



Background

Registered bactericides can be used in New Zealand against specific bacterial diseases. They have registration in Canada, United States and New Zealand against a range of bacterial diseases, including fire blight in apples and pears. Bactericides are also registered for Psa control in a number of Asian countries. They are considered to be one of the most effective tools for protection against Psa-V in New Zealand. For information on efficacy refer to: www.kvh.org.nz/product_testing.

Kasumin® is a bactericide used only on plant-based bacteria and fungi and has no applications in human or veterinary health. It is used in 20 countries on crops including tomatoes, paprika, eggplants, rice and potatoes.

The Agricultural Compounds and Veterinary Medicines Group (ACVM) granted a Limited Label Claim for Kasumin for the control of Psa-V on kiwifruit vines in KVH-approved regions – presently all North Island regions. Permission to use Kasumin **ONLY AS A FOLIAR SPRAY** has been granted by ACVM with a series of controls.

Information on how to meet these requirements is outlined in this document; failure to comply with **all** requirements may result in compliance action. Applicators and growers may be subject to audits to check compliance with the requirements. To reduce residue risk and allay beekeeper concerns, Kasumin **cannot be used when vines are flowering** (male or female).

Zespri maintains a zero-residue policy for bactericide residues on fruit. Zespri will continue to run a comprehensive residue testing programme to ensure all fruit submitted into its inventory meets this requirement.

Using these products outside the controls and conditions of use outlined in this document and on the label may have adverse trade implications.

Psa-V infected plant material with secondary symptoms should be removed before spraying. Leaving secondary infection in place will increase the risk of bacterial resistance.

Zespri is working to reduce industry reliance on bactericides and ensure use of these products is managed as part of an integrated pest and disease management (IPM) strategy.

GROWERS ARE RESPONSIBLE FOR REVIEWING, UNDERSTANDING AND COMPLYING WITH ALL APPLICABLE REQUIREMENTS FOR USE OF BACTERICIDES. INJECTION OF ANY BACTERICIDE IS NOT PERMITTED.

The orchard owner/manager/applicator is responsible for management and use of the product. Failure to comply with requirements may result in compliance action.

- Zespri is introducing an IPM approach to Psa management and the responsible person must complete an [Orchard Psa IPM Strategy](#) before applying Kasumin and register an [Intent to Spray](#) for each application.
- No more than two consecutive applications of a Psa protectant product should be applied without using a different product.
- Best used in high-risk Psa-V spread situations, e.g. before prolonged leaf wetness or directly after rain and wind. Kasumin is moderately rainfast.
- **A maximum of one application** of Kasumin is permitted in the bud phase (KeyStrepto not allowed in CPS).
- A second application of Kasumin may be permitted under Justified Approval (JA).
- Kasumin can only be used until **21 days** before the first kiwifruit flowers (male or female) open in the orchard block or until 15 December 2016, **whichever comes first**. Kasumin leaves persistent residues and **must not** be applied when open flowers or fruitlets are present.
- **Must be applied at the label rate** (for concentrate spraying adjust rates according). Refer to the [Spray Tech Box](#) on the Canopy for sprayer setup and calibration setting.
- **All nozzles with a suitable drift-reducing adjuvant must** be used until canopy closure.
- For developing grafts, use row-length sprayer calibration (see [Spray Tech Box](#)). This will typically require dilute spray volumes in early spring of ~500L water / ha for newly-grafted vines. Late spring application will require higher volumes.
- May only be applied as a foliar spray by ground-based application – i.e. not aerial application. **No other methods of application are allowed; this includes no injection of any kind, e.g. no trunk injection or drip injection.**
- Kasumin must not be used in blocks which are accessible by livestock or have crops present other than kiwifruit.
- Mow flowering ground cover (to remove flowers) before applying Kasumin.
- Wear personal protective equipment when applying Kasumin (refer to Material Safety Data Sheet or product label).
- A re-entry period of **48 hours** applies for Kasumin where full personal protective equipment must be worn. Gloves must be worn if handling the crop in the five days after the re-entry period.

