2014 Operational Plan

for the National Psa-V Pest Management Plan

August 2014

Contents

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 August 2014 to 31 March 2015 [Note: the term of future Operational Plans will thereafter align with the new KVH financial year from 1 April to 31 March]. 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 National Psa-V Pest Management Plan (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.

With Growers and the industry facing such a huge challenge, doing nothing is not an option, and only by working together, will it be possible to prevent the spread of Psa-V and minimise its impacts on kiwifruit production.

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 2014.

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
• 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)	• Ensure that exclusion regions are, and remain, free of Psa-V • Establish that the exclusion regions are free of Psa-V on an ongoing basis • 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	• 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**
• Orchard management plans • Notification of suspected disease • Testing to determine orchard status • Monitoring and removal of infected material • Orchard hygiene • Crop protection • Movement controls of risk items • Managing abandoned, unmanaged orchards and wild kiwifruit control • Research and development • Technology transfer, along with awareness and education programs	• Working for growers • Proactive and professional • Clear objectives • Necessary powers • Effective, cost efficient and minimum regulation • Consistent approach to management • Partnership approach • Transparent	• KVH has only minimal core expertise and resourcing needed to successfully implement the NPMP, partnering with others as necessary • Regional Co-ordinators link into the non Te Puke/Tauranga growing regions • Contracting local resources as needed for monitoring and auditing • Close working relationship with post-harvest for technology transfer and grower support • Zespri OPC leading technology transfer and Zespri innovation leading the R&D program
Financial requirements and funding arrangements		
Funding and resourcing is transparent, equitable and secure KVH core NPMP budget $2.4million for first 2 years of strategy implementation, then reduces to $1.6million in future years R&D up to an additional $2million program Levy under section 100L of the Biosecurity Act, plus uncommitted MPI/Zespri/KVH funding		
Review		
The NPMP will be reviewed by KVH three years after its implementation commenced (i.e. due May 2016), and based on the outcome of the review this strategy will be reconsidered		

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	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 of Primary Industries 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.

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. Hort 16A orchard with extreme 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

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	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	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	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.
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.

4.1.2 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.

4.2 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 'prohibited'[1]. 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 Ministry for Primary Industries 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.

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 Psa-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.

<u>Deciding on movement controls</u>

Movement controls will be designed to achieve the NPMP objectives, including achieving the right balance between 'preventing the spread of Psa-V' and 'minimising the impacts of Psa-V on kiwifruit production'. The latter includes both 'productivity' impacts (i.e. impact of Psa-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, Psa-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);

[1] 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)

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 Tauranga 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 a 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 by publically 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.

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, Containment region, or Recovery 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 Seasonal Management Guide, which is based on industry experience and the latest research. The KVH Seasonal Management Guide is closely aligned with requirements of the Psa-V Orchard Management Plan to make implementation as simple and as easy 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 by AsureQuality, 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 GloabalGAP 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).

4.4 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.

There are many claims made about hundreds of potential crop protection products, some of which may be accurate and some of which may not be accurate. 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 suite 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 Seasonal Management 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 Seasonal Management Guide for Growers, and in a Nursery Management Guide for nurseries and other persons growing kiwifruit plants for sale).

To become approved, a crop protection product must undergo a multi-stage product testing process that will determine 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 will be included in KVH's Seasonal Management 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.

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 of processing facility.
- What systems exist for traceability of fruit and how the integrity of these systems are 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 conducted by Zespri as part of their regular audit programme; a scheme that includes all post-harvest operators.

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 assist in the coordination of these audits.

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, 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 developed a new Kiwifruit Plant Certification Scheme (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 KPCS focuses on plant certification, with two certification standards ('Core' Standard & 'High Health' Standard) that provide different levels of quality assurance, and Grower choice. The KPCS will also recognise 'equivalence' where nurseries operate under an alternative nursery management standard (e.g., a quarantine standard issued by MPI, or equivalent biosecurity standard set by the nursery and garden industry) that achieves the same or greater level of risk management.

In May 2014, KVH launched the first KPCS Standard, the 'Core' Standard, which replaces the previous *KVH Kiwifruit Nursery Standard and Guidelines* (2011). In July 2014 the first nurseries were audited against the Core Standard and certified plants available for purchase. Development of the High Health Standard is expected to be finalised by the end of 2014.

