



Management of Chilli Thrips, Mites & Blueberry Gall Midge in blueberries

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Chilli thrips *Scirtothrips dorsalis*



Adult

- Larvae and adults feed on new growth of blueberry
- Early damage appears as darkening of leaf veins and petioles
- Severe infestation causes deform and curl leaves leading to stunted plant growth



larva

Phillip Harmon

Chilli thrips injury in southern highbush blueberry



Bronzing Babu Panthi



Bronzing and curling Babu Panthi



Leaf curl Babu Panthi

Injuries resulting from chilli thrips



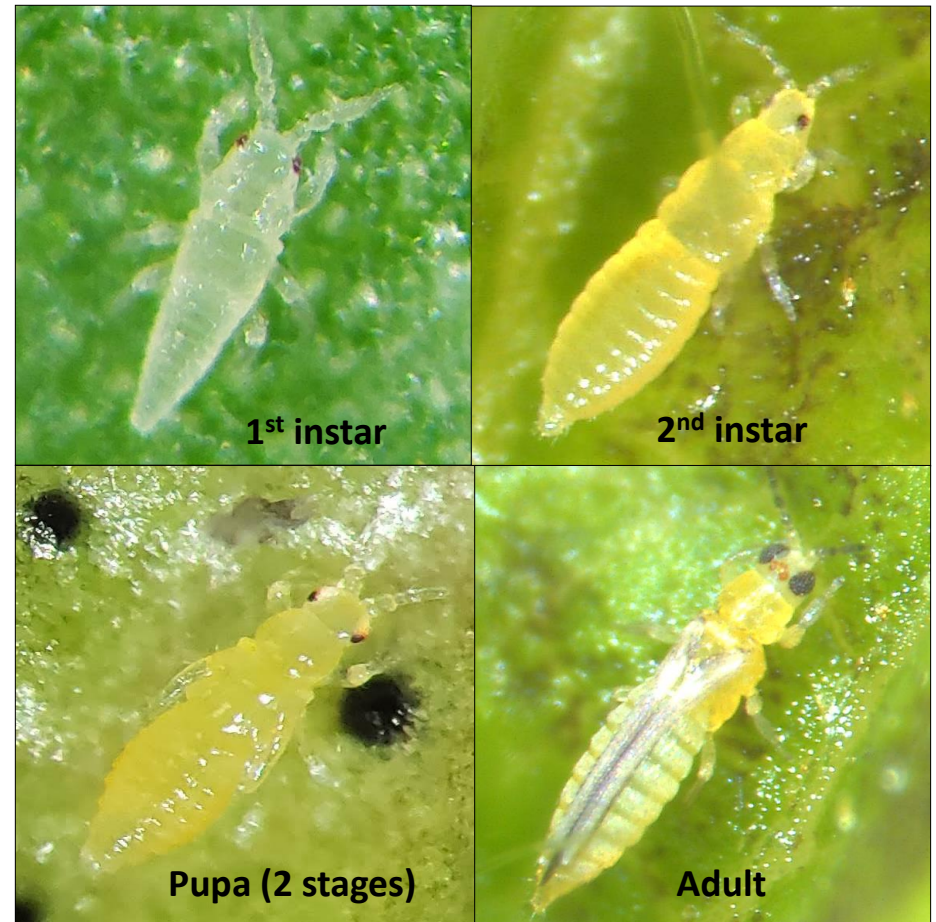
Leaf bronzing



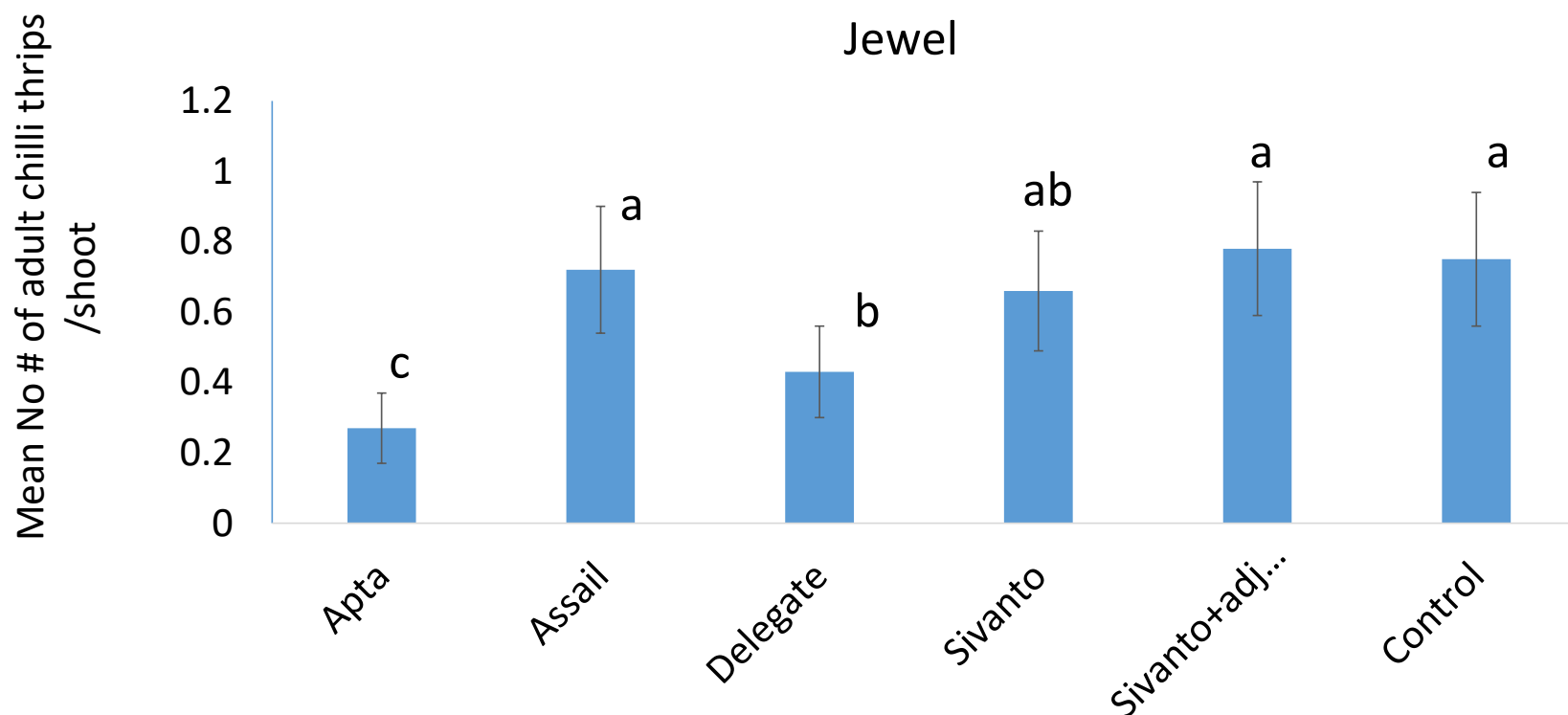
Die-back

