

EPA Reassessment of Dichlorvos Summary of final decisions on use and controls

The EPA Decision Making Committee released the decision on the continued use of dichlorvos in late September 2015. A decision was made to retain use of dichlorvos, but impose significant restrictions and additional controls to be phased in over the next five years.

Five Horticulture New Zealand product groups worked together on a joint submission to the EPA reassessment process. This document is provided for these product groups to explain how the controls imposed will impact use, as a result of the dichlorvos reassessment.

Growers need to be aware of the new controls before they come into force. Four tables are provided that summarises the controls that come into force in three stages.

- Table 1 summarises the additional controls that will come into force in March 2016
- Table 2 summarises the controls that will come into force in September 2017
- Table 3 summarises the controls that will come into force in September 2020
- Table 4 provides definitions of the terms used

Trade names	Critical use crops	EPA Panel Final decision	Original EPA Recommendation
Nuvos and Divap	Persimmon, Brassica, Cucurbit and Squash, Greenhouse vegetables, Lettuce and Salad leaf and Other Vegetables (Asian greens, herbs, baby vegetables, silverbeet and spinach)	Retain use of dichlorvos, but impose significant restrictions and additional controls to be phased in over the next five years. After September 2020 dichlorvos will only be able to be applied via specific targeted (non-dispersal) methods.	Phase out all outdoor uses within 12 months.

Note: This interpretation of the controls is provided for summary purposes only and is not comprehensive. The full controls should be read in the EPA document (www.epa.govt.nz/search-databases/Pages/applications-details.aspx?appID=APP202097#) located under the documents tab and label directions should be followed at all times.

The EPA will also be publishing guidance material on the additional controls and this will be circulated when it is available.

Some of these controls will also be displayed on the label and therefore label directions should be followed at all times.

Table 1: Summary of dichlorvos controls that will come into force from **15 March 2016**

Control	Explanation of control that will come into force from 15 March 2016
Restriction on application method and sites	Aerial application is banned. The person in charge of the application and the person applying dichlorvos must ensure that it is not applied in a Sensitive Area. These include residential dwellings and sites such as schools, playgrounds, early childhood centres, prisons, hospitals or long-term care facilities, and any place where non-occupational bystanders are present or could normally be expected to be present.
Requirement to keep application records	The person in charge of the product must ensure that a written record of each application of dichlorvos is kept for a minimum of three years. This record control should currently be complied with under the general records kept as per NZ GAP requirements

Table 2: Summary of dichlorvos controls that will come into force **15 September 2017**.

