

# Tech Update Autumn 2017

## SHIELD SYSTEMIC INSECTICIDE for suppression of mango seed weevil



In May 2017 the APVMA granted a permit (No. 84416 version 2) for the use of Shield Systemic Insecticide to reduce seed weevil numbers in mango orchards.

This tech update is to explain the background and how to get the best results from this use.

Sumitomo Chemical Australia has been testing this use pattern where application is through irrigation to the soil at the base of the tree. The tree then takes up the chemical and kills the weevil when it feeds on leaves and shoots. Although development is not complete The Australian Mango Industry Association requested that Sumitomo Chemical support a permit application due to the lack of alternative products. This permit has been granted based on trial results to date but it is important that growers understand how best to use Shield Systemic Insecticide and the factors that may limit its performance.

The permit contains some detail about the best rate to use, timing and method of application.

**IT IS IMPORTANT TO MAKE SURE THE DETAILS OF THIS PERMIT ARE CLEARLY UNDERSTOOD BEFORE THE PRODUCT IS USED.**



# Directions for use

CROP	PEST	RATE
Mango	Mango seed weevil	Apply 40 - 60mL through the micro-irrigation around the base of the tree.  For trees 10 - 20 years old, 3.5 - 5 m tall and 15 - 30 cm trunk diameter at a height of 0.5 m.  Use the 40 mL rate for the smaller tree size and increase with bigger trees to a maximum of 60 mL.

The following are important points to understand before using the product.

Some trials gave good results and some poor. Generally, where the result was poor it was related to application.

## A poor result will occur if:

1. Application occurs too late in the season. Seed weevil becomes active at flowering and best control is achieved when the chemical is taken up by the tree immediately after the end of flowering.
2. The trash under the trees is too thick and the product is not thoroughly irrigated into the soil.
3. Weeds that absorb the chemical are allowed to grow under the trees.
4. Application through the irrigation system is not evenly distributed across the block, sprinklers are blocked or not properly maintained.
5. The sprinklers throw the water out into the inter-row rather than just a confined area under the tree.
6. Trees are too big for the rate being used.

It is important that the area under the tree in the wetting zone does not have thick trash and weeds. Any weeds should be sprayed out at least 1 month prior to application and then kept clear until harvest.

If accurate application through the irrigation system cannot be guaranteed or sprinklers throw into the inter-row, then it may be better to apply the 40 - 60 mL Shield/tree as a drench with a handgun. Apply in 2 L of water to the soil, in an area about 1m in radius around the sprinklers and follow this with a thorough irrigation to wet the soil to at least 15 cm depth within 24 hours. Micro-sprinklers should generally have an output of at least 27 L/hr.

If the orchard has a dripper system then Shield should only be applied through the dripper system – followed by at least 8 hours of irrigation.

**GROWERS SHOULD CONSULT WITH THEIR LOCAL AGRONOMIST OR SUMITOMO CHEMICAL REPRESENTATIVE IF THEY HAVE ANY DOUBTS ABOUT THE APPLICATION.**

## Bee safety

Shield is dangerous to bees and may kill bees foraging in the crop at the time of application. This is why application should NOT take place until after flowering has finished.

Mortality is most likely to occur if bees drink the irrigation water or dew on the ground after application. Orchard floors with flowering weeds must be mown or sprayed prior to application.

Beekeepers that are known to have hives within 2km of the orchard should be notified at least 48 hours prior to application so they can be removed or otherwise protected. This is particularly important if bee hives are placed in adjacent blocks for pollinating crops like melons or zucchinis.

## Limitations

**Due to the nature of the pest and limitations of the application method it is likely that there may still be a level of seed weevil infestation at harvest. Shield should be used in conjunction with other control measures like orchard hygiene and knockdown insecticides.**

**Growers should sample their fruit prior to harvest to check for infestation. Fruit that is destined for countries with quarantine restrictions on seed weevil may also require irradiation.**

## Residues

A maximum residue limit is still to be set by FSANZ. It is expected this could take 3 - 4 months, and may be available by September 2017.

Below is a summary of residue trials to date. It is clear that while zero residues can be obtained at harvest some low residues may still occur. From these results it seems that the onset of the wet season may cause some further uptake of chemical.

Growers should be aware of the residue requirements of the country to which they will export their fruit and test their fruit prior to harvest.

Location	Variety	Soil type	Tree size/age	Irrigation before and immediately after application	Date applied	Harvest date	Rate mL/ tree	Residue mg/ kg
Bowen N Qld	Kensington pride	Sandy loam	20 yrs old	Pre 32 mm Post 84 mm	31/8/12	3/12/12	40	<LOD
							60	<LOD
Bowen N Qld	R2E2	Sandy loam	12 yrs old	Pre 29 mm Post 73 mm	29/8/12	4/12/12	40	<LOD
							60	<LOD
Bundaberg S Qld	Honey gold	Sandy loam	Not recorded	Trickle	25/9/12	5/2/13	40	0.006
							60	0.014
Gingin WA	Kensington pride	Grey sand	14 yrs old	Pre 90 L/tree Post 225 L/ tree	19/10/12	25/2/13	40	0.011
							60	0.022

LOD = Limit of detection.

## Withholding period

The current permit sets the withholding period as 16 weeks. In central Queensland and the Northern territory this will make the timing between application and harvest very tight. Growers should check this before application.



# Other pests

Shield Systemic Insecticide correctly applied is likely to also give suppression of other mango pests like flattids and scale.



CHECKLIST BEFORE USING SHIELD SYSTEMIC INSECTICIDE IN MANGOES	TICK
Have you read the permit (No 84416 version 2)?	<input type="checkbox"/>
Shield Systemic Insecticide must be used in conjunction with other control measures e.g. orchard hygiene, knockdown insecticides, irradiation?	<input type="checkbox"/>
Do NOT apply before the end of flowering.	<input type="checkbox"/>
This is the first and only application of Shield Systemic Insecticide this season.	<input type="checkbox"/>
Have you checked that there are no bee hives within 2 km from the orchards to be sprayed and have you given at least 48 hours notice to beekeepers to remove any bee hives to outside of this radius?	<input type="checkbox"/>
Have you informed neighbours with flowering fruit and vegetable crops who may be using bees for pollination?	<input type="checkbox"/>
Is the area under the tree free of weeds and not covered in a thick layer of trash or mulch?	<input type="checkbox"/>
Are the sprinklers properly maintained (not blocked, delivers the correct output [minimum of 27 L/hr] and throw, and waters evenly under the trees)?	<input type="checkbox"/>
Are you aware of the alternative drench method of application should the sprinkler system be inadequate or throw further than the drip line: Apply the required rate as a drench in 2 L of water to cover the area within 1m radius from the sprinkler and then thoroughly irrigate within 24 hours.	<input type="checkbox"/>
Note the phone numbers for the Sumitomo Chemical representatives below should you require further advice concerning this application.	<input type="checkbox"/>

For further information on Shield Systemic Insecticide, please contact:

Patrick Press (QLD & N NSW)                      0417 085 160  
Andrew Franklin (FNQ)                              0408 063 371  
Danita Clark (Central QLD)                        0447 000 622  
OR our Sydney office:                                (02) 8752 9000



**Scan here to see more information  
about Shield Systemic Insecticide**



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