Life cycle of Chilli thrips

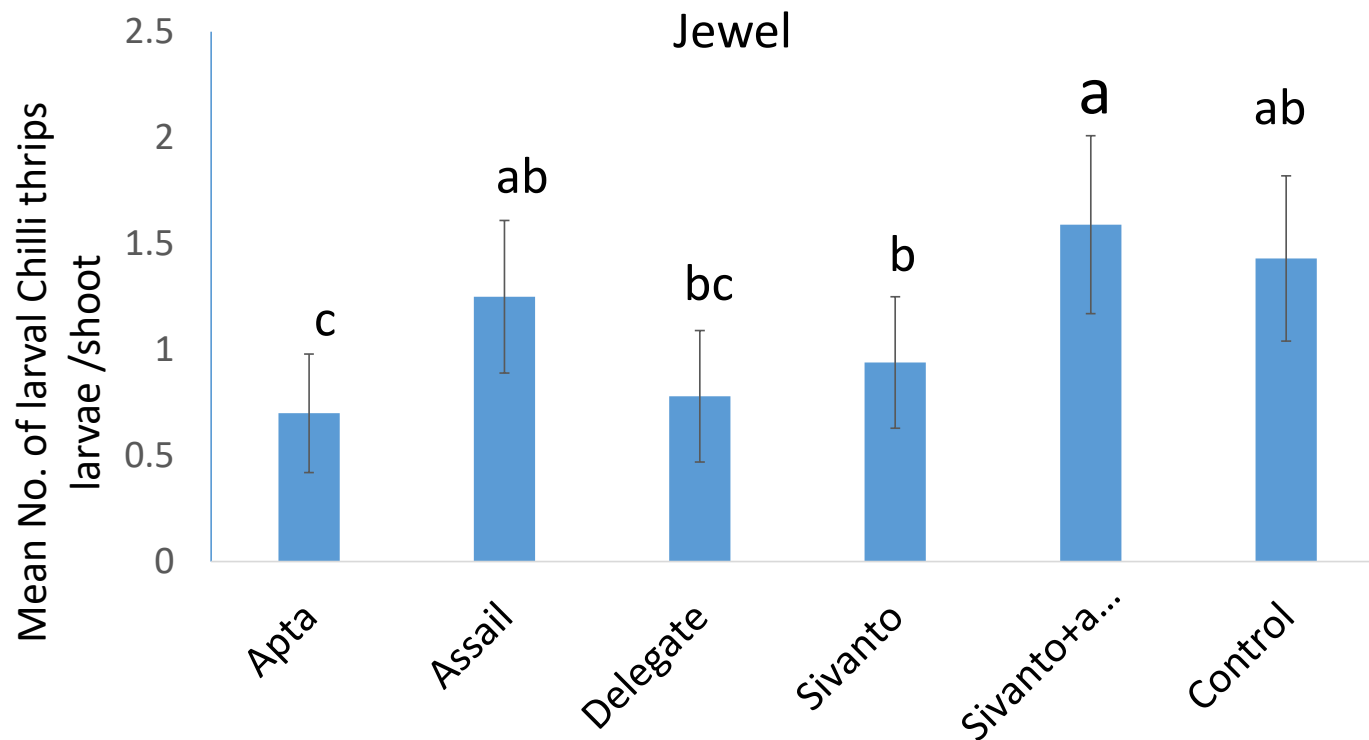
- Female oviposit eggs underneath the leaf tissue, around 60 eggs during its lifetime
- Development time at 25 °C
 - Egg: ~7 days (18-22 d to adults)
 - Two feeding larval instars: ~ 7 d
 - Two non-feeding pupal stages: ~6 days (pro-pupa and pupa)
 - Adult: ~18-22 days



Effects of insecticides on adult chilli thrips population



Effects of insecticides on larval chilli thrips population



Summary & Findings

- Apta, Delegate and Sivanto provides the most consistent control of chilli thrips
- Assail appears to be less effective against adults but controls larval thrips

Plant feeding mites in blueberry

False spider mite or flat mite



Photo credits: Rana Akyaza

Tenuipalpidae

Southern red mite (SRM)



Photo credits: Lyle Buss

Tetranychidae

- ✓ SRM is reddish brown
- ✓ False spider mite (FSM) orange red
- ✓ SRM is a tetranychid and is larger than FSM and more easily seen on the leaf
- ✓ SRM mite spins protective webs
- ✓ False spider mite does not spin a web
- ✓ SRM round elliptical body
- ✓ False spider mite is flat

Blueberry Leaf Injury

Symptoms of southern red mites, *Oligonychus ilicis*

- Purple or bronzed leaf color
- Leaf dryness and roughening with whitish spots on the lower side of the leaves (shed mite cuticles).
- Mottling, small yellow and reddish spots on the leaf