Control	Explanation of control that will come into force 15 September 2017						
Maximum application rates	The person in charge of the application and the applicator must ensure that application is carried out in accordance with the following maximum rates: <ul style="list-style-type: none"> Indoors: maximum rate = 0.05 g dichlorvos / m³ (e.g. for a 1 hectare greenhouse with an average height of 4.5m the total area is calculated as 10,000m² x 4.5m = 45,000m³. Then 45,000m³ x 0.05g dichlorvos/m³ = a maximum of 2,250g dichlorvos can be released). Outdoors: maximum rate = 2400 g dichlorvos / ha when applied in a wide-dispersive manner. Dichlorvos must not be applied to the same area of land more than three times per year. 						
Maximum handling quantities	The EPA have set controls on the person in charge of the application, and the person applying dichlorvos in terms of maximum quantities that can be handled. The below maximum handling quantities must be observed: <table border="1" data-bbox="600 1200 2020 1426"> <thead> <tr> <th>Application Method</th> <th>Max handling quantity /g dichlorvos per person per 24 hours</th> </tr> </thead> <tbody> <tr> <td>Handgun, Handheld fogger, Knapsack</td> <td>15</td> </tr> <tr> <td>Trolley boom, Semi and Fully automated sprayer, Fully automated fogger</td> <td>1300</td> </tr> </tbody> </table>	Application Method	Max handling quantity /g dichlorvos per person per 24 hours	Handgun, Handheld fogger, Knapsack	15	Trolley boom, Semi and Fully automated sprayer, Fully automated fogger	1300
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Handgun, Handheld fogger, Knapsack	15						
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Control	Explanation of control that will come into force 15 September 2017	
	Dipping	600
	Outdoor (boom, airblast)	7200
PPE / RPE equipment ¹	<p>Minimum PPE & RPE requirements are set for operators to reduce exposure risk whilst handling, mixing and / or applying dichlorvos.</p> <p>Any person who is handling, mixing, loading or applying dichlorvos; or present in an Application Area or Enclosed Space from the Start of application until the end of the REI¹ must (at a minimum) wear following full PPE²:</p> <ul style="list-style-type: none"> • Chemical resistant coveralls, gloves and footwear plus socks • Protective eyewear • Chemical resistant headgear for overhead exposures • Respiratory Protective Equipment (RPE) with an appropriate protection factor to protect against respiratory exposure to dichlorvos in dust, mist, gas or vapour forms. <p>The person in charge must ensure that protective clothing or equipment used to handle dichlorvos is accompanied by documentation which specifies the circumstances where the clothing or equipment may be used; and the requirements for maintaining the clothing or equipment. Circumstances include (if relevant) the presence of other substances, and the temperatures and pressures in or at which the clothing or equipment may be used.</p> <p>The documentation provided must comply with regulation 48 of the Hazardous Substances (Identification) Regulations 2001: www.legislation.govt.nz/regulation/public/2001/0124/latest/whole.html#DLM45365</p>	
Notification	<p>The applicator must ensure that all reasonable measures have been taken to give notice of a coming application to the occupants of every Sensitive Area within (partially or entirely) 100 m of the perimeter of:</p> <p>(a) the Enclosed Space (for indoor applications); or</p> <p>(b) the Application Area (for outdoor applications).</p>	

¹ Personal protective equipment / Respiratory protective equipment

² Restricted Entry Interval

Control	Explanation of control that will come into force 15 September 2017
	<p>This control is not relevant if dichlorvos is applied by dipping or spot-treatment (by knapsack, handgun or handheld fogger).</p> <p>Notice must be given at least 12 hours, but no more than 48 hours, in advance of the start of application and must specify</p> <ul style="list-style-type: none"> • the date and approximate time and duration of the application, including ventilation; • the steps taken to avoid exposure to occupants; and • contact details for the person in charge of the application (including phone number for immediate contact, and email or postal address)
Requirement to keep application records	<p>The following must be included in records of use:</p> <ul style="list-style-type: none"> • measures implemented to comply with the mandated REI • size of the Application Area, and any associated Enclosed Space • the location and extent of any mandated Exclusion or Buffer Zone • the application method • quantity of dichlorvos handled by each person involved in the application • measures implemented to monitor worker exposures to dichlorvos • where notification is required, details of how it was determined who should be notified, who was notified, and what information was provided
Restricted Entry	<p>The person in charge of the Application Area must take all practical steps to ensure that, when applying dichlorvos, no other people are present in the:</p> <ul style="list-style-type: none"> • Enclosed Space (for indoor applications); • Application Area (for outdoor applications). <p>The person in charge of the Application Area must take all practical steps to ensure that, from the End of Application until the end of the REI³, no person enters the</p> <ul style="list-style-type: none"> • Enclosed Space (for indoor applications); or • Application Area (for outdoor applications). <p>These controls do not apply to application by dipping; or spot-treatment by knapsack, handgun or handheld fogger.</p>

