



2021/22 Operational Plan

for the National Psa-V Pest Management Plan

September 2021

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1. Purpose

This Operational Plan is prepared by Kiwifruit Vine Health (KVH) for the purpose of implementing the National Psa-V Pest Management Plan (NPMP) objectives (refer Box 1 below), and to meet requirements under section 100B of the Biosecurity Act 1993.

The term of this Operational Plan is from 1 April 2021 to 31 March 2022. This Operational Plan outlines how KVH will approach implementation, including its strategy, key policies and how these will be implemented, as well as information on KVH priorities, KPIs and budget over this term. Policies are current as of sign-off date for this Operational Plan and any updates to these will be maintained on the KVH website.

Box 1: National Psa-V Pest Management Plan objectives

The primary objective of the NPMP is to:

Prevent the spread of Psa-V and minimise its impacts on kiwifruit production.

The secondary objectives of the NPMP are to:

- i. support the recovery of kiwifruit production in the Recovery regions by minimising overall production losses and enabling the successful establishment of new kiwifruit varieties;
- ii. reduce Psa-V inoculum levels in Recovery regions;
- iii. reduce the risk of Psa-V spreading from Recovery regions to other places;
- iv. limit the further spread of Psa-V into, within, and from Containment regions;
- v. reduce, where possible, the distribution of Psa-V within Containment regions;
- vi. ensure that Exclusion regions are, and remain, free of Psa-V;
- vii. establish, on an on-going basis, that the Exclusion regions are free of Psa-V;
- viii. enable swift and decisive action to be taken to contain any outbreak of Psa-V in an Exclusion region.

2. Introduction

The NPMP supports growers working collectively to minimise the impacts of Psa-V within their orchards and growing regions, as well as doing what is necessary to keep Psa-V out of areas where it hasn't yet been identified. It also brings together and unites the efforts of key organisations in the kiwifruit industry and associated industries, to take a consistent and coordinated approach to management of Psa-V.

Key elements of the plan involve movement controls, monitoring, reporting, incursion response and managing the disease, along with a continued focus on awareness, education and research.

The focus of the programme on preventing spread has changed. Only the South Island and Far North remain free of Psa-V as far as we know, and all other North Island regions are now Recovery regions; with Whangarei transitioning from a Containment region to a Recovery region in February 2021.

2021 situation – Key statistics, regional status

- 93% of orchards and 93% of kiwifruit growing area (% of hectares on an orchard with Psa-V identified) are now known to be infected with Psa-V.
- The South Island remains free of Psa-V as far as we know, and successfully excluding Psa-V from the South Island remains an achievable goal. The South Island currently represents 3.5% of total kiwifruit production.
- In February 2021, Whangarei transitioned from a Containment region to a Recovery region. In February, KVH had confirmation of 20 positive orchards in the Whangarei region. The infected area is 48% of the area of orchards and so meets KVH requirements to be a Recovery region with the objectives of reducing inoculum levels and preventing further spread.
- The remaining regions are all Recovery regions, within which Psa-V is now widespread.

- KVH has declared six locations in the South Island to be Controlled Areas to limit any potential spread of Psa-V. These locations are all outside of the South Island Exclusion Region and include a small male kiwifruit orchard at Karamea; a nursery producing kiwifruit plants at Te Anau; a Christchurch nursery growing kiwifruit plants at two locations; a Christchurch plant disease diagnostic laboratory; and a University housing kiwifruit seedlings for research purposes. The owners and managers have all been supportive of KVH actions to further protect these areas and enterprises. Controlled area status allows KVH to manage all kiwifruit material movements to and from the property. The controls are equivalent to those applied by KVH to an Exclusion region.
- Information from Zespri indicates that greenfields development is continuing to increase. Zespri allocated 150 hectares of Zespri Red in 2020. Based on the current expected 15 million tray market demand in Asia for Zespri Red, Zespri plans to licence 1,500 hectares from 2020 to 2023. This is subject to availability of quality budwood and the normal annual review process that's carried out at the end of each selling season. Zespri has indicated that there is likely to be further release of Gold3 licence. The amount of release is reviewed annually, and may extend beyond three years. Zespri released 700 hectares of Gold3 licence in 2020.

The programme's focus has shifted increasingly toward preventing spread of new Psa-V biovars that are more likely to be a problem than the common NZ Psa-V biovar; that is, strains that are resistant to chemical control tools, more virulent or have a wider host range than the common NZ strain of Psa-V (refer to the current situation/ explanation of these below).

New Psa-V biovars that are more of a problem than the Psa-V we are dealing with today

The potential for new Psa-V biovars to emerge that are tolerant or resistant to crop protection products was raised by experts and recognised by KVH at a very early stage, with a streptomycin and copper resistance testing programme initiated in 2011. Copper and streptomycin resistance or tolerance to Pseudomonas has been recorded overseas and in New Zealand. Likewise, the potential for development or introduction of more virulent biovars of Psa was also recognized at an early stage.

The following is a quote from Dr Joel Vanneste (PFR);

The New Zealand Psa population is evolving due to mutations, reorganisation of their genetic material, and exchange of genetic material with local New Zealand plant associated bacteria (those are natural phenomenon which we cannot predict or prevent). In addition, there is always the risk of introduction of new biovars of Psa (some of them might not have been characterised yet). This means that Psa could acquire some characteristics which make it more of a problem than it already is. For example, strains could become resistant to antibiotics and copper, could be more virulent or have an extended host range.

Key highlights from the 2020 Zespri R&D programme for Psa

- Completion of a four-year project, Gold3 Futures, which compared Psa levels within adjacent orchards where one site had a history of being Psa-managed (i.e. low levels of Psa), and the other Psa-challenged (higher levels of Psa). Results showed that an optimised and pro-active Psa management programme added \$23,000 value to the OGR per hectare.
- Continuation of work to monitor how Psa strains are evolving to ensure detection of unusual genetic changes in the Psa genome which could make Gold3 susceptible to Psa infection.
- Nationwide annual resistance monitoring confirmed that the prevalence of Psa virulent strains are stable, thus the overall Psa risk is steady.
- Data to support the finding that artificial pollination of orchards with Psa-contaminated pollen does not increase Psa disease incidence significantly when the recipient orchard is already Psa positive, however pollen can be a significant vector to introduce Psa to new areas.
- Confirmed that the autumn applied Actigard elicitor upregulates the defence genes in Hayward vines.
- Showed evidence that Gold3 grown on Bounty rootstock is more susceptible to budrot than Gold3 grown on Bruno rootstock.

Copper resistance is incremental in its development. Importantly, to date we have seen no indication of any failure of copper to control Psa on orchards that have tested positive for these new strains; and they are showing no increase in Psa symptoms.

There are two main mechanisms that cause streptomycin and copper resistance:

- i). Bacteria present in the environment carry genes for resistance, which through horizontal gene transfer can be transferred to Psa. Typically these genes are held on plasmids which easily move from one bacterial species to another.
- ii). A spontaneous chromosomal mutation occurs naturally during bacterial growth. During DNA copying, sometimes mistakes are made, and some mistakes in the gene *rpsL* can make bacteria resistant to streptomycin. This resistance will be maintained in progeny - but not transferred to neighbouring bacteria.

Our understanding of chemical resistance development/the emergence of new Psa-V biovars and implications for management continues to develop.

As well as risk associated with changes to the New Zealand Psa-V biovar, New Zealand does not have some of the other known Psa-V biovars that occur offshore. Different outbreaks of Psa have been caused by five related, but genetically distinct lineages of *Pseudomonas syringae* and it is likely that many more exist in wild kiwifruit populations. Psa1 (Japan, Italy) and Psa2 (Korea), are of particular concern as these biovars may be more virulent against Hayward cultivars than the New Zealand Psa-V biovar.

Research and development

Policy

The desired outcome of KVH/Zespri research programme is to find sustainable solutions that minimise the impacts of Psa-V and support the re-establishment of infected orchards to full productive capacity.

Background

Research and development remains a critical component in the fight against Psa-V. The R&D programme increases technical knowledge and delivers growers with tools and techniques that may be used to combat the disease directly, or enable affected growers to remain productive in the presence of Psa-V.

KVH, in conjunction with Zespri Innovation, leads a R&D programme into Psa-V. The Innovation team partners with researchers to provide the best available expertise to the New Zealand kiwifruit industry.

Implementation approach for research and development

The programme is overseen by a Psa-V Industry Steering Group, which is responsible for assessing project proposals and research outcomes, assisting with strategic direction setting, and providing feedback from industry regarding needs and gaps that need filling. Ultimately, the final decisions on what research is funded lies with the KVH Board, upon recommendation from the steering group. Three research programmes currently direct research effort, with individual projects aligned within each programme. Project progress is monitored against results focussed milestones. This allows for programme updates and recommendations for growers as results come to hand.

KVH has commissioned Zespri to manage the day-to-day operation of the R&D programme, and to ensure effective management structures are in place to effectively plan, organise and monitor the programme. Research is undertaken with a range of research partners within New Zealand.

The programmes have the goal of future proofing the industry against Psa-V as follows:

Orchard practices:

- Evolve cultivar specific and sustainable management practices.

Control products:

- Deploy an effective Integrated Pest Management programme.

Psa Evolution and Monitoring:

- Continue monitoring and implement information to improve the Integrated Pest Management programme.

Communication of outcomes.

Communication of research outcomes to the grower, to maintain Psa-V awareness and support continuous industry improvement in Psa-V management, is one of the main intentions of the Psa-V R&D Programme.

End user adoption of advances in knowledge and techniques is seen as a key method of minimising the impact of Psa-V on the industry. Research reports and best practice advice are freely available to the New Zealand industry through the KVH website. Other pathways for information transfer to end-users include post-harvest technical support, Zespri's Canopy website, and Zespri (Global Extension Team) events and publications. When sufficient new research is available Psa-V Symposiums will also run.

Reporting

Zespri will report on the research programme to KVH and NZ kiwifruit growers by:

- i. Reports to KVH on overall progress by way of a KVH Board papers.
- ii. Reporting to KVH on financial scheduling on project payments.
- iii. Exception reporting of project milestones.

Results from each project are converted into grower summaries and made available as extension messaging to KVH for dissemination to NZ kiwifruit growers and post-harvest groups in line with KVH/Zespri MOU.

2021 situation update – New varieties

The industry R&D programme includes an extensive plant breeding programme looking to develop new improved cultivars. One of the objectives of the programme is to develop cultivars with increased resistance to Psa.

The programme currently has a number of new cultivars in pre-commercial production trials on a cross section of orchards around the growing regions. As part of the NPMP monitoring programme KVH has an agreement with the owners of these varieties to undertake regular Psa-V monitoring as required. The objective of the monitoring is to observe the new varieties tolerance to Psa in orchard environments relative to current commercial varieties. The data is held in confidence and used by the variety owners as part of their overall evaluation. In December 2019 Zespri decided to commercialise the Zespri Red variety. KVH monitoring has assisted in providing Psa-V management advice to growers for this variety.

Section 3 of this Operational Plan describes KVH's strategy and overall approach to implement the NPMP, including implementation model and associated roles, approach to compliance and communication.

Section 4 of the Operational Plan then sets out KVH policies in relation to plan measures (including how KVH will make decisions and identify priorities), and how KVH will implement these.

Section 5 of the Operational Plan establishes priority objectives and measures against which outcomes can be judged by growers and key stakeholders.

Section 6 sets out the budget for 2020/21.

Section 7 of the Operational Plan describes the legal framework and how this can be applied.

3. Approach to implementation

3.1 KVH's Psa Strategy

Goals	Objectives	Performance measures
<ul style="list-style-type: none"> Prevent the spread of Psa-V and minimise its impacts on kiwifruit production (NPMP) Neutralise the financial impacts of Psa (R&D strategy) Encourage, support and enable the timely recovery of the kiwifruit industry from the impacts of Psa-V (MPI) Reinforce lessons and approaches from Psa into longer term biosecurity practices (KVH) 	<ul style="list-style-type: none"> Establish and ensure that Exclusion regions are, and remain, free of Psa-V Enable swift and decisive action to be taken to contain any outbreak of Psa-V in an Exclusion region Limit the further spread of Psa-V into, within, and from Containment regions Reduce, where possible, the distribution of Psa-V within Containment regions Reduce Psa-V inoculum levels in Recovery regions Reduce the risk of Psa-V spreading from Recovery regions to other places Support the recovery of kiwifruit production in the Recovery regions, by minimising overall production losses and enabling the successful establishment of new kiwifruit varieties 	<ul style="list-style-type: none"> Number of Exclusion regions, Containment regions and Recovery regions and how these have changed over time Number of new incursions and the most likely cause of spread Rate and pattern of spread within Containment regions, and the most likely cause of this Estimated impact of Psa-V on the natural crop, and nett orchard returns Proportion of orchards that have implemented a Psa-V orchard management plan Level of preparedness within Exclusion regions Unmanaged, abandoned and wild kiwifruit risks are managed Movement control compliance Level of awareness and compliance relating to Psa-V
Core components	KVH operating model	Business model for delivery
<p>The following areas remain a key NPMP operational focus:</p> <ul style="list-style-type: none"> Responsiveness to new biovars that are more of a problem than the Psa-V we are dealing with today Ability to manage risk associated with abandoned orchards Ability to manage risk associated with unmanaged orchards Controlling wild kiwifruit Ability to control and record movement of risk items (including the Kiwifruit Plant Certification Scheme) across all plant material Understanding and minimising Psa-V impacts on future new cultivars Psa-V research Ability to export budwood and pollen [Noting some international quarantine requirements link to status of regions under the NPMP] 	<ul style="list-style-type: none"> Working for growers Proactive and professional Clear objectives Necessary powers Effective, cost efficient and minimum regulation Consistent approach to management Partnership approach Transparent 	<ul style="list-style-type: none"> KVH maintain required core expertise and resourcing needed to successfully implement the NPMP, partnering with others as necessary Regional Co-ordinators in regions where Psa is absent or in limited distribution Contracting local resources as needed for monitoring and auditing Close working relationship with post-harvest for technology transfer and grower support Zespri Orchard Productivity Centre (OPC) leading technology transfer in collaboration with KVH and Zespri innovation managing the R&D programme on behalf of KVH
Financial requirements and funding arrangements		
<p>Funding and resourcing is transparent, equitable and secure The KVH core NPMP budget for 2021/22 is \$180,500.00 for implementation</p> <p>Additional Zespri funding for R&D expenditure of up to a \$1.4 million programme is not reflected in the KVH budget. The NPMP is funded by a levy under section 100L of the Biosecurity Act, of one tenth of a cent (1/10th of a cent) per tray equivalent on all commercial varieties of kiwifruit except <i>Actinidia arguta</i>, exported to all markets other than Australia.</p>		
Review		
<p>A voluntary review of the NPMP was undertaken in April/May 2020 seven years after its implementation and submitted to MPI in May 2020. The changes made in the review are reflected in this year's Operational Plan. The next review of the Operational Plan will be completed by 31 August 2022.</p>		

3.2 Roles in Implementation

Implementation of the NPMP entails a coordinated effort at national, regional and local scales, as summarised below. A more detailed description of these roles is provided in Appendix 1.

