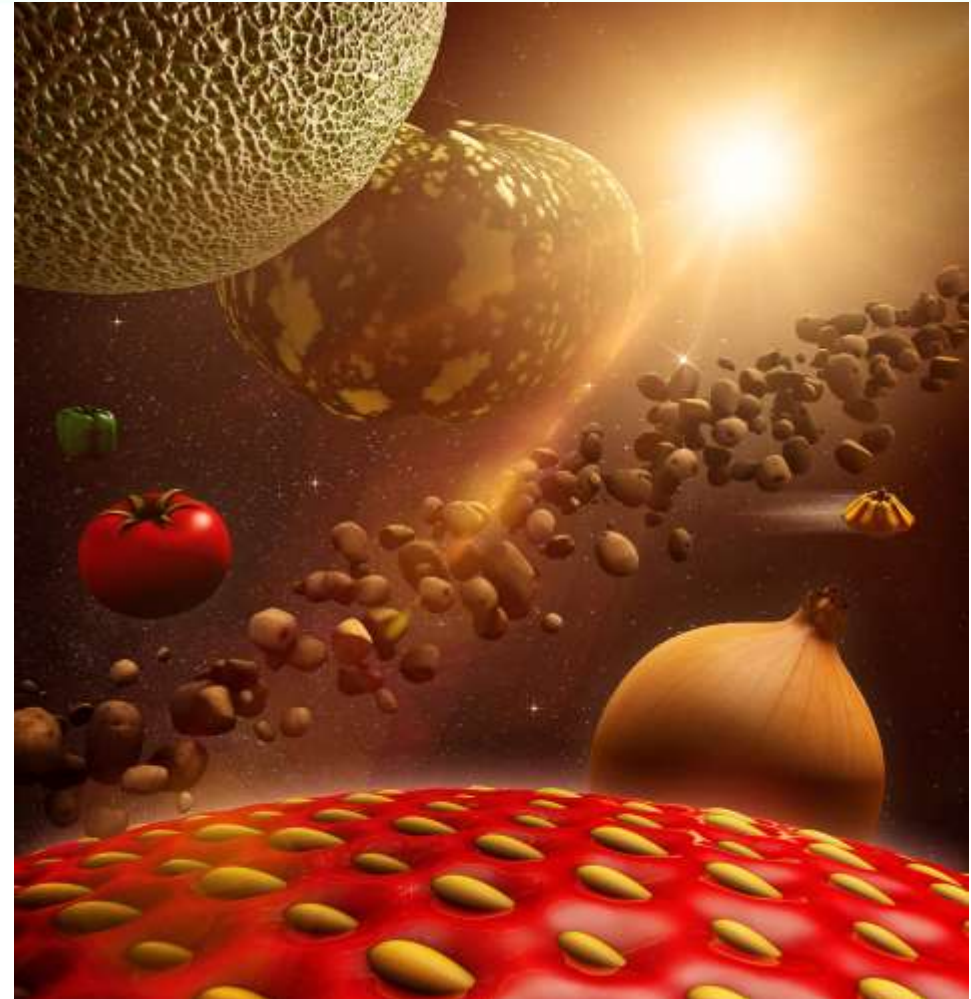




Benevia[®] insecticide Update

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Ulverstone, Tasmania
October 2018



EXPAND YOUR HORIZONS

FMC

Benevia[®] Agenda – Topics to be Covered

- Benevia[®] Product Overview
- Benevia[®] Large Plot Demonstration Trials and Learnings to date
- Benevia[®] future plans

Benevia[®] insecticide label – Australian registration 2017

GROUP	28	INSECTICIDE
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CROP	PEST	RATE/HA	WHP
Bulb vegetables including: Garlic, Onions, Shallots, Chives, Spring onions, Leeks, Fennel bulb	Onion thrips (<i>Thrips tabaci</i>) [Suppression only]	750 mL + non-ionic surfactant	7 days

Maximum of **three** applications per crop per season

Also registered for use in fruiting vegetables, cucurbits, potatoes and strawberries.

