

### KEY POINTS

- *BIOPEST*® produces high levels of rapid mortality, with most mortality occurring within 15 minutes of spraying
- *BIOPEST*® works by causing the aphids to suffocate, modifying pest behavior and interfering with the virus transmission process.
- Use *BIOPEST*® as a preventative at 2% as a tank mix partner in post emergent applications.
- Use *BIOPEST*® at 2% as a curative either standalone or in a tank mix.

Over the last few seasons, SACOA has been conducting research into aphid control with *BIOPEST*® in canola. While the yield loss from aphids transmitting Beet Western Yellow Virus (BWYV) still causes conjecture, it is generally understood that the earlier aphids come in, the greater the yield loss may be at the end of the season.

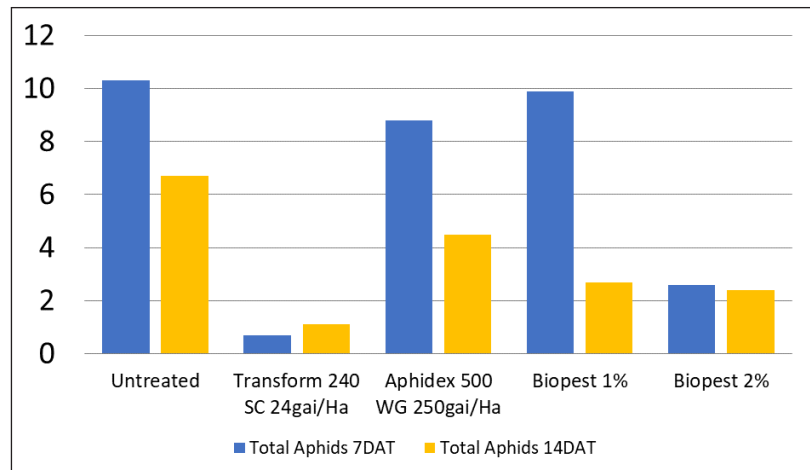
*BIOPEST*® is a highly refined biorational pesticide designed for use as a carrier, fungicide, insecticide and to manage aphid-transmitted viruses such as BWYV.

### MODE OF ACTION

As a biorational pesticide, *BIOPEST*® has two key functions in the management of aphid-borne viruses:

1. Plant Virus Management
2. Insecticide

### Green Peach Aphid Control in Canola



**Graph 1:** Green Peach Aphid control with *BIOPEST* and other products  
(Source: Peracto SAC00114 – Moora, Oct 2014)

### Plant Virus Management

Stylet-borne plant viruses can be transmitted by the probes of winged aphids in less than 20 seconds after landing on the upper leaf surface of host plants.

*BIOPEST*® interferes with the virus transmission process preventing the pest from inoculating healthy plants and transmitting the virus from diseased ones.

### Insecticide

*BIOPEST*® effectively manages aphids in two ways:

1. Behaviour modification, primarily by modifying insect feeding and egg laying behaviours
2. By suffocation (anoxia)

### HOW BEHAVIOUR

#### MODIFICATION OCCURS

Plant feeding insects use hollow hairs ('sensillae') to detect special chemicals in plants, which identify the plant as a host or non-host.

