

# SUBMISSION

## SUBMISSION ON PROPOSED RESTRICTED ENTRY INTERVALS FOR SPECIFIED PESTICIDES

06 May 2022

**To:** WorkSafe

**Name of Submitter:** Horticulture New Zealand

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## Our submission

Horticulture New Zealand (HortNZ) thanks WorkSafe for the opportunity to submit on the proposed Restricted Entry Intervals (REIs) for selected pesticides. Our submission provides an end-user perspective.

HortNZ is a pan-sector organisation and as such we do not have access to the detailed crop and active-specific information requested in the consultation document. Information relating to a particular crop or substance can be sought from individual product groups or registrants. We do, however, have feedback and requests that are pertinent to the consultation as set out in this submission.

The horticulture sector welcomes any opportunity to continue to engage with WorkSafe and to discuss this submission.

This submission is being made by Horticulture New Zealand and is supported by the following organisations:

- Citrus New Zealand
- Katikati Fruitgrowers Association
- Kiwifruit Vine Health
- NZ Apples & Pears Inc
- NZ Feijoa Growers Association Inc
- NZ Persimmon Industry Council Inc
- NZ Tamarillo Growers Association Inc.
- New Zealand Asparagus Council
- New Zealand Avocado
- Onions New Zealand Inc.
- Potatoes New Zealand Inc.
- Process Vegetables NZ
- Strawberry Growers New Zealand Inc
- Summerfruit New Zealand
- Te Awanui Huka Pak
- TomatoesNZ
- Vegetables New Zealand Inc.

# HortNZ's Role

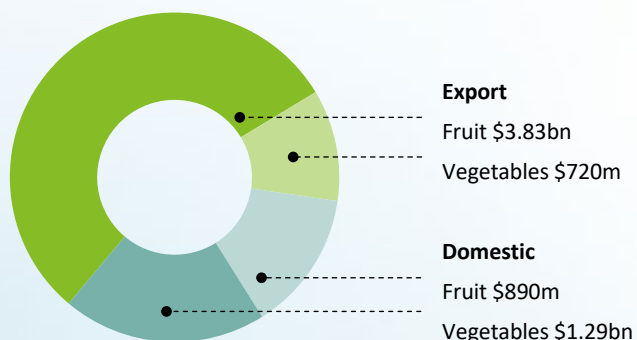
## Background to HortNZ

HortNZ represents the interests of approximately 6,000 commercial fruit and vegetable growers in New Zealand who grow around 100 different fruit, vegetables and berries and employ over 60,000 workers.

There is approximately 80,000 hectares of land in New Zealand producing fruit, vegetables and berries for domestic consumers and supplying our trading partners with high quality food.

It is not just the economic benefits associated with horticultural production that are important. The rural economy supports local communities and primary production defines much of the rural landscape. Food production values provide a platform for long term sustainability of communities, through the provision of food security.

HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand.



**Industry value \$6.73bn**

**Total exports \$4.55bn**

**Total domestic \$2.18bn**



# Executive Summary

Horticulture New Zealand and our contributing members have significant concerns about the current proposal. It is our expectation that where WorkSafe decides to set restricted entry intervals (REIs) for certain pesticides, these REI's are scientifically justified, protect worker safety and are practical to implement.

While the body of the submission explains our position in full, the key points are summarised below:

- The horticulture industry takes pride in worker safety and growers' outcomes are aligned with that of WorkSafe's - supporting everyone to return home from work healthy and safe.
- HortNZ seeks clarity on the type and scale of the problem that WorkSafe are attempting to address through the implementation of new REIs.
- HortNZ is supportive of the use of appropriate REIs where an unmanaged risk to workers has been identified.
- Where REIs are set, it is critical that they achieve the desired outcomes – REIs that are safe, practical and based on the best available evidence.
- HortNZ has concerns about the specificity of some of the data that has been used to support the modelling – default values have been used where substance-specific information was not readily available. WorkSafe must make every effort to access substance-specific data, and then use this to re-model the REIs. An evidence-based approach is important to ensure interventions are proportionate to the level of risk.
- HortNZ is concerned that the use of default data may result in unnecessarily long REIs. There are two main impacts of unnecessarily long REIs:
  - 1) They are not practical to implement; and
  - 2) They could undermine the economic viability of the horticulture sector to a certain extent – both domestic (through further increasing the prices of fresh produce) and internationally (through making New Zealand produce less-competitive on the global market).
- HortNZ seeks clarity on WorkSafe's implementation expectations, which have not been stated in the consultation documents. This lack of information is causing confusion about PPE requirements that will be associated with the REIs.



