GRAPES

USER GUIDE

Confidor

Powerful Systemic Mealybug Control in Grapes

With increasing incidence in vineyards, controlling mealybugs is of vital importance to the New Zealand wine grapes industry, due to their role in transmitting the devastating Grape Leaf Roll Virus (GLRV^3). GLRV^3 debilitates vines and seriously impacts grape and wine quality. Once vines are infected there is no cure, necessitating vine removal. GLRV^3 can affect both red and white varieties but is more noticeable on red varieties due to the characteristic reddening symptoms on leaves. GLRV^3 is spread within vineyards by mealybugs, so controlling mealybugs is a key component in industry virus elimination programmes.

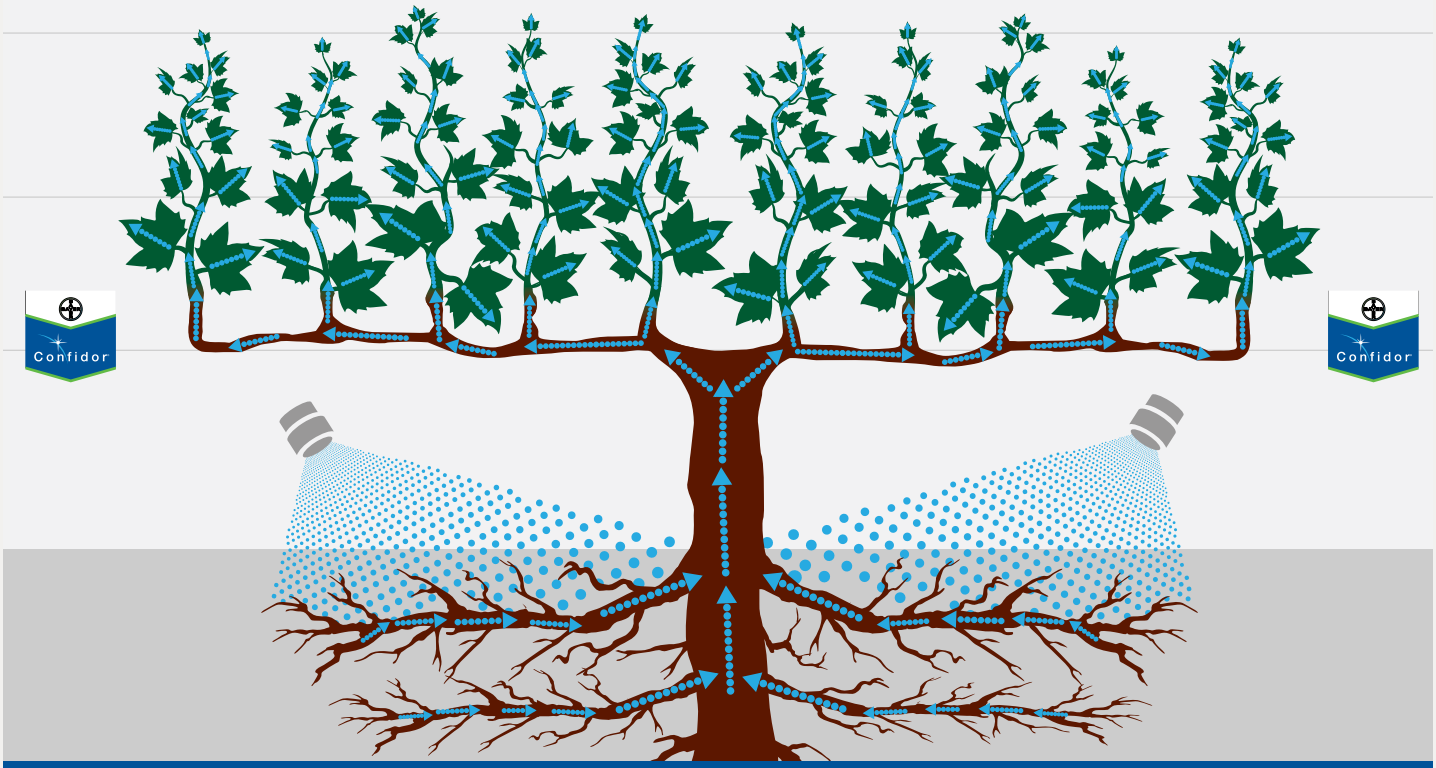
There are two key mealybug species present in New Zealand vineyards, long-tailed and citrophilus, which both transmit GLRV^3. In New Zealand vineyards there are usually 2-3 generations per year. In the autumn, adult female mealybugs retreat into cracks and crevices, under the bark and on the roots of vines. In the spring crawlers are produced and in the case of long tailed mealybugs, each female gives birth to between 100-400 live young as crawlers. These crawlers move onto the young grape foliage. Crawlers are further distributed in the vineyard through wind dispersion or on orchard machinery. Female crawlers pass through 3 instars before becoming adults. If not controlled, the high fecundity of mealybugs can result in massive late season population increases, resulting in classic sooty mould symptoms on the vines. Often sooty mould is the first indication of mealybug infestation as they prefer hidden and protected parts of the vine like cracks and crevices, undersides of leaves and inside fruit bunches. Controlling mealybugs in grapes has been challenging in the past as they are difficult to directly contact with sprays.

