



ZESPRI CROP PROTECTION PROGRAMMES

For Export Kiwifruit 2011-2012

Crop Protection Programme updates (1 December 2011) indicated **in Blue**

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1) Introduction

The ZESPRI Crop Protection Standard sets out what is allowed under ZESPRI Conventional or ZESPRI Organic production systems. These systems are intended to meet the legal requirements of export markets (such as Maximum Residue Limits) as well as customer and consumer requirements for safe fruit that is produced in an environmentally responsible manner.

The Crop Protection Standard includes the Crop Protection Programmes (CPPs) together with the lists of Allowed Agrichemical Products, their rates of application and export Pre-Harvest Intervals. The Wall Charts are only a summary of this information.

The Crop Protection Programmes have been prepared considering:

- ⦿ KiwiGreen (Integrated Pest Management – IPM) principles and the availability of appropriate control measures.
- ⦿ The Environmental ~~Risk Management~~ Protection Authority (EPA) (~~ERMA~~) statutory requirements for handling, storing and using products, e.g. approved handler and site certification.
- ⦿ Regional and other territorial local government authorities' restrictions on use to prevent environmental contamination.
- ⦿ Good Agricultural Practices (GAP) requirements.

Certified organic growers are responsible for ensuring their actions maintain compliance with their organic standard **as well as** with the ZESPRI Crop Protection Standard.

DISCLAIMER

ZESPRI International Ltd, its employees and contractors, have taken all reasonable steps to incorporate the best practical advice to meet both market requirements and grower needs in devising the pest control recommendations included in the ZESPRI Crop Protection Programmes. However there is no implicit guarantee that following the recommendations will automatically result in fruit acceptable for export. Mention of a product in this document does not constitute an endorsement or promotion by ZESPRI International Ltd.

2) Crop Protection Standard

To be accepted by ZESPRI International Ltd, all kiwifruit must be grown in accordance with the Crop Protection Standard.

All kiwifruit intended for sale by ZESPRI International Ltd may be residue tested either by ZESPRI International Ltd or by customers/overseas authorities.

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- ➔ **ONLY ALLOWED AGRICHEMICAL PRODUCTS** shall be applied, each at no more than the maximum rate, number of times and timing detailed in the appropriate ZESPRI Crop Protection Programme.
 - ➔ **ALL AGRICHEMICAL PRODUCTS** (including additives) used in producing kiwifruit must be recorded in the Spray Diary and the Spray Diary submitted for audit. This includes those applied as sprays, gels, drenches or by injection as well as all shelter sprays and any spray applied outside boundary shelter in order to minimise the movement of pests into an orchard.
 - ➔ **A DEMONSTRATED NEED** for each agrichemical application must be recorded on the Spray Diary.
 - ➔ **GROWERS MUST NOTIFY ZESPRI** International Ltd immediately when drift onto the kiwifruit crop is suspected from shelter sprays or sprays applied outside the kiwifruit orchard.
 - ➔ **ALL PERSONS** spraying agrichemicals within an export kiwifruit orchard must have a current GROWSAFE® certificate. Applications of foliar fertilizers and wound protectants (e.g. paints/gels or antimicrobial compounds applied to wounds by brush, hand-held sprayer or other hand applicator), are exempt from this requirement.
 - ➔ **FRUIT WHICH HAS NOT BEEN GROWN IN ACCORDANCE** with the above conditions may be accepted for export depending on the provision of a Justified Approval in writing from ZESPRI International Ltd prior to use.
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- **APPLICATIONS OF PERSISTENT AGRICHEMICALS** from before flowering to harvest may result in residues at harvest which can affect customer acceptability causing market restrictions and affecting market premiums.
 - **ANY CHANGES MADE TO THIS DOCUMENT** after the issue date will be notified to users through usual industry communication channels. No printed updates will be sent out to Grower Manual Owners.
- Refer to www.zespricanopy.com for up-to-date information on the Crop Protection Programmes