Level	Who	Roles
Local	Local growers, contractors, transport operators, nurseries, bee keepers, etc.	Managing risk associated with on-orchard and any other activities that could increase risks associated with Psa-V; routine monitoring and reporting.
Regional	Regional Coordinators / Regional Groups such as KiwiNET	Facilitating communication and supporting local groups; working with growers to achieve voluntary compliance; monitoring the regional situation and raising any issues that need to be addressed; readiness planning.
	Post-harvest Operators	Working with their growers (e.g., routine monitoring; compliance with movement controls; providing technical advice to growers and working with them to achieve voluntary compliance).
National	Zespri and other marketers	Communication and awareness; research and development; technical transfer; grower support.
	NZKGI	Grower support services
	KVH	Leading implementation of this plan; driving Psa-V research and development efforts; undertaking risk analysis and developing recommended best practice; targeted monitoring and reporting of monitoring information; overall readiness and initial response; leading management of wild kiwifruit and abandoned orchards; supporting regional coordination; communication and awareness; taking action in extreme situations of non-compliance.

3.3 Compliance and communication

Recommending best practice and finding voluntary solutions will continue to be the main focus of KVH, and the primary approach to achieve 'compliance' with the NPMP.

Action will only be taken by KVH where an action, or inaction, is creating significant risk to growers, such as:

- where non-compliance creates a serious risk of Psa-V spreading to other orchards and where reasonable efforts to achieve cooperation have failed (refer to example for an unmanaged Psa-V positive orchard in Box 2); or
- where someone has moved a risk item, and that movement is prohibited or requires KVH authorisation.

KVH and the Ministry for Primary Industries (MPI) have a mutual interest in compliance and enforcement, and have agreed that:

KVH is responsible for managing overall compliance with the NPMP.

Both agencies have mutual interest in taking successful enforcement action under the NPMP where a prosecution is the desired compliance outcome.

KVH and MPI have an agreed *Operating Protocol* which establishes a mechanism for KVH to refer matters that require investigation with a view to prosecution to MPI, for consideration on a case-by-case basis.

KVH referred a deliberate breach of a Movement Control Notice to MPI. This resulted in a successful prosecution of a Bay of Plenty grower who moved Psa-V infected nursery stock from a Recovery region to a Containment region which put other growers in the region at risk.

Box 2. When and how would KVH take action to deal with an unmanaged orchard?

KVH would only take action in serious cases of non-compliance (see unmanaged orchard definition section 4.8.1) and where every reasonable attempt has already been made to seek a voluntary solution, without success.

In practice there will be an escalation model, that starts with providing support and giving every reasonable opportunity to find a voluntary solution, but that also ensures timely action is taken so that serious risks get managed.

The process of dealing with an extreme ‘unmanaged orchard’ (e.g. an orchard with extreme Psa-V symptoms) would proceed as follows:

- KVH makes contact with the affected grower and post-harvest operator to discuss their intentions for the orchard. Management options include:
 - Removal of the vines.
 - Re-grafting to alternative species or varieties.
 - Leasing the property to an orchard management agency or post-harvest operator. (Note that KVH can provide a list of potential interested parties gathered through the “people interested in potential management of abandoned orchards” list).
 - The grower resuming management.
- KVH advise the grower / orchard lessee / post-harvest operator of the requirement for a Psa-V Orchard Management Plan.
- The grower / orchard lessee / post-harvest operator check that the grower’s Psa-V Orchard Management Plan is fit for purpose, or amend / update it if necessary, within two weeks [Note the Psa-V Orchard Management Plan would need to at least specify the KVH-approved protectant product that will be applied and timing and method of application, as well as how the grower plans to manage hygiene and approach monitoring].
- KVH / orchard lessee / post-harvest operator then checks in with the grower on a regular basis regarding progress and the situation on-orchard.
- If by the end of the fourth week, there is evidence that the particular orchard is ‘unmanaged’ (as defined above), KVH would investigate and discuss the situation with the grower / lessee and their post-harvest operator and attempt to reach agreement on a way forward.
- If that agreement could not be reached, or by the start of week six there is no evidence that the grower / lessee / post-harvest operator has undertaken actions agreed with KVH, KVH would issue a direction (e.g., Notice of Direction).
- If this situation continues beyond three weeks, KVH would take action to achieve compliance.

The timeframes given above are indicative only, and these may need to be adjusted up or down depending on the level of risk involved.

KVH will provide up-to-date information and advice to growers and others with an interest in the NPMP via the KVH website and KVH Bulletin, through occasional articles in relevant industry publications, and through engagement with the media.

KVH is also subject to the Official Information Act, which fits with its core value of being a pan-industry organisation that is transparent, acts with integrity and is accountable in all of its dealings. Also refer to KVH Official Information Act Policy at: www.kvh.org.nz/vdb/document/91524.

4. Key policies and implementation approach

4.1 Establishment of regions

4.1.1 Policy on establishment of regions (excluding establishment of new Exclusion regions – covered under policy 4.1.2, below)

Desired outcome

Regions are determined and established with appropriate geographic boundaries and secondary objectives, to ensure the best disease management approach to prevent the spread of Psa-V and minimise its impacts on kiwifruit production.

Background

Psa-V does not affect all orchards in the same way, and the impact of Psa-V also differs across regions. Such differences reflect the disease status, the density / proximity of other kiwifruit orchards and environmental factors such as weather and altitude. To accommodate these differences and to ensure the best disease management approach is taken, the NPMP identifies three different categories of region (Exclusion region, Containment region and Recovery region), each with its own objectives, summarised in Table 1 below:

Table 1: The three categories of Psa-V region and corresponding secondary plan objectives

Category	Secondary plan objectives
Exclusion regions	<ol style="list-style-type: none">1. Ensure that Exclusion regions are, and remain, free of Psa-V.2. Establish, on an on-going basis, that the Exclusion regions are free of Psa-V.3. Enable swift and decisive action to be taken to contain any outbreak of Psa-V in an Exclusion region.
Containment regions	<ol style="list-style-type: none">4. Limit the further spread of Psa-V into, within, and from Containment regions.5. Reduce, where possible, the distribution of Psa-V within Containment regions.
Recovery regions	<ol style="list-style-type: none">6. Reduce Psa-V inoculum levels in Recovery regions.7. Reduce the risk of Psa-V spreading from Recovery regions to other places.8. Support the recovery of kiwifruit production in the Recovery regions, by minimising overall production losses and enabling the successful establishment of new kiwifruit varieties.

The disease management approach is then tailored in some aspects to regional status (e.g., movement controls differ for each category of region).

The regions also serve an important purpose, being to bring together a community of growers who will take a united approach to achieve the objectives for their region. The formation of regional coordinators and groups supports this approach.

NPMP requirements

Establishment of Exclusion regions, Containment regions and Recovery regions is one of the principal measures identified in the NPMP. The relevant clause (clause 7) establishes primary and secondary criteria (set out below) that KVH must take into account when deciding on the status of any given region. The NPMP requires that KVH then ensures awareness of the regions by making the type and geographic boundaries of regions publicly available on the KVH website.

The boundaries and status of regions provide a legal foundation for the rest of the plan, by setting the objectives for each region and enabling application of other measures in relation to these (e.g., movement controls and monitoring requirements).

Criteria for setting regional boundaries

KVH consider a framework of criteria when establishing regional boundaries to ensure maximum effectiveness. Boundaries will be established in a manner that gives due consideration to the following:

1. **Alignment with disease management objectives:** Boundaries that give the best chance of achieving disease management objectives of the NPMP, considering factors such as status, proximity and density of orchards and any barriers to disease movement.
2. **Natural and man-made features:** Alignment of boundaries with natural and man-made features, such as rivers, oceans, mountains and roads, which may serve as logical boundaries that people understand and/or that make sense in terms of disease management.
3. **10km orchard buffer:** Where possible, a 10 km buffer will be maintained around outlying orchards in a region and between orchards of different regions, to improve likelihood of achieving disease management objectives. [Note this differs for establishment of new Exclusion regions as set out in section 4.1.2 below]
4. **Alignment with other regional boundaries:** Alignment of boundaries with existing and well-understood regional boundaries (in particular the boundaries of established industry growing regions, and the commonly understood boundaries such as that of local authorities), to the extent that this assists with familiarity and avoids potential confusion.
5. **Communities of interest:** Boundaries that bring together communities of interest, such as groups of growers with established local networks and relationships, i.e. where this improves the likelihood of a successful united approach to disease management.
6. **Compliance costs:** Establishing boundaries in a manner that minimises compliance costs necessary to achieve the NPMP objectives.
7. **Longevity:** Setting boundaries that are likely to be enduring, recognising that boundaries may need to change over time if/as the disease management programme evolves, but too much change can give rise to confusion and be disruptive / undermine compliance.

Criteria for determining regional status

The NPMP establishes primary and secondary criteria that KVH must take into account when deciding the status of regions.

The primary criteria KVH must take into account are:

- an Exclusion region may be established where Psa-V is not present in the region and Psa-V is not present in any place within 10 km of any boundary of that region;
- a Containment region may be established where the Psa-V infection rate is, on average, less than 35% of the area of orchards in that region;
- a Recovery region may be established where the Psa-V infection rate is, on average, 35% or more of the area of orchards in that region.

The secondary criteria KVH must take into account are:

- the degree of physical isolation of a particular area, and the extent to which that degree of isolation would be likely to reduce the risk of Psa-V naturally spreading to that area;
- whether there are natural barriers that reduce the risk of the natural spread of Psa-V into, within, or from a particular area;
- any other factors that would, or may, affect the levels of inoculum in a particular area, such as, the prevalence of Psa-V, the density or proximity of orchards, the particular varieties of kiwifruit plants and the levels of inoculum released by those varieties, and whether the symptoms of Psa-V are present in primary or secondary form;
- any other matters that KVH considers relevant.

Implementation approach for determining regional status and boundaries

The proposed boundaries and status of regions may change over time, for example, if the disease status or situation changes in a region. The process for setting and changing the status of any given region will be managed by KVH executive, who will work with regional coordinators and groups to understand local grower perspectives and will make a recommendation to the KVH Board that includes advice on the nature of local grower perspectives. The final decision on the boundaries and status of regions lies with the KVH Board. An up to date record of official status and boundaries will be maintained on the KVH website. KVH will notify any change to either the boundaries or status of any region or regions through alerts on the KVH website (www.kvh.org.nz/maps_regional) and in the KVH Bulletin, and through other industry publications where appropriate.

4.1.2 Establishment of new Exclusion regions

Desired outcome

To establish a high level of protection for:

- new growing regions – where commercial orchards are starting to be established
- other sites of importance to the industry, being sites outside of existing growing regions to be used to supply plant material (e.g., budwood, pollen, young plants) free of Psa-V for either domestic supply or export purposes.

Background

KVH has identified the opportunity to protect new areas outside of existing growing regions through controlling the movement of high risk items to these sites. This includes any new regions growing commercial fruit for export and any new sites remote from kiwifruit regions selected for production of disease-free plant material (e.g., pollen, budwood, young plants) for export and/or domestic supply.

Additional criteria when determining new Exclusion region status and boundaries

In making its decisions on the formation of new Exclusion regions and associated boundaries, the KVH Board will take into account matters set out in the NPMP (section 7 of the Order in Council – refer Attachment 1) and other criteria set out in section 4.1.1 above.

In addition to these matters, additional criteria the KVH Board will take into account are:

- i. A new Exclusion region shall be at least 20km from the boundary of an existing growing region (established under the NPMP).
- ii. The boundary of any new Exclusion region shall ensure a buffer of at least 20km maintained around orchards or other sites of importance to the industry the new region is established to protect, except where there is a risk-based and evidence-based justification for setting a lesser boundary.