Females of the long-tailed mealybug.

Leaf symptoms of GLRV^3 on a red variety.

From 2011 Confidor has been available as a drench application for mealybug control on non-bearing vines and vines destined for removal. For 2015 Confidor now has a label claim for use on cropping vines and provides growers with a new robust tool in mealybug and virus control programmes. Confidor is only suitable for use in Managed MRL programmes. Bayer recommends consulting your wine company before using Confidor.

Confidor – The Product



Systemicity of Confidor (Figure 1)

Confidor is highly effective in controlling sucking insect pests, including mealybugs. Confidor acts by direct contact and through ingestion by interfering with the transmission of nerve impulses in insects. Confidor acts much more specifically on insect receptors than those of mammals. Due to its selective insect toxicity Confidor offers very favourable applicator and consumer safety.

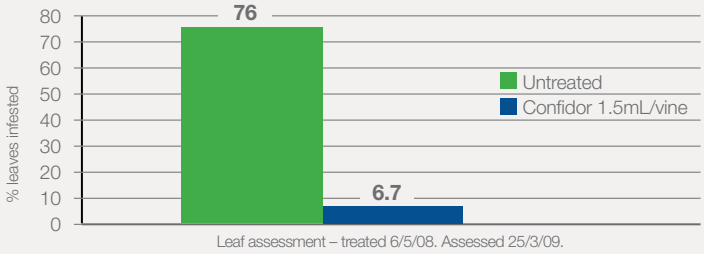
Confidor exhibits strong upwards systemicity in plants. When applied into the soil, Confidor is taken up through the roots and is moved upwards in plants *(see Figure 1 above).*

When used as a soil drench, Confidor is suitable for IPM (Integrated Pest Management). Predators and parasitoids are not directly harmed by soil application and their function is not detrimentally influenced. Confidor is toxic to bees by direct contact. Confidor should not be applied to flowering plants.

Trials conducted in New Zealand by Bayer and Plant and Food Research have demonstrated the effectiveness of Confidor in controlling mealybugs in grapes *(see graphs to the right).*

Grape Mealybug Trial 2008/09

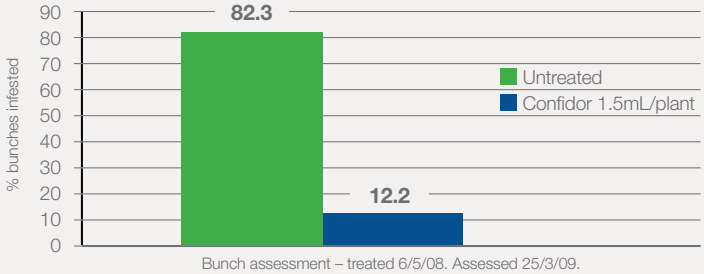
Pinot Noir - Plant & Food Research, Hawke's Bay



Leaf assessment – treated 6/5/08. Assessed 25/3/09.

Grape Mealybug Trial 2008/09

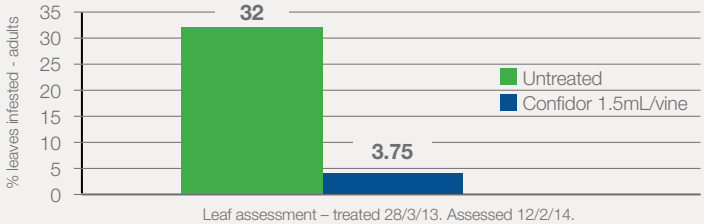
Cabernet Sauvignon - Plant & Food Research, Hawke's Bay



Bunch assessment – treated 6/5/08. Assessed 25/3/09.

Grape Mealybug Trial 2013/14

Pinot Noir - Peracto, Marlborough



Leaf assessment – treated 28/3/13. Assessed 12/2/14.

CONFIDOR: RECOMMENDATIONS FOR USE ON GRAPES **(BEARING VINES)**

PRODUCT	350 ml/L imidacloprid in the form of a suspension concentrate.
RATE	1.5 ml/vine in 500 ml of water.
APPLICATION TIMING	Apply in the period from post-harvest to the end of the second week of May.
APPLICATION METHOD	Apply with suitable application equipment targeting the rooting area of the vines. Apply in the rain or immediately prior to a rainfall or irrigation event. If rainfall is unlikely or irrigation is not possible, a post-treatment application of up to 2.0 L of water over the treated area per vine is recommended.
NUMBER OF APPLICATIONS	One per season.
WITHHOLDING PERIOD	Do not apply after the end of the second week of May.
RESIDUE STATUS	Confidor is only suitable for use in Managed MRL programmes. Bayer recommends consulting your wine company before using Confidor.
APPROVED HANDLER	Confidor must be under the control of an approved handler when applied in a wide dispersive manner or by a commercial contractor.
PACK SIZE	1 & 5 litre plastic bottle.

