

TripleX Kiwifruit Sooty Mould Trial

TripleX reduces sooty mould disease incidence

Bay of Plenty 2016



Four trials were conducted by BioStart in the Bay of Plenty from January to March 2016 using TripleX, a bio-fungicide, for the prevention of sooty mould in gold and green kiwifruit. The trials showed that TripleX reduced sooty mould disease incidence between 58 to 73%.

Trial design

Four trial sites were selected in the Bay of Plenty which had a history of sooty mould disease pressure in the prior season; two Hayward Green sites and two Gold G3 sites. Three sites were in Te Puke and one site was in Opotiki. The 2016 growing season was wet however the rain events did not appear to effect the trial.

- TripleX was applied at 2-3 weekly intervals at 3 L/ha diluted in 1,000 L water (0.6 L/200 L) onto fruit and foliage with Du-Wett super-wetter at 400 mL/ha for all over fruit coverage, including the stem where most sooty mould infections are located.
- Application began in January 2016 when passion vine hoppers (PVH) and cicadas become active in the orchard. These insects cause the spread of sooty mould. Applications continued until March 2016 when PVH and cicada population numbers decreased due to colder weather conditions. The number of applications varied between 2 and 6 per orchard.
- The trials were assessed on 13th-14th April 2016 using industry approved methods.

Trial 1: Te Puke Hayward Site 1

The orchard is located in a high pressure disease site between a river bank and bush. TripleX was sprayed on 5 rows (half the block) over 6 applications on 5th and 20th January, 2nd, 12th and 22nd February and 4th March 2016.

Result: TripleX significantly reduced ($P < 0.001$) the sooty mould incidence by 73% from 8.5 to 2.3% of fruit, i.e. a 6.2% difference in fruit not affected by sooty mould. (Figure 1)

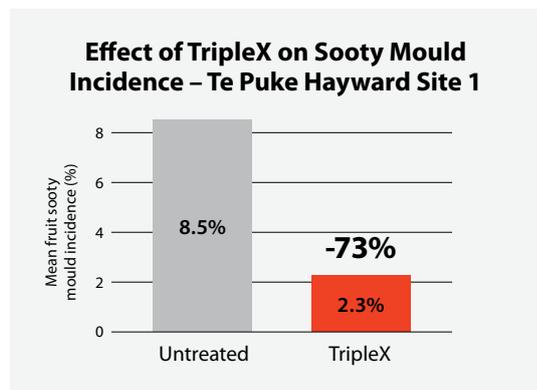


Figure 1

Trial 2: Te Puke Hayward Site 2

The orchard is located in a high pressure disease site between a river bank and bush. TripleX was sprayed on 5 rows (half the block) over 6 applications on 5th and 20th January, 2nd, 12th and 22nd February and 4th March 2016.

Result: TripleX significantly reduced ($P < 0.05$) the sooty mould incidence by 59% from 6.3 to 2.6% of fruit, i.e. a 3.7% difference in fruit not affected by sooty mould. (Figure 2)

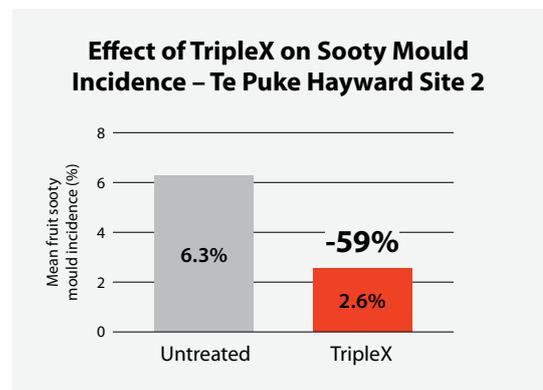


Figure 2

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Trial 3: Te Puke Gold G3

The orchard block is surrounded by high hedges on all four sides. The orchard canopy was young. It was grafted to Gold G3 in 2013. There were significant gaps in the young canopy exposing the orchard to more widespread sooty mould infection. TripleX was applied on 22nd February and 4th March 2016 on half the length of 9 rows.