[Explanatory note: The 20km distance criteria above reflects Psa-V experience and learning to date, including benefit of research. Spatial-temporal modelling and analysis of historic Psa-V spread indicates 98% of natural Psa-V spread (i.e. wind and rain events cf. human-assisted spread) occurred within 10 kilometres of an infected orchard. And identified a significant spatio-temporal component to spread in some regions with infected orchards, of up to 20 kilometres and 90 days, which accounted for the remaining 2%¹. To achieve enduring exclusion 100% of natural spread must be accounted for. The exception identified in relation to additional criteria ii. above recognises some sites of importance to industry could be located well outside of growing regions and/or be located within facilities that reduce

¹Refer to: Rosanowski, Sarah; Carpenter, Tim; Stevenson, Mark; Froud, Karyn (2013). *Quantification of the spatial distribution and natural rate of Psa-V spread in New Zealand*. Massey University

the risk of exposure to natural spread of Psa-V (e.g., controlled glasshouse or MPI registered containment facility)].

When establishing the boundaries of any such new Exclusion region the KVH Board will consider potential future industry issues over the next three years; this is to future-proof these (to the extent foreseeable) and avoid the need for further boundary changes within a three-year period).

In relation to other factors listed under 7 (2) (c) of the Order in Council, the KVH Board will specifically consider the extent, if any, of wild kiwifruit and abandoned orchards as potential reservoirs for Psa-V inoculum, as well as any other matters relevant to this sub-clause.

Where a new Exclusion region is created this enables the board to control the movement of plant material into that region. This will not be used as a commercial barrier/to prevent a commercial activity. For example, if another grower wishes to establish a new orchard in a new Exclusion region (e.g., a site close to a nursery, budwood production facility or tissue culture facility) then the board would not use its ability to control movements of such plant materials as a commercial barrier. Rather KVH would ensure all affected parties have been notified and consulted, encourage affected parties to reach agreements on how best to manage risk, and the KVH board would take a risk management approach and consider any views of affected parties.

This policy applies to commercial production and will not take into account non-commercial activities (e.g., home gardens or personal orchards for non-commercial use), in alignment with objectives of the NPMP.

Additional process and cost considerations

Any party can put the case to KVH for a new Exclusion region to be established, which should cover the considerations above, including matters set out in the NPMP. The KVH Board reserves the right to decide if an application is reasonable and sufficient information has been provided. The KVH Board or KVH management can also self-initiate consideration of a new Exclusion region.

The process for considering applications set out in the Section 4.1.1, above, applies. Over and above this, KVH will communicate and seek views on the proposal from any potentially affected parties it deems have a potential interest in the application (i.e. in addition to the views of local growers), consistent with future proofing considerations set out in the policy above.

As a matter of principle, the establishment of a new Exclusion region will be on a user pays basis, however, KVH will cover its administrative costs associated with considering the case for a new Exclusion region. In practice this means that any costs associated with testing or monitoring required to confirm absence of Psa-V from a proposed new Exclusion region will need to be met by users, with any such requirements to be determined by the KVH Board on a case-by-case basis.

4.2 Movement controls

4.2.1 Policy on movement controls

Desired outcome

To reduce the risk that Psa-V is spread through movement of risk items, in order to achieve objectives of the NPMP, including taking into account commercial growing, packing and cooling interests.

Background

Moving risk items (items that could harbour or contain Psa-V) between orchards or between regions can spread Psa-V with serious consequences for growers.

Current evidence suggests that people can spread Psa-V through movement of the following risk items:

- kiwifruit budwood;
- kiwifruit rootstock, plants and any part of a kiwifruit plant used in plant propagation;
- kiwifruit flowers, flower parts and pollen;
- other kiwifruit plant material (excluding above, and including compost containing kiwifruit plant material and vine material cut out from orchards);

- kiwifruit fruit that may be contaminated with plant material (other than fruit that has been processed and packaged, whether for domestic consumption or for export);
- kiwifruit orchard infrastructure and equipment; and
- beehives.

Movement controls are required to reduce risk associated with movement of these items between orchards and between regions, consistent with the NPMP objectives. Movement controls are likely to differ across the different risk items (e.g., depending upon the nature and level of risk they pose and our ability to manage that risk) and between regions. For example, movement controls for:

- Exclusion regions will focus primarily on in-bound movements of risk items to keep Psa-V out of the region, and 'internal' movements in the event of an incursion to contain the situation during a response;
- Containment regions will focus on controlling all movements of risk items (in-bound, internal and outward movements) to limit further spread of Psa-V into and within the region, and to support any on-going disease management;
- Recovery regions will focus primarily on controlling movements of risk items out of the region, primarily to prevent the spread of Psa-V to other (Exclusion or Containment) regions.

Movement controls may also change over time as new evidence becomes available, for example, where this changes our understanding of risk or provides new tools for management of risks.

NPMP and other requirements

Movement controls are one of the principal measures identified in the NPMP as follows:

imposing movement controls on risk items that are, or may be, capable of contributing to the spread of Psa-V (refer to sub-clause (8)(e) of the Biosecurity (NPMP) Order 2013).

There are no rules in the NPMP relating to movement controls. Instead the NPMP states that movement controls will be managed through use of administrative powers, and specifically:

- Declaration of controlled areas by exercising section 131 of the Act.
- Declaration of restricted places by exercising section 130 of the Act.

Controlled areas can be established by KVH to put in place movement controls that apply to geographic areas that:

- enable the limitation of the spread of any pest or unwanted organism; or
- minimise the damage caused by any pest or unwanted organism; or
- protect any area from the incursion of pests or unwanted organisms; or
- facilitate the access of New Zealand products to overseas markets; or
- monitor risks associated with the movement of organisms from parts of New Zealand the pest status of which is unknown.

When declaring a controlled area, the controlled area notice can identify movements that are restricted, regulated or prohibited². KVH is able to issue permissions (either a generic permission, or a permission that applies to a specific person or persons) that allow restricted or regulated movements subject to any conditions that KVH determines.

The MPI chief technical officer will continue to be responsible for issuing permissions relating to known use or movement of Psa-V for research purposes (including such use in both laboratories and in field trials), as well as its permitting and official assurance roles in relation to imports and exports.

² Prohibited, restricted and regulated are defined as:

Prohibited: Forbidden under any circumstances.

Restricted: Excluding or unavailable to certain groups.

Regulated: Controlled through a law or regulation (e.g. requiring KVH authorisation)

Restricted places can be put in place by an authorised person to establish very targeted restrictions that apply to a specific place (for example, in the event of an incursion, such that specific requirements can be applied to a particular property or group of properties without imposing those same requirements on other orchards within the wider buffer (controlled area), and/or where there is an extreme case of non-compliance).

Where an authorised person has declared a restricted place, tight restrictions apply to movement of any materials or goods that could spread Psu-V (as specified in the notice) either into or from the place, without permission of an authorised person.

The Act specifies notification requirements that must be met by KVH or by an authorised person when declaring a controlled area or restricted place respectively, and these requirements are covered below.

Deciding on movement controls

Movement controls will be designed to achieve the NPMP objectives, including achieving the right balance between preventing the spread of Psu-V and minimising the impacts of Psu-V on kiwifruit production. The latter includes both productivity impacts (i.e. impact of Psu-V on orchard gate returns) and control impacts (i.e. compliance costs associated with movement controls and other plan measures). KVH and authorised persons will need to apply sound judgement when deciding on movement controls to get this balance right.

Key considerations that KVH or an authorised person will take account of when deciding on movement controls include:

- i. potential to spread, or further spread, Psu-V through movements of risk items (i.e. are the movements to an area of lower infection status, and is there potential to create new infection or make the disease situation significantly worse?);
- ii. level of risk associated with the risk item (e.g., the risk associated with movement of plant material is higher than the risk associated with movement of beehives);
- iii. availability of effective methods /tools that can be applied to reduce risk to acceptable levels;
- iv. compliance history, and how likely it is that persons moving the risk item(s) would apply the effective methods/ tools (if the compliance history is poor, the tendency should be to apply tighter movement controls);
- v. practicality, including whether it is feasible and practical to implement a movement control on-orchard, in the pack-house operation, in the nursery operation etc;
- vi. the need to minimise compliance costs (including impact on commercial growing, packing and cooling interests) to the extent necessary to achieve the NPMP objectives;
- vii. level of uncertainty (i.e. the level of scientific evidence or lack thereof) and the need to exercise appropriate precaution.

Low risk movements will generally be allowed, subject to being carried out in compliance with established protocols. Medium risk activities will generally be restricted or regulated, such that they may only be carried out with permission from KVH or an authorised person. High risk activities will generally be prohibited, but in extreme circumstances (e.g., where commercial impacts are high, and no other reasonable options are available) may be carried out with permission from KVH or an authorised person, and strict conditions will apply.

4.2.2 Implementation approach for movement controls

Establishing controls

General movement controls that apply to regions, or that apply in the event of an incursion, will be established by KVH through declaring 'controlled areas', and implemented, as follows:

- Issuing a Notice of Declaration of Controlled Areas under Section 132 (2) of the Act, which will specify the areas to be declared as movement control areas, the risk items on which controls will be placed and also the specific type of region: Recovery, Containment or Exclusion;

- Issuing Controlled Area Notices issued under section 131 (3) of the Act, which will specify movements that are restricted, regulated or prohibited for each of the risk items (or groupings of similar risk items where appropriate);
- Above notices will be notified by KVH in the KVH Bulletin, and otherwise as KVH considers effective and appropriate (e.g., in other industry publications or by public notice);
- KVH will provide guidance to those who need to comply with any controlled area notice by way of supporting movement control protocols, which will be made available on the KVH website;
- KVH will consult with those affected before making any significant changes to its movement control policies;
- Permission applications to KVH will be processed by KVH at their office in Mount Maunganui within five working days wherever possible (noting KVH reserves the right to extend this timeframe for complex applications or when dealing with other urgent and high priorities e.g. Response). Information on when and how to apply for a permission (including access to permission application forms, and information on when a KVH permission is required as opposed to an MPI permission) will be maintained on the KVH website (www.kvh.org.nz).

In exceptional circumstances, an authorised person may put in place targeted, site-specific restrictions by establishing a Restricted Place, and implement these, by:

- issuing a Restricted Place Notice under section 130 (1), which will specify the boundaries of the place, and restrictions on any movement of any organism, organic material, or risk items either onto or from that place. The notice must be in a form approved by the Chief Executive of KVH;
- either serving a copy on the occupier of the place or, if an occupier cannot be found, publicly by posting the notice in a visible place on the site or by public notice in the newspaper;
- permitting any movements (as above) on or off the restricted place;
- issuing specific directions for treatment or disposal of risk items, where required, through a Notice of Direction under the Act.

Restricted place notices will likely be reserved for emergency provisions, or where serious non-compliance has occurred or is likely in the view of the authorised person.

Up to date movement controls are specified on the KVH website (www.kvh.org.nz/Movement_Controls).

4.3 Psa-V Orchard Management Plans

4.3.1 Policy on orchard management plans

Desired outcome

All growers have a clear plan for managing Psa-V risk on their orchard, and have confidence they are meeting requirements of the NPMP

Background

Planning to manage Psa-V on the orchard is about taking practical steps to reduce the likelihood that Psa-V will arrive, spread within, or spread from an orchard (or any other site that could be a source of Psa-V infection). Where Psa-V is present within an orchard, the development of a Psa-V Orchard Management Plan is about taking steps to minimise the impacts of Psa-V, that protect the health of the kiwifruit industry, as well as protecting neighbouring regions and individual orchards. As Psa-V has become well-established in Recovery regions, management has developed a set of well-understood actions which are now routine practice and incorporated into orchard management plans.

Experience to date is that growers who have a clear plan are achieving greater success in managing Psa-V. Also, that having a clear plan is also one of the key things one can do to reduce the stress that can affect growers, and their families, dealing with Psa-V.

Psa-V Orchard Management Plans are also one of the key tools that enable KVH to address unmanaged and abandoned orchards, to make sure these do not create serious risks that impact other growers. Growers who have and implement their Psa-V Orchard Management Plan can be confident they are meeting all NPMP minimum requirements.

Growers will need to determine the most effective management approach (over and above the minimum requirements), which is best suited to their situation. KVH will continue to provide best practice advice, supported by a significant R&D programme, to assist this. The intent is to align best practice management with best practice for production as far as possible to keep it simple and keep costs down.

NPMP requirements

The NPMP includes a rule that requires every grower to have, and operate in accordance with, a Psa-V Orchard Management Plan. Specifically, this responsibility falls on the occupier of an orchard first and foremost, but where an occupier cannot be identified or made responsible, that responsibility shifts to the orchard owner.

A Psa-V Orchard Management Plan must cover at least the following:

- Hygiene: Orchard hygiene practices that will be implemented to reduce the risk of Psa-V entering, or spreading in or from, the orchard;
- Crop protection: The crop protection programme that will be applied to protect vines, to manage impacts, and to reduce the spread of Psa-V;
- Monitoring: The Psa-V monitoring programme that will be implemented;
- Orchard Management: Any orchard management practices that will be applied to protect vines, to manage impacts, and to reduce the risk of further spread of Psa-V;
- If Psa-V is not already present in the orchard or the associated Exclusion region (as the case may be), details of the actions to be taken to ensure readiness for an outbreak of Psa-V; and in the event that a Psa-V outbreak is detected within the orchard or the associated region for the first time;
- How mandatory requirements under the NPMP will be met, including:
 - i. Reporting of Psa-V;
 - ii. Providing monitoring information about Psa-V;
 - iii. Minimum crop protection for diseased orchards;
 - iv. Adherence to movement controls.