Kasumin® User Guide

Conditions of use and orchard best practices:

	Required actions	Orchard best practice
Pre-Spraying	<ul style="list-style-type: none"> ● If you do not have a KPIN, contact KVH on 0800 665 825 or info@kvh.org.nz to discuss the conditions of use. ● Ensure the applicator has a current GROWSAFE certificate and the sprayer is appropriately set up and calibrated. ● Review your need to apply bactericides using the KVH Psa Risk Compass. <ul style="list-style-type: none"> ○ A copy of the Psa Risk Compass is required to justify the 2nd application of Kasumin (under JA only) ● Complete an Orchard Psa IPM Strategy and submit to Zespri by 1st October 2016. <ul style="list-style-type: none"> ○ If not completed online, send to Zespri via email, fax or mail (details are listed on the form) 	<ul style="list-style-type: none"> ● Apply as part of a Psa control programme with other proven agrichemicals and cultural control tools. Using different modes of action will improve control. Refer to the most recent KVH <i>Psa-V Best Practice Guide</i> (www.kvh.org.nz/seasonal_advice). ● Best applied as a preventive spray before symptoms are seen. ● Remove secondary symptom material from vines that have Psa-V infection (see KVH <i>Cutting and Removal</i> factsheet at www.kvh.org.nz/vine_removal)
	Required actions	Orchard best practice
Preparing for Spraying	<ul style="list-style-type: none"> ● Notify neighbours at least 12 hours (preferably 48 hours) before spraying or in compliance with your local regional air plan requirements. ● Open flowers in the sward should be minimised before each application. <ul style="list-style-type: none"> ○ If herbicides are likely to be required, plan ahead and apply early to remove nectar-bearing buttercup/clover from the orchard floor. ○ Check the Crop Protection Standard (CPS) for permitted herbicides – a Justified Approval (JA) is required for herbicides not listed in the CPS, including those required for broadleaf weeds. ● Open flowers in the shelter must also be minimised including weeds and creepers. ● If significant numbers of flowers are present on non-target plants such as shelter or sward, Kasumin must not be used. ● Do not graze for 12 months after application. ● Ensure the applicator has read and understood the Kasumin User Guide. ● Only mature fruit post-harvest (e.g. reject fruit) from vines treated in accordance with the allowed use pattern may be used as stock feed. ● Ensure no other crops are present within blocks to be sprayed at the time of application (e.g. no inter-row cropping is allowed). ● AgFirst will randomly audit KPINs applying this agrichemical targeting spring applications. ● If a second application is required, complete a Justified Approval (JA), including a copy of the KVH Psa Risk Compass indicating the application is justified. ● Fill out the site inspection record (available at the end of this document) before the Kasumin application. Records must be retained for a minimum of four years. ● Once the first half of the Site Inspection Record is complete, register your intent to spray on the Canopy or KVH website. <ul style="list-style-type: none"> ○ Note – by registering your intent to spray, you confirm you have adhered to the ACVM conditions of use, including eliminating flowers from sward/shelter and that there are no kiwifruit flowers open in the canopy. ○ Orchards may be selected for random audit to ensure ACVM conditions of use are met. 	<ul style="list-style-type: none"> ● If any open male or female kiwifruit flowers are present, Kasumin must not be applied. <i>It can only be applied until 21 days before the first flowers (male or female) appear.</i> ● Mowing the orchard to minimise flowers in the sward is strongly recommended. ● Open flowers in the shelter including weeds and creepers must also be minimised. ● Apply before high-risk weather events. ● Refer to the latest KVH Psa-V Best Practice Guide and Best Practice Spraying Guidelines. ● Ensure sprayer will achieve complete coverage. ● Signs must be out 24 hours prior to spraying. ● Where there is no/incomplete shelter; a buffer zone of at least 30 metres should be observed. ● Ensure AI nozzles are fitted to the sprayer

Kasumin[®] User Guide

	Required actions	Orchard best practice
Spraying	<ul style="list-style-type: none"> Ensure the application is compliant with the Zespri Crop Protection Standard. The label application rate must be used for all sprays (if concentrate spraying adjust rates accordingly). Ensure good spray coverage is achieved throughout the season. May only be applied as a foliar spray by ground-based application. No other methods of application are allowed; this includes no injection of any kind, e.g. no trunk injection or drip injection. Must not be applied to flowers or fruit. This includes male flowers. All practical measures must be taken to minimise spray drift. <ul style="list-style-type: none"> AI nozzles with a suitable drift-reducing adjuvant must be used until canopy closure. 	<ul style="list-style-type: none"> Do not spray if drift is likely. Use alternative products if there is any risk of spray drift. Be particularly careful around producing kiwifruit, avocados and other crops as drift may create serious residue issues. When applying Kasumin early in the season, AI nozzles and a suitable drift-reducing adjuvant must be used. Later applications in the pre-flowering period should use AI nozzles as research has shown coverage is not compromised. Refer to 'Dormant and Early Season Application' KiwiTech Bulletin N98. Avoid water volumes that will result in excessive runoff. <ul style="list-style-type: none"> For non-producing vines, dilute spray volume will change as the canopy develops. Follow all Zespri's Best Practice Spraying Guidelines. Refer to the Zespri CPS and KiwiTech Bulletins on best practice spraying.
	Required actions	Orchard best practice
Post-Spraying	<ul style="list-style-type: none"> Fill in Part B of the Site Inspection Record (available at the end of this document). All applications must be recorded in the Zespri spray diary within seven days of application (including applications to non-producing vines). A 48-hour Restricted Entry Interval (REI) applies to Kasumin and gloves to be worn if handling the crop in the next five days. Notify neighbours and Zespri immediately if spray drift occurs. Notification of any incidence which may have resulted in residues to fruit must be reported immediately to Zespri. No grazing for 12 months after application. In some cases, newly grafted vines may bear a limited number of fruit. Any fruit from these vines must be destroyed and must not be used for human or animal consumption. Reduce risk of tank contamination causing residues to fruiting blocks by ensuring tanks are thoroughly cleaned after application 	<ul style="list-style-type: none"> Record safe re-entry date on orchard signage.

