Technote

TomatoesNZ

Off-label use of Benevia®, Mainman®, Movento OD®, Calypso® for early season whitefly control in Greenhouse Tomatoes

Key Information

- Benevia®, Mainman®, Movento® OD, and Calypso® may provide whitefly control early in the growing cycle before releasing the biological control, *Encarsia formosa*.
- Preharvest intervals are recommended.
- These four insecticides are each in a different mode of action group, providing additional options for insecticide resistance management.
- Make no more than two applications of each product to greenhouse tomatoes.
- Observe the maximum per hectare application rates for Benevia®, Mainman®, and Movento® OD.

Background

To assist growers to access and use new insecticides, Tomatoes NZ carried out greenhouse trials through the A Lighter Touch programme to calculate appropriate pre harvest intervals (PHIs) for Benevia®, Mainman®, Movento® OD, and Calypso® in greenhouse tomatoes.

There are no registered use claims for Benevia®, Mainman®, Movento® OD, or Calypso® in greenhouse tomato crops.

Benevia® and Movento® OD are registered for use on field tomatoes, and MRLs have been set by MPI for both products in tomatoes. However, because the label is restricted to field tomatoes, trials were needed to establish an appropriate PHI for greenhouse tomatoes to meet the New Zealand MRLs for Benevia® and Movento® OD.

Mainman® and Calypso® have no registered uses for tomatoes, and no MRLs have been set for tomatoes. However, off-label use is permitted in New Zealand, as long as the default MRL of 0.10 mg/kg is not exceeded.

This Technote summarises the results of this research, so that growers know what use pattern of Benevia®, Mainman®, Movento® OD, and Calypso® will result in residues that do not exceed the New Zealand MRLs.

The PHIs for all of these products are relatively long, and it is suggested that the most suitable timing for their use is for whitefly control early in the growing cycle before releasing the biological control, *Encarsia formosa*.

Description of the insecticide products

Benevia® is a Group 28 insecticide, containing 100g/litre cyantraniliprole in the form of an oil dispersion. It has a field tomato label claim for control of Tomato potato psyllid, potato tuber moth, green peach aphid, and tomato fruit worm. Benevia® enters larvae mainly by ingestion, but also by contact, resulting in rapid cessation of feeding, but death may not occur for 3-6 days, depending on pest species.

Mainman® is a Group 29 insecticide, containing 500g/kg flonicamid in the form of a water dispersible granule. Mainman® has systemic and translaminer activity, controlling target pests by contact and ingestion by causing rapid and irreversible cessation of feeding. Death may take several days to occur. The product has a label claim for aphids and Tomato potato psyllid in potato crops.

Movento® OD is a Group 23 insecticide containing 150g/litre spirotetramat in the form of an oil dispersion. Movento® OD has systemic activity (both xylem- and phloem-mobile) and is registered for control of Tomato potato psyllid in field tomatoes and green peach aphid in potatoes.

Calypso® is a systemic Group 4 insecticide containing 480g/litre thiacloprid in the form of a suspension concentrate. It has label claims for the control of armoured scales, bronze beetle, codling moth, mealy bugs, Froggatt's apple leafhopper and Fuller's rose weevil in apples, thrips in avocados, armoured scales in kiwifruit, and thrips in nectarines and peaches.

Guidance for Off-label Use of Benevia®, Mainman®, Movento® OD, and Calypso®

Growers should follow NZGAP's Guideline for Growers whenever using agrichemicals off-label (https://www.nzgap.co.nz/NZGAP_Public/Growers/Guidelines.aspx).

Benevia®, Mainman®, Movento® OD, and Calypso® may be used off-label, however growers should check with their customers (supermarkets, marketing companies etc.) in case they have rules against off-label use.

Product	Rate	Use pattern and controls
Benevia®	33 ml Benevia®/ 100 litres of water.	• Maximum of 2 applications with a minimum spray interval of 7 days (refer to the Benevia label regarding specific pests). • Apply the final spray no later than 28 days before harvest. • DO NOT exceed the application rate – the maximum application rate[1] is 500ml Benevia® (50g active ingredient) per hectare, per application. • Observe label directions regarding honeybees.
Mainman®	11g Mainman® / 100 litres of water.	• Maximum of 2 applications with a minimum spray interval of 7 days. • Apply the final spray no later than 35 days before harvest. • DO NOT exceed the application rate – the maximum application rate[1] is 160g Mainman® (80g active ingredient) per hectare, per application.
Movento® OD	37ml Movento® OD /100 litres of water.	• Maximum of 2 applications with a minimum spray interval of 7 days. • Apply the final spray no later than 35 days before harvest. • DO NOT exceed the application rate – the maximum application rate[1] is 560ml Movento® OD (84g active ingredient) per hectare, per application.
Calypso®	30ml Calypso® / 100 litres of water.	• Maximum of 2 applications with a minimum spray interval of 7 days. • Apply the final spray no later than 35 days before harvest.

[1] *Maximum application rate as established by the Environmental Protection Authority.*

Residue testing

The residue trial for this project was carried out in one greenhouse on a single cherry tomato variety. Based on the results of these trials, we expect that a final spray application of Benevia® 28 days before harvest, and Movento® OD, Mainman®, and Calypso® 35 days before harvest will result in any residues being below the applicable New Zealand MRL. However, we still recommend that growers regularly undertake residue testing to ensure that their fruit remains compliant with the required MRLs. We also recommend that crop safety tests are carried out by growers on a small crop area before wider application.

Any residue exceeding the relevant MRL should be notified to Tomatoes NZ so that this information can then be added to the knowledge base.