4.3.2 Implementation approach for Psa-V Orchard Management Plans

To assist growers with their Psa-V Orchard Management Plans, KVH has developed some options for growers. This includes an online Psa-V Orchard Management Plan, which is an easy-to-use online form that allows growers to complete their plan through a series of simple tick-boxes and drop-down menus. The resulting plan is emailed to the grower in PDF format to edit, save and/or print out. A hard copy plan template is also available.

KVH provides a step-by-step instruction guide to assist growers with completing their plan. KVH also recommends best practice and provides advice to growers through the KVH Best Practices Guide, which is based on industry experience and the latest research. The KVH Best Practices Guide is closely aligned with requirements of the Psa-V Orchard Management Plan to make implementation as simple and as easy as possible for growers.

Growers are also able to access technical advice and assistance with plan development over and above this through their regional committee, their post-harvest operator and from KVH.

Implementation approach for growers under Zespri GAP

For simplicity, Psa-V Orchard Management Plans are included within Zespri's GAP system, a system that incorporates about 95% of industry growers. Zespri's GAP system is a quality control system that encompasses the requirements of, and is recognised by, the international GlobalGAP standard, but enables Zespri to include additional requirements outside of the GlobalGAP standard, such as the requirements of the NPMP.

As a national regulation, the mandatory requirements of the NPMP are classified as major requirements under Zespri GAP and therefore applicants must have 100 % compliance with these to achieve GAP certification under the Zespri GAP scheme. Growers are required to file completed Psa-V Orchard

Management Plans in their GAP manual and these are reviewed during their GAP annual audit. The GAP audit process will continue to operate as it currently does, as follows:

- KVH will work with Zespri and other marketers, in June each year, to ensure that standards within GAP (or equivalent) are compliant with KVH's NPMP and specifically the Orchard Management Plan requirements.
- Grower audits will be conducted between October and December by post-harvest operators, who are in turn audited by Zespri.
- Independent verification of this process will be provided byASUREQuality, which also conducts random audits of some post-harvest operators and growers.

Implementation approach for other growers

Growers operating outside of the ZespriGAP will still be subject to an annual audit through one of several options depending on their situation. Those growers who are growing multiple crops under GlobalGAP may choose to include the Psa-V Orchard Management Plan as part of their annual GlobalGAP audit. Other growers will be audited by their packhouse with independent verification of the process by KVH.

Compliance

It is expected that by including the Psa-V Orchard Management Plan requirement under the GAP scheme will result in high levels of grower compliance. Failure to have and operate in accordance with a Psa-V Orchard Management Plan is not an offence under the NPMP, but it will result in implications under the GAP scheme. In situations that create a significant risk to other growers (e.g., where an orchard is considered unmanaged), an authorised person has ability to require that a grower has risk management plan in place for his/her orchard (e.g., through a notice of direction under s.122 of the Biosecurity Act).

4.3.3 Broadening the scope of Psa-V Orchard Management Plans

The value of Psa-V Orchard Management Plans has diminished over time as Psa has become more widespread and Psa-V management has become business-as-usual. An opportunity exists to refocus these plans to capture wider on-orchard biosecurity practices that serve the long-term needs of the industry while still including the Psa-V specific management requirements to meet NPMP compliance. KVH is looking to introduce tools encouraging all growers to maintain a Biosecurity Management Plan. This Management Plan will provide growers an opportunity to rethink their approach to Psa-V management in light of the wider biosecurity risks. The biosecurity component of the Management Plan will provide KVH with an opportunity to increase awareness of other biosecurity risks and ensure growers are taking responsibility and implementing best practice to mitigate the impacts of any future incursion. Growers who elect not to complete a Biosecurity Management Plan will still be required to complete a Psa-V management plan.

4.4 KVH approved crop protection products

4.4.1 Policy on KVH approved crop protection products

Desired outcome

To enable effective crop protection, by enabling growers and others access to crop protection products that have known efficacy against Psa-V.

Background

Effective crop protection is one of the foundations of effective Psa-V management.

Growers and others need to have confidence that the crop protection products they apply are going to be effective, and can be legally applied.

Through research and testing, a toolbox of crop protection products have been identified that show degrees of efficacy in the control of Psa-V, as well as best practice in terms of their application.

A mandatory requirement of the NPMP is to have an effective crop protection programme in place.

An effective crop protection programme must include at least one effective crop protection product, applied at a label rate as required in the KVH Psa-V Best Practice Guide. Effective crop protection products are those which ACVM has issued a label claim as approved for use in Psa-V control. The objective of this requirement is to provide a minimum level of protection against Psa-V yet provide enough flexibility for growers to encourage innovation and enable development of orchard management practices that may provide a high level of protection and be cost-effective in their specific orchard situation.

NPMP and other regulatory requirements

The NPMP includes a rule (Rule 5) that specifically requires growers responsible for orchards with Psa-V present to apply an effective crop protection programme, which includes annual application of at least one effective crop protection product. An effective crop protection product is defined in the NPMP as a *crop protection product that is included on a KVH list of approved crop protection products*.

Application of an effective crop protection product may also be required to comply with other parts of the NPMP, including:

- Rule 1, i.e. the requirement that growers have and implement a Psa-V Orchard Management Plan;
- Rule 6, i.e. the requirement to ensure an orchard is not an unmanaged orchard;
- Movement controls, i.e. where a condition of movement is to apply an effective crop protection product.

Prior to testing products in the laboratory or field, approval is required by the Environmental Protection Agency (EPA) under the Hazardous Substances and New Organisms Act 1996 and/or by the Ministry for Primary Industries (MPI) under the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997. Commercial sale of products for Psa-V control require registration under the ACVM Act and have an HSNO approval.

4.4.2 Implementation for KVH approved crop protection products

KVH will maintain a list of effective crop protection products on the KVH website, and specific advice on best practice in crop protection will be provided in management guides (e.g., the Psa-V Best Practice Guide for growers, and in the Kiwifruit Plant Certification Scheme Nursery Manual for nurseries and other persons growing kiwifruit plants for sale).

To become approved, a crop protection product undergoes a multi-stage product testing process that determines the efficacy of a product in controlling Psa-V infection in kiwifruit vines. Testing of products is conducted as part of the KVH/Zespri Research and Development Programme. Products that successfully complete the testing process by demonstrating efficacy against Psa-V may then be submitted to ACVM for a label claim in relation to Psa-V effectiveness. Only products that receive a label claim from ACVM are then approved for use in Psa-V control and considered an effective crop protection product.

KVH/Zespri conduct product testing for the purposes of controlling and/or curing Psa-V infection in kiwifruit vines. As with any orchard management technique or application, the use of products may cause incidental effects on kiwifruit vines, which are as yet unknown and will not be tested as part of these studies. Once efficacy of a product is determined, further analysis is required to determine the application impact for kiwifruit growers.

The most promising chemical formulations that are registered for use on kiwifruit in New Zealand are included in KVH's Psa-V Best Practice Guide. Applying one of these products according to directions specified in KVH's Seasonal Management Guide will meet the NPMP requirement to include application of at least one effective crop protection product annually.

An exemption to rule five annual application of at least one effective crop protection product may be applied in cases where a land owner can clearly demonstrate they are effectively managing the risk of Psa-V on their orchard through their Psa-V orchard management plan, records and practices undertaken on the orchard, therefore posing a low Psa-V risk. An exemption will apply for a maximum 12-month period and may be retracted in the event that Psa-V management practices fail to control Psa-V in line with the level of control achieved on other orchards in the neighbourhood and district

4.5 Psa-V Risk Management Plans (post-harvest operators and processors)

4.5.1 Policy on Psa-V Risk Management Plans

Desired outcome

All post-harvest operators and kiwifruit processors have a plan for managing risk of Psa-V within their operation and have confidence that they are meeting the requirements of the NPMP.

Background

Post-harvest operators and processors manage significant movements of people, vehicles, equipment and fruit that can be contaminated with kiwifruit leaf and plant material; moving these between orchards and the main post-harvest or processing facility. Post-harvest operators and processors already recognise this and play a key role in managing Psa-V risks associated with their own operations. By documenting how they manage these risks related to Psa-V they will produce a plan that will assist them in their operations, while also providing confidence that they are meeting the requirements of the NPMP.

There are some mandatory requirements that Psa-V Risk Management Plans must cover, some of which should already be standard operating procedures for these operations.

NPMP requirements

The NPMP requires that all post-harvest operators and kiwifruit processors must have in place, and operate in accordance with, a Psa-V Risk Management Plan. The Psa-V Risk Management Plan must include:

- The practices and procedures that will be applied in order to:
 - i. reduce the risk of bins of fruit becoming contaminated with kiwifruit leaf and plant material prior to transport;
 - ii. contain fruit that could be contaminated with kiwifruit leaf and plant material during transport (as required under the relevant protocol);
 - iii. remove, contain, and safely dispose of any residual contaminant kiwifruit leaf plant material after transport or during processing;
 - iv. sanitise fruit and any bins or other equipment used to transport or handle fruit prior to processing and packaging (as required under the relevant protocol);
 - v. ensure that any vehicles or equipment that leave the person's premises are free of kiwifruit leaf and plant material; and
 - vi. maintain a level of general hygiene that reduces the risk of any item that could be contaminated with Psa-V being moved from, or being allowed to leave, the post-harvest or processing facility.
- What systems exist for traceability of fruit and how the integrity of these systems is maintained.
- How the Psa-V Risk Management Plan complies with other requirements of the NPMP, such as controlled area notices, reporting and provision of information.

Post-harvest operators must provide KVH with a copy of their Psa-V Risk Management Plan, and provide any supporting information records that verify they operate in accordance within that plan upon request. These documents must be provided within one week of KVH making any such request.

4.5.2 Implementation approach for Psa-V Risk Management Plans

Post-harvest

KVH provides a Psa-V Risk Management Plan systems audit report document which is available on the KVH website. This document also serves as a template that post-harvest operators can use to create a Psa-V Risk Management Plan (by completing this document the operator will have created their Psa-V Risk Management Plan).

KVH provides feedback on proposed Psa-V Risk Management Plans. A finalised document, complete with any required amendments must be filed with KVH prior to the post-harvest operator commencing packing for the season.

An audit of the post-harvest operator must occur during the packing season to verify that the measures stated in the Psa-V Risk Management Plan are being implemented. This audit is coordinated by KVH.

Processors

The procedure for Processors to obtain an approved Psa-V Risk Management Plan is similar to that for post-harvest operators. Processors of kiwifruit must register with KVH. A KVH 'systems audit report' document is available for processors on the KVH website, which they can use as a template to produce a Risk Management Plan and submit this to KVH. A finalised Psa-V Risk Management Plan, including any amendments that KVH may request in their review, must be filed with KVH prior to any processing of kiwifruit for the season. A requirement as part of this procedure is that Processors are only able to obtain kiwifruit from post-harvest operators that already have approved Psa-V Risk Management Plans in place.

An audit of processors will be conducted on an annual basis to verify that measures stated in the Psa-V Risk Management Plan are being implemented; KVH will complete these audits.

4.5.3 Broadening the scope of Psa-V Management Plans (post-harvest operators and processors)

The value of Psa-V Management Plans can be enhanced by broadening the scope of these plans to cover wider biosecurity risks. Most of the practices required for Psa-V under the NPMP are effective in mitigating other biosecurity threats. Post-harvest operators and processors are being encouraged to widen the scope of their plans to cover other biosecurity threats and to raise awareness of these threats within their organisations. Where operators elect not to widen the scope they are still required to implement a Psa-V Management Plan.

4.6 Accreditation / Certification / Registration (Nurseries, pollen operators, budwood distributors)

4.6.1 Policy on accreditation for nurseries, pollen operators and budwood distributors

Desired outcome

All nurseries, pollen operators and budwood distributors apply effective biosecurity risk management practices, and supply plant material to the kiwifruit industry without spreading Psa-V.

Background

Movement of plant material, including nursery stock, pollen and budwood, is a high-risk pathway for the further spread of Psa-V. KVH has worked with the key industries involved in movement of plant material (i.e. nurseries, pollen operators and budwood distributors) to develop risk management practices that are consistent with achieving NPMP objectives.

KVH currently approaches this in two ways, by:

1. Providing a Kiwifruit Plant Certification Scheme (KPCS) for nurseries; and
2. Requiring nurseries not selling certified plants, and pollen and budwood operators, to register with KVH and have and implement a KVH-approved risk management plan.

NPMP requirements

The NPMP enables KVH to establish movement controls that apply to risk items, including nursery stock, pollen and budwood. These are tailored to each risk item (or groups of similar risk items where appropriate) and to regions (i.e. to achieve the different objectives for Exclusion, Containment or Recovery regions). By establishing movement controls, KVH is able to restrict, regulate or prohibit particular movements, and through this approach can permit movements and apply conditions. This enables KVH to allow movements where risks are managed to an acceptable level. Plant certification, registration and risk management planning (as above) are the key ways that KVH is able to recognise risks are being managed to an acceptable level, and KVH establishes these requirements as conditions when setting movement controls.