Managing resistance risk – to manage the risk of resistance developing in Psa, refer to KVH's Best Practice Advice - Management to limit resistance to Psa control products.

- Monitor vines regularly for signs of Psa infection
- Regularly remove Psa-V infected material from infected blocks to prevent excessive Psa-V inoculum build-up.
- Maintain a comprehensive Psa-V management programme all year round including cultural/non-chemical methods of Psa-V control
- Use a range of proven agrichemicals with different modes of action in spray programmes. Do not rely on bactericides alone.
- A tank mix with a proven copper product is acceptable.
- Use only during high-risk periods.
- Ensure good spray coverage is always being achieved.
- Always follow label recommendations.
- At the first sign of lack of efficacy, the use of Kasumin should be suspended until the presence or absence of resistant strains of the pathogen can be confirmed – advise KVH and/or Zespri immediately.

This publication has been prepared based on information available at the time of publication which is inherently preliminary in nature and subject to change. No party, including without limitation, Kiwifruit Vine Health Incorporated, Etec Crop Solutions Limited and Zespri Group Limited, makes any warranty, representation or guarantee as to the accuracy and/or completeness of the information contained in this publication ("Published Material") and none of those parties shall be liable to any person for any loss arising from that person's reliance on the Published Material and/or for any damages arising out of or connected with the use of the Published Material or the products referred to herein. No obligation is accepted or undertaken to update this or any other information or publicly released revisions to this document to reflect additional information, circumstances or changes in expectations which occur after the date of this document. Some of the Published Material may be subject to copyright and shall not be reproduced in any manner without first obtaining the written consent of Kiwifruit Vine Health Incorporated or Zespri Group Limited.

Kasumin® User Guide

The completion of this form is a requirement of the ACVM Group of MPI and must be completed by the person responsible for the orchard or nursery before each Kasumin application.

A record of this application must be retained for four years and may be audited by MPI. Zespri growers should retain this as part of their GAP records.

Part A – Site Inspection Record (To be completed by the Orchard Manager before each application)

The site where the product is to be used is within a KVH-approved region.	<input type="checkbox"/>
I have read and understood the Kasumin User Guide and agree to adhere to the ACVM conditions outlined for the area being sprayed including:	<input type="checkbox"/>
1. No livestock access possible.	<input type="checkbox"/>
2. No non-target crops are within the spray block (or nearby if exposure to drift is a risk).	<input type="checkbox"/>
3. Neighbours and beekeepers with hives on the property being treated will be/have been notified at least 12 hours prior to application (neighbours with hives should notify their beekeepers of your intention to spray).	<input type="checkbox"/>
4. Beehives are removed or covered until after the spray has dried.	<input type="checkbox"/>
5. All practical steps have been taken to remove flowers from the shelter and sward including (please tick applicable): <input type="checkbox"/> No action required <input type="checkbox"/> Weed strip mowed <input type="checkbox"/> Herbicide sprayed If herbicide, please record name of herbicide and date of application: Herbicide name: _____ Date of application: _____	<input type="checkbox"/>
6. No open male or female kiwifruit flowers are present.	<input type="checkbox"/>
7. Spray applications are managed to ensure no spray drift outside the block	<input type="checkbox"/>

Signed: _____ Name: _____ Date: _____

Part B – Application Record (To be completed by the person responsible for the orchard or nursery after each application – Note: Zespri growers to also record application in Zespri Spray Diary)

Orchard name: _____ KPIN: _____

Orchard address: _____ Block(s): _____

User's name: _____ Address: _____

Batch number of product used: _____

Date of application: _____ Time of application: _____

Product rate: _____ Water rate: _____

Details on measures taken to mitigate spray drift: _____

Please record any accidental misuse/non-compliances on the other side of the form (including who you contacted to advise)

Signed: _____ Name: _____ Date: _____