- REIs are a relatively blunt instrument and HortNZ understands that they cannot be tailored to all possible scenarios. However, various levels of personal protective equipment (PPE) (where there is a risk to worker health) would better accommodate the complexity of in-field activities without jeopardising worker safety.
- WorkSafe must develop implementation guidance (in close consultation with Agcarm and the horticulture sector) and communicate this to end users.
- HortNZ recommends that WorkSafe undertakes periodic review to ensure that the REIs remain fit for purpose, and to allow advances in scientific understanding and/or issues arising in implementing the REIs to be taken into account.
- We understand that some of the REIs are likely to be refined as crop protection companies provide specific data to WorkSafe for this purpose. There are a large number of products that are captured by the proposed REI changes. In order for our industries to provide meaningful comment we need to be presented with the refined versions of these REIs. HortNZ insists that a second round of public consultation is undertaken after the feedback from this consultation has been used to refine the REIs.
- Worksafe want to keep people safe by applying the precautionary principle in designing the REIs. However, this approach may make people less safe if their livelihoods are in jeopardy or if they are wearing overly protective PPE that impedes their ability to operate safely. There is a balance to be found. The horticulture sector is very willing to continue to engage on this topic, to assist WorkSafe with any knowledge gaps, and to help to find that balance based on the available evidence.



# Submission

## 1. Horticultural use of crop protection products

Use of crop protection products is a critical part of many New Zealand horticulture operations. These tools enable growers to produce healthy fresh fruit and vegetables for both domestic consumers and export markets around the world and help the sector to deliver on strategic and government initiatives that benefit wider New Zealand.

Worker safety is a top priority in our sector and keeping people safe around crop protection products is a focus for growers. The horticulture sector is well versed in working with crop protection products, including understanding, respecting, and complying with the regulations that apply to them. This is achieved in part through industry-wide programmes such as Good Agricultural Practice and GrowSafe.

Some of our members are owner operators and are applying crop production products themselves while medium or large businesses often employ staff who carry out these tasks. Those in the sector do not want to put themselves, or their valued staff, at risk. We believe that both WorkSafe and the horticulture industry are after the same outcome - supporting everyone to return home from work healthy and safe.

## 2. Restricted Entry Intervals

### 2.1. Regulatory setting

HortNZ understands that WorkSafe may set restricted entry intervals (REIs) for a pesticide under regulation 13.23 of the Health and Safety at Work (Hazardous Substances) Regulations 2017 to protect persons from the toxic effects of that substance if:

- (a) the human exposure to the substance is primarily through inhalation or contact with skin; and
- (b) scientific data available for the substance is sufficiently reliable to enable a restricted entry interval to be set.

HortNZ supports the use of appropriate REIs where an unmanaged risk to workers has been identified. An evidence-based approach is important, as are interventions that are proportionate to the level of risk. Where REIs are set, it is critical that they achieve the desired outcomes - REIs that are safe, practical and based on the best available evidence.

HortNZ understands that under regulation 3.2 of the Health and Safety at Work (Hazardous Substances) Regulations 2017, a PCBU (Person Conducting a Business or Undertaking) must manage risks to health and safety associated with using, handling, manufacturing, or storing a hazardous substance at a workplace, and in managing risks, the PCBU must have regard to any REI for the substance, if one has been set.

## 2.2. Interpretation

HortNZ would like clarification on how WorkSafe has interpreted 13.23 (b) “*scientific data available for the substance is sufficiently reliable to enable a restricted entry interval to be set*”.

HortNZ can see two ways for this to be interpreted:

- a) scientific data available for the substance provides sufficient evidence of harm; or
- b) scientific data available for the substance is sufficient to calculate a meaningful REI.

This interpretation is vital. If sufficient evidence of harm is required, this information needs to have been provided for each substance in the consultation documents – no evidence of risk or harm has been provided. If sufficient scientific data is required to calculate a meaningful REI, HortNZ argue that WorkSafe has not yet gathered this data from the crop protection industry for many of the substances in the consultation documents.