³ Restricted Entry Interval

Control	Explanation of control that will come into force 15 September 2017
	<p>The person in charge of the Application Area and the person in charge of the Treated Produce Storage Location must take all practical steps to ensure that no one enters the Treated Produce Storage Location, from the time any produce treated with dichlorvos is moved to the location, until:</p> <ul style="list-style-type: none"> • the end of the REI; or • the concentration of dichlorvos in the air space is less than 0.05 ppm, as measured by a direct-indication short-term concentration monitoring device. <p>The REI for dichlorvos is:</p> <p>(a) 24 hours after the start of ventilation (indoor applications - greenhouse);</p> <p>(b) 24 hours (outdoor applications when applied at rates of less than 2000g dichlorvos / ha); and</p> <p>(c) 48 hours (outdoor applications when applied at rates between 2000 - 2400 g dichlorvos / ha).</p> <p>A person can enter the Enclosed Space, Application Area or Treated Produce Storage Location within the REI, provided full PPE and RPE is worn and the person is present in the location for less than 30 minutes per 24 hours.</p> <p>For outdoor applications where dichlorvos is applied at rates between 2000 and 2400 g dichlorvos / ha, a person may enter the Application Area after 24 hours of the start of the REI if the following PPE is worn:</p> <ul style="list-style-type: none"> • Gloves • Long-sleeved shirt • Long trousers • Closed shoes
Signage	<p>This control applies only to <u>indoor</u> applications of dichlorvos. The person in charge of the Application Area and in charge of the application must ensure that signs are erected outside of the Enclosed Space, at every routine point of entry; and that they remain from the start of application, until the end of the REI.</p> <p>In addition to the current EPA signage requirements signs must state</p> <ol style="list-style-type: none"> a) that application is being carried out using a substance that is toxic to humans; b) that entry into the enclosed space is not permitted unless PPE and RPE are worn; c) the required PPE and RPE to be worn for entry; d) identify the person in charge of the application; e) the day on which the application started;

Control	Explanation of control that will come into force 15 September 2017
	<p>f) the time and date of the end of the REI</p> <p>Signs must be in plain English with no abbreviations or acronyms. All required identification information in pictorial form must be readily understandable at a distance of at least 10 metres. Signs must be removed within 3 days of the end of REI.</p>
Permissions	<p>This control applies only to <u>indoor</u> applications of dichlorvos.</p> <p>A person must not apply dichlorvos if a Sensitive Area is located (either partially or entirely) within the Exclusion Zone, unless permission has first been obtained from the EPA.</p> <p>This control does not apply to application of the substance by dipping or spot-treatment by knapsack, handgun or handheld fogger</p>
Buffer zones	<p>This control only applies to <u>outdoor</u> application of dichlorvos.</p> <p>The person in charge of the Application Area and the person in charge of the application must ensure that dichlorvos is not applied within 20m of a downwind Sensitive Area.</p> <p>This control does not apply to application by dipping or spot-treatment by knapsack, handgun or handheld fogger.</p>
Exclusion zones	<p>This control only applies to <u>indoor</u> application of dichlorvos.</p> <p>The person in charge of the Application Area must establish an Exclusion Zone that extends 20m outward from the perimeter of the Enclosed Space. This zone must be maintained from the Start of Application until at least 2 hours from the End of Application. No person is permitted to be present in the Exclusion Zone for more than 15 minutes in any 24 hour period unless they are wearing RPE that meets the requirements of the PPE control.</p> <p>The person in charge of the Enclosed Space and the person in charge of the application must take all practical steps to ensure that no person is present in the Exclusion Zone, unless they are wearing full RPE / PPE.</p>

Table 3: Summary of dichlorvos controls that will come into force **15 September 2020**.

Control	Explanation of control that will come into force 15 September 2020										
Maximum handling quantities	The EPA have set controls on the person in charge of the application, and the person applying dichlorvos in terms of maximum quantities that can be handled. The below maximum handling quantities must be observed:										
	<table border="1"> <thead> <tr> <th>Application Method</th> <th>Max handling quantity /g dichlorvos per person per 24 hours</th> </tr> </thead> <tbody> <tr> <td>Handgun, Handheld fogger, Knapsack</td> <td>15</td> </tr> <tr> <td>Fully automated sprayer and fogger</td> <td>1300</td> </tr> <tr> <td>Dipping</td> <td>600</td> </tr> <tr> <td>Outdoor (boom, airblast)</td> <td>Application methods banned</td> </tr> </tbody> </table>	Application Method	Max handling quantity /g dichlorvos per person per 24 hours	Handgun, Handheld fogger, Knapsack	15	Fully automated sprayer and fogger	1300	Dipping	600	Outdoor (boom, airblast)	Application methods banned
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	Handgun, Handheld fogger, Knapsack	15									
	Fully automated sprayer and fogger	1300									
Dipping	600										
Outdoor (boom, airblast)	Application methods banned										
Restriction on application method	Dichlorvos can only be applied: (a) outdoors, by dipping or as a spot treatment by knapsack, handgun or handheld fogger; or (b) indoors, by dipping, as a spot treatment by knapsack, handgun or handheld fogger; or using fully automated application equipment. All other application methods are banned										
Restricted Entry	As dichlorvos cannot be applied outdoors (other than via dipping; or spot-treatment by knapsack, handgun or handheld fogger), from September 2020, by default this control will no longer apply to outdoor application. Likewise there is no need to observe an REI outdoors – as no product will be able to be applied in a wide dispersive manner.										