3) Non-Compliance to the Crop Protection Standard

Non-Compliance	ZESPRI Action
ZESPRI CPP requirements are not met	<p>At ZESPRI's discretion, product may not be accepted/or reversed out of inventory.</p> <p>If accepted, market restrictions shall be imposed as appropriate and a NZ\$0.20c / tray penalty imposed on grower.</p>
Detection of a residue of an agrichemical not recorded on the Spray Diary.	
Use of an agrichemical or detection of residues from any agrichemical not included in the appropriate ZESPRI CPP.	
Application of agrichemicals by a person who does not have a current GROWSAFE [®] certificate. Applications of foliar fertilisers and wound protectants (e.g. paints / gels) are exempt from this requirement.	<p>Grower's GAP compliance revoked.</p> <p>NZ\$0.20c / tray penalty imposed on the grower.</p> <p>Affected product placed on hold until cleared by ZESPRI.</p>
Application of hydrogen cyanamide without the use of air inclusion (AI) nozzles and the inclusion of drift-reducing surfactants, without a dispensation from ZESPRI	
Use of another person's GROWSAFE [®] number.	
Failure to meet statutory or local government authority requirements.	
Failure to use KiwiGreen monitoring procedures.(Excluding Psa Monitoring)	
Failure to justify or record demonstrated need for each agrichemical application.	<p>Compulsory residue test at grower's expense.</p>
Application of agrichemicals at more than the maximum rate, or number of times, or at a time other than as detailed in the appropriate ZESPRI CPP.	
Failure to correctly complete, sign and submit a Spray Diary prior to harvest.	<p>Spray diary audit notification withheld pending follow up action.</p>
Fruit harvested prior to expiry of withholding period or receipt of spray diary audit notification	<p>Withhold supplier payment until the product is cleared for a market. Product will be place on hold pending satisfactory audit of spray diary system</p>
Refusal to allow fruit to be residue tested.	<p>At ZESPRI's discretion, product may not be accepted into inventory.</p>

4) Allowed Agrichemical Products on Export Kiwifruit

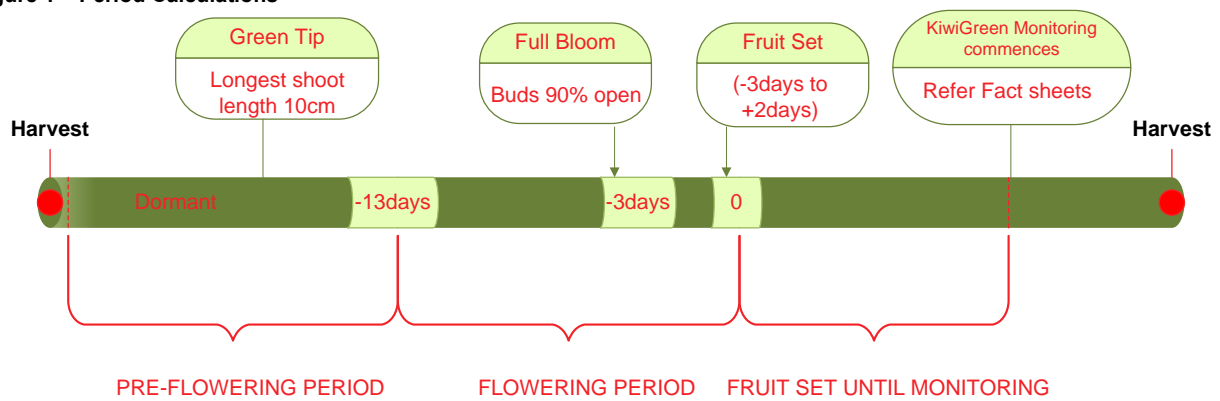
(As at 1 August 2011)

“Agrichemical” includes all materials used to manage pests, diseases and weeds, whether registered or not. It includes growth regulating and fruit sizing products, bud-break enhancers and fruit cleansers.

4.1) Time of Use Definitions

The Crop Protection Programme considers agrichemical use during each period or part of the season. The ZESPRI Spray Diary system uses the Fruit Set date as the fixed point from which the periods of use are calculated. The calculations include an allowance for site to site variation, as is shown in figure 1. Fruit Set is used as the key point because any spray after that time may directly reach the fruit and cause residues.