## 2.3. Understanding the problem definition and risk

HortNZ notes that WorkSafe *may* set REI’s, but they are not obliged to. The consultation documents lack a problem definition and context about the reason for making changes to REIs. It would have been very useful to understand the rationale for implementing new REIs for certain substances. We request further information on how WorkSafe selected the substances they have proposed REIs for, including information about the specific risks that the proposed REIs are intended to manage.

## 3. Approach used to determine the proposed Restricted Entry Intervals

### 3.1. Alignment with overseas jurisdictions

Looking at what is happening in overseas jurisdictions and what has been learnt there is a sensible first step to finding the optimal solution for the current level of scientific understanding. The EUROPOEM approach (EUROPOEM, 2002) used by WorkSafe was developed 20 years ago and much is likely to have changed since then. HortNZ would like to know whether other approaches were compared and contrasted before settling on the methodology? HortNZ note that other methodologies exist, for example the Australian Pesticides and Veterinary Medicines Authority (APVMA) use the US EPA REI calculator (Australian Pesticides and Veterinary Medicines Authority, 2015). Global alignment is important to ensure consistency in regulations. If the selected methodology results in REIs that are longer than is necessary to achieve the desired safety outcomes, New Zealand growers will be disadvantaged compared to our trading partners.

### 3.2. Data inputs

HortNZ expected that WorkSafe would contact the crop protection sector and product registrants to seek their input *prior* to formulating the proposal for public consultation.



We understand that this was not done, and therefore a critical information gathering step has been overlooked.

HortNZ has serious concerns about the lack of substance-specific data used in some of the modelling. The quality of the datasets used in the calculations is critical if meaningful and workable REIs are to be set.

The proposed REIs are in some instances based on generic data, default values, assumptions or extrapolation due to data scarcity. Under the Health and Safety at Work (Hazardous Substances) Regulations 2017 WorkSafe may set restricted entry intervals for pesticides to protect persons from the toxic effects of that substance *if scientific data is sufficiently reliable to enable a restricted entry interval to be set*. Do default or generic data meet this criteria?

Product registrants can likely source substance-specific data and HortNZ requests that WorkSafe explicitly ask the registrants for this information. This would allow the modelling to be re-run using accurate data, which should help to form the evidence base required under the Health and Safety at Work (Hazardous Substances) Regulations 2017. Once this step has been completed HortNZ requests that we (and the wider sector) are re-consulted to assess the practicalities of the refined REIs.

### 3.3. Methodology

We note that the methodology that WorkSafe have used is the same as that previously used by the New Zealand EPA (Environmental Protection Authority 2018, Edwards 2021). However it is important to note that the EPA operate under a different legislative framework to WorkSafe. HortNZ would like to understand WorkSafe's process for considering whether the EPA methodology is appropriate for use under WorkSafes legislative framework.

We understand that WorkSafe operates under the principle of ensuring worker health and safety *so far as is reasonably practicable* in the circumstances. Regardless of the methodology used, WorkSafe need to account for what is reasonably practicable in whatever REIs and related controls are set.

#### 3.3.1. EXTRAPOLATION

HortNZ notes that there is considerable conservatism in the model. Whilst we agree with a precautionary approach to protect worker safety, we are concerned that conservatism in all areas of the model may have resulted in unnecessarily long proposed REIs (as explored in Kluxen *et al* 2021). For example, if the model is run using:

- The maximum allowable number of applications
- The default reasonable worst case transfer coefficient
- The default value for dislodgeable foliar residue. We note the statement that *“The more conservative dislodgeable foliar residue (DFR) factor for spray or concentrate use patterns may not always be relevant when the substance has dried; however, it is considered to be sufficiently conservative to be used in the risk assessment”* (Edwards 2021, page 627).

- The maximum application rate stipulated in the HSNO approval decision document (as was used to estimate “off label” uses, such as minor crops).
- A default foliar life of 10 days.
- An assumed work rate of 8 hours per day

Then conservatism is built into six of the inputs into the model, resulting in a cumulative effect that likely exaggerates the risk and the proposed REIs.