Blueberry symptoms associated with False spider mite

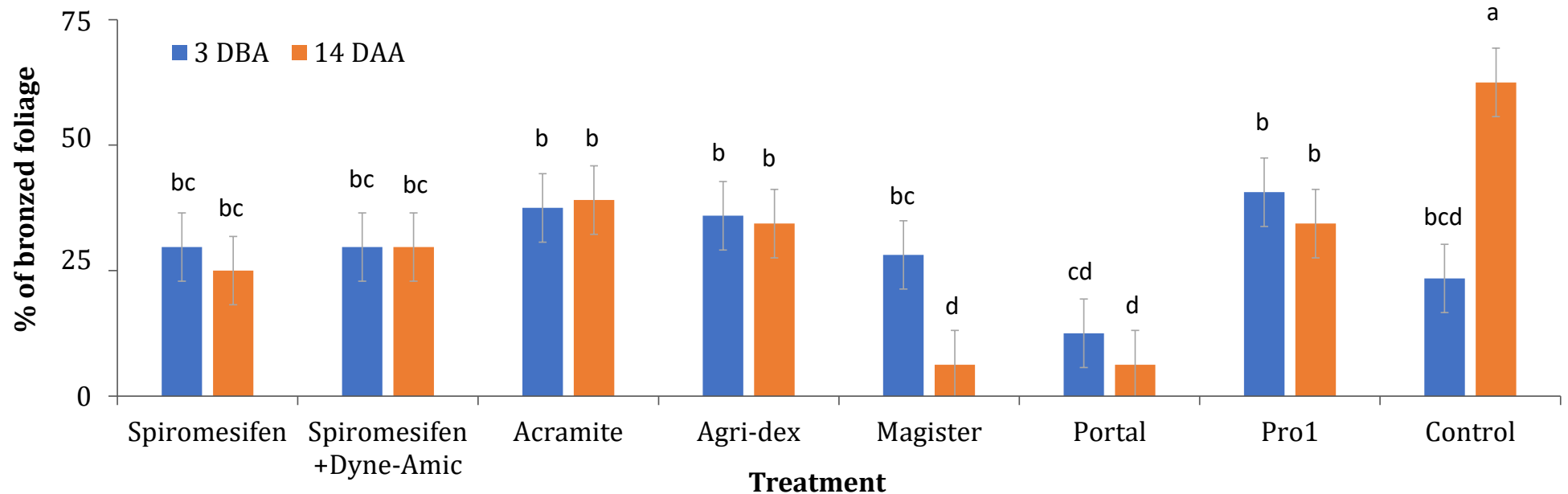


Tenuipalpidae



Necrotic brown spots appear on the leaf with symptoms of *Xylella* sp. (*Bacteria Xanthomonadales*)

Percentage of blueberry plants injured by mites



- Most treatments showed little or no reduction on blueberry bronzing symptoms over time except for bushes treated with Magister and Portal. There was a significant treatment-by-sampling event interaction for the plant damage ($F_{7, 237} = 3.63$; $P = 0.001$).

Conclusions

- Portal and Magister showed the best performance followed by spiromesifen for mite control
- Plant recovery only occurred with Portal and Magister
- Southern red mite was identified as the species causing the damage





Portal (Nichino America)

- Portal - active ingredient fenpyroximate is a contact miticide so thorough spray coverage is essential.
- Effective on all developmental stages of mites: larvae, nymphs, and adults
- Interfering with cellular respiration
- Growers can make two applications per year using the rate of 2 pints per acre
- 12-hour re-entry interval (REI) and a 1-day preharvest interval (PHI)



Magister (Gowan)

- Magister – active ingredient Fenazaquin, Ingestion and contact (dermal)
- Mode of action is the disruption of the biochemistry of insect mitochondria
- Controls all stages of mites: larvae, nymphs, and adults
- Growers can make only one application per year using the rate of 24-36 FL OZ per acre
- REI 12 hours and PHI is 7 days