Result: TripleX significantly reduced ($P < 0.001$) the sooty mould incidence by 73% from 8.5 to 2.3% of fruit, i.e. a 6.3% difference in fruit not affected by sooty mould. (Figure 3)

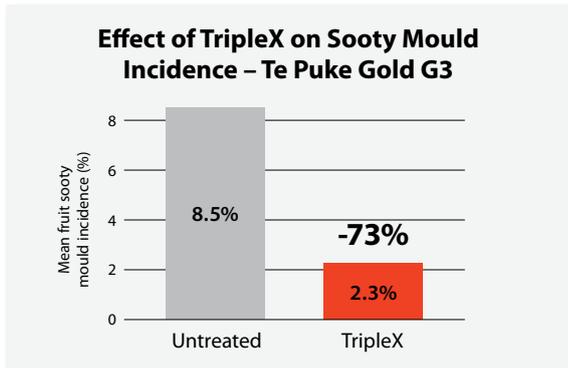


Figure 3

Trial 4: Opotiki Gold G3

The orchard block was a high pressure disease site as it is surrounded by high hedges on all four sides and the canopy planted in 2012 still had gaps. TripleX was applied 4 times on 15th and 27th January, 10th February and 31st March to half of the orchard.

Result: TripleX significantly reduced ($P < 0.05$) the sooty mould incidence by 58% from 3.4 to 1.4% of fruit, i.e. a 2% difference in fruit not affected by sooty mould. (Figure 4)

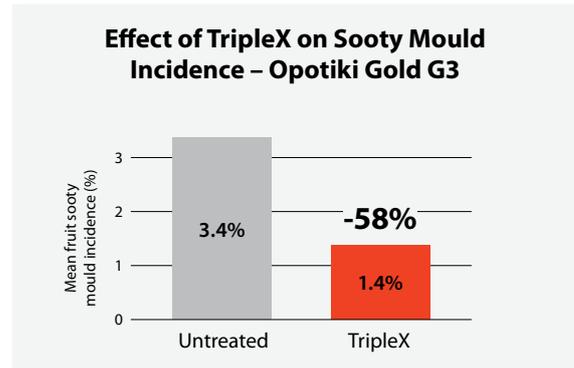


Figure 4

Conclusion

- When TripleX was applied 2-6 times between January and March 2016 the incidence of sooty mould affected fruit was reduced by 58-73% (see table below). All trial results were statistically significant.

Trial Name	Variety	Mean % SM Fruit			SM Reduction	P
		Untreated	TripleX	Difference		
Te Puke Hayward Site 1	Hayward	8.5%	2.3%	6.2%	73%	***
Te Puke Hayward Site 2	Hayward	6.3%	2.6%	3.7%	59%	**
Te Puke Gold G3	Gold G3	8.5%	2.3%	6.3%	73%	***
Opotiki Gold G3	Gold G3	3.4%	1.4%	2.0%	58%	**

- The TripleX programme was effective on both green (Hayward) and gold (G3) kiwifruit crops.
- The TripleX programme was effective in both Te Puke and Opotiki kiwifruit growing areas.
- Trial sites were assessed 40 days after the last application showing TripleX has residual activity.
- The reduction in disease presents a significant financial benefit to the grower. Ask your sales representative to take you through the returns from using TripleX.
- There were no incidences of phytotoxicity observed on any of the fruit or leaves of TripleX-treated vines.



About TripleX

The active ingredient in TripleX is the *Bacillus amyloliquefaciens* Bs1b microbe. It works by aggressively colonizing the foliage, flowers and fruit to protect against the development of sooty mould-causing fungi. TripleX should be used as a preventative agent. Apply TripleX at 2-3 weekly intervals at 3 L/ha with a super-wetter prior to PVH or cicadas becoming active in the orchard in order to establish a population of Bs1b microbe on the leaves and fruit of the kiwifruit vines. Regularly reapply TripleX from January to March to ensure adequate coverage of the developing fruit is maintained.

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