To further illustrate the point, if only one application is applied, the task that is being carried out involves much less contact than is assumed by the default transfer coefficient and the person is undertaking the task for a maximum of 2 hrs per day, the REI from the above scenario is going to be disproportionate to the risk.

In saying that, we do agree that a certain level of conservatism is wise and acceptable. For example, HortNZ anticipates that the default value for dislodgeable foliar residue (usually determined by washing leaf disks in solution) is likely an overestimate of what is actually dislodged in the field, however in the absence of substance specific data a default figure may be appropriate in this instance.

Product and active specific data will help to avoid use of default figures. The consultation documents state that “*Specific information on the following parameters can be used to refine the risk assessment:*

- *dermal absorption*
- *DFR data*
- *DT50 foliar data”*

HortNZ suggests that other information should also be considered for refining the risk assessment including:

- **Transfer coefficients:** These refer to the amount of contact between a re-entry worker and foliage. The activities in table B-6 (Edwards, 2021) are relatively crude, and for fruit, vegetables and berries they appear to be based on harvesting activities (reach/search/pick). Depending on the time of year and the required orchard/field activity, the amount of contact may be significantly less than estimated by the table.
- **Time:** The default that has been used is an 8-hour day (Edwards, 2021). There are many critical in-field activities that are not undertaken for 8 hours a day. The only tasks that are likely to be undertaken for 8 hours are harvest, thinning and pruning. We suggest that WorkSafe reach out to industry during a second round of consultation to gather information on the *average* number of hours the different types of task are undertaken for.

It may also be possible to use statistical methods as a tool to avoid compounding conservatisms.

### **3.3.2. REPEAT APPLICATIONS**

HortNZ would like clarification about whether the REI clock ‘starts again’ after each application? We assume that this is not the case if the maximum number of

applications has been used to calculate the REI. The application intervals for many of the pesticides used in horticulture are often between 3 and 21 days to align with insect, weed or pathogen life-cycles. For example tamarillo orchardists spray fortnightly year round for systemic control of the Tomato Potato Psyllid. If the clock is re-set after each application and prolonged application is required due to a pest outbreak, the REI may stretch on for months.

The only practicable way for this to be managed is for the REI to start from the most recent application. However, this will result in additional conservatism if the maximum number of repeat applications is also used in the model (as currently proposed).

### 3.3.3. UNDERSTANDING IN-FIELD ACTIVITIES

HortNZ strongly suggests WorkSafe consider in-field activities that occur in the days, weeks and months after application of a crop protection product (be it a herbicide, insecticide or fungicide). It is understood that WorkSafe selected tasks from lists based on the label claims or available GAP data. However this information does not necessarily reflect the type of tasks that happen after application.

Depending on the crop and the time of year, this may include:

- **Field scouting** walking through a crop and stopping periodically to inspect individual plants for insect, pathogen or weed presence, fruit/vegetable ripeness or quality, nutrient deficiencies etc.
- **Harvest** in some instances this is undertaken by hand, in some instances mechanical with very little to no contact with the crop. Some crops are harvested 2-3 times, some are harvested every day for a prolonged period. Some are harvested all day; some are harvested for just a few hours a day.
- **Thinning** of flowers or fruitlets is undertaken in some crops by hand but thinning can also be via a means that involves little to no plant contact eg. chemical or mechanical.
- **Pruning** this often takes place after harvest and during the dormant period.
- **Planting** this can include sowing seeds, seedlings or plants. Some planting will be mechanical, some will be undertaken by hand, but even if mechanical at least one machine operator is required to enter the field.
- **General tasks** Application of fertiliser, inter-row cultivation for weed control, managing irrigation water etc.

We note that for many of these tasks, the exposure period would be substantially less than the 8 hour period assumed in the model. A number of case studies have been included in Appendix 1 – these give a snapshot of some of the wide range of in-field activities that take place following application of crop protection products.

### 3.3.4. APPROACH

Restricted entry intervals are a relatively blunt instrument and HortNZ understand that they cannot be tailored to all possible scenarios. It is always going to be difficult to strike the right balance between the REIs being simple to understand but also allowing for important complexities. These complexities include the risk posed by the product

applied changing over time (for example when the substance is wet compared to when it is dry), the variation in risk if the substance is foliar or soil applied, the variety of crop architecture (tree vs row crops, growth stage e.g. in leaf vs dormant and bare of foliage) and the wide range of post-application tasks that take place in different crops.

