible WAA colonies   |
| 1 | Few colonies, difficult to locate, low in the tree                          |
| 2 | Colonies low density, easy to locate, low in the tree                       |
| 3 | Colonies moderate density, easy to locate, low in the tree                  |
| 4 | Colonies moderate density, easy to locate throughout the tree, not in fruit |
| 5 | Colonies moderate density, easy to locate throughout the tree, in fruit     |
| 6 | Colonies high density, observed throughout the tree, in fruit               |





# Infestation Level







# Acknowledgements

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QUESTIONS ANYONE?