To sell KPCS certified plants, nurseries must have specific and documented procedures in place including; procedures to reduce the introduction of inoculum to the nursery; inspection and monitoring; sampling and testing; site management, hygiene; movement procedures; and record keeping. The Core Standard includes recommended actions to minimise risk for routine nursery activity such as selecting plant material, seed sowing, planting of seedlings and transportation.

External audits for the KPCS Core Standard will be performed by an Independent Verification Agency (IVA) and conducted on a 12 month basis for at least the first two years, but then may shift to a frequency of 6-18 months on a performance basis.

The Core Standard also specifies that nurseries must undergo annual independent monitoring that will include:

- Visual inspection for target high priority organisms (and associated symptoms)
- Monitoring for unusual organisms or symptoms within nursery operations; and
- Sampling for diagnostic testing where required (for specified high priority target organisms).

The Kiwifruit Plant Certification scheme will be phased in over a two year transition period, an explanation of this transition is provided in Box 3.

Box 3. Transition approach

The Kiwifruit Plant Certification scheme will be phased in over a two year transition period until 1 October, 2016.

During the transition period there will be no mandatory requirements for plants to be certified although the current restrictions regarding the movement of *Actinidia* plant material under the Psa-V National Pest Management Plan will continue to apply. At the conclusion of this transition period only KPCS certified plants may be sold, although growers may continue to propagate for their own use on their own property.

Nurseries accredited under the previous "KVH Kiwifruit Nursery Standard and Guidelines", can remain certified under this standard until the date of their next annual audit, when they would transition to the new scheme by being audited against the new Kiwifruit Plant Certification Standard. Or they could be audited under the new standard earlier at their discretion.

Nurseries not selling plants certified under the Kiwifruit Plant Certification Scheme or accredited under the previous scheme, are required to register on the KVH website or phone KVH on 0800 665 825. These nurseries are also required to complete a Psa-V Nursery Stock Risk Management Plan.

Movement controls for all nursery stock, certified or otherwise, 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 asymptomatically (i.e. without expressing symptoms).

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 and a Psa-V Budwood Risk Management Plan template and model plan are available on the 'Budwood/Grafters' page on the KVH website (www.kvh.org.nz/indgrafters).

KVH will be identifying options for a potential High Health Scheme for budwood in late 2014. The KVH Budwood Protocol will apply until any new approach to budwood is finalised and operating.

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*.

A protocol for movements of pollen, and a Psa-V Pollen Risk Management Plan template and model plan 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 Seasonal Management 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 actively management of risks on-orchard within two month.
- 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 actively 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. • *if denied entry then proceed to Step E.* • *if no serious risk is identified then stand down.*	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 check in with the Grower regarding progress and the situation on-orchard, and any further support required. Post-harvest update KVH. • *If Grower completes agreed course of action and risk is managed then stand down.*	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. • *If agreement cannot be reached proceed immediately to step F.* • *If agreement is reached and course of action is taken and is effective then stand down.*	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). • *If Grower completes agreed course of action and risk is managed then stand down.* • *If course of action is not sufficiently managing the risk, then all parties to agree changes required.*	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). • *If Grower complies with conditions of the notice, then stand down.* • *Where a legal direction is not followed then enforcement and/or prosecution options are considered.*	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 the Ministry of Primary Industries (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 contactor.
- 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 will work with regional authorities and others to clarify arrangements in advance wherever possible to avoid delays.

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 actively 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 is identified and a complaint is lodged, showing how timeframe 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 differs 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 hours	Within 2 day
B. Post-harvest/ regional coordinator assess the orchard, then discuss with KVH to agree whether the case is extreme, or otherwise poses a serious Psa risk. • *if denied entry then proceed to Step F.*	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 facilitate 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). • *If Grower completes agreed course of action and risk is managed then stand down.*	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. • If agreement cannot be reached proceed immediately to step G. • *If agreement is reached and course of action is taken and is effective then stand down.*	Start of week 6	Start of month 4

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). • *If Grower completes agreed course of action and risk is managed then stand down.* • *If course of action is not sufficiently managing the risk, then all parties to agree changes required.*	As required, up until end of week 6	As required, up until end of month 4
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). • *If Grower complies with conditions of the notice, then stand down.* • *Where a legal direction is not followed then enforcement and/or prosecution options are considered.*	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)	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)

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 the Ministry of Primary Industries (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 contactor.
- 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 Memorandum of Understanding (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.