Figure 1 – Period Calculations



The definition of each Period is:-

- ⊙ **PRE-FLOWERING:** This is from the previous harvest until the start of flowering on female or male vines. It can be subdivided into 3:
 1. Post-harvest – from harvest to leaf fall
 2. Dormant – from leaf fall to when shoot growth starts, and.
 3. Bud phase – from when shoot growth begins to the start of flowering.
- ⊙ **FLOWERING:** This period commences when 5% of female flowers are open and finishes the day before Fruit Set.
- ⊙ **FRUIT SET:** is when 90% of flowers have set, which is 2-3 days after full bloom.
- ⊙ **FULL BLOOM:** is when 90% of female flower buds have opened.
- ⊙ **KIWIGREEN MONITORING:** Monitoring may be undertaken at any time depending on the pest risk, but the KiwiGreen Pest Monitoring Period is when a monitoring result over the threshold is required to justify the use of an agrichemical spray against key pests. Refer to the relevant KiwiGreen Fact Sheet for when the Monitoring Period begins for each pest on each variety of kiwifruit. All Monitoring Periods end with harvest.

4.2) Application Criteria

4.2.1) Concentrate Sprays

- The rates provided in Section 4 – Allowed Agrichemical Products are for high volume spraying (i.e. volumes that will achieve run-off). The total spray volume required to achieve run-off varies depending on the time of year and hence the amount of canopy. At full canopy 2000 – 2500 litres per hectare will give runoff while at flowering 1250 – 1500L/ha will give run off.
- For concentrate spraying, adjust the amount of product used per 100 litres accordingly. Some products, e.g. cleansers, recommend different water volumes per hectare on their labels, and these recommendations should be used.

4.2.2) Rain

- Significant rain within 24 hours of a spray being applied is likely to reduce its effectiveness and a re-application may be needed. Re-application within 5 days does not count as a separate spray (excluding fungicides). Both sprays must be recorded, with the amount of rain given as justification for the second entry. If re-application cannot be achieved in this time, a Justified Approval is required.

4.3) Plant Growth Regulators – Not Allowed

ZESPRI will not accept fruit found to be sprayed with synthetic plant growth regulators applied directly to fruit from the start of Fruit Set to harvest under any circumstances.

These include but are not limited to:

Active Agent	Synonyms	Product names
Forchlorfenuron	CPPU	Caplit, Ambitious, Cropstar CPU, Sitofex
3,5,6 TPA	Triclopir, triclopyr	Maxim

4.4) Allowed Biostimulants

Active Agent	Products	Rate / 100L	Use	Time of Use (PHI *)
hydrogen cyanamide (refer to 4.4.1)	Hi-Cane, Breaker, Cyan, Gro-Chem HC 50, Hi-break	4 - 6 litres	Enhance bud break	Dormant
alkyl amine polymer	Armobreak	2 litres	With N to enhance bud break, see label	Dormant
methyl canolate	Waiken	6 litres or 4L + KNO ₃	Enhance bud break	Dormant
saccharides etc	Erger + Activ Erger	Hort 16A: 6L + 9L	Enhance bud break Hort16A only Hayward - refer to Allowed but Unproven list	Dormant
-	Benefit Kiwi	as on label	fruit growth stimulant	After Fruit Set
NAA, naphthylacetic acid	Tipit,	as supplied	Control cane growth	Summer pruning (PHI = 100 days)

* If no PHI (Pre-Harvest Interval) is given, use is restricted to the Period stated.

4.4.1) Hydrogen Cyanamide Application

→ GROWERS MUST USE AIR INCLUSION (AI) nozzles and include drift reducing surfactants (e.g. Driftstop) when spraying hydrogen cyanamide.

Awareness of and adherence to best practice spraying guidelines is important at all times and particularly so during the application of hydrogen cyanamide.