4.6.2 Implementation approach for accreditation of nurseries, budwood distributors and pollen operators

The specific movement controls that apply to nurseries, budwood distributors and pollen operators are specified on the KVH website (www.kvh.org.nz/Movement_Controls).

The approach to plant certification - including standard setting, audit requirements, tracing of plant material movement, independent monitoring and diagnostic testing and support that KVH will provide (e.g., templates, best practice advice etc.) - is set out for nurseries, pollen operators and budwood distributors below.

Nurseries

A nursery is defined as any entity that propagates *Actinidia* plant species to any age for sale or movement outside of the property; this includes orchards with nursery plantings intended for sale or distribution outside of the property boundaries.

KVH has established the KPCS to provide protection against Psa-V and other wider biosecurity risks to the kiwifruit industry and increase the prospects of successful vine establishment by starting with healthy disease-free material.

The goal and benefits the scheme seeks to achieve are as follows:

Goal: To enable growers to purchase kiwifruit plants of known plant health status¹, supporting long term success and future growth of the New Zealand kiwifruit industry.

¹ levels of freedom from specified pests or diseases

Benefits:

- *Minimising the risk that any new to New Zealand high risk pests or diseases (including new strains of Psa-V) are rapidly spread, to give the best chance of successful response with least possible impacts;*
- *Minimising the spread of specified established diseases, including Psa-V, between kiwifruit growing regions;*
- *Recording the movement of plant material to allow tracing of plant material should it be required*
- *Increasing the prospects of successful vine establishment in a Psa-V environment (i.e. by starting with healthy plants of known pest and disease status);*
- *Allowing efficient movement of cultivars throughout New Zealand;*
- *Supporting movement of cultivars to offshore commercial opportunities;*
- *Recognising nurseries operating to professional standards; and*
- *Reducing nursery business risk and uncertainty, by providing a clear and enduring framework on which business decisions can be based.*

The KPCS was approved and launched by the KVH Board in May 2014, initiating a transition to full implementation of the scheme which commenced on 1st October 2016.

All nurseries are now required to be part of this scheme as only KPCS certified plants can be sold/moved. These nurseries are required to meet the standards as detailed in the scheme, which includes independent monitoring and testing completed annually by KVH.

Movement controls for all nursery stock, are detailed within the KVH Protocol: Nursery Stock, available on the KVH website (www.kvh.org.nz/indnurseries).

Budwood Distributors

KVH defines a budwood distributor as any entity or person that sells or distributes kiwifruit budwood outside of the KPIN from which it is collected. The movement of budwood is a high-risk pathway, as Psa-V can be present within budwood asymptotically (i.e. without expressing symptoms). KVH will work to establish a traceability system that records the movement of budwood material to ensure trace forward or back should this be required.

The KVH Protocol: Budwood specifies movement controls and requirements for budwood distributors; including the need to register with KVH and have and implement *Psa-V Budwood Risk Management Plan*.

The KVH Protocol: Budwood which includes the Risk Management Plan template is available on the 'Budwood/Grafters' page on the KVH website (www.kvh.org.nz/indgrafters).

Pollen Operators

KVH defines a pollen operator as any entity or person that harvests, processes and/or distributes kiwifruit male flowers and pollen for use in commercial pollination. All pollen mill operators (including growers who mill for their own use) and anyone who has sourced pollen from a mill for further distribution is required to register and adhere to requirements in the KVH Protocol: Artificial Pollination.

One of the movement control conditions for pollen is a requirement that operators must register with KVH, and have and implement *Psa-V Pollen Risk Management Plan*. KVH will establish a traceability system to record movements of pollen in a similar manner to rootstock and budwood.

A protocol for movements of pollen, and a *Psa-V Pollen Risk Management Plan* template are available on the Bees and Pollen page on the KVH website (<http://www.kvh.org.nz/beekeepers>).

4.7 Unmanaged orchards

4.7.1 Policy for unmanaged orchards

Desired outcome

To reduce the risk of *Psa-V* spreading from unmanaged orchards to other orchards, nurseries or regions, by supporting growers to re-gain control of infection risk within their orchard(s) and return to a situation where *Psa-V* is effectively managed in accordance with a *Psa-V Orchard Management Plan*.

Background

Diseased orchards, if left unmanaged, will release inoculum into the environment that can pose a risk of wind and water-borne spread of *Psa-V* to neighbouring orchards. This increases the risk of *Psa-V* spread via a range of pathways to other orchards and regions. Lowering inoculum levels is considered by KVH to be a key part of the strategy to achieve successful kiwifruit production with more *Psa-V* tolerant varieties.

Growers need to decide the management approach best suited to their situation. KVH will continue to provide best practice advice to assist growers, through the KVH Best Practice Guide. The NPMP requires that each grower sets out their management approach in a *Psa-V Orchard Management Plan* (with ability to adapt this as their situation changes) and operates in accordance with it. The NPMP also requires that growers (landowners or occupiers) responsible for a *Psa-V* positive orchard have an effective crop protection programme in place, which includes application of at least one effective crop protection product.

The focus of KVH is to intervene in serious cases where an orchard is in a state that could lead to spread of *Psa-V* infection to other orchards, and where every reasonable attempt has been made to achieve a voluntary solution, without success.

NPMP requirements and deciding when an orchard is unmanaged

The NPMP states that a diseased orchard will be considered unmanaged by KVH when:

- *the orchard is not being actively managed to reduce the amount of diseased material; and*
- *the disease situation is deteriorating; and*
- *the orchard is creating a serious risk to neighbouring growers who are actively managing *Psa-V*, or to neighbouring Containment or Exclusion regions.*

The NPMP states that when deciding the level of risk that an orchard poses the following will be taken into account:

- *the overall level of infection within the region;*
- *the density, proximity and *Psa-V* status of neighbouring orchards;*
- *the nature and extent of the symptoms present on the orchard;*

- *the composition of different kiwifruit varieties grown within the affected orchard and associated level of inoculum these could potentially release; and*
- *the number and nature of movements off the orchard that could lead to further spread of Psa-V.*

To increase certainty for growers, KVH will endeavour to clarify, in practical terms, how it is likely to interpret the criteria above on-orchard, e.g., by describing in practical terms the nature and extent of symptoms it considers significant, and describing the minimum management practices it will accept as reasonable where symptoms are significant. This clarification will be issued on the KVH website and communicated to growers via the KVH Bulletin from time to time. It will be issued as guidance only and be updated from time to time, reflecting that the overall Psa-V disease situation is dynamic, and understanding of risk will continue to improve over time (i.e. with benefit of research, monitoring and grower experience).

4.7.2 Implementation approach for unmanaged orchards

KVH will only get involved to take action where there are serious risks (refer to definition in paragraph 5) and where reasonable attempt has already been made by the grower's post-harvest operator, neighbours and regional coordinator to seek a voluntary solution, without success. That is, KVH will only take action where local and regional solutions have either been exhausted or are not leading to timely management of serious risks.

In practice there will be an escalation model, that starts with providing support and giving every reasonable opportunity to find a voluntary solution, but that also ensures timely action is taken so that serious risks get managed.

KVH will act where its staff identify potentially unmanaged orchards and will respond to reasonable reports or complaints.

The steps to be taken once a potentially 'unmanaged orchard' is identified are set out in Table 2, below. Table 2 also identifies the timing of steps, and clarifies that the speed of management response will be faster for 'extreme cases', compared to 'other cases that pose a serious risk', as follows:

- Extreme cases: this will apply, in particular, for less tolerant varieties, such as Hort16A and situations where disease progression is rapid and level of symptoms that could release inoculum is high. The aim will be to achieve active management of risks on-orchard within two months.
- Other cases that pose a serious risk: this will apply, in particular, for more Psa-V tolerant varieties, such as Hayward, and situations where disease progression is slower and level of symptoms that could release inoculum is lower. The aim will be to achieve active management of risks on-orchard within four months.

The course of action to address risk associated with an unmanaged orchard will typically entail removal of infected material and disposal in accordance with KVH protocols, and application(s) of an effective crop protection product.

Table 2. Steps and timing once a potential unmanaged orchard is identified, showing how timeframes would differ for ‘extreme cases’ and ‘other cases that pose a serious risk’.

Step	Indicative timeframe	
	Extreme	Other
A. KVH contacts grower to verify orchard status, affirm KVH position on unmanaged orchards, and initially assess Psa GAP / Orchard Management Plan compliance. KVH contacts post-harvest and regional coordinator.	Within 2 days	Within 2 days
B. Post-harvest and regional coordinator assess the orchard, then discuss with KVH to agree whether the case is extreme, or otherwise poses a serious risk. <ul style="list-style-type: none"> • <i>if denied entry then proceed to Step E.</i> • <i>if no serious risk is identified then stand down.</i> 	Within 4 days	Within 4 days
C. Post-harvest work with the grower to agree course of action to manage risks, update the grower’s Psa-V Orchard Management Plan, and facilitate assistance where appropriate (e.g., neighbours / contractors). Post-harvest update KVH (including copy of agreement reached and updated plan).	By end of week 2	By end of week 4
D. Post-harvest checks in with the grower regarding progress and the situation on-orchard, and any further support required. Post-harvest update KVH. <ul style="list-style-type: none"> • <i>If grower completes agreed course of action and risk is managed, then stand down.</i> 	As required, up until end of week 4	As required, up until end of week 8
E. If there is evidence the agreed course of action is either not taken or is not effective, KVH investigates, discusses the situation with the grower and their post-harvest operator, and attempts to reach agreement on a way forward. <ul style="list-style-type: none"> • <i>If agreement cannot be reached proceed immediately to step F.</i> • <i>If agreement is reached and course of action is taken and is effective, then stand down.</i> 	Start of week 6	Start of week 10
F. KVH checks in with the grower regarding progress and the situation on-orchard. Post-harvest facilitate assistance where appropriate (e.g., neighbours / contractors). <ul style="list-style-type: none"> • <i>If grower completes agreed course of action and risk is managed, then stand down.</i> • <i>If course of action is not sufficiently managing the risk, then all parties to agree changes required.</i> 	As required, up until end of week 6	As required, up until end of week 10
G. Where grower cooperation and action has not been achieved through prior steps, KVH works with MPI (where applicable) to take appropriate action (e.g., requiring compliance through a legal direction). <ul style="list-style-type: none"> • <i>If grower complies with conditions of the notice, then stand down.</i> • <i>Where a legal direction is not followed then enforcement and/or prosecution options are considered.</i> 	Start of week 8 (or earlier, at KVH discretion, where a grower does not cooperate or make any real attempt to address the orchard situation)	Start of week 12 (or earlier, at KVH discretion, where a grower does not cooperate or make any real attempt to address the orchard situation)

Compliance management and cost-recovery for un-managed orchards

Where reasonable efforts to achieve a voluntary and timely solution have not been successful, where an action, or inaction, is creating significant risk to growers, either:

- a KVH authorised person will issue the Notice of Direction under section 122 of the Biosecurity Act, which sets out the management actions that must be taken by the land owner or occupier, and when those actions must be undertaken by; or
- KVH may agree with MPI that MPI leads compliance and enforcement action in accordance with an agreed *Operating Protocol* between the two agencies.

Where KVH issues a Notice of Direction and that notice is not complied with, KVH will:

- act on default under section 128 of the Biosecurity Act, by appointing a contractor to carry out the work set out in the Notice of Direction.
- procure services (as referred to in paragraph 9, above) from a panel of contractors, which it pre-selects on the basis of ability to reliably deliver cost-effective and timely services. KVH will consider at least two quotes before selecting its preferred contractor.
- recover costs from the landowner or occupier under section 128 of the Biosecurity Act and will only recover the costs of services delivered by the third-party contractors (as referred to in paragraph 9 above). KVH will not recover costs associated with KVH staff time or legal advice. All costs recoverable shall be a charge against the land concerned.

4.8 Abandoned orchards

4.8.1 Policy for abandoned orchards

Desired outcome

To reduce the risk of Psa-V spreading from abandoned orchards, either by:

- returning the orchard to a situation where it is effectively managed in accordance with Psa-V Orchard Management Plan; or
- removing abandoned vines and kiwifruit plant material, to eliminate Psa-V risk.

Background

Abandoned orchards are potential reservoirs for Psa-V. As these are unlikely to receive any form of crop protection, they are high risk sites for potential establishment, amplification and spread of Psa-V between orchards and regions.

Abandoned orchards with fruit present on vines pose a risk in terms of spread of kiwifruit seeds (for example, by birds), which could lead to establishment of wild kiwifruit populations. Wild kiwifruit populations are high risk sites for potential establishment, amplification and spread of Psa-V. Wild kiwifruit also threatened indigenous biodiversity values, which is outside the scope of the NPMP but is of significant concern to regional authorities, and the communities they represent (covered below).

Relationship with regional authorities and regional pest management plans

Some regional authorities also have an interest in, and take action to manage, abandoned orchards in order to prevent establishment of wild kiwifruit, as part of a strategy to reduce the impact of wild kiwifruit on indigenous biodiversity values. Increasingly, regional authorities are adding 'wild kiwifruit' as a pest within their Regional Pest Management Plans. This strategic approach recognises that wild kiwifruit is one of the more difficult weeds to control, and a clear case where 'prevention is better than cure'.