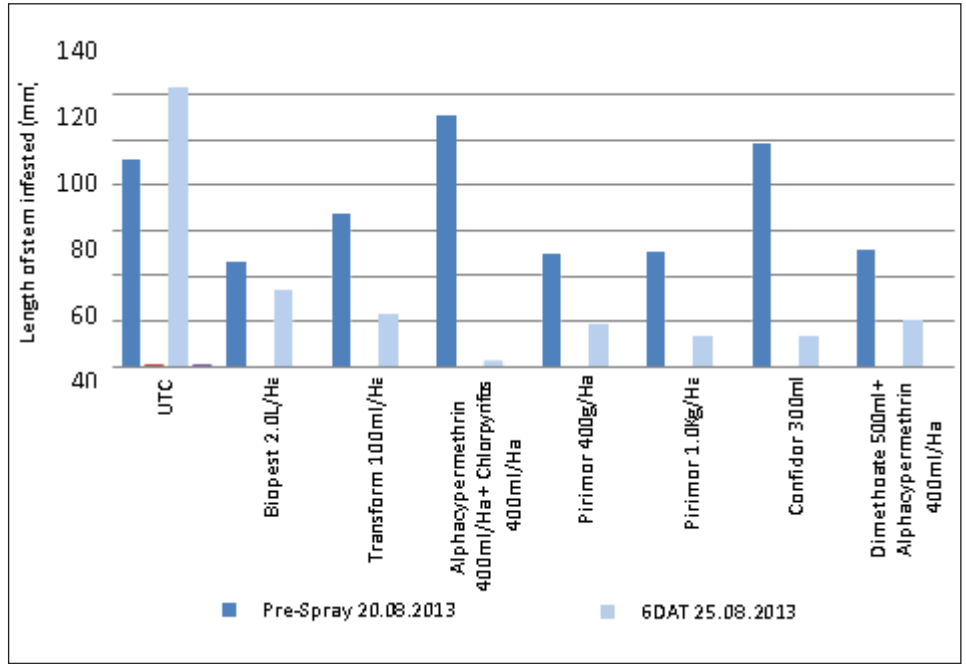
Contact with these plant chemicals can trigger critical insect behaviours such as feeding and egg laying. *BIOPEST*® acts to plug the hollow pore on the end of these hairs thus removing the insect's ability to communicate with any potential host plants. As beneficial insect host-sensing mechanisms differ from pests, they are minimally affected by *BIOPEST*® application (however, if enough oil contacts a beneficial insect, mortality may occur).



**APHID CONTROL RESULTS**

SACOA's research in the past two seasons has demonstrated BIOPEST's control of Cabbage/Turnip Aphid and Green Peach Aphid (GPA). In 2014 in Moora, while the total population of GPA was not as high as previous years, BIOPEST offered equivalent control to current standards (see Chart 1 on previous page).

In 2013 when Cabbage/Turnip Aphids were dominant, aphid control with BIOPEST® was equivalent to current standards (see Chart 2 at right).



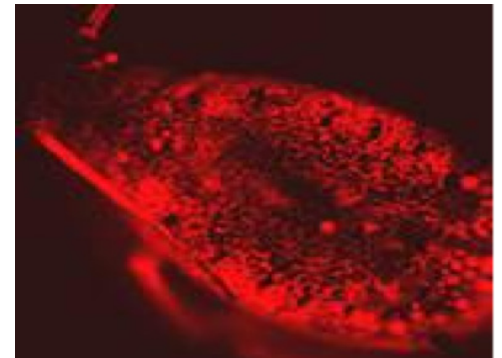
**Graph 2:** Using BIOPEST® as a trunk drench for post-harvest mealybug control in grapes. (Source: AHA Viticulture – SW WA April 2014)



**Image 2:** (Source: SACOA internal trial, York Aug 2013).



**Image 3:** Aphid before BIOPEST



**Image 4:** Aphid 2 minutes after BIOPEST with dye showing penetration of cuticle.



**Image 5:** Aphid after BIOPEST

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## USING BIOPEST AS A PREVENTATIVE

- Include *BIOPEST*® at 2% as a tank mix partner with a post emergent herbicide or fungicide.

The benefit of the tank mix is two fold – there is improvement in coverage as *BIOPEST*® will act as an adjuvant and as it provides activity in its own right (on aphids and disease), there is reduced resistance selection pressure on the conventional active and beneficial populations are maintained. The other benefit of the combined aphid and disease control is the single pass and the timing.

## USING BIOPEST AS A CURATIVE

- One standalone spray of 2% *BIOPEST*® on a developing population.
- Tank mixes of 1% *BIOPEST*® with conventional insecticide will provide synergy and protect the active from resistance development.

## ENSURING OPTIMAL RESULTS

- Use a water rate of approximately 80 – 100L/Ha.
- Adjust tractor speed to achieve thorough spray coverage to the point of runoff.
- Always use constant agitation in the spray tank.
- Always refer to product label(s) for specific details on correct use and compatibility.
- The re-entry interval (REI) for *BIOPEST*® is 4 hours.
- *BIOPEST*® has no residue tolerance.

## REFERENCES

- Peracto SAC00114 – Moora, Oct 2014
- SACOA internal trial – York, Aug 2013

## FIND OUT MORE

Further information is available at [www.sacoa.com.au](http://www.sacoa.com.au) or by contacting SACOA on 08 9386 7666 or contact your local SACOA representative;

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