Table 4: Definitions (interpreted from the EPA text)

Term	Definition
Application Area	<ul style="list-style-type: none"> Indoor application- the area within an Enclosed Space where dichlorvos has or is intended to be applied Outdoor application - the area within the boundary defined by the outer extremity of an area where dichlorvos has or is intended to be applied
Buffer Zone	An area extending a specified distance downwind from an Application Area, which must not contain any Sensitive Area. A Buffer Zone prescribes the closest point of dichlorvos application to a Sensitive Area.
Chemical resistant	Means the PPE equipment is constructed in a manner that provides a specified reduction in dermal exposure to dichlorvos, as follows:

Term	Definition		
	PPE item	% reduction value	
	Gloves	≥90	
	Coverall, footwear and head-gear	≥95	
Enclosed Space	Any structure, structures, or parts of structures with an internal airspace, or air supply, in common.		
End of Application	The time when dichlorvos was last applied within the Application Area.		
Exclusion Zone	An area extending outward, to a specified distance, from the perimeter of each Enclosed Space. The exclusion zone only applied to indoor applications.		
Fully automated	Application equipment that does not require an operator to be in the Enclosed Space to apply dichlorvos for the duration of the application. If an operator has to enter the Enclosed Space during application, the equipment is <u>not</u> considered to be fully automated.		
Manual	In terms of application equipment and methods, means the operation of the application equipment by a person in the Application Area during application.		
Non-occupational bystander	Any person who lives, works or attends school or any another institution or location adjacent to an area that has been treated with dichlorvos, but whose presence is incidental and unrelated to work involving the application.		
Personal Protective Equipment (PPE)	Clothing or equipment that is designed, constructed and used to ensure that the person does not come into contact with dichlorvos.		
Respiratory Protective Equipment (RPE)	PPE that is worn specifically to ensure protection against inhalation of dichlorvos.		
Restricted Entry Interval (REI)	<p>An REI is the period of time which must pass before entry into the treated area is allowed without wearing PPE/ RPE.</p> <ul style="list-style-type: none"> • For greenhouse use this is the period of time starting from when dichlorvos was last applied within the Enclosed Space • For outdoor use, this is the period of time commencing at the start of application unless appropriate RPE and PPE is worn as specified in the mandatory control 		
Sensitive Area	Residential dwellings and sites such as schools, playgrounds, early childhood centres, prisons, hospitals or long-term care facilities, and any place where non-occupational bystanders are present or could normally be expected to be present.		
Spot treatment	Small-scale manual application of dichlorvos in a targeted manner, to localised or restricted areas (i.e. not complete coverage). Spot treatment excludes broad-acre or wide-dispersive application such as boom or air-blast sprayer, or aerial application.		
Start of Application	Means the time when dichlorvos is first applied within the Application Area for a single application.		

Term	Definition
Treated Produce Storage Location	Means an Enclosed Space that does not contain the Application Area, where treated produce is located.
Ventilation	The deliberate release, after the End of Application, of the atmosphere in an Enclosed Space where the substance was applied, intended to reduce the airborne dichlorvos concentration.

If you require further guidance or help in relation to these EPA controls (i.e. signage design, permission consents e.t.c) please contact you HortNZ product group manager in the first instance.