<u>Targeted implementation approach</u>

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

Step	*Indicative timeframe*
A. KVH notifies the relevant KVH regional coordinator and regional authority (where applicable*) with details such as location and size of the infestation.	Within 48 hours
B. Regional coordinator seeks landowner/occupier agreement to assess the site, arranges access etc.	By end of week 1
C. Regional coordinator and regional authority (where applicable*) 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 2
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. *[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*)]*	By end of week 3 (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.

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 2014

For 2014, mandatory monitoring for all orchards in all regions is required as follows:

Recovery regions – both Psa-V positive and Not Detected –one round

- in November (with not detected orchards reporting back to KVH by 10 December)

Containment regions – both positive and Not Detected – two rounds

- in August (reporting by 10 September)
- in November (reporting by 10 December)

Exclusion regions – two rounds

- in August (reporting by 10 September)
- in November (reporting by 10 December)

Growers with Psa-V positive orchards in Recovery regions are required to carry out their November round of mandatory monitoring and record their results, which should be kept with their GAP records. And they are encouraged to submit their mandatory monitoring results to KVH by 10 December 2014, however, this is not a mandatory requirement under the NPMP.

All other 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 (varietal owners).
- Status of certified nurseries (KVH).

Focus of targeted monitoring for 2013

The focus of targeted monitoring for 2013, 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. Sentinel orchards (KVH)
    - Orchards in Exclusion regions - Whangarei, North-West Auckland and the South Island,
    - Monitoring of current orchards to continue in 2014
    - Regular monitoring during higher risk periods of spring and autumn other rounds Scheduled as required
3. Performance of kiwifruit in a Psa-V environment.
    - Side by side trial at Plant and Food Te Puke, currently in place started late last year- monthly monitoring for three years (KVH).
    - Information from grower mandatory monitoring (KVH).
    - Case study comparison of a selection of orchards that follow best management practice based on information contained in the orchard management plans for orchards in recovery regions (Te Puke, Katikati, Opotiki) and monitoring undertaken three to four times per year over two years (KVH).
    - Other investigations and reports on situations with specific growers/locations (Zespri and post-harvest).
4. Impact of environmental factors (temperature, elevation, etc.) on specific Psa symptoms.
    - Case study looking at flower drop/bud rot in green varieties () in Waihi, Maketu, Edgecumbe including badly affected orchards along with unaffected orchards in each area – seasonal monitoring over two years(KVH).
    - Case study of Hayward male infection (particularly Chieftain that have been heavily infected in past seasons) for two years – elevated Te Puke and Waihi (KVH).
    - Other investigations and reports on situations and practices that are having an impact with specific growers (Zespri and post-harvest).
5. Regional variation with impacts of Psa-V.
    - Case study monitoring three infected orchards in Gisborne, South Auckland, Waikato region - covering Hort16A, Hayward, and GOLD3 – spring and autumn for two years (KVH and Post Harvest).
    - Other investigations and reports on situations with specific growers (Zespri and post-harvest)
6. Study of new variety establishment in infected orchards.
    - Performance of new varieties during establishment and production (Zespri and other new varietal owners).
7. Specific case studies to understand the benefits or otherwise of different management techniques, supporting R&D efforts and identifying R&D work that may be needed.
    - e.g. cutting green vs. dead wood, covered blocks etc.(KVH/Zespri and post-harvest)
    - Considered on a case by case basis after full consideration and discussion on the merits along with who is best placed to undertake.
8. Nursery monitoring and sampling and establishment of new plantings
    - To give growers confidence of compliance with protocols and health status of plants from nurseries providing plants certified under the KPCS. (KVH).
    - To understand the benefits of starting with plants free of high risk pests and diseases, in terms of successful establishment and performance of vines (KVH).

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 the Ministry for Primary Industries 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 packhouse or submitter. If the grower is associated with a packhouse, the packhouse will notify the grower of the results. 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

4.13.1 Policy

The desired outcome of KVH/Zespri research program is to find sustainable solutions that minimise the impacts of Psa-V and support the re-establishment of infected orchards to full productive capacity. The mission of the programme is to find solutions to minimise the financial impact of Psa on the kiwifruit industry by 2015 and neutralise financial impact by 2020 through:

- Global R&D leadership and co-ordination;
- Facilitation of fundamental and additional capability in Psa solution development;
- Development and refinement of sustainable and practical solutions to Psa.

Psa-V research and development needs to be focused on the industry's needs, and producing tangible outcomes that are applied on orchard and in relevant parts of the supply chain.

<u>Background</u>

Research and development is 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.