Best Practice Guidelines:

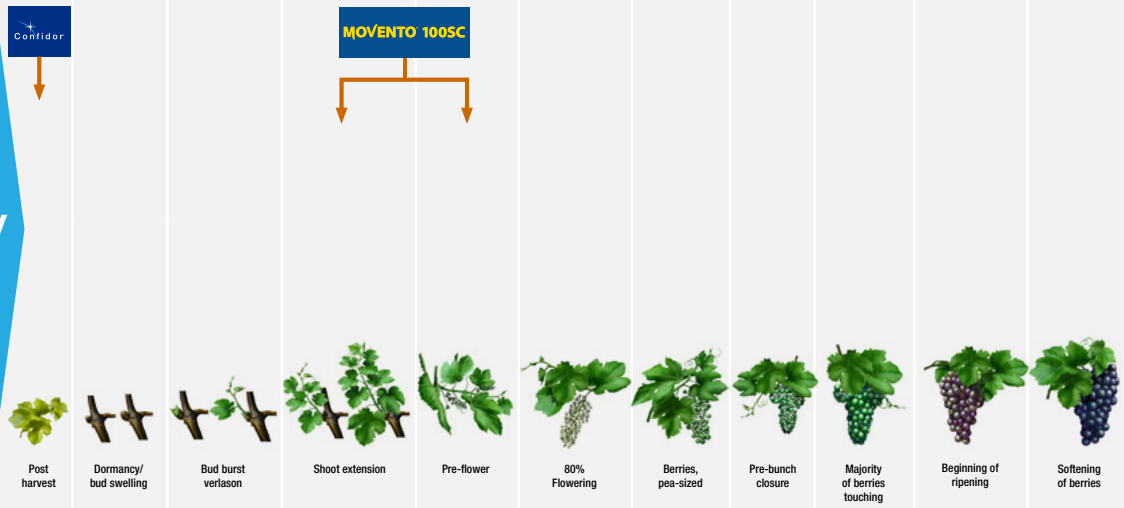
- Ensure Confidor is applied to bare soil and weeds are removed from the treated area prior to the application
- Ensure the treated area is within the rooting area of the vines
- Do not apply Confidor if flowering weeds are present at the time of application
- Ensure the treated area is kept free of weeds post the application
- Apply to moist soil if possible
- Ensure Confidor infiltrates into the soil at application or as soon as possible afterwards. If required, it is recommended the post treatment water application be applied within 2 days
- Do not leave Confidor exposed to the sunlight

Symptoms of Grape Leaf Roll Virus

CONFIDOR: RECOMMENDATIONS FOR USE ON GRAPES **(YOUNG NON-BEARING VINES AND VINES FOR REMOVAL)**

Use 1.5 ml in 500 ml of water per vine. Apply as a single soil drench treatment in autumn or winter around the base of non-bearing replant vines or vines awaiting removal. Ensure the treatment area covers the rooting area of the vines. If rainfall or overhead irrigation is not likely in the 2 days after drenching, apply 2.0 L of water per vine once the drench has soaked in.

Recommended mealybug spray programme



Benefits

Targets mealybugs at key timings.

- Confidor in autumn will control the late season and overwintering population
- Movento 100SC in the spring will control any crawlers produced from surviving population

Ideal for resistance management.

- Two different modes of action from different chemical groups
- Applications in different seasons

Both products are strongly systemic and ideal to control hidden pests like mealybugs that are difficult to target directly with sprays.

	CONFIDOR	MOVENTO 100SC
MODE OF ACTION	Stomach poison	Lipid biosynthesis inhibitor
CHEMICAL GROUP	4A	23
LIFE STAGE CONTROLLED	Adults and crawlers	Crawlers
SYSTEMICITY IN PLANTS	Upwards	2-way (upwards and downwards)
APPLICATION METHOD	Soil drench	Foliar spray
APPLICATION TIMING	Autumn	Spring

Regional sales managers

Upper North Island	Phil Bertram	021 426 825
Gisborne / Hawke's Bay / Nelson / Marlborough	Marc Fox	021 426 823
Lower North Island	Jeff Smith	021 426 824
North and Mid Canterbury	David Parker	021 760 794
Otago and Southland	Daniel Suddaby	021 426 822

Insist on Confidor from Bayer.

www.cropscience.bayer.co.nz

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