The toxicology report states that *“for Approved Substances with multiple REIs, consider grouping crops with similar REIs into one REI at the upper band”* (Edwards 2021, page 622). While grouping REIs may be simple (and simplicity is desirable for compliance) grouped REIs could result in a restricted entry interval for some crops that is not proportionate to the risk, and might make critical in-field tasks more difficult than they need to be.

Some of the approaches that other jurisdictions have adopted (e.g. United States Environmental Protection Agency (2021a, 2021b)) to account for complexity include:

- Early entry with no contact (e.g. in a vehicle, walking through a field without touching any plants)
- Emergency tasks (tasks that take place because of an agricultural emergency)
- Short-term tasks (tasks that take less than one hour and don't require hand labour)
- Limited contact and irrigation tasks (tasks where early-entry workers' only contact with treated surfaces – including soil, water, surfaces of plants, crops, and any equipment – is minimal and is limited to their feet, lower legs, hands, and forearms. Note: excludes hand labour tasks)
- Different entry requirements for when a substance is wet and after it has dried. We note that other regulators often conclude that re-entry is safe 'once dried'. For example the APVMA approved label for Indoxacarb is “Do not allow entry into treated areas until spray has dried”. For comparison the REI proposed by Worksafe for Indoxacarb is 52 days.

### **3.3.5. RELATIONSHIP TO WITHHOLDING PERIODS**

MPI sets maximum residue limits (MRLs) and withholding periods to accommodate food safety. HortNZ notes that some of the proposed REIs are longer than the withholding period for the crop. If the active ingredient is at or below the MRL at the end of the withholding period in the harvestable crop, it is likely the active ingredient will have degraded significantly on the foliage as well.

## **3.4. Assumptions**

The toxicology report presents many assumptions and questions for consideration and the answers will likely be material to the final REIs. As with the data, these assumptions and questions should have been researched (possibly via a call for information) *prior* to WorkSafe proposing REIs. Again, HortNZ request to be consulted once these assumptions and questions have been validated and incorporated into the revised REIs.

Nevertheless, Hort NZ has considered a number of the assumptions that are presented in the consultation documents:

- HortNZ agrees that there are instances where re-entry worker dermal exposure is considered unlikely, for example with crop pre-emergence and post-emergence herbicide applications or weed clearance under established crop trees and vines. The dermal risk posed by most soil applied products is considered low as workers who are re-entering should at a minimum be wearing closed toed shoes.
- HortNZ does not agree with setting a 24-hour REI for substances that are skin sensitisers which otherwise do not require an REI, unless there is evidence of an unmanaged risk. If this is the case, we would expect that the criteria for requiring an REI would be met.
- The toxicology report states *“For those Approved Substances classified as skin sensitisers (HSNO 6.5B, GHS Skin Sens. 1), it has been recommended that a REI of at least 24 hours is established to ensure the spray is completely dry on the affected surfaces, and waterproof gloves should be worn by re-entry workers in addition to appropriate work clothes thereafter”* (Edwards 2021, page 10). HortNZ would like to clarify whether ‘thereafter’ means after the recommended 24-hour REI period? If so, the additional requirements seem out of scope.

### 3.5. Peer review

HortNZ understands that the toxicology report and methodology have not been peer reviewed. Peer review is an essential step, and best practice for detailed and complex technical work such as this that informs development of regulations. HortNZ requests that the toxicology report, the suitability of the data that have been used and the appropriateness of the modelling approach be peer reviewed prior to confirming any REI’s.

### 3.6. Periodic review

HortNZ recommends that WorkSafe implement a review system to ensure that the REIs remain fit for purpose, and to ensure that advances in scientific understanding and issues arising in implementing the REIs can be taken into account.

## 4. Implementation

The consultation materials are almost silent on implementation of the proposed REIs. This has led to confusion about what is expected of growers and workers during the REI period. HortNZ requests that WorkSafe provides information on their implementation expectations (including PPE requirements) and this must involve public consultation.