A dispensation to allow the application of hydrogen cyanamide without the use of air inclusion nozzles may be granted in situations where there is very low to negligible risk of spray drift on to sensitive areas, For further information see www.zespricanopy.com.

- For further information refer [KiwiTech Bulletin 39 - Best Practice Spraying Guide](#).

4.5) Foliar Fertilisers

→ ALL APPLICATIONS OF FOLIAR fertilisers must be recorded in the Spray Diary.

- The term foliar fertiliser includes agrichemicals used to promote the growth or health of kiwifruit vines or to improve fruit yields whether or not they contain an obvious nutrient
- Acceptability of foliar fertilisers is dependent on whether they contain additional natural or synthetic biostimulants.
- Allowed foliar fertilisers are listed in the ZESPRI Spray Diary system.
- Refer to www.zespricanopy.com for up-to-date information on allowed foliar fertilisers.

4.6) Allowed Insecticides

Active Agent	Products	Rate / 100L	Use	Time of Use (PHI *)
lime sulphur	BioBlast Lime Sulphur, Gro-Chem Lime Sulphur, Orion Lime Sulphur	3.5 L	lichen, scales	Pre-flowering, dormant
bifenthrin	Talstar 100EC, Venom	20 - 40 ml	armoured scales	Pre-flowering
buprofezin	Applaud 40 SC, Mortar, Pilan 500 SC, Ovation 50 WDG, Pilan 25 WP	30 ml 30 ml 25 ml 25 g 50 g	armoured scales	Pre-flowering
spirotetramat	Movento 240 SC	20 ml	armoured scales	Pre-flowering
thiacloprid	Calypso, Topstar, Alpasso	20 ml		
thiamethoxam	Actara	20 g		
oil, mineral	D-C-Tron Plus, D-C-Tron Plus (Organic), Excel Oil, Excel Organic Oil, Organic JMS Stylet-Oil	1 L	armoured scales	Pre-flowering to harvest (PHI = 14 days)
<i>Bacillus thuringiensis</i> , Bt	Bactur WDG, Bio-Bit DF, Delfin Dipel DF, BioCrystal kurstaki, Dipel ES, BMP 48 LC Bactur 48 LC	50 g 50 g 50 g 50 g 50 ml 75 ml 150 ml 150 ml	leafrollers	During flowering to harvest (PHI = 2 days)
tebufenozide	Approve 70 WP, Mimic 700 WP, Comic, Prolan 240 SC	8.6 g 8.6 g 8.6 g 25 ml	leafrollers	Pre-flowering ¹
methoxyfenozide	Prodigy	15 - 25 ml	leafrollers	Pre-flowering ¹
indoxacarb	Steward 150 SC	25 ml	leafrollers	Pre-flowering ¹
emamectin benzoate	Proclaim Vitis	2 g	leafrollers	From Fruit Set (PHI = 42 days)
abamectin	Avid, Apostle, Vantal, Verdex	25 ml	leafrollers	From Fruit Set (PHI = 120 days)
spinosad	Success Naturalyte, Success Naturalyte, Entrust Naturalyte	20 ml 40 ml 6 g	leafrollers	From Fruit Set (PHI = 90 days) (PHI = 120 days) (PHI = 120 days)
pyrethrum	Betta-Crop Garlic & Pyrethrum, GreenSeals Pyrethrum, Key Pyrethrum, PyGanic	2500 ml 500 ml 100 - 500 ml 100 ml	passion-vine hopper	After Fruit Set (PHI = 20 days)

Non-chemical methods are allowed e.g. releasing predators or parasitoids against pests such as Two-Spotted Mite (Mite-E, Spidex) and Greenhouse Thrips or using sticky or physical barriers against Fuller's Rose Weevil.

* If no PHI (Pre-Harvest Interval) is given, use is restricted to before flowering.

¹ A pre-flowering leafroller spray must be within 3 weeks of the start of flowering.