Benevia® Provides Outstanding & Extended Crop Protection

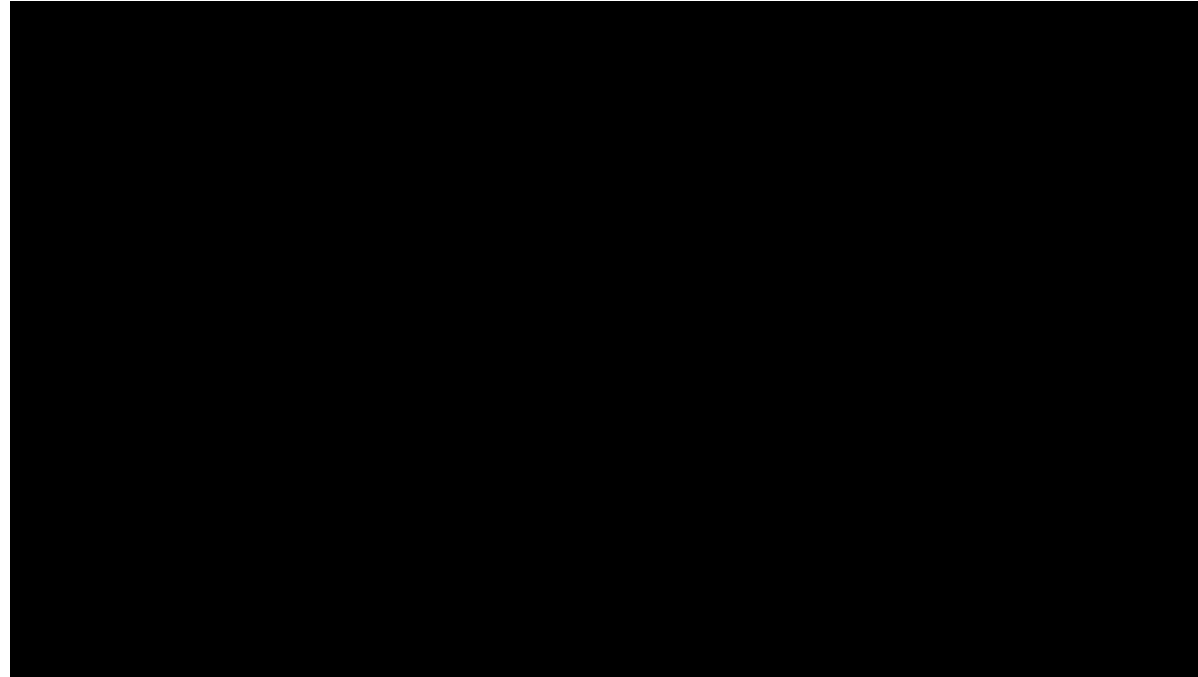
When applied early in pest infestation cycle, Benevia® helps to keep pest populations below damaging levels

Benevia® provides:

- Unique cross-spectrum activity on a range of key chewing, sucking and rasping pests
- Rapid feeding cessation and provides immediate crop protection from feeding damage
- Impact on multiple life stages including pest reproduction
- Translaminar activity and local translocation aiding coverage and control of pests in hidden feeding sites
- A new MOA for sucking pests – and is effective against pests resistant to other insecticides
- Selectivity to some key beneficial insects

Benevia[®] stops pest feeding very quickly providing almost immediate crop protection

Onion
thrips

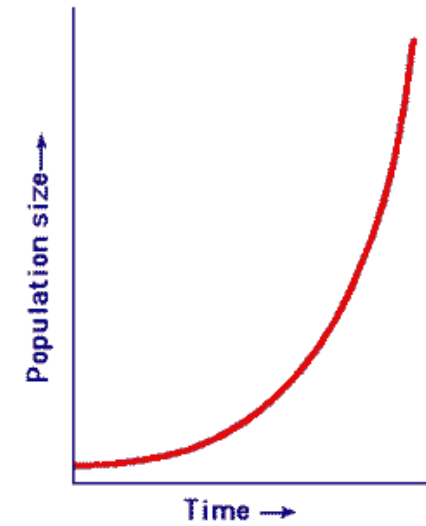


- Feeding activity of chewing & sucking pests coming into contact with **Benevia[®]** treated crops stops very rapidly, providing almost immediate crop protection
- Actual mortality of pests may take a few days depending on pest species, dose & environmental conditions

Why control onion thrips in **onions**?