The Psa-V Research and Development Programme is a KVH/Zespri led portfolio managed by Zespri's Innovation team and incorporates a wide range of New Zealand and international research providers.

The programme is overseen by a Psa Industry Steering Group, which is responsible for assessing project proposals, 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. Research objectives, strategies and goals are established and reviewed on at least an annual basis or as determined by the KVH Board.

The scientific and technical aspects of the research programme are scrutinised during the Psa-V symposiums which also provide an opportunity for engagement by the wider scientific community. These are held in New Zealand on an annual basis with leading scientists from within and outside of the country present. In addition, regular R&D update forum are held for growers, to update on progress and deliver any new information for them to utilise in their orchard operations.

The KVH/Zespri Psa-V Research and Development Programme makes significant contributions to Psa-V research in New Zealand. However it is one component in a wider R&D effort with numerous other research projects also making significant knowledge advances both within and outside of New Zealand. KVH recognises the importance of these wider contributions and coordinates the Psa-V Research and Development Programme accordingly to maximise effectiveness. Other R&D programmes include; Zespri projects outside of this R&D programme, Zespri New Cultivar Development Programme, contracted to Plant & Food Research for delivery, Zespri's international operations which provide an "off season" research venue, other New Zealand University and Crown Research Institute projects, NZ Post-harvest sector investment in research, and international research.

4.13.2 Implementation approach for research and development

A R&D strategy provides a high level overview specifying the desired outcomes and objectives; management structure; and the industry's needs and strategic priorities. The Psa-V Research and Development Strategy has recently been refreshed, and focuses on neutralising the financial impact of Psa on the New Zealand Kiwifruit industry through the following five research themes:

i. Detection: Identification of pathovars and inoculum load
ii. Epidemiology: Characterisation of the pathogen, host and environment interactions
iii. Chemical/Biological: Screening of chemical and biological actives and delivery systems to offset Psa impacts
iv. Management: delivery of Psa resilient production systems
v. New cultivars: Psa resistant rootstocks, pollinisers and market preferred female cultivars

A roadmap has been developed for each theme to specify desired outcomes to be delivered to the industry from each theme (see next page).

KVH has commissioned Zespri to manage the day-to-day operation of the R&D program, and to ensure effective management structures are in place to effectively plan, organise and monitor the program. Some of the research especially field activities may be done in-house by Zespri but most will be done through a range of research partners both within and outside of New Zealand.

<u>Technology Transfer</u>

Technology transfer of research outcomes to grower is one of the main intentions of the Psa-V Research and Development Programme. End user adoption of advances in knowledge and techniques is seen as a key method of minimising the impact of Psa-V impacts on the industry. This intent of knowledge transfer has been implemented by making access to research reports freely available to the New Zealand industry through the KVH website, but password restricted and available to international users on a case by case basis only. Other pathways for technology transfer to end-users include post-harvest technical support, Zespri's Canopy website and Orchard Productivity Centre, the KVH hosted weekly Technical Representative Forum, and the annual Psa-V Symposium.