4.7) Allowed Fungicides / Bactericides

Active Agent	Products	Rate / 100L	Use	Time of Use (PHI *)
FUNGICIDES				
benzalkonium chloride + copper sulphate	Graphic Biocide	750 ml	clean up, lichen removal	Dormant up to pre-flowering
trifloxystrobin	Flint	15 g	<i>Sclerotinia</i> control	During flowering only.
iprodione	Osprey 750WG Defence 500, Ippon 500SC, Kestrel	50 g 75 ml 75 ml	<i>Sclerotinia</i> control	During flowering or later provided that it is both: - less than 28 days after Fruit Set and - PHI = 100 days.
	Rapid 500, Rovral Flo	75 ml 150 ml		
<i>Ulocladium</i> sp	Botry-Zen	300 g		
propiconazole	StemShot KF-1	100 ml / vine	<i>Armillaria</i> control	Pre-flowering
tebuconazole	StemCap KF-2	2 - 4 tablets/vine		Dormant
<i>Trichoderma</i> spp	Vinevax Bio-Injection, Unite (a soil drench)	see label 750 g/ha		At any time
FUNGICIDES/BACTERICIDES – WOUND PROTECTANTS				
cyproconazole + iodocarb ¹	Garrison NF ¹	paint	Wound protection	Winter pruning All Season (PHI = 70 days)
tebuconazole + othilinone	Greenseal Ultra			
tebuconazole	Bacseal Super	suspension	Wound protection	All Season (PHI = 70 days)
FUNGICIDES/BACTERICIDES				
copper compounds - pre-flowering	Copper sulphate products ¹	600 g	Leaf drop only	Pre-flowering,
	Blue Shield DF, Cuprofix Disperss, Flo Bordo,	150 - 200 g 300 - 400 g 1500 - 2000 ml	Clean up, Disease prevention	From harvest to flowering
copper compounds - all season	Agpro-Cupric-Hydroxide Champ Flo Champ WG Mantissa Choice Champ DP, Kocide 2000 LF, Kocide Opti,	60–77ml 130 – 170ml 130 – 170g 130 – 170ml 107 - 140 g 115 - 150 g 70 - 90 g	Clean up, Disease prevention	All Season (Use from flowering to harvest is an “off label” use) (PHI = 14 days)
	Liquicop	500 ml (Dormant) 200 – 250ml (after greentip)		
	Nordox 75 WG,	55 – 70g (Dormant) 40–60-37.5g (Pre- and Post flowering) after greentip	Clean up, Disease prevention	All Season (excluding flowering) (PHI = 14 days)

* If no PHI (Pre-Harvest Interval) is given, use is restricted to the stated period.

¹ Potential phytotoxic effects if applied later.

4.8) Allowed Other Products: Bird Repellent, Fruit Cleansers, Wound Protectants and Sanitisers³

Use	Active Agent	Products	Rate / 100 L	Time of Use (PHI*)
Bird repellent	methiocarb	Mesurool SC	150 ml	Pre-flowering - early bud stage
Remove fruit stains	Fruit cleansers - citric acid, - lactic acid, - phosphates - mixes	Citric Acid, Kiwi Sheen CP, CP CleanER, HyGlo Liftoff, Jewel Clean LF Kiwi Lustre	500 g 500 ml 500 ml 500 ml 500 ml 500 ml	Just prior to harvest
Wound protection	<i>Trichoderma</i> sp. ²	Vinevax Pruning Wound Dressing ¹	1000 g as spray or paste	Pruning (at any time)
	Plant oils	Betta-Crop Pruning & Grafting Wax ¹	Wax	
	cyproconazole + iodocarb	Garrison NF ¹	Paint	Winter Pruning All Season (PHI = 70 days)
	tebuconazole	Bacseal Super ¹		
	tebuconazole + othilinone	Greenseal Ultra		
Sanitisers ³ :	No product meets criteria for listing in CPP – see Allowed but Unproven Other Compounds			Between copper and hydrogen cyanamide applications

* If no PHI (Pre-harvest Interval) is given, use is restricted to the stated period.

¹ These products are not specifically registered for use on kiwifruit, but for orchards or vineyards.

² *Trichoderma* products used as soil inoculants to improve plant health are considered fertilisers.