- Excessive numbers during bulb formation stage can reduce photosynthetic leaf area impacting on bulb filling
- Cause significant cosmetic damage to red onion bulbs – less of an issue in brown and white onions
- Damaged leaf structure increases plant susceptibility to leaf diseases such as downy mildew
- Excessive numbers at harvest can cause bulb storage issues
- Vector of Iris yellow spot virus (tosspovirus)

Aim is to proactively prevent or delay the exponential growth of the onion thrips population during the production phase so as to minimise the above effects



Why use Benevia® for onion thrips management?

- Compatible with IPM approach
- Insecticide Resistance Management Strategy – Group 28 in rotation with Group 23
- Another unique mode of action tool to support Movento* for IPM focused season long onion thrips control
- Effective control of heliothis (not currently labelled in bulb vegetables)



Benevia[®] Large Plot Demonstration Trial Update

- Conducting a series of Large Plot commercial trials this season (2018/19)
 - Each treatment ~1 hectare with 10 sub-plots per block for monitoring purposes
- Comparing Benevia[®] fb Movento* with Movento* fb. Benevia[®] where possible
- Weekly monitoring of thrips efficacy, crop protection and beneficial insect observations
- Grower feedback on pack-outs and storage



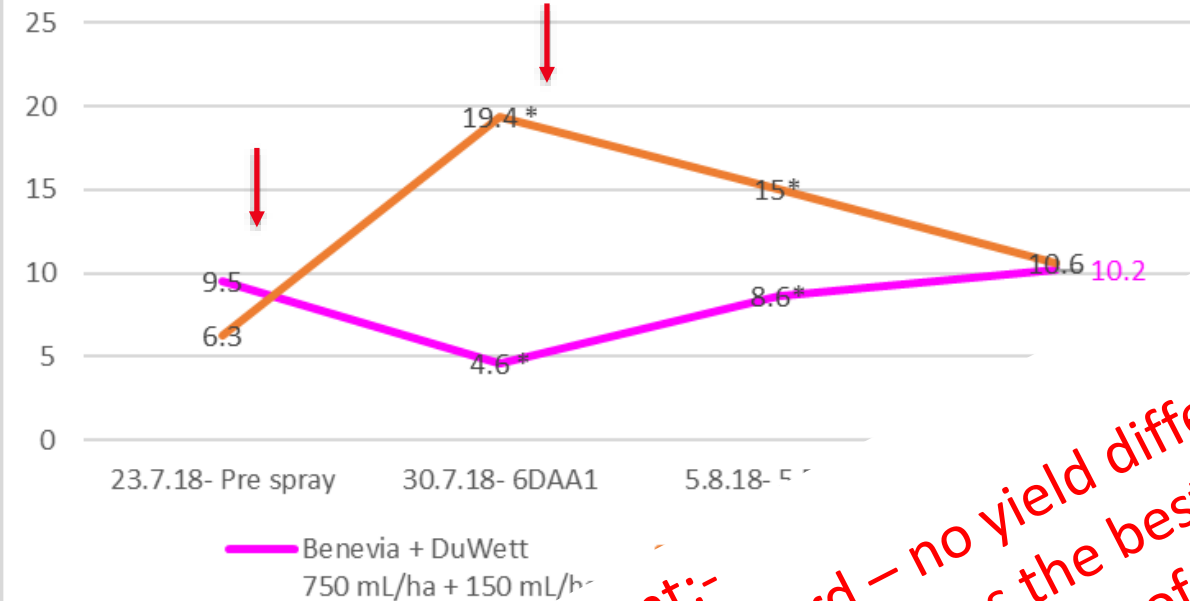
Garlic 31.8.18



Copperhead brown onion 18.8.18

AUJ-18-003 – Garlic (Drip), Wondai, Qld.