### 4.1. Use of personal protective equipment

When mixing or applying any crop protection product, growers must follow the PPE guidance on the label. As an example, one product label states *“When mixing or*

*applying wear protective clothing including overalls, face shield, waterproof gloves and footwear*". It would be easy for growers to assume that the PPE that is required for mixing and application of a pesticide is required for the entirety of the REI period. However, this would appear to be disproportionate to the risk in most situations for the majority of the actives examined. If this is not WorkSafe's expectation it needs to be made explicit.

HortNZ advocates for interventions that are commensurate with the risk and growers must be provided with support to ensure that they come to appropriate conclusions about what risk mitigation is required. Growers know what PPE is required for product application and mixing based on the label. They also know that WorkSafe has set an REI based on a risk. HortNZ questions how growers are supposed to determine what PPE is required to adequately manage this risk when not mixing or applying?

WorkSafe need to develop clear guidance that ensures a grower's risk assessment comes to the same conclusion as the risk assessment of a WorkSafe inspector. This will ensure that implementation expectations are explicit and, importantly, will ensure that growers and workers are kept safe. HortNZ requests that the development and communication of this guidance is led and undertaken by WorkSafe, in close consultation with Agcarm and the horticulture sector.

#### **4.2. Transition period**

HortNZ requests that WorkSafe mandate the new REIs being included on the product label, as is the case in some jurisdictions (e.g. Government of British Columbia 2022). HortNZ also requests a practical transition period to allow growers and workers to adopt the new requirements. A reasonable transition period would allow older products that are already in circulation to be used, while new products with new REIs displayed on the label become available.

## **5. Potential unintended consequences**

HortNZ would like to raise a number of potential unintended consequences for WorkSafe's consideration.

Much of New Zealand's horticultural production is in areas with a very warm climate, and often critical in-field activities need to occur in the height of summer or in heated glasshouses. If excessive PPE is required for low-risk activities, we are concerned that other health and safety risks may be created for example e.g. impaired mobility and dexterity or heatstroke if workers are required to wear overalls, masks etc, causing a perverse outcome.

HortNZ would like reassurance that the REIs will not prevent the rapid and repeated use of pesticides in a biosecurity response. When a new pest, disease or weed arrives, control tools (including crop protection products) may need to be applied in urban residential areas or places of recreation (e.g. parks and forests) in order to eradicate the organism. REI requirements will be approached very differently by a resident whose backyard has been treated in a response, compared to a commercial growing operation where the product is part of normal production cycles. While HortNZ gathers that the

REI's have been developed with a 'business as usual' commercial horticultural scenario in mind, we implore WorkSafe to consider unintended consequences for a biosecurity response situation. If REIs are unable to be complied with in a response rendering the efficacious product unusable, this will further dwindle the very limited control tools that growers and Biosecurity New Zealand have available to them for eradication and control of unwanted pests, diseases and weeds.

HortNZ believes that there is a reputational risk for the sector of REIs that are longer than the withholding periods, unless the rationale is scientifically sound and well communicated. Consumers may be concerned by the apparent contradiction of fruit and vegetables being safe for them to eat, but going into the field that they were picked from 'unprotected' is not. Whilst HortNZ understand that ingestion is different from dermal exposure, not all consumers (both domestic and global) will take the time and effort to understand this. Ensuring that the REIs do not exceed withholding periods wherever possible is desirable.

If unnecessarily long REIs are set we can foresee two issues: a) practical implementation challenges and b) the possibility that they could undermine the economic viability of the horticulture sector to a certain extent – both domestic (through further increasing the prices of fresh produce) and internationally (through making New Zealand produce less-competitive on the global market). Unnecessarily long REIs may make on-farm tasks significantly more difficult and time consuming for workers. As a result production costs may increase, affecting the economic viability of the orchard/farm and impacting on workers livelihoods and rural communities.

Standard NZS8409 is a key reference document for users of crop protection products (Standards New Zealand, 2021) and this standard was recently reviewed and republished. WorkSafe will need to consider the accessibility of, repository for and communication of any changes or updates given such a recent release of NZS8409.

## 6. Requirement for a second round of public consultation

HortNZ strongly believes that this consultation process should first have involved a call for information. This would have allowed additional data to be sourced and assumptions tested so that the proposed REIs for consultation were well informed, and would have been much more efficient for WorkSafe, growers, registrants and all submitters.