³ Any sanitiser known to kill bacteria may be used on equipment such as saws and pruners.

4.8.1) Bird Management

- ➔ **USE OF BIRD POISONING** products (e.g. alpha-chloralose) as a control strategy for birds is unacceptable.
- Confirmed use of such poisons will result in action in line with Section 3: Non Compliance to the Crop Protection Standard.

4.9) Allowed Herbicides

Active Agent	Product (Includes some with general orchard registration)	
asulam	Asulox	
carfentrazone	Shark (Use only as an adjuvant with an Allowed Herbicide)	
fatty acids	Agpro Bio-Safe	
fatty acids + pine oil	Weedenz	
glufosinate ammonium	Buster, Agpro Glufosinate 200, Bash, Nirvana, Vixen	
glyphosate (PHI = 2 days)	ACL Glyphosate 360 Acres G 360 & G 450 Agpro Glyphosate 360 & 450, Agpro Green Glyphosate, Agpro Green Glyphosate 510, Country Mile Glyphosate 360 & 510, Deal 510 RF, Deal Dry 800, Dow AgroSciences Glyphomax XRT, Firstrate, GForce 360, GForce Max, GForce Drymax, Glyfo Dri Glyfo Super 510, Glymax 360 & 510, Granny Herbicide, Gro-Chem Glyphosate 360, Hortcare	Hortcare Glyphosate 360 Lion 470 DST, Lion Herbicide, Nufarm G 360, Nufarm Glyphosate Gold, Orion Glyphosate 360 & 450, Polaris 360 & 450, Polaris Plus, Rainbow & Brown Glyphosate 360 & 450, Ravensdown Glyphosate 360, Roundup 360 Pro, Roundup Dry, Roundup Renew, Roundup Transorb, Samurai, Synergy Glyphosate 360 & 540, Touchdown IQ, Turbo 300,
oxyfluorfen	Use only as an adjuvant with an Allowed Herbicide: Agpro Rapid Start, Browndown, Brownout, Burnout, Synergy Burnoff	
pine oil	Organic Interceptor	

4.10) Allowed But Unproven Products (ABU)

The use of some plant protection products is allowed if their proposed use poses a negligible risk to markets, even though their effectiveness and plant safety has not been established.

- ⦿ These are classified as “Allowed but Unproven” and may be used without a Justified Approval (JA).
- ⦿ A product should be registered as an agrichemical with Agricultural Compounds and Veterinary Medicines (ACVM) prior to being included as ABU.
- ⦿ An ABU listing is to enable the proprietor and interested growers to undertake trials and evaluate the effectiveness of such a product, and will be for a term of three years.
- ⦿ The use of any ABU product is at the grower’s risk which includes the lack of efficacy or any undesirable side effects that may arise.
- ⦿ Products that are Allowed but Unproven are included in the ZESPRI Spray Diary and listed on www.zespricanopy.com
- ⦿ Any products that are not listed in the Crop Protection Programmes, or in any of the supplementary lists, may be able to be used in the context of a grower trial. Please contact ZESPRI via the KiwiGreen Helpline prior to use (Phone 0800 22 55 45).

4.11) Adjuvants

Adjuvants are used at the grower’s risk and must be recorded in the ZESPRI Spray Diary.

Products are included as allowed unless they contain components considered to be pesticides or their use is otherwise restricted by customers.

- ⦿ Refer to www.zespricanopy.com for an up-to-date list of allowed adjuvants.
- ⦿ Where an adjuvant is not listed in the ZESPRI Spray Diary, contact the ZESPRI Spray Diary administrator and supply the product label to get it loaded into the system.
- ⦿ Allowed adjuvants are listed in the ZESPRI Spray Diary system.

ADDITIONAL NOTES:

- ⦿ A mineral oil used as an adjuvant must be an Allowed Product. The combination of oil plus insecticide counts as a single spray, but both must be recorded in the ZESPRI Spray Diary.
- ⦿ Products with low levels of agrichemical are considered to be pesticides rather than adjuvants, and can only be used if specifically listed, e.g. Shark and Browndown are both herbicide mixing agents containing low levels of active herbicide.