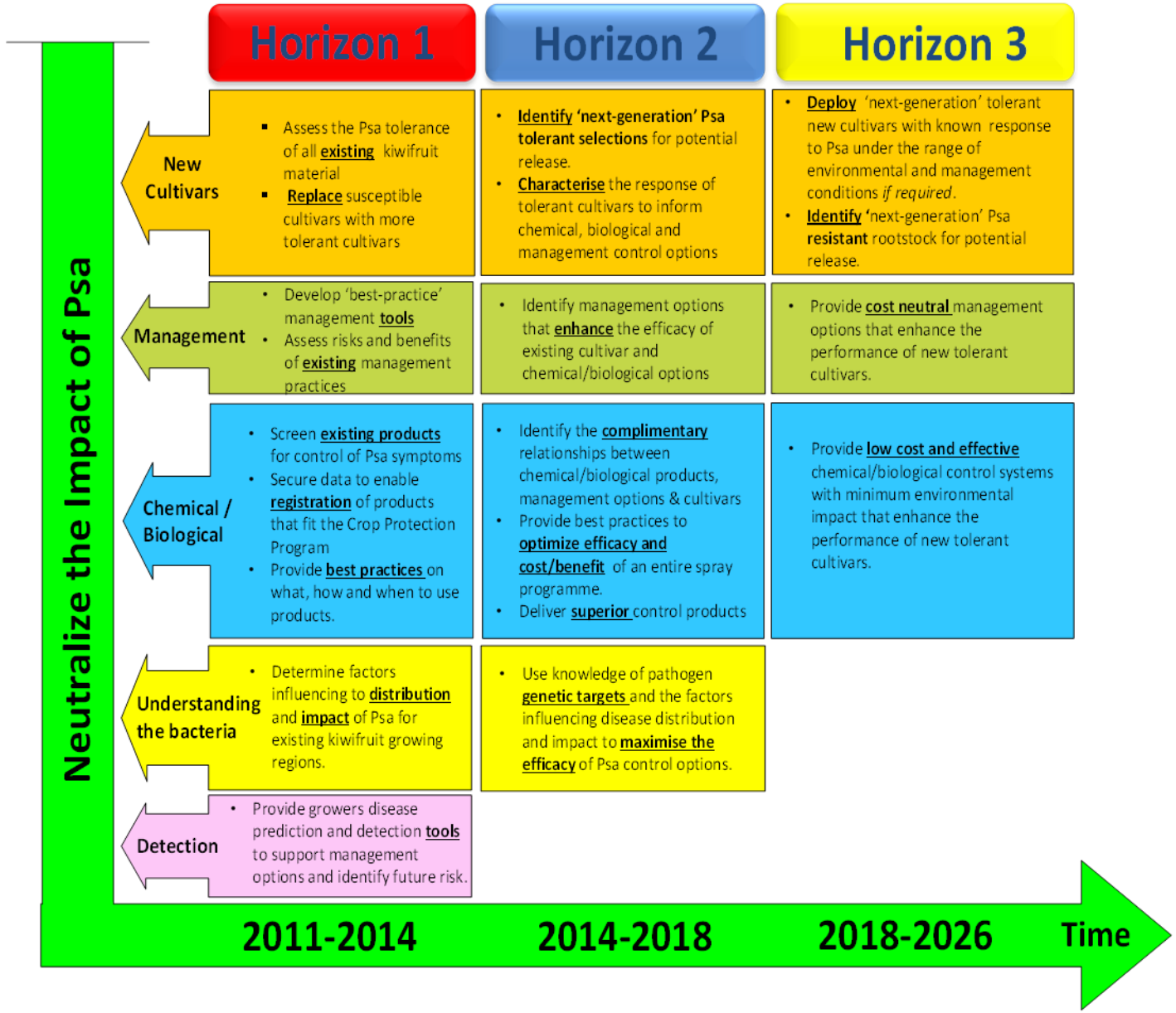
Reporting

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

i. A bi-monthly report to KVH on overall progress by way of a KVH Board paper.
ii. Bi-monthly reporting to KVH on financial scheduling on project payments.
iii. Bi-monthly exception reporting of project milestones.

Results and outcomes from each project to be converted into grower summaries and made available to KVH for dissemination to NZ kiwifruit growers.

Figure 1. Outcome-focused roadmap for Psa-V research



5. Performance Measures

Performance measures (as set out in the NPMP)

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

Additional performance indicators and measures set by the KVH Board

J. The NPMP is fully operational and operating effectively with wide industry support, including the following measures:
    i. Challenges and issues are dealt with effectively and in a timely manner
    ii. Selective survey conducted to ascertain industry support
K. R&D programme is fully aligned with KVH strategy to provide additional management tools and techniques for Psa control, including the following measures:
    i. Assessment of projects initiated and whether supports KVH's objectives and strategies
    ii. Number of projects initiated by KVH supporting KVH's objectives and strategies

6. Budget

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

- The current budget is set at $2.3M
- Funding of research and development of $2M has previously been funded directly from Zespri, but for the 2014/15 financial year will be funded by KVH.

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 green kiwifruit and 2 cents per tray for gold and in the future red 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 intends to maintain appointment of two authorised persons, being KVH staff appointed to the roles of ‘Biosecurity Programmes Manager’ and the ‘NPMP Analyst 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.

Offence	***Corresponding penalties***
Failure to comply with rules 2-7 in the NPMP	• 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)	• 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)	• 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)	• 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	• 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

<table>
<tr>
<td>KVH</td>
<td>Regional Coordinators / Regional Groups</td>
<td>Post-harvest operators</td>
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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

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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)
Develop or maintain a regional response plan
Support road groups (or any other localised groups that Growers choose to form)

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<td>

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

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<tr>
<td>Zespri and other marketers</td>
<td>Local Growers, contractors, transport operators, etc.</td>
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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

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<td rowspan="3">

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

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<tr>
<td>NZKGI</td>
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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.

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</table>

** 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*