Where the interests of KVH and a regional authority align (i.e. KVH 'interest in reducing spread of Psa-V' and regional authority 'interest in reducing impacts on indigenous biodiversity' respectively), KVH will take action in partnership with the regional authority concerned, in accordance with a Memorandum of Understanding (MOU) or any other form of agreement reached between the parties.

Approach to working in partnership and cost-sharing to achieve voluntary compliance

KVH will work with regional authorities and other partners (e.g., District Councils, significant public and private landowners) where there is mutual interest in managing risk associated with an abandoned orchard. KVH will contribute funding within a partnership where:

- i. this is to address a 'historic abandoned orchard', defined as 'an orchard that was abandoned before Psa-V was first detected in NZ (i.e. prior to November 2010);
- ii. a local partnership is formed, where other parties (e.g., regional council and/or landowner) are contributing resources;
- iii. where the arrangement involves/provides for on-going monitoring and follow-up control as required; and
- iv. for cases where the total cost of control and follow-up monitoring/control is under \$20k.

For all other cases (i.e. where abandoned after Psa-V arrived, or for historic cases where the \$20k is exceeded) a 100% cost recovery policy will apply.

NPMP requirements and deciding when and orchard is *abandoned* and level of risk

The NPMP states that an orchard will be considered abandoned when:

Any orchard which is not winter pruned or tied after 1 October each year, or where fruit remains un-harvested after 30 June each year.

The NPMP defines winter pruned as:

Activity carried out within an orchard after harvest and before bud-break, involving pruning and tying down canes in order to set a commercial crop.

The level of risk associated with each abandoned orchard will not be equal. And there is potential for a significant number of abandoned orchards, which could require KVH and regional authorities to make difficult prioritisation decisions. Therefore, a risk-based approach will be taken when prioritising the management of abandoned orchards.

When identifying the level of risk associated with an abandoned orchard KVH will take account of:

- i. The overall level of infection within the region; and
- ii. The proximity of adjacent or nearby Containment or Exclusion regions; and
- iii. The proximity and Psa-V status of adjacent and nearby orchards; and
- iv. The nature and extent of the symptoms present on the abandoned orchard; and
- v. The composition of different kiwifruit varieties grown within the abandoned orchard and associated level of inoculum these could potentially release; and
- vi. The number and nature of potential movements into, within, leaving or adjacent to the abandoned orchard, which could lead to further spread of Psa-V.

When deciding the priority associated with an abandoned orchard, KVH will take account of:

- i. The level of risk and related criteria (as above);
- ii. The relative level of risk in relation to unmanaged orchards and wild kiwifruit (i.e. so KVH focuses on addressing the greatest Psa-V inoculum risks first, across unmanaged orchards, abandoned orchards and wild kiwifruit);
- iii. Whether the abandoned orchard falls under terms of any agreement (such as a MOU) with a regional authority, and the extent of alignment between the interests of KVH and that regional authority.

4.8.2 Implementation approach for abandoned orchards

KVH will work with regional authorities and other partners (as above) where there is mutual interest in managing risk associated with an abandoned orchard to achieve voluntary compliance. KVH will focus on achieving timely protection / addressing significant risks to kiwifruit growers; and, to avoid delays, will where-ever possible work with regional authorities and others to clarify arrangements in advance.

Where the implementation approach under terms of such an agreement varies from this policy, the terms of that agreement prevail [Note that in establishing such agreements KVH will endeavour to achieve consistency with this policy, and any substantial variation in relation to this policy will require KVH Board approval].

KVH will act to implement this policy where reasonable attempt has already been made by KVH operational staff along with the regional coordinator, neighbours and the grower's post-harvest operator (where applicable) to seek a voluntary solution, without success. That is, KVH compliance staff will only take action where local and regional solutions have either been exhausted or are not leading to timely management of risks or the regions have requested KVH support.

In practice there will be an escalation model, that starts with providing support and giving every reasonable opportunity to find a voluntary solution, but that also ensures timely action is taken so that significant risks get managed.

KVH will act where its staff identify potentially abandoned orchards and will respond to reasonable reports or complaints.

The steps to be taken once a potentially abandoned orchard is identified are set out in Table 3, below. Table 3 also identifies indicative timing at each step, and clarifies that the speed of management response will be faster for extreme cases, compared to other cases that pose a significant risk, as follows:

- **Extreme cases:** this will apply, in particular, for less tolerant varieties, and situations where disease progression is rapid and level of symptoms that could release inoculum is high. The aim will be to achieve active management of risks on-orchard within one month.
- **Other cases that pose a significant risk:** this will apply, in particular, for more Psa-V tolerant varieties, such as Hayward, and situations where disease progression is slower and level of symptoms that could release inoculum is lower. KVH will prioritise such cases, with compliance timeframes to be determined based on priority.

A significant number of abandoned orchards have been identified and removed to date: A number of lower risk abandoned orchards remain on the KVH register, which will continue to be prioritised and worked through.

The course of action to address risk associated with an abandoned orchard will typically entail:

- completion of winter pruning and removal of commercially viable fruit, returning the orchard to a managed situation in accordance with a Psa-V Orchard Management Plan; or
- removal and disposal of vines in accordance with KVH protocols.

KVH will play a facilitation role to assist growers or landowners with an abandoned orchard, or an orchard which is struggling for whatever reason and likely to be abandoned, to connect with other people or organisations who are interested in possible management opportunities; that is, to maintain or return the orchard to a managed state.

Table 3. Steps and indicative timing once a potential abandoned orchard is identified and a complaint is lodged, showing how timeframes would differ for extreme cases and other cases that pose a significant Psa-V risk. The steps and timeframes indicate where and how KVH would propose to engage regional authorities where interests align (where these differ from any formal agreement reached between the two parties, then the terms of that agreement prevail). The timeframes are an indication of the speed KVH intends for the process however KVH reserves the right to adjust the timeframes as part of routine prioritisation to ensure that overall KVH resources are targeted to address the highest risks and opportunities.

Step	Indicative timeframe	
	Extreme	Other
A. KVH contacts grower/ land owner to verify orchard status, affirm KVH position on abandoned orchards, and initially assess Psa-V Orchard Management Plan compliance. KVH contacts post-harvest / regional coordinator and notifies regional authority and other potential partners (where applicable).	Within 2 days	Within 2 days
B. Post-harvest/ regional coordinator assesses the orchard, then discuss with KVH to agree whether the case is extreme, or otherwise poses a serious Psa risk. <ul style="list-style-type: none"> <i>if denied entry then proceed to Step F.</i> 	Within 4 days	Within 4 days
C. KVH works with the relevant regional authority to establish whether the abandoned orchard is covered by an existing agreement (e.g., MOU), and whether the two parties will work together.	By end of day 6	By end of day 6
D. KVH, regional coordinator, post-harvest and regional authority (where applicable) work with the grower to agree course of action. KVH provides advice to the grower and/or landowner on potential parties interested in management opportunities. Post-harvest facilitates any additional assistance where appropriate (e.g., neighbours / contractors). Regional coordinator to update KVH and regional authority (where applicable), including copy of agreement reached.	By end of week 2	By end of month 2
E. Regional coordinator and post-harvest check in with the grower regarding progress and the situation on-orchard, and any further support required. Regional coordinators update KVH and regional authority (where applicable). <ul style="list-style-type: none"> <i>If grower completes agreed course of action and risk is managed, then stand down.</i> 	As required, up until end of week 4	As required, up until end of month 3
F. If there is evidence the agreed course of action is either not taken or is not effective, KVH and regional authority (where applicable) compliance staff investigate, discuss the situation with the grower and post-harvest operator (if any), and attempt to reach agreement on a way forward. <ul style="list-style-type: none"> <i>If agreement cannot be reached proceed immediately to step G.</i> <i>If agreement is reached and course of action is taken and is effective, then stand down.</i> 	Start of week 6	Start of month 4

<p>G. KVH and regional authority (where applicable) compliance staff check in with the grower regarding progress and the situation on-orchard. Regional Council/Post-harvest facilitate assistance where appropriate (e.g., neighbours / contractors).</p> <ul style="list-style-type: none"> <i>If grower completes agreed course of action and risk is managed, then stand down.</i> <i>If course of action is not sufficiently managing the risk, then all parties to agree changes required.</i> 	<p>As required, up until end of week 6</p>	<p>As required, up until end of month 4</p>
<p>H. Where grower cooperation and action has not been achieved through prior steps, KVH works with MPI and/ or the regional authority (where applicable) to take appropriate action (e.g., requiring compliance through a legal direction).</p> <ul style="list-style-type: none"> <i>If grower complies with conditions of the notice, then stand down.</i> <i>Where a legal direction is not followed then enforcement and/or prosecution options are considered.</i> 	<p>Start of week 8 (or earlier, at KVH discretion, where a grower does not cooperate or make any real attempt to address the orchard situation)</p>	<p>Priority determined at start of month 4, with timeframe for issuing notice to reflect that priority (or this step can be taken earlier, at KVH discretion, where a grower does not cooperate or make any real attempt to address the orchard situation)</p>

Compliance and cost-recovery for abandoned orchards

KVH will seek to achieve voluntary and timely resolution of abandoned orchards where possible, and will work in partnership with others and contribute limited funding to resolve historic cases (refer to criteria in section 4.8.1 under the heading ‘Approach to working in partnership and cost-sharing with regional authorities and others’). For all other cases a 100% cost-recovery policy will apply (also refer below).

Where reasonable efforts to achieve a voluntary and timely solution have not been successful, where an action, or inaction, is creating significant risk to growers, either:

- a KVH authorised person will issue the Notice of Direction under section 122 of the Biosecurity Act, which sets out the management actions that must be taken by the land owner or occupier, and when those actions must be undertaken by; or
- KVH may agree with MPI that MPI leads compliance and enforcement action in accordance with an agreed *Operating Protocol* between the two agencies.
- KVH may agree with a regional authority that a regional authority authorised person will issue the Notice of Direction under section 122 of the Biosecurity Act, which sets out the management actions that must be taken by the land owner or occupier, and when those actions must be undertaken by.

Where a Notice of Direction issued by a KVH authorised person is not complied with:

- KVH will act on default under section 128 of the Biosecurity Act, by appointing a contractor to carry out the work set out in the Notice of Direction.
- KVH will procure services from a panel of contractors, which it pre-selects on the basis of ability to reliably deliver cost-effective and timely services. KVH will consider at least two quotes before selecting its preferred contractor.
- KVH will recover costs from the landowner or occupier under section 128 of the Biosecurity Act; including 100% of the cost of services delivered by the third-party contractors, but excluding costs associated with KVH staff time or legal advice.
- All costs recoverable shall be a charge against the land concerned.

4.9 Wild kiwifruit

Desired outcome

To prevent wild kiwifruit establishing and reduce risk of Psa-V inoculum from wild kiwifruit populations effecting kiwifruit orchards, and to work collaboratively with regional authorities and other agencies, orchard owners and the community to manage wild kiwifruit.

Background

Wild kiwifruit populations are potential reservoirs for Psa-V. As these are unlikely to receive any form of crop protection, they are high risk sites for potential establishment and spread of Psa-V within a region. This is particularly important when wild plants are accessible or in close proximity to managed orchards. An increase in Psa-V inoculum levels increases the risk of disease spread by a number of pathways including but not limited to wind, water and material/people movements. Lowering inoculum levels is considered by KVH to be a key part of the strategy to achieve successful kiwifruit production with more tolerant varieties.

Uncontrolled, wild kiwifruit plants often produce fruit containing viable seed. Infestations can then spread, mostly through bird-borne seed dispersal, increasing size of the problem / risk over time. Wild kiwifruit is difficult to control and represents a clear case where prevention is better than cure and there is a strong economic rationale for getting on top of the problem early.

The level of risk associated with any given wild kiwifruit population will not be equal (refer to risk criteria below), and KVH will prioritise effort and work in partnership with willing regional authorities to achieve mutually beneficial outcomes and value.

Relationship with regional authorities and regional pest management plans

Some regional authorities have an interest in, and take action, to manage wild kiwifruit as part of a strategy to reduce the impact of wild kiwifruit on indigenous biodiversity values. Increasingly, regional authorities are adding “wild kiwifruit” as a pest plant within their Regional Pest Management Plans (RPMPs).

The preferred position of KVH is to collaborate with regional authorities where the interests of a regional authority and KVH align (i.e. KVH interest in disease control, and regional authority interest in protection of indigenous biodiversity), to achieve a coordinated approach to wild kiwifruit surveillance, monitoring, control, compliance and related communications activities.

The opportunity for both KVH and regional authorities includes:

- achieving a greater level of overall control of wild kiwifruit, and reduced risk to values (orchard and indigenous biodiversity protection);
- achieving greater landowner cooperation, through a united approach, and ability to influence landowners from our different points of persuasion;
- leveraging our combined networks, to strengthen surveillance and encourage reporting of wild kiwifruit populations; and
- realising mutually beneficial savings by sharing costs.

KVH recognises the nature of any collaboration may differ across regions, reflecting differences in desired community outcomes and the nature of provisions (e.g., objectives, definitions and rules) within any given Regional Pest Management Plan.

KVH will work with willing regional authorities to understand where interests align and establish terms of any collaboration through a MOU or equivalent agreement.

NPMP requirements and deciding when to control wild kiwifruit

KVH defines wild kiwifruit as:

Any unmanaged plant material, self-propagated or abandoned plant of the Actinidia genus on private or public land.

