KVH PROTOCOL

Disposal Options

Background

Pseudomonas syringae pv actinidiae (Psa) is a disease that attacks only kiwifruit vines. Psa can be spread through air, on living or dead plant material, machinery and other tools and equipment. As infected plants are removed and disposed of, biosecurity measures need to be followed to limit the amount of inoculum exposed to neighbouring vines.

Careful disposal of all contaminated material may limit, or prevent, the spread of Psa from vine to vine and between orchards.

Scope

This protocol details the methods for decontaminating and disposing of clothing, containers and plant material from orchards and postharvest facilities.

Treatment and disposal options (for explanation of options refer to page 2).

NB: KVH authorisation is required for any variation to these disposal options.

Gloves, booties, hairnets, clothing

- Laundry cleaning or soak in bleach/disinfectant
- Burning
- Heat treatment
- Contain in sealed bags for removal to deep burial sites by a recognised waste removal company

Sample bags/disposable containers

- Controlled burial
- Burning
- Heat treatment
- Complete immersion in disinfectant solutions

Vines and plant material

- Controlled burial **on site**
- Burning **on site**
- Mulching **on site**
- **NB:** Kiwifruit plant material must **not** be dumped into any gully, native bush or forest area.

Harvest debris (from bins, packhouse sweepings, dust extractors etc.) including kiwigreen monitoring samples and waste from pollen mills.

Note—all waste material must be contained at all times (in sealed bags)

- Burning **on site**
- Controlled burial
- Heat treatment
- KVH-approved vermicomposting
- KVH- approved compost manufacturers
- Collection for off-site incineration
- Removal to deep burial sites by a recognised waste removal company.

Explanations of cleaning and disposal options

Laundry cleaning, e.g. Napisan

- Soak in sodium percarbonate (e.g. Napisan) for at least two minutes before machine washing on a normal cycle.

Heat treatment

- A minimum of 60^{o}c for a minimum of 10 minutes.

Controlled burial –preferred disposal option

- Waste material should be transported to the burial site soon after collection.
- Take steps to avoid accidental dispersion of plant material during transportation to the burial site.
- Dig a pit allowing half a metre of free space between the top of the plant material and the top edge of the pit.
- Bury with at least 0.5 metres of soil on top of the plant material.
- Separate topsoil from subsoil. Topsoil will be used later to cover the pit and assist grass regeneration.
- Restrict access to the disposal site (fence site off and/or display signage).
- Cover plant material at the end of each day.
- KVH advises anyone undertaking large excavations to abide by the Health and Safety in Work Act 2016
- Waste management companies transporting to council consented refuse sites may also be used within your region.

Burning–incineration of material- second best disposal option

- Permits are required for all open-air fires, regardless of size.
- Contact your local Regional Council for a copy of their Regional Air Plan and regulations around open burning.
- Location—consider the possible effects of the heat, smoke and any odour generated by the fire on nearby structures, roads and residential areas. Is smoke from the fire likely to create a hazard to traffic or a nuisance to neighbours?
- Access to the site—access is needed for equipment to construct the fire site, maintain the fire and for delivery of fuel and vine material. Access is also necessary for emergency services, should the fire escape.
- Preparation of the site - Is the fire-site construction and design ensured to kill 100 per cent of the bacteria present? The fire site should be ignited using a suitable accelerant at multiple locations to ensure a rapid build-up of flame.
- Fuel—effective incineration needs considerable fuel to achieve complete burning. The amount and type of fuel available will vary considerably. All fuel required should be on site before the burn starts. **Burning of rubber tyres and plastics is prohibited**. Dry fuel burns better and with less smoke.
- Place the plant material on top of sufficient combustible material, ensuring the arrangement of fuel and plant material allows adequate air flow from below, and therefore achieves the hottest fire and most efficient burning.
- Environment—there must be an adequate fire break around the fire.
- Meet the requirements of the Health and Safety in Work Act 2016
- Insurance - consider the need for rural fire insurance cover if contemplating burning. Public liability cover should also be reviewed.
- Weather - Is the current weather and weather forecast in the area of disposal favourable for burning purposes?
- Biosecurity—inefficient fires, due to a lack of accelerant or when material is too wet to burn, may increase the risk of infected particulate material being spread on rising thermal air currents.

Mulching on site

- Mulching is the least-preferred way of managing cut-out Psa infected plant material because mulching heavily infected plant material increases infection transfer to neighbouring properties through wind and/or contractor movements.
- Mulching to the smallest particles possible will increase the rate of decomposition
- Use a digester product or nitrogen-based fertiliser to accelerate the breakdown of the plant material.

- Limit contractor movement throughout the block until decomposition has reduced all visible leaf matter.
- All equipment and machinery used for mulching must be thoroughly cleaned and sanitised before being used on another orchard.

Compost providers registered with KVH

- View an up-to-date list on the KVH website under the Growing Media and Compost section or click here KVH Approved Providers.

Reject fruit

For management of reject fruit refer to *KVH Protocol: Harvest, Packing and Reject Fruit*