Top field - Total number thrips per plant



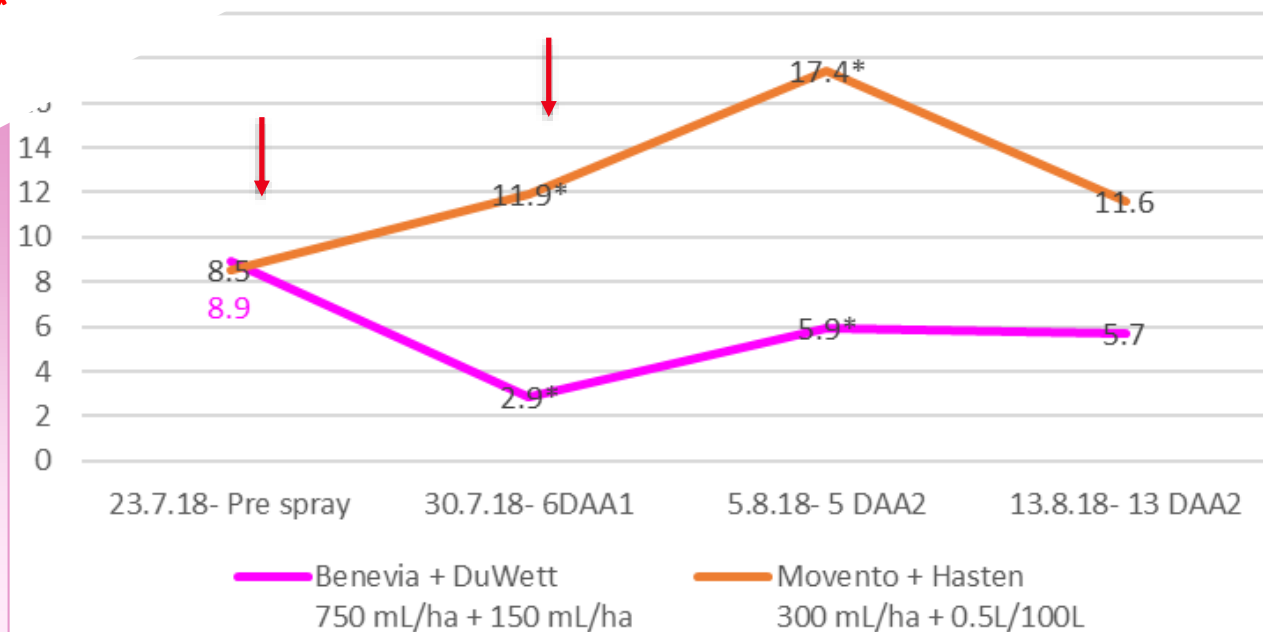
Application 1 – 24.7.2018. 3-point linkage. 04 Lechler 4000. Application 2 – 31.7.2018. 3-point linkage. 04 Lechler 4000. 5 bar pressure;

Grower comment:-
 “Garlic harvest a record – no yield difference between Movento* and Benevia® – liked Benevia® as the best on garlic for thrips control and soft chemistry – we had big numbers of ladybeetles whilst harvesting and no thrips to be seen”.

Observations-

- (1). There were all thrips in both treatments.
- (2). Benevia® was better than Movento* in thrips numbers.
- (3). Movento* was better than Benevia® in ladybeetle numbers.
- (4). Spiders, damselflies, and ladybeetles were observed in both treatments albeit at different times.
- (5). As the “crop closed”, thrips numbers naturally declined.
- (6). Data was statistically analysed using a T-test pairwise comparison. Means followed by * were significantly different (P=0.05).