Control of wild kiwifruit is one of the 'principal measures' identified in the NPMP as follows:

managing... wild kiwifruit plants, to reduce or remove sources of inoculum (refer to sub-clause (8)(d) of the Biosecurity (NPMP) Order 2013).

Implementation of this measure will either be:

- i. achieved through voluntary agreement with the land owner or occupier (first preference); or
- ii. through use of administrative powers under the NPMP (refer to clause (12) of the Biosecurity (NPMP) Order 2013) where required, including general powers (refer to section 114 of the Biosecurity Act) to carry out any action necessary for the purpose of eradicating or managing Psa-V, or to prevent its spread from a place; or
- iii. in accordance with a rule under a Regional Pest Management Plan, where KVH and a regional authority agree this is the best approach to achieve compliance.

KVH will determine the level of risk associated with any given wild kiwifruit population by taking into account:

- the proximity of nearby kiwifruit orchards i.e. wild kiwifruit adjacent to an orchard may be a continued source of inoculum to the orchard;
- the overall level of infection in the region i.e. a priority is to maintain Exclusion regions free of Psa and so it is especially important that any wild populations of kiwifruit are removed from these areas and do not become Psa positive threatening the health of adjacent orchards;
- whether symptoms are present or absent in the wild kiwifruit population and if present, the level of infection;
- the accessibility of the wild kiwifruit infestation and potential for Psa-V to be moved from it e.g. via vehicles or people.

When deciding the priority associated with a population of wild kiwifruit, KVH will take account of:

- the level of risk (in relation to criteria above); and
- the relative level of risk in relation to unmanaged and abandoned orchards (i.e. so KVH focuses on addressing the greatest Psa-V inoculum risks first, across unmanaged orchards, abandoned orchards and wild kiwifruit); and
- whether the wild kiwifruit population falls under any agreement (such as a MOU) with a regional authority, and the extent of alignment between the interests of KVH and that regional authority.

Targeted implementation approach

Where the interests of KVH and a regional authority align, KVH will work in partnership with the regional authority under terms of any agreement (e.g., MOU) between the two parties. [Note that the focus of KVH will be on timely protection / addressing extreme risks, and working with regional authorities to clarify arrangements in advance, so that there are no delays to timely management]

Where the implementation approach under terms of such an agreement varies from this policy, the terms of that agreement prevail. [Note that in establishing such agreements KVH will endeavour to achieve consistency with this policy, and any substantial variation in relation to this policy will require KVH Board approval]

KVH will work with partners (e.g., kiwifruit industry organisations, research organisations, other horticulture / nursery and garden industry partners, DOC and regional authorities) to encourage reporting of wild kiwifruit populations.

The steps to be taken, and associated timing, once wild kiwifruit plants have been identified are set out in Table 4, below.

Table 4: Steps and indicative timeframe once a potential wild kiwifruit site is identified

<i>Step</i>	<i>Indicative timeframe</i>
A. KVH notifies the relevant regional authority (where applicable*) with details such as location and size of the infestation.	Within 1 week
B. Regional authority and/or KVH seeks landowner/occupier agreement to assess the site, arranges access etc.	By end of week 2
C. Regional authority (where applicable*) and/or KVH assess the site and level of risk and provide recommendation to KVH Operations Manager (and to regional authority equivalent, where applicable*). Where access is denied an Authorised Person is to accompany.	By end of week 4
D. KVH and regional authority (where applicable*) to discuss and agree level of risk and priority and add to work plan (or joint work-programme, where applicable) accordingly. <i>[Note: This may include going back to the landowner to seek voluntary control (in particular for small infestations), or to seek a landowner contribution to control costs (where applicable*)]</i>	By end of week 6 (timeframes for subsequent control to reflect agreed priority).

Where applicable* - refers to where KVH and a regional authority have established an agreement (e.g., MOU) to collaborate where their interests in wild kiwifruit control align

Compliance and cost-recovery for wild kiwifruit

KVH-led compliance will be limited to use of administrative powers to achieve control of wild kiwifruit.

Where KVH and a regional authority agree (e.g., within a MOU) that compliance and cost-recovery should be in accordance with the RPMP and led by the regional authority, the compliance and cost-recovery arrangements under the RPMP will apply.

4.10 Monitoring

4.10.1 Monitoring policy

Desired outcome

To provide information that enables growers, KVH (including regional coordinators and committees) and other kiwifruit industry organisations to adapt their strategy and approach to management of Psa-V.

Background

The objectives of monitoring for Psa-V are to:

- i. comply with regulatory requirements under the NPMP (including to report against performance measures identified in the NPMP);
- ii. assess the National impacts of Psa-V on kiwifruit production in order to ensure appropriate strategies including level of investments, are in place in order to mitigate;
- iii. give timely and science-based information for growers in order for investment decisions to be taken, especially related to change over to new varieties; and
- iv. understand what is working in the field in order to provide best practice management advice to growers in order for them to minimise the impacts within orchard.
- v. Identify any new Psa- V biovars that may show resistance to Psa control products and monitor their impacts.

At the highest level, the overall impacts of Psa-V will be reflected in crop volumes and orchard grower returns after expenses. While seasonal variation will impact on this as well, KVH will analyse these statistics over a number of years and adjust for seasonal variation to monitor the longer-term overall impacts of Psa-V.

Specific on-orchard monitoring is challenging in order to get meaningful results due to the large number of variables that come into play, depending on orchard management practices, varieties involved, spray program utilised, orchard location and environmental factors, along with the Psa-V situation in the neighbouring orchards. As such, KVH will utilise case studies along with more traditional monitoring approaches to maximise the relevance of the data collected.

Where identified advanced technology options may be considered, for example estimating orchard canopy coverage in gold varieties using aerial images, and video sensing software to estimate bud-rot in green varieties to give another indicator as to Psa-V impacts.

NPMP requirements

The NPMP identifies monitoring as a 'principal measure', to enable an understanding of:

- i. the distribution of Psa-V;
- ii. where the levels of Psa-V present a significant risk to other orchards, regions, or other places;
- iii. the impacts of Psa-V on kiwifruit varieties and cultivars;
- iv. the overall impact of Psa-V on kiwifruit production;
- v. the effectiveness of Psa-V control tools and management practices; and
- vi. the levels of compliance with the requirements of the Plan.

Growers need such information to inform their individual orchard management decisions. Local and regional grower communities need such information to ensure they act in a coordinated way. KVH needs such information to assess risk and to manage and adapt the overall disease programme at a national level.

To enable effective monitoring:

- Rule 3 in the NPMP requires that symptoms, or potential symptoms of Psa-V, that are recognised for the first time in an orchard must be reported to KVH within 48 hours.
- Rule 4 in the NPMP requires provision of information that KVH or an authorised person reasonably believes is necessary to: monitor the distribution of Psa-V; or monitor the level of Psa-V present; or trace movements of any risk item in order to identify the source, or potential source, of any new Psa-V infection; or identify where a risk item has been moved to and whether that movement could result in further Psa-V infection.
- An authorised person can exercise a range of administrative powers where these are needed (e.g., power of inspection, power to give directions).

The NPMP proposal identified that minimum monitoring requirements are to be set on an annual basis and be specified in the Operational Plan that implements the NPMP (i.e. as required under s.100B of the Act).

Best orchard practices require growers to have a good monitoring strategy in place for early detection of Psa-V symptoms. Spring and Autumn are considered high-risk infection periods.

The minimum annual monitoring requirements for growers are set out in box 4, below

Box 4: Mandatory monitoring requirements for 2021/22

For 2021/22 mandatory monitoring for all orchards in all regions is required as follows:

Recovery regions – Not Detected orchards – one round

- between 15 September and 15 October (reporting to KVH by 31 October).

Containment regions – Not Detected – one round

- between 15 September and 15 October (reporting to KVH by 31 October).

Exclusion regions – All orchards - one round

- between 15 September and 15 October (reporting to KVH by 31 October).

Growers with Psa-V positive orchards are expected to monitor their orchards regularly to identify and remove infection. They are not required to submit monitoring results to KVH. Growers must provide the results of mandatory monitoring to KVH by the dates specified above (details on how to submit results are available on the KVH website at: www.kvh.org.nz/monitoring_plan).

4.10.2 Implementation approach for monitoring

Roles in monitoring

In order to meet the objectives, KVH believes the monitoring activities being undertaken should cover several different components, some of which are undertaken by KVH, but other activities should be conducted by other groups in the industry as follows:

- Grower self-managed monitoring which includes web-based ability to report which is part of the mandatory requirements of NPMP and may be conducted by or in conjunction with post-harvest facilities.
- Early identification of Psa-V in Exclusion regions (KVH and post-harvest).
- Overall performance of kiwifruit in a Psa-V environment (KVH, Zespri and post-harvest).
- Relationship between environmental factors and Psa-V (KVH, Zespri and post-harvest).
- Regional differences in the way Psa-V impacts orchards (KVH, Zespri and post-harvest).
- Impacts of different management techniques in dealing with Psa-V infection (KVH, Zespri and post-harvest).
- Establishment and performance of new varieties in infected orchards (KVH and varietal owners).
- Status of certified nursery plants (KVH).

Focus of targeted monitoring for 2021/22

The focus of targeted monitoring for 2021/22, and the organisation responsible for carrying out that monitoring, is as follows:

1. Grower mandatory monitoring (growers, directed and collated by KVH)
 - See Box 4 for details.
2. Regional monitoring (KVH)
 - Orchards in Exclusion regions.

Monitoring during high risk periods in spring of targeted orchards

3. Performance of kiwifruit in a Psa-V environment
 - Other investigations and reports on situations with specific growers/locations (KVH, Zespri and post-harvest).

4. Study of new variety establishment in infected orchards.
 - Performance of new varieties during establishment and production (Zespri and other new varietal owners).
5. Psa resistance to control Products (KVH / Zespri)
 - Up to three times yearly sampling of a cross section of orchards and testing for resistances to Psa control products.
6. Nursery monitoring and testing (KVH and nursery owners)
 - once yearly monitoring, sampling and testing to give growers confidence of compliance and health status of plants from nurseries providing plants certified under the KPCS (KVH and nursery owners).

4.11 Testing and notification

4.11.1 Policy on testing and notification

Desired outcome

Reliable testing is available to confirm the presence of Psa-V in an orchard or nursery.

Background

Lab testing is an important tool for confirming the presence of Psa-V in an orchard or nursery. In regions such as Te Puke, where Psa-V is widespread, most post-harvest technical people are confident of determining Psa-V from visual symptoms. In other regions, the same level of expertise is not always available, and testing enables suspected Psa-V infection to be confirmed.

Recognised testing laboratories

KVH will recognise laboratories that provide reliable testing services, identifying these on the KVH website (www.kvh.org.nz/samplingtesting).

KVH will continue to work with MPI to monitor integrity of testing and ensure testing services continue to be reliable.

KVH subsidised testing

KVH will subsidise testing where it believes this provides valuable information that is needed to achieve NPMP objectives for any given region. Details on testing that KVH will subsidise will be provided on the KVH website (www.kvh.org.nz/samplingtesting).

4.11.2 Implementation approach for testing and notification

All test results are sent by recognised testing laboratories to KVH. On receipt of the results, KVH notifies the appropriate submitter. Alternatively, the results could come direct from the laboratory.

4.12 Preparedness and response

4.12.1 Policy on preparedness and response

Desired outcome

To be prepared for and to be able to rapidly respond to any new outbreaks of Psa-V.

Background

Preparedness and response is a key focus, and therefore a principle measure of the NPMP. Many of the plan's measures are intended to increase preparedness and enable early detection and rapid response to new incursions, particularly those in Exclusion regions.

Preparedness entails being ready to respond to a Psa-V incursion; and having a clear plan in place for when Psa-V is detected for the first time. There are two dimensions to what a new incursion response may represent. It may be a localised response to a grower detecting Psa-V on his orchard for the first time in a Containment or Recovery region; or it may be a regional response to the first Psa-V detection in an Exclusion region, where there may be opportunity to aggressively contain the disease.

Preparedness needs to include the following.

- What needs to happen and when.
- What roles people will play and how this is organised.
- What experience, or skills, are needed, and how to ensure these are developed before they are needed.
- How people directly involved will communicate with each other, and how communication will be managed with others that have an interest in the response (other growers, local community etc.).
- What equipment or other tools will be needed in a response, and how to access these.

Rapid response entails confirming the presence or absence of PsA-V; carrying out an initial assessment; identifying and implementing any interim actions needed to contain the situation; deciding the best response option; and subsequently implementing this. Rapid response to a new incursion is key to preventing further spread of PsA-V and minimising its impacts.

The mandatory requirements of the NPMP are designed to improve preparedness, and by implementing these, growers will improve their ability to respond to a new PsA-V incursion. In Exclusion regions it is intended that PsA-V incursions will be prevented through the implementation of NPMP measures such as:

- effective hygiene;
- crop protection;
- movement controls; and
- greater preparedness through mandatory monitoring which will enable early detection.

Rapid response capacity will be improved through measures such as:

- mandatory reporting;
- provision of information; and
- administrative powers granted under the NPMP such as the ability to establish a restricted place or controlled area.

