



Research summary

August 2021

RS-004: Biocontrol mixtures for Sclerotinia control

AT A GLANCE

Results from a single field study in the 2020/21 season indicated that a tank mix of BOTRY-Zen® + Timorex® Gold applied at 80-90% flowering matched the efficacy of Luna Privilege in terms of reducing the total disease incidence (diseased fruitlets and fruit scarring) of sclerotinia on Hayward. Specific results showed:

- BOTRY-Zen + Timorex Gold and Aureo®Gold + BOTRY-Zen significantly reduced the total disease incidence compared with the unsprayed control.
- All products significantly reduced the incidence of diseased fruitlets, but only the two combinations noted above and Epilog® + TripleX® significantly reduced fruit scarring compared with an unsprayed control at a high disease risk site.

BACKGROUND

Sclerotinia is an ongoing issue, particularly for Hayward growers. Current control is primarily through the use of a fungicide (Luna® Privilege). As part of a trial designed to explore more sustainable integrated control strategies for sclerotinia a number of biological products have been evaluated.

Four biological products were shown to be effective against sclerotinia; BOTRY-Zen, Timorex Gold, TripleX and Botector® (the latter two not yet registered for use on kiwifruit). There is also an interest in additional products Aureo Gold, and Epilog (currently seeking registration for sclerotinia). A new trial in the 2020/21 season was undertaken to test combinations of these products to see if any were as effective as Luna Privilege® 500SC in controlling sclerotinia.

TRIAL DETAILS:

Sites

Two Hayward orchards in the Bay of Plenty were used for this trial. The relative disease risk for each orchard was established during flowering. Fifty petals were sampled from the untreated control vines and the number of petals that developed sclerotia after 7-10 days were counted. Orchard A had a high disease risk (65%), while Orchard B was low risk (3.6%). This means the results discussed below relate only to Orchard A.

The trial was laid out in a randomised block design with 9 replicate vines for each treatment with each plot (vine) consisting of two adjacent bays.

Combinations

When determining product combinations consideration was given to using products with different active ingredients and modes of action. The size of the trial area and agchem company preference was also a factor in determining the number of treatments and combination of products as it was not possible to test all combinations.

Where there was an unknown compatibility between products they were tested in the lab prior to use in the field. The combinations had no significant negative effects on efficacy, nor were there any mixing issues found in the lab.

It was noted after the first application of BOTRY-Zen + Timorex Gold, that a black spore residue was found in the tank, which would have potentially reduced the concentration of BOTRY-Zen in the spray. To maintain solubility of BOTRY-Zen the pH should be kept around 6.0. The adjuvant/acidifier LI-700® at 25ml/100L was tested to reduce the pH of the tank mix and added prior to spraying at the second site. An improvement was noted.

Treatments

Six treatments were tested in comparison with Luna Privilege® 500SC and untreated vines as the controls.

1	Aureo Gold + BOTRY-Zen®
2	TripleX + Timorex Gold
3	Botector® + Timorex Gold
4	Epilog + TripleX
5	BOTRY-Zen + Timorex Gold
6	Luna Privilege 500SC
7	Untreated control

- Each treatment was applied with a water rate of 1,000L/Ha
- Luna Privilege was applied within 5 days of the start of flowering
- All biocontrol combinations were applied as a single application at 80-90% flowering.

RESULTS:

The efficacy rating of Luna Privilege in this trial was 81%, based on reduction of diseased fruitlets and fruit scarring compared with the unsprayed control. The efficacy of the biological combinations are ranked below:

Biocontrol Combination	Efficacy
BOTRY-Zen + Timorex Gold	68.5%
Aureo Gold + BOTRY-Zen	57.5%
Epilog + TripleX	50.7%
Botector + Timorex Gold	30.1%
TripleX + Timorex Gold	21.9%

Note: These ratings are based on the results from one site (Orchard A). Orchard B was a low risk site (<1% incidence of disease symptoms) so only the incidence of minor scarring was significantly different to the unsprayed control.

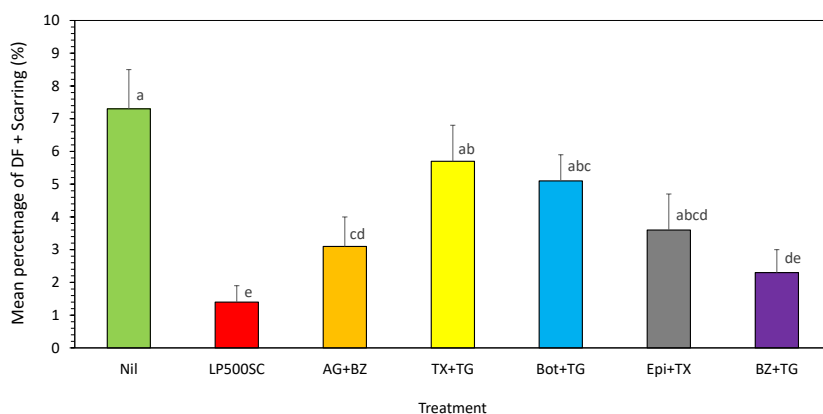


Figure 1: The efficacy of biocontrol mixtures on total disease incidence of sclerotinia compared with Luna Privilege and an unsprayed control (Nil). BOTRY-Zen + Timorex Gold (BZ+TG) is the only mixture not significantly different to Luna Privilege (LP500SC). Aureo Gold + BOTRY-Zen (AG+BZ) and EPI + Timorex Gold (Epi+TX) are not significantly different to the BZ+TG treatment but have a greater incidence of disease than the Luna treatment. Bars are standard error of the mean and treatments with the same letter are not significantly different to each other ($p < 0.05$).

WHAT'S NEXT

Both BOTRY-Zen and Timorex Gold are registered for use against sclerotinia on kiwifruit in NZ and are available for use in spring. In addition to Epilog which is pending registration, the companies supporting TripleX and Botector are also proceeding with label claim registrations to allow future use of these products on kiwifruit.

Further Reading

Innovation Reports

- [Sclerotinia Report Y2 Updated Exec Summary \(zespri.com\)](#)
- [Strategies for sclerotinia control \(2016-17\) \(zespri.com\)](#)

Journal articles

- Cultural control of Sclerotinia: results from the Sclerotinia integrated pest management programme (IPM) trial - [KFJ-JunJul-21-Cultural-control-of-sclerotinia.pdf \(zespri.com\)](#)
- Summary of Year 2 of the Sclerotinia IPM trial - [KFJ-Oct-Nov-20-Sorting-Sclerotinia.pdf \(zespri.com\)](#)
- Summary of Year 1 of the Sclerotinia IPM trial - [Slamming-sclerotinia.pdf \(zespri.com\)](#)

Additional Resources

- [18-Spring-Sclerotinia-Wheel.pdf](#)
- [Microsoft Word - KiwiGreen factsheet - Sclerotinia \(zespri.com\)](#)
- [KiwiTech Bulletin N12 - Sclerotinia \(zespri.com\)](#)

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