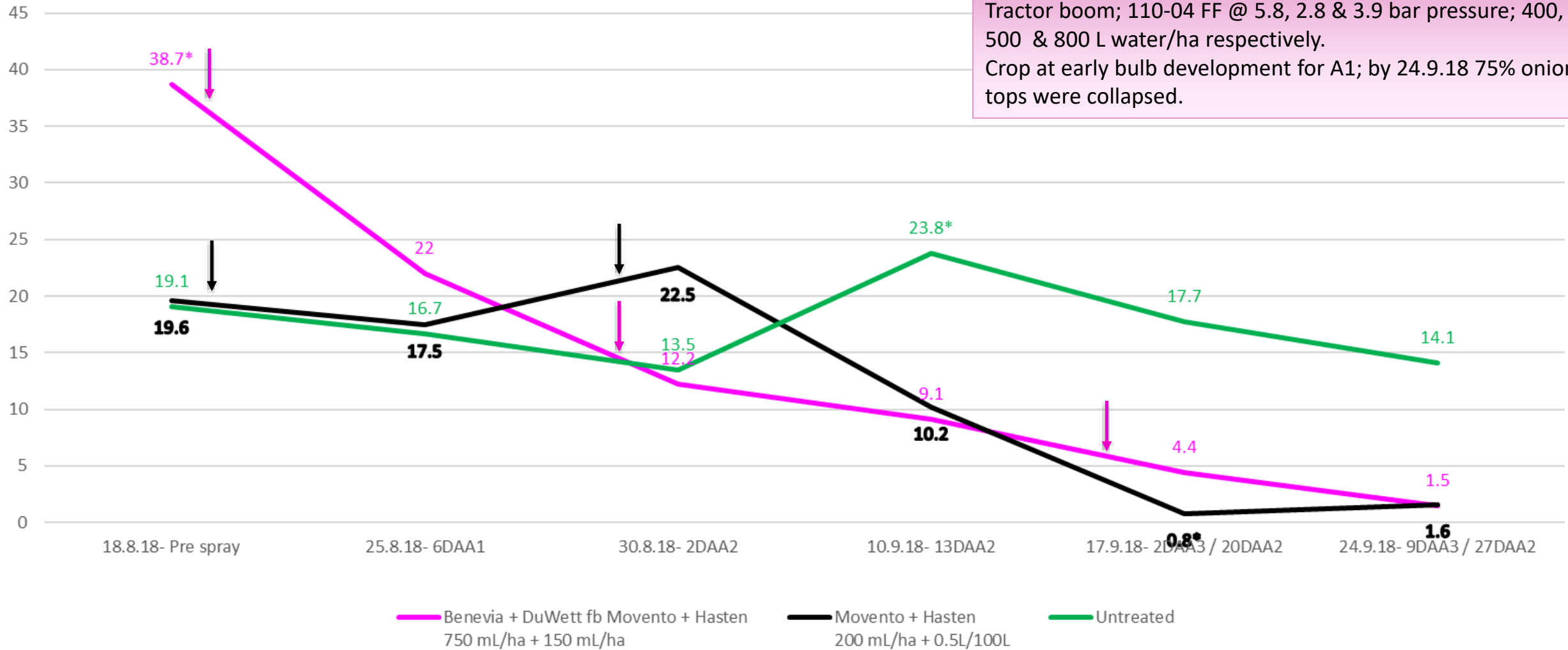
Field - Total number thrips per plant



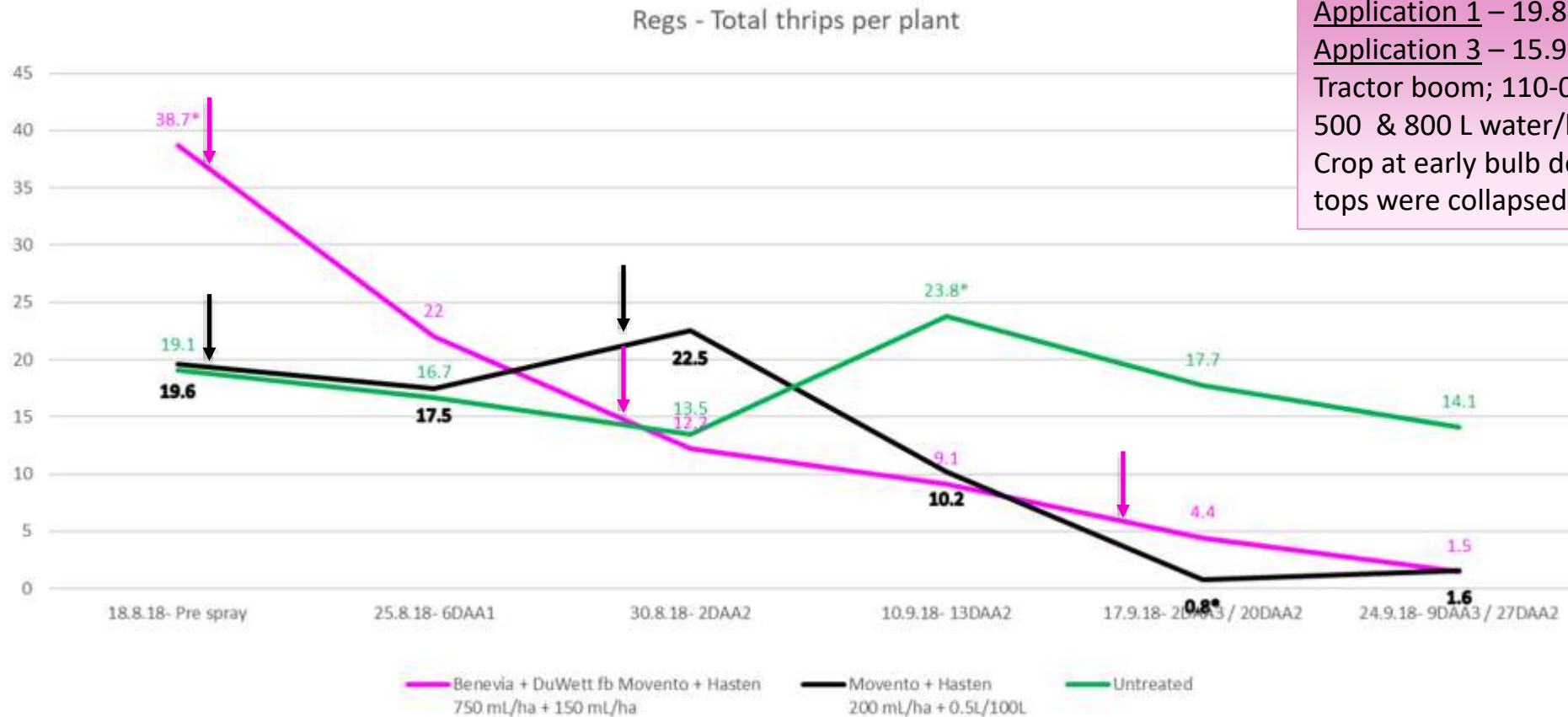
Benevia® - AUJ-18-004 – Copperhead brown onion (Sprinkler), Carpendale, Qld.

Regs - Total thrips per plant

Application 1 – 19.8.2018; Application 2 – 28.8.2018;
 Application 3 – 15.9.18 (Movento* on Benevia® block only).
 Tractor boom; 110-04 FF @ 5.8, 2.8 & 3.9 bar pressure; 400,
 500 & 800 L water/ha respectively.
 Crop at early bulb development for A1; by 24.9.18 75% onion
 tops were collapsed.



AUJ-18-004 – Copperhead brown onion (Sprinkler), Carpendale, Qld.



Application 1 – 19.8.2018; Application 2 – 28.8.2018;
Application 3 – 15.9.18 (Movento* on Benevia® block only).
Tractor boom; 110-04 FF @ 5.8, 2.8 & 3.9 bar pressure; 400, 500 & 800 L water/ha respectively.
Crop at early bulb development for A1; by 24.9.18 75% onion tops were collapsed.

Observations-

- (1). Thrips numbers in the untreated were often but not always higher than the insecticide treatments.
- (2). Both treatments eventually reduced onion thrips numbers to low levels compared to the untreated.
- (3). Leaf damage from thrips feeding was less in Movento* treatment compared to Benevia® treatment but neither were severe.
- (3). Predatory thrips & spiders were observed in both treatments albeit at low numbers.
- (4). As the onion tops collapsed (noticed on 17.9.18), thrips numbers naturally declined.
- (6). Data was statistically analysed using a T-test pairwise comparison. Means followed by * were significantly different (P=0.05).

