CASE STUDY:

A field summary on the performance of two non-ZESPRI variety A19 Orchards (Enza Gold), in a Psa-V environment

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Case study description:

A field summary on the performance of two non-ZESPRI variety A19 Orchards (Enza Gold), in a Psa-V environment.

In-field monitoring of two A19 orchards

Background

In-field monitoring for Psa-V progression on ZESPRI's New Varieties (Gold3, Gold9 and Green14) began in January 2012. It initially involved 100 per cent monitoring of all new variety orchards (approximately 70 hectares). Following the completion of the first round, a smaller group of orchards—spread across Te Puke and Paengaroa and containing all, or one, of the new variety kiwifruit—were selected for regular monthly monitoring. Non-ZESPRI varieties were not included in this monitoring programme.

Three months after the monitoring programme began, and following a local media report that A19 was resistant to Psa, KVH considered including non-ZESPRI variety kiwifruit in the monitoring programme i.e. A19, Bosstock, and Y356. KVH requested permission from Turners & Growers to monitor A19 orchards and was granted access to two orchards. . The results of the monitoring round are presented in this report.

Note - these two orchards were tagged onto the back of the ZESPRI New Variety monitoring programme. This means there is no real way to statistically analyse or compare the monitoring results for these two orchards as:

- the number of plants in each orchard was not determined; and
- monitoring did not occur on a frequent basis, i.e. these two orchards have been monitored only once.

Monitoring methodology

Two KVH field staff carried out the monitoring in March 2012. Monitoring involved walking every female row in the block and scoring vines based on what symptoms were seen. The table below indicates the scoring system, as used in the ZESPRI New Variety monitoring programme.

Shoot Die back		**Cane Die back**		**Exudate** *As seen on leaders or canes*	
Score:	**Description:**	**Score:**	**Description:**	**Score:**	**Description:**
S1	One or two canes with shoot dieback	**C1**	1-2 canes	**C♦**	Canes or leaders exhibiting ooze, typically as orange/red exudate, on leaders or canes. In this event all other symptoms (i.e. die back) are ignored.
S2	Three canes with shoot dieback	**C2**	3+ canes		
S3	More than half the canes on a vine have shoot dieback	**C3**	More than half the vine with cane die back		

Table 1—*Psa scoring system*. In this scoring system leaf spot is ignored and only secondary symptoms are scored. Vines that exhibited red/white exudate were given a special score (**C♦**) and all other symptoms were disregarded.

Orchard 1—monitored in March 2012

Background

Monitored—early March 2012
Total hectares—approximately 0.5–1 ha

Monitoring Results

Shoot Die back		Cane Die back		Exudate *As seen on leaders or canes*	
Score	**Incidence**	**Score**	**Incidence**	**Score**	**Incidence**
S1	13 vines	**C1**	N/A	**C♦**	396 vines
S2	13 vines	**C2**	N/A		
S3	2 vines	**C3**	N/A		

Table 2—Monitoring results for Orchard 1.

Image 1—Infection as expressed upstream of a canopy girdle wound.

Observations from the field monitoring

- The high incidence of cane/leader exudate is expected to be associated with girdling practice and Psa-V infection/interaction (as previously seen in Gold3, Hort16A and Hayward).
- Every row within this block had a high incidence of disease expression.
- The block is close to a heavily infected Hort16A orchard.

Orchard 2—monitored in March 2012

Background

Monitored—early March 2012
Total hectares—approximately 1 ha

Monitoring Results

Shoot Die back		Cane Die back		Exudate *As seen on leaders or canes*	
Score:	**Incidence:**	**Score:**	**Incidence:**	**Score:**	**Incidence:**
S1	4 vines	**C1**	51 vines	**C♦**	18 vines
S2	1 vines	**C2**	1 vines		
S3	Nil	**C3**	3 vines		

Table 3—Monitoring results for Orchard 2.

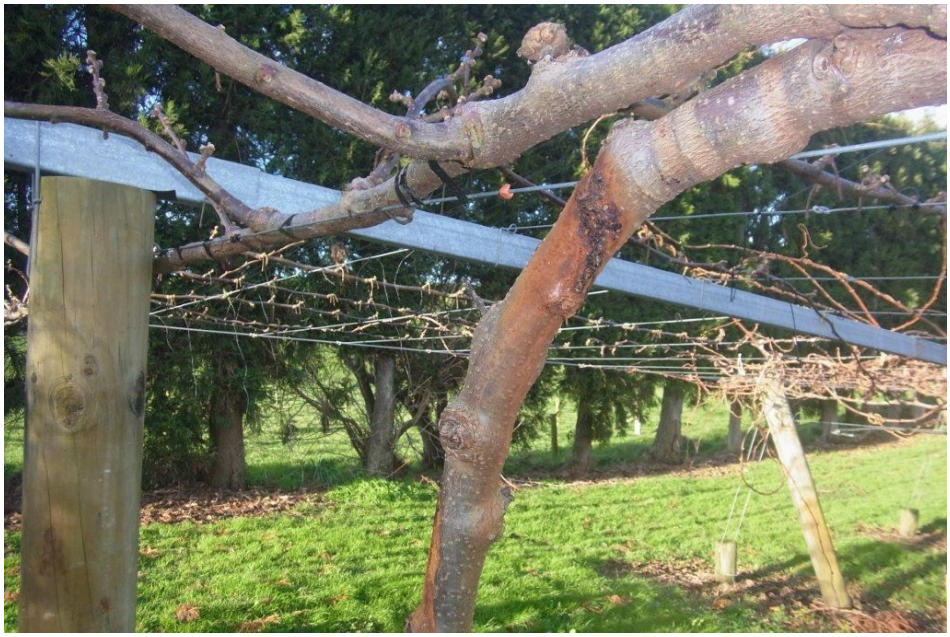

Image 2—Secondary infection of young A19 vines. Note, this photo was taken in August 2012. Similar symptoms were also seen in March 2012.

Observations from the field monitoring:

- Lower (visible) level of infection incidence compared with Orchard 1.
- High incidence of cane dieback (in most cases without exudate).
- While some canes/leaders clearly showed exudate, there was a much lower incidence of exudate from vines on this orchard compared with orchard 1.

Conclusions and Recommendations

Monitoring of two A19 orchards by KVH field staff has shown the following.

- A19 shows similar effects regarding Psa-V infection and incorrect girdling practice.
- Young A19 vines show similar susceptibility to infection as young Gold3, Gold9 and Hort16A vines.
- A19 may have a higher incidence of cane die back than Gold3 and Gold9.

The observations made and provided by Turners and Growers field staff, are consistent with KVH's observations on other varieties: the following factors contribute to increased inoculum, Psa-V infection severity and/or disease progression.

- Uncut and un-removed infected material.
- The lack of a protectant spray programme.
- Neighbouring infected blocks/orchards.
- Elevation.

The factors above prevent a definitive understanding in the field performance of A19 in a Psa-V environment. Therefore KVH's proposes the following recommendations going forward to develop a clearer picture of A19's performance in a Psa-V environment.

- A regular KVH-directed monitoring programme be established for the Tuners and Growers variety, A19 (and other vines).
- This programme should commence during spring, at the time of bud break, when infection has previously strongly express itself sin the form of exudate (ooze).
- Selection of the A19 orchards for the long-term monitoring programme should be determined by location and previous infection level. For example, a representative orchard in Te Puke, Te Kaha, and Katikati where there has previously been a high level of infection or no level of infection (for comparison).