Blueberry Gall Midge

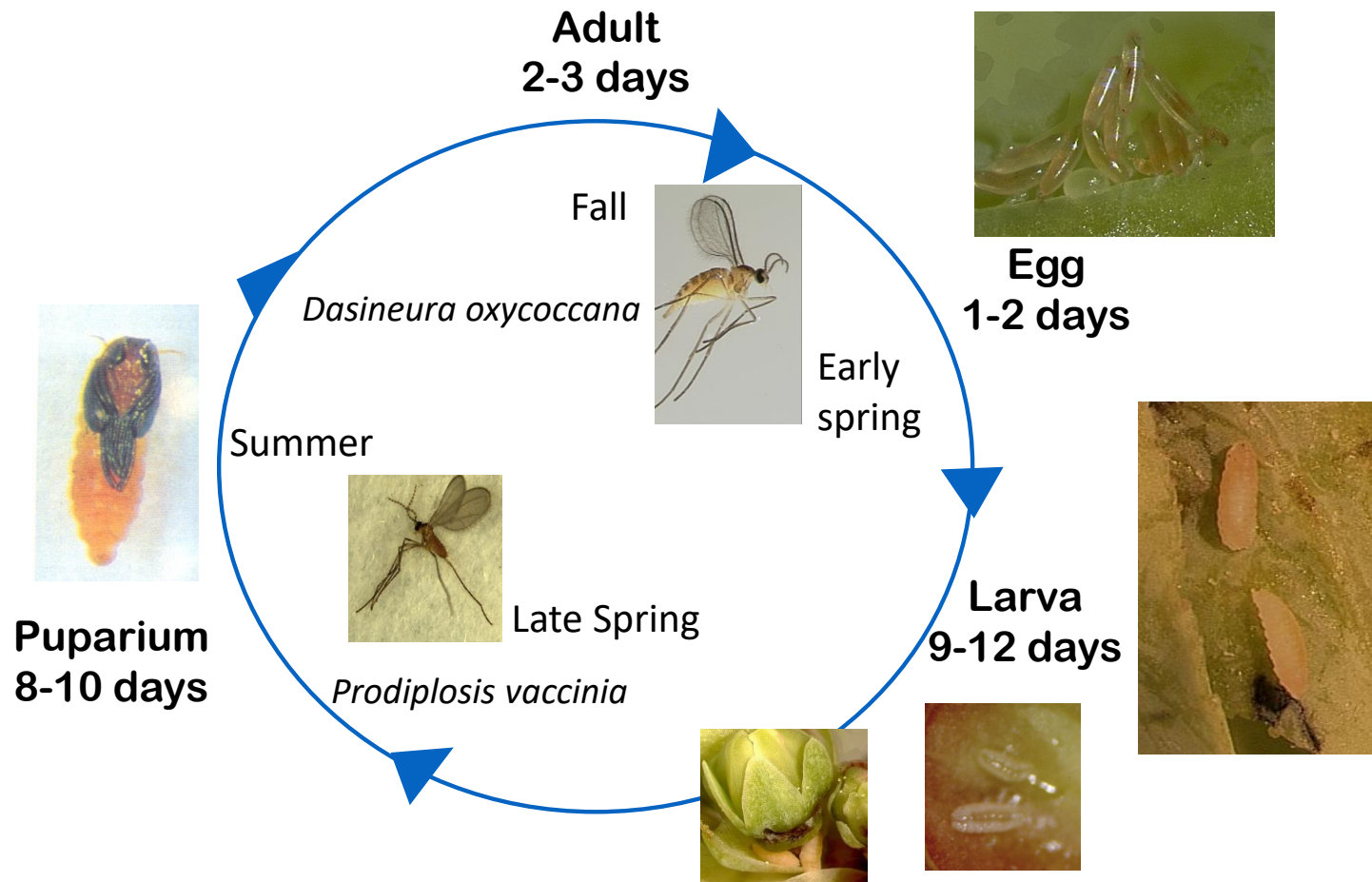


Dasineura oxycoccana



Prodiplosis vacciniae

Lifecycle – Blueberry Gall Midge

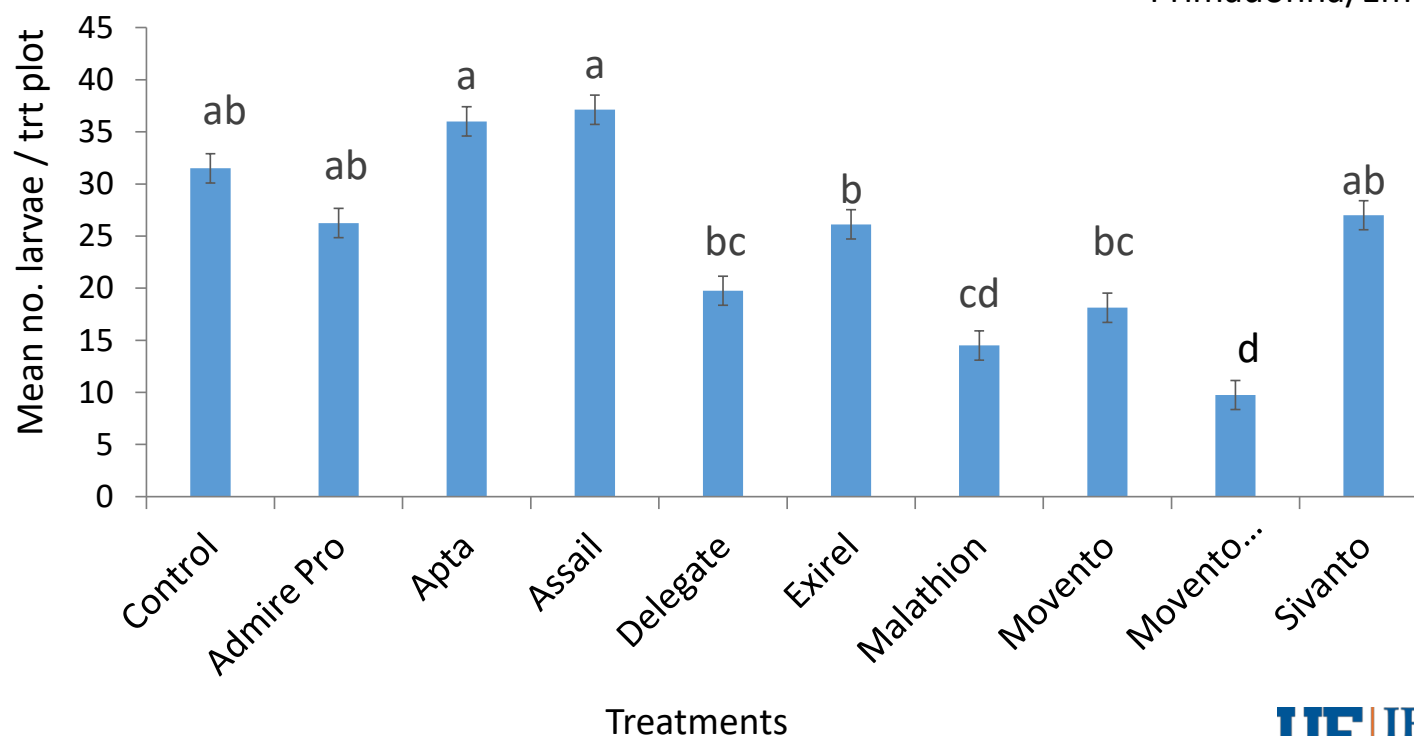


Blueberry gall midge Injury

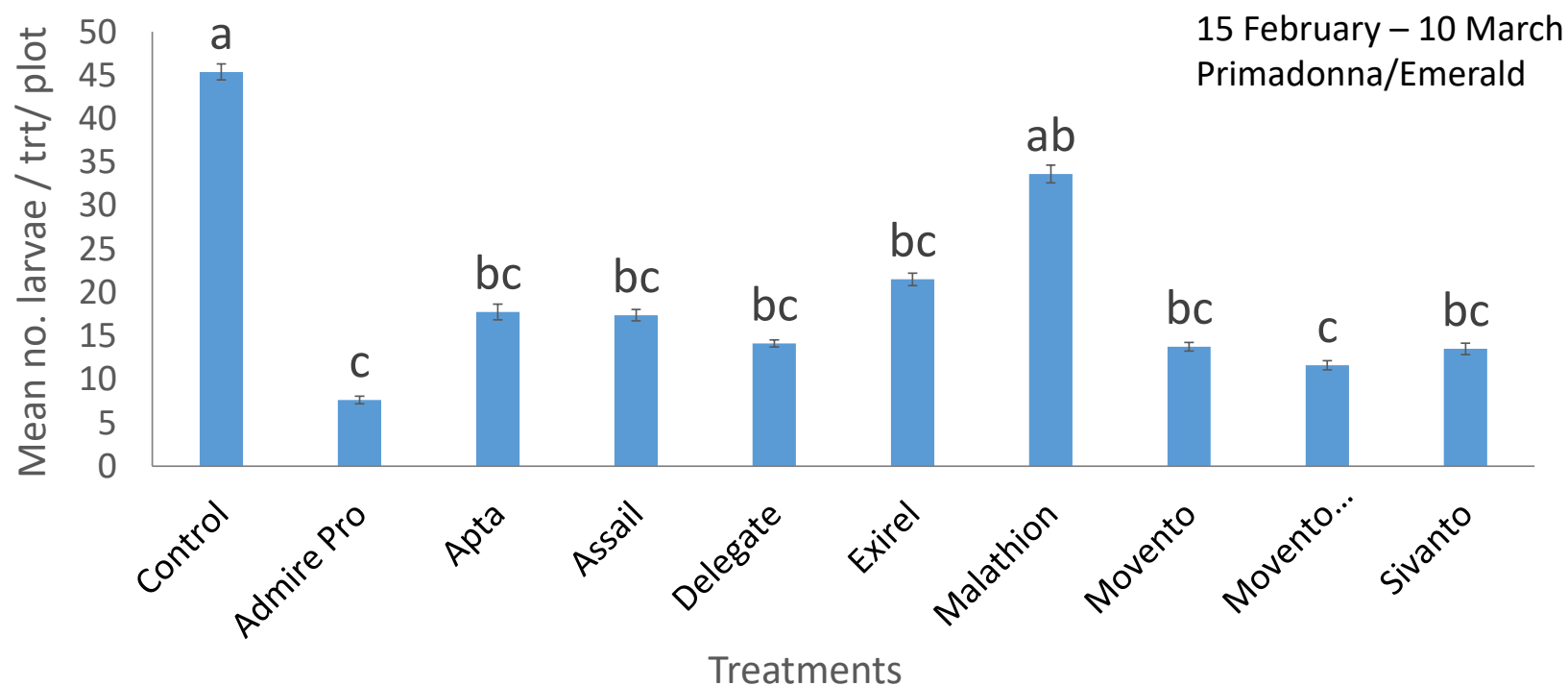


Larval infestation of blueberry gall midge 72 h post-pesticide application in southern highbush blueberry (2020)

15 February – 10 March
Primadonna/Emerald



Larval infestation of blueberry gall midge 10 d post-pesticide application in southern highbush blueberry (2020)



Summary and Findings

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- Admire Pro, Assail, Delegate, Exirel and Movento provides the most consistent control against BGM.
- Malathion?? Kills adult BGM but there is no sustain efficacy
- The insecticide Movento appears to be the most effective insecticide tool for reducing BGM.



Acknowledgements

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