Benevia[®] future plans

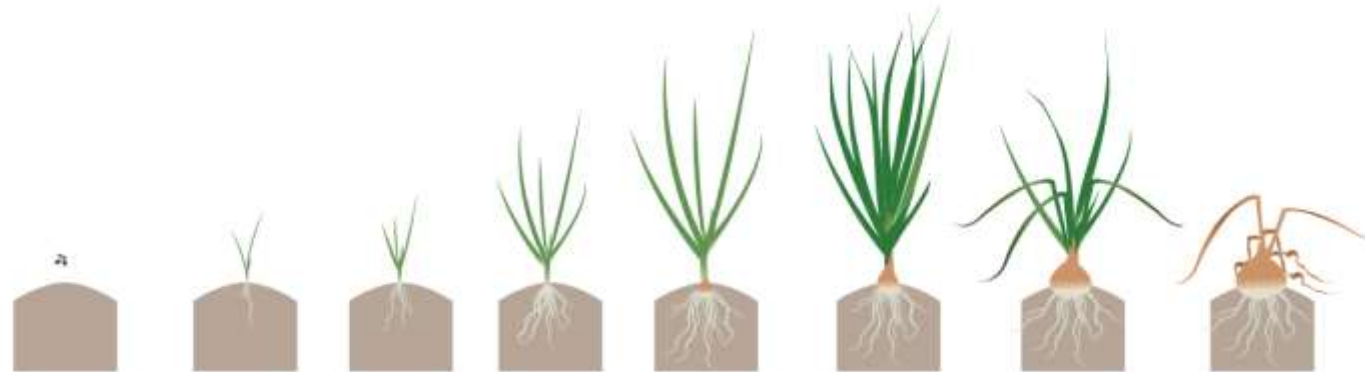
- Conduct similar trials this season in southern Australia
- Optimise application parameters for a difficult pest to target



Benevia® - Recommended positioning in Bulb Vegetables

Apply early in a pest infestation and early in the crop cycle to prevent the development of damaging pest populations

ONION (6-8 months)	SEEDING	1 – 4 TRUE LEAF	4+ TRUE LAF	BULB INITIATION	BULB SWELLING	LEAF FOLDING- MATURITY
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Pests	SEEDING	1 – 4 TRUE LEAF	4+ TRUE LAF	BULB INITIATION	BULB SWELLING	LEAF FOLDING- MATURITY
Onion thrips						
Insect control	SEEDING	1 – 4 TRUE LEAF	4+ TRUE LAF	BULB INITIATION	BULB SWELLING	LEAF FOLDING- MATURITY
BENEVIA® (maximum 3 back to back sprays 7-10 days apart)						
Non Group 28 MOA application						



1 insect generation Group 28 free spray period



Benevia[®] insecticide label – New Zealand registration 2013

GROUP	28	INSECTICIDE
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CROP	PEST	RATE/HA	WHP	CRITICAL COMMENTS
Onions	Thrips (<i>Thrips tabaci</i>)	500 mL + non-ionic surfactant	14 days	Regularly scout crops to monitor pest levels. Apply the first spray when pest thresholds have been reached and repeat at 7 – 10 day intervals. Use the shorter interval under conditions of high insect pressure. Ensure complete and thorough spray coverage. DO NOT use more than three (3) applications per crop per season. Further treatments should be made with appropriate alternative mode of action insecticides. Follow the “Onions NZ Industry thrips control strategy”.



Also registered for use in Field tomatoes and potatoes.

After 5 seasons of Benevia[®] use in NZ onions, best performance has been observed when-

- applied to early developing populations of thrips in younger crops,
- applying three sequential applications on 7 day spray intervals targeting a single thrips generation and then rotating to a different mode of action insecticide.

Benevia[®] is proving to be an important component of the thrips management programs in NZ onions.

Thank you for your attention and opportunity to present.

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