4.12) HSNO Classifications

Under the HSNO (Hazardous Substances and New Organisms) Act all products are classified depending on their hazardous effect in a number of categories. Growers are required to know the classification of any product they use, which is generally given on the label. However, a full list of the HSNO classifications for all pesticides allowed on kiwifruit, together with all the requirements on users under the Act, is available on www.zespricanopy.com

Justified Approval (JA)

A Justified Approval (JA) allows for the controlled use of agrichemicals outside the use specified in the Crop Protection Standard in order to meet special circumstances including:

- ⦿ Combating new or unusual pest or disease situations that are not effectively addressed by the appropriate ZESPRI Crop Protection Programme.
- ⦿ Covering any trial that involves either a new agrichemical or a use pattern of an allowed product that is not specifically included in the Crop Protection Programmes.

5.1) Steps for Applying for a Justified Approval:

- ⦿ Download the ZESPRI Justified Approval Request form off the ZESPRI Canopy website (www.zespricanopy.com), complete and email/fax (contact details on the form) to the ZESPRI Spray Diary administrator. Include:
 - Supporting information, such as monitoring data or pest observations to justify a proposed use.
 - For a new product, data sufficient to identify any potential consumer risks and/or customer acceptability risks.
 - For grower trials, information on the trial design for evaluating if a result is achievable.
- ⦿ Contact ZESPRI via the KiwiGreen Helpline (phone 0800 22 55 45) if you require any technical assistance.
- ⦿ The request will be given due consideration and if successful the approval is entered into the ZESPRI Spray Diary system for the affected orchard.
- ⦿ Any conditions linked to the approval, such as a mandatory residue test before harvest, are also entered into the ZESPRI Spray Diary system.
- ⦿ The person proposing the JA will be advised in writing of the outcome of the request. This includes by email or direct entry into the ZESPRI Spray Diary for the requested KPIN.

Spray Diary Completion

- ➔ **ALL GROWERS MUST COMPLETE** and submit a Spray Diary for audit to ZESPRI after the last agrichemical application before harvest has been made.
- ➔ **ALL AGRICHEMICAL APPLICATIONS** made to the orchard block and shelter during the season (from post harvest through to harvest) must be recorded.

6.1) Getting Started

- ⊙ Log on to the ZESPRI Canopy website (www.zespricanopy.com), using your login name and password. If you have forgotten these, call the ZESPRI Grower Contact Centre on 0800 155 355.
- ⊙ Navigate through to Spray Diary link from your Canopy Homepage.

6.2) Spray Diary Entry

- ⊙ When using the Spray Diary application for the first time, some set up is required (e.g. Water Source, Spray Contractor, Equipment, etc.). These need only to be done once.

The entry of spray diary lines can be done in one of two ways:

- ⊙ **DIRECT ENTRY**
 - The direct entry method is designed for growers that do not have their own electronic spray recording systems or those who prefer to enter spray lines directly into the ZESPRI System as they progress through the season.
 - Refer to the ZESPRI Electronic Spray Diary System User Guide available on the ZESPRI Canopy Website (www.zespricanopy.com).
- ⊙ **BULK UPLOAD**
 - The bulk uploader is designed for larger users using their own electronic spray recording systems to help upload large numbers of spray lines at a time.
 - Refer to the ZESPRI Spray Lines Bulk User Guide available on the ZESPRI Canopy Website (www.zespricanopy.com).

6.3) Attaining Spray Diary Clearance

- ⊙ Each Spray Diary is audited. If it meets the requirements of the appropriate ZESPRI Crop Protection Programme, a Spray Diary Clearance is issued.
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- ➔ **HARVESTING MAY COMMENCE** at any time after the clearance date, provided a Maturity Clearance has also been received. (Harvesting must not be started without a Spray Diary Clearance being issued)
 - ➔ **THE SPRAY DIARY AUDIT NOTIFICATION** is accessible for each Grower (on Canopy (www.zespricanopy.com)) and must be kept as a record of compliance.
 - ➔ **AFTER A SPRAY DIARY IS SUBMITTED** to ZESPRI International Ltd, any changes to the information must be in writing and signed by the person accepting responsibility for the spray applications. A residue analysis may be required at grower's cost.