4.12.2 Implementation approach for preparedness and response

The NPMP provides a clear plan for a new incursion response including the pre-assignment of roles and actions of specific parties as follows:

- **KVH** are tasked with the lead role of overall preparedness and rapid response in the event of a PsA-V incursion within an Exclusion region. KVH will determine the specific movement controls to be put in place in the area surrounding the incursion location. Movement controls will apply, at least, in the short term to support an aggressive containment approach. Tracing, monitoring and any interim actions are also carried out to contain and understand if there is any wider infection.
- **Regional coordinators and regional coordination groups** appointed by KVH are responsible for developing, or maintaining, a regional response plan. Some Exclusion regions, such as Nelson, already have a regional response plan in place, including a Controlled Area Protocol specifying the movement restrictions and infection removal measures that would apply should PsA-V be detected for the first time in Nelson. Growers in the region have signed into these agreements, dramatically improving the capacity for rapid response.
- **Post-harvest operators** are responsible for maintaining and managing response readiness operations.

If a response to a new incursion has not been successful in eradicating PsA-V, the status of the region, and roles of key parties, will transfer to that of Containment as per the implementation approach for establishment of regions.

4.13 Research and development

Research and development

4.13.1 Policy

The desired outcome of KVH/Zespri research programme is to find sustainable solutions that minimise the impacts of Psa-V and support the re-establishment of infected orchards to full productive capacity.

Background

Research and development remains a critical component in the fight against Psa-V. The R&D programme increases technical knowledge and delivers growers with tools and techniques that may be used to combat the disease directly, or enable affected growers to remain productive in the presence of Psa-V. KVH, in conjunction with Zespri Innovation, leads a R&D programme into Psa-V. The Innovation team partners with researchers to provide the best available expertise to the New Zealand kiwifruit industry.

4.13.2 Implementation approach for research and development

The programme is overseen by a Psa-V Industry Steering Group, which is responsible for assessing project proposals and research outcomes, assisting with strategic direction setting, and providing feedback from industry regarding needs and gaps that need filling. Ultimately, the final decisions on what research is funded lies with the KVH Board, upon recommendation from the steering group.

Three research programmes currently direct research effort, with individual projects aligned within each programme. Project progress is monitored against results focussed milestones. This allows for programme updates and recommendations for growers as results come to hand.

KVH has commissioned Zespri to manage the day-to-day operation of the R&D programme, and to ensure effective management structures are in place to effectively plan, organise and monitor the programme. Research is undertaken with a range of research partners within New Zealand.

The programmes have the goal of future proofing the industry against Psa-V as follows:

Orchard practices:

- Evolve cultivar specific and sustainable management practices.

Control products:

- Deploy an effective Integrated Pest Management programme.

Psa Evolution and Monitoring:

- Continue monitoring and implement information to improve the Integrated Pest Management programme.

Communication of outcomes.

Communication of research outcomes to the grower, to maintain Psa-V awareness and support continuous industry improvement in Psa-V management, is one of the main intentions of the Psa-V R&D Programme.

End user adoption of advances in knowledge and techniques is seen as a key method of minimising the impact of Psa-V on the industry. Research reports and best practice advice are freely available to the New Zealand industry through the KVH website. Other pathways for information transfer to end-users include post-harvest technical support, Zespri's Canopy website, and Zespri (GET) events and publications. When sufficient new research is available Psa-V Symposiums will also run.

Reporting

Zespri will report on the research programme to KVH and NZ kiwifruit growers by:

- i. Reports to KVH on overall progress by way of a KVH Board papers.
- ii. Reporting to KVH on financial scheduling on project payments.
- iii. Exception reporting of project milestones.

- i. Results from each project are converted into grower summaries and made available as extension messaging to KVH for dissemination to NZ kiwifruit growers and post-harvest groups in line with KVH/Zespri MOU.

Results from each project are converted into grower summaries and made available as extension messaging to KVH for dissemination to NZ kiwifruit growers and post-harvest groups in line with KVH/Zespri MOU.

5. Performance Measures

- A. Number of Exclusion regions, Containment regions and Recovery regions and how these have changed over time
- B. Number of new incursions and the most likely cause of spread
- C. Rate and pattern of spread within Containment regions, and the most likely cause of this
- D. Estimated impact of Psa-V on the natural crop, and nett orchard returns
- E. Proportion of orchards that have implemented a Psa-V orchard management plan
- F. Level of preparedness within Exclusion regions
- G. The extent to which Psa-V risks associated with unmanaged, abandoned and wild kiwifruit risks are managed
- H. Movement control compliance
- I. Level of awareness and compliance relating to Psa-V

6. Budget

The KVH core NPMP budget for 2021/22 is \$180,500.00 for implementation

Additional Zespri funding for R&D expenditure of up to a \$1.4 million programme is not reflected in the KVH budget.

The KVH budget is set at each KVH AGM, related to the resolution that sets the levy for the subsequent year.

The NPMP is currently funded through a levy under section 100L of the Biosecurity Act 1993 and for the year ending 31 March 2022 the Biosecurity (Psa-V – Kiwifruit) Levy was reduced to the rate of one tenth of a cent (1/10th of a cent) per tray equivalent on all commercial varieties of kiwifruit except *Actinidia arguta*, exported to all markets other than Australia.

This is a further reduction in levy from the previous levy of 2 / 10ths of a cent per tray equivalent, which will effectively see us operate at a loss to deplete remaining reserves before the NPMP is rescinded in May 2023.

7. Legal framework

There are two Orders in Council that provide the legal framework for implementing the NPMP:

- i. the Biosecurity (National Psa-V Pest Management Plan) Order 2013; and
- ii. the Biosecurity (Psa-V – Kiwifruit Levy) Order 2013.

The Biosecurity (National Psa-V Pest Management Plan) Order 2013 establishes:

- KVH as the management agency responsible for implementing the NPMP;
- objectives and regions (Exclusion, Containment and Recovery);
- rules and who needs to meet these;
- powers that either KVH or an authorised person (refer to section 7.1 below) can use to implement the NPMP;
- offences and penalties (refer to section 7.2 below); and
- performance measures.

The Biosecurity (Psa-V – Kiwifruit Levy) Order 2013 establishes:

- a grower levy on fruit exported to countries other than Australia, equivalent to 1 cent per tray for both green and gold kiwifruit.

Three key legal foundations KVH must have in place to apply some of the rules and powers in the NPMP are:

- i. the legal boundaries and status of regions (also refer to section 4.1);
- ii. controlled area notices (and related permissions) that establish movement controls (also refer to section 4.2); and
- iii. a KVH approved list of effective crop protection products (also refer to section 4.4).

KVH must report annually on its activities in accordance with requirements under the Biosecurity Act 1993 (i.e. section 100 (B) requirement to submit an annual Operational Plan, and report against the Operational Plan annually), as well as under the Incorporated Societies Act 1908.

There are numerous other requirements KVH must adhere to when implementing the NPMP, either to meet specific legal requirements (e.g., requirement to notify controlled areas) or to achieve intent of the NPMP proposal (e.g., requirement to consult regional committees before changing the status of regions). These are set out in the relevant policies within this Operational Plan.

KVH also operates in accordance with related legislation and plan requirements, and provides advice to Growers to assist their compliance with these, including:

- Hazardous Substances and New Organisms (HSNO) Act 1996;
- Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997;
- Resource Management Act 1991; and
- Regional Pest Management Plans.

7.1 Exercise of powers by KVH and by authorised persons

The NPMP establishes powers that can be exercised in order to achieve the objectives of the NPMP. Some of these can be exercised by KVH as the 'management agency' only, while others can be exercised by an 'authorised person' only.

KVH as the management agency can exercise the power to:

- act on default (see section 128 of the Act);
- declare a specified area to be a controlled area (see section 131 of the Act);
- recover costs (see section 135 of the Act); and
- waive all or any part of a debt (see section 136(3) of the Act).

Authorised persons can exercise:

- power to require assistance (see section 106 of the Act):
- power of inspection (see sections 109 and 112 of the Act):
- power of entry in respect of offences (see sections 111 and 112 of the Act):
- power to record information (see section 113 of the Act):
- general powers (see section 114 of the Act):
- power to apply articles or substances from an aircraft (see section 114A(3) of the Act):
- power to seize evidence (see section 118 of the Act):
- power to seize abandoned goods (see section 119 of the Act):
- power to examine organisms (see section 121 of the Act):
- power to apply any article or substance (see section 121A of the Act):
- power to give directions (see section 122 of the Act):
- power to vaccinate, etc (see section 123 of the Act):
- power to declare a place to be a restricted place (see section 130 of the Act).

Authorised persons are appointed, at the request of KVH, by a chief technical officer within the Ministry for Primary Industries. KVH must provide the chief technical officer with evidence that proposed appointees have appropriate experience, technical competence, and relevant qualifications. Authorised persons must comply with any lawful direction or instruction given by a chief technical officer in relation to the exercise of the above powers.

KVH has three authorised persons, being KVH staff appointed to the roles of Chief Executive, Biosecurity Manager and the Operations and Compliance Officer.

7.2 Offences and penalties

Offences and corresponding penalties are set out in sections 134, 154, and 157 of the Act. A summary of these is provided in Table 5 below.

Table 5: Summary of offences and corresponding penalties under the Biosecurity Act 1993, for serious cases of failure to comply with the NPMP.

<i>Offence</i>	<i>Corresponding penalties</i>
Failure to comply with rules 2-7 in the NPMP	<ul style="list-style-type: none"> in the case of an individual person, to a fine not exceeding \$5,000: in the case of a corporation, to a fine not exceeding \$15,000
Failure to comply with movement controls (set out in a controlled area or restricted place notice)	<ul style="list-style-type: none"> in the case of an individual person, to imprisonment for a term not exceeding 3 months, a fine not exceeding \$50,000, or both: in the case of a corporation, to a fine not exceeding \$100,000.
Failure to comply with use of powers by an authorised person to inspect an organism and to apply article or substance to place (sections 121 and 121A of the Act respectively)	<ul style="list-style-type: none"> in the case of an individual person, to a fine not exceeding \$5,000: in the case of a corporation, to a fine not exceeding \$15,000
Failure to keep records as per requirements of the Biosecurity (Psa-V – Kiwifruit Levy Order 2013)	<ul style="list-style-type: none"> in the case of an individual person, to a fine not exceeding \$5,000: in the case of a corporation, to a fine not exceeding \$15,000.
Threatening, assaulting, or intentionally obstructing or hindering an authorised person	<ul style="list-style-type: none"> in the case of an individual person, to imprisonment for a term not exceeding 5 years, a fine not exceeding \$100,000, or both: in the case of a corporation, to a fine not exceeding \$200,000.

Appendix 1: Roles in implementation of the National Psa-V Pest Management Plan

KVH	Regional Coordinators / Regional Groups	Post-harvest operators
<ul style="list-style-type: none"> • Drive R&D efforts (in partnership with Zespri) for Psa-V to find better management options and tools to control the disease • Undertake risk analysis to identify preferred management approaches • Develop recommended best practice or standards (e.g., for on orchard hygiene, movement controls, disease monitoring and plant disease management) and provide specialist technical advice and recommendations to those responsible for tech transfer • Overall communications and promoting awareness / biosecurity behaviours • Appoint and support regional coordinators and regional coordination groups • Implement the strategy regarding application of zones and rules needed to achieve objectives • Take actions in extreme situations of non-compliance • Lead overall response preparedness and responses (in the event that Psa-V is found in Exclusion regions) • Lead management of wild kiwifruit and abandoned orchards* • Carry out targeted monitoring where there is a national interest • Collate and disseminate monitoring information and maintain the necessary records / databases for strategy implementation • Maintain a scheme to provide accreditation (e.g., for nurseries) and to ensure those monitoring have appropriate competency • Review the strategy and rules as and when required • Monitor the effectiveness of the strategy • Report on implementation / effectiveness of the strategy 	<ul style="list-style-type: none"> • Facilitate communication within the region and dissemination of information • Work with growers to clarify the situation on their orchards, and to achieve voluntary compliance wherever possible • Monitor the situation within the region to identify any unmanaged risks / raise any issues (with KVH or others best placed to manage the risk) • Support road groups (or any other localised groups that growers choose to form) 	<ul style="list-style-type: none"> • Tech transfer - key source of advice to growers, contractors etc. on best practice (along with marketers) • Maintain response readiness and manage response operations • Work with growers to clarify the situation on their orchards, and to achieve voluntary compliance wherever possible • Support development of orchard Psa-V management plans • Approve orchard Psa-V management plans where mandatory within a Containment region. • Carry out routine monitoring where there is a regional interest (e.g., implementation of orchard Psa-V management plans where mandatory) • Check compliance with movement controls
	Zespri and other marketers	Local growers, contractors, transport operators, etc.
	<ul style="list-style-type: none"> • R&D to develop varieties more tolerant to Psa-V, and to find better management options and tools to minimise impacts on kiwifruit production. • Communication and awareness • Technical transfer • Grower support 	<ul style="list-style-type: none"> • Managing risk associated with on-orchard and any other activities that could spread Psa-V (e.g., general orchard or nursery hygiene, management of diseases orchards, observing any movement controls etc.) • On-orchard (or other sites where kiwifruit plants are grown) monitoring and reporting
	NZKGI	<ul style="list-style-type: none"> • Grower support services. This includes NZKGI and KVH sharing information to identify any potential welfare issues. NZKGI delivers support services in response to specific welfare risks, and proactively with a prevention focus.

KVH will work with regional councils and co-fund management of wilding kiwifruit and abandoned orchards, with councils coordinating management. KVH may also work with Regional Councils in areas of mutual interest, such as checking nursery compliance