The letter from Catherine Epps, General Manager Health and Technical Service dated 22 March 2022 to Nadine Tunley, CEO of HortNZ states that *"We give genuine consideration to all submissions, and, if these lead to significant changes to our proposals, we consult again."* HortNZ expects the proposed REIs for most substances will change significantly following this round of consultation.

A second round of public consultation is required before the REI's can be confirmed for the following reasons:

- The rationale for implementing new REIs for certain substances and the specific risks that the proposed REI's are intended to manage is unclear.

- Peer review of the toxicology report and methodology used has not been undertaken to give confidence in the underlying evidence.
- Substance specific data are likely to be provided via the current consultation. Substance specific data are essential for modelling meaningful REIs and will reduce the use of default values. HortNZ request the opportunity to submit on the updated REIs once additional data have been incorporated into the modelling to better reflect the true risk.
- Worksafe's implementation expectations have not been stated. We have therefore been unable to provide comment on potential implementation concerns or improvements to ensure growers can easily comply with WorkSafe's new REIs (once set).

The horticulture sector is very willing to continue to engage on this topic and to assist WorkSafe with any knowledge gaps in order to ensure safe and workable REIs.



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# Appendix 1: A selection of horticultural case studies

## ***Case study 1: Kiwifruit***

Critical operations such as pruning (canopy management) and thinning operations often occur during the intense spring period where Psa-V (a bacterial pathogen) risk is high. Both Actigard (Acibenzolar-Smethyl) and Kasumin (Kasugamycin) are championed by Kiwifruit Vine Health as a key product in the grower toolbox to manage Psa-V in high-risk Psa-V spread situations under strict management and audited use conditions. Actigard provides systemic protection against Psa-V by helping to protect the rapidly developing spring canopy of Kiwifruit when applied. Therefore, increasing the REI of Kasumin from 7 to 13 days and for Actigard from 12 hours to 48 hours for kiwifruit would add significant constraint to orchard management activities.

## ***Case study 2: Citrus***

Acephate is applied in citrus orchards monthly from petal fall until 14 days before harvest. WorkSafe has proposed a 51 day REI. Between petal fall and harvest, the main activities will be crop scouting as well as testing acid and Brix levels of fruit for harvest maturity. It would be exceptionally unlikely for this to involve a worker spending 8 hours a day in the treated area. More typical would be a couple of hours per day, once or twice a week.

Similar to acephate, diazinon is applied in citrus as required for control of a number of insect pests including Australian Citrus Whitefly, an insect which can devastate orchards if not controlled. Diazinon is applied over the warmer months, between November and March. Orchard tasks which take place during this time are crop scouting and hand thinning. Whilst hand thinning can take a lot of time, with workers spending more time in orchard on these days, they will not spend 8 hours per day every day since diazinon was applied. Requiring workers to wear full PPE during these months when conducting orchard tasks raises the risk of heat-related injuries, and will increase the time taken to perform these activities.

## ***Case study 3: Persimmon***

Some export markets for New Zealand persimmons require regular pest monitoring in orchards, and that control action be taken if actionable pests are found. For one of our developing markets, pest monitoring must be at least fortnightly and MPI require control action to be taken within a 14 day period. Extended REI's will make export to

these markets extremely difficult depending on the REI requirements. Official Assurance Programmes and strict phytosanitary requirements mean that effectively sprays must be applied every 14 days – the main defence against leafroller in early season is Attack (active ingredients permethrin with NZ MRL 1.00ppm and pirimiphos methyl with NZ MRL of 0.50ppm, and current withholding period of 7 days for both). The proposed REI is 36 days. For much of the growing season growers will be operating within a REI for Attack. Much of the activity during this time will be low contact, such as pheromone trap setting and checking, and fruit inspection to meet the import requirements of some persimmon markets.

#### ***Case study 4: Carrots***

Fenamiphos is a crop protection product that is used in carrot production for control of nematodes in the soil. It is applied to the field before or at carrot seed planting. Once carrot seed is planted it grows to maturity ready for harvest at approximately 90 days. A 100 day REI (as proposed) would make essential activities that need to occur after fenamiphos is applied, like crop monitoring and harvest, more difficult.