Restricted Entry Intervals

A Restricted Entry Interval (REI), or re-entry period, is not set for most plant protection products under New Zealand regulations, but the Environmental Risk Management Authority (ERMA) has issued some. (Suggested times based on overseas values are given below that should elapse before working in a sprayed area. If it is necessary to enter a sprayed area before this time, suitable protective clothing should be worn.)

Chemical	Products	REI (hr)
Insecticides		
abamectin	Avid, Apostle, Vantal, Verdex	12
bifenthrin	Talstar, Venom	24
Bacillus thuringiensis, Bt	Delfin, Bio-Bit, BMP, Dipel, BioCrystal	WFD
buprofezin	Applaud, Mortar, Ovation, Pilan	WFD
emamectin benzoate	Proclaim, Vitis	WFD
indoxacarb	Steward	12
lime sulphur	BioBlast, Gro-Chem Lime Sulphur, Orion Lime Sulphur	WFD*
methoxyfenozide	Prodigy	WFD
oil, mineral	D-C-Tron Plus, D-C-Tron Plus (Organic), Excel, Excel Organic, Organic JMS Stylet-Oil	WFD
pyrethrum	e.g. Garlic & Pyrethrum, Key Pyrethrum, PyGanic	WFD
spinosad	Success Naturalyte, Entrust Naturalyte	WFD
spirotetramat	Movento	12
tebufenozide	Mimic, Comic, Prolan	WFD
thiacloprid	Calypso, Alpasso, Topstar	12
thiamethoxam	Actara	12
Fungicides		
benzalkonium chloride	Graphic Biocide (benzalkonium chloride + copper sulphate)	WFD
copper compounds	e.g. Cupric Hydroxide, Blue Shield, Champ Cuprofix Disperss, Flo Bordo, Mantissa Choice, Kocide, Nordox	24
cyproconazole + iodocarb	Garrison NF (pruning paint)	WFD
iprodione	Rovral, Defence, Ippon, Osprey, Rapid, Kestrel	24
plant oils	Betta-Crop Pruning & Grafting Wax	n/a
propiconazole	StemShot KF-1	n/a
tebuconazole	Bacseal Super, Greenseal Ultra (pruning paint)	WFD
Trichoderma spp	Vinevax Pruning Dressing, Vinevax Bio-Injection, Unite	WFD
trifloxystrobin	Flint	12
Ulocladium sp	Botry-Zen	WFD
Herbicides		
all approved herbicides	all listed as Allowed Herbicides	WFD
Other agrichemicals		
hydrogen cyanamide	Hi-Cane, Breaker, Cyan, Gro-Chem Hydrogen Cyanamide, Hi-break	120
other bud breakers	Armobreak, Erger, Waiken	WFD
methiocarb	Mesuro	7 days
1-naphthylacetic acid	Tipit, (pruning gel)	n/a
fruit cleansers / stain removers	Citric Acid, Control DMP, CP CleanER, HyGlo, Jewel Clean LF, Kiwi Lustre, Kiwi Sheen CP, Liftoff,	WFD
streptomycin	KeyStrepto™	24

n/a = none applicable

WFD = When Fully Dry

* = skin sensitivity known in some people

REIs for Allowed but Unproven products are given in the list on the ZESPRI Canopy Website.

CPP for Conventional Green Varieties* (for PSA see page 21)

Period (Defined on p 6)	Use	Maximum Sprays / period	Spray options The full range of products is in lists of Allowed Agrichemicals.		Comments
Dormant	enhance bud break	1	hydrogen cyanamide	e.g. Hi-Cane, Hi-break, Breaker, Cyan	Use Air Inclusion (AI) nozzles and Driftstop or equivalent to minimize drift.
	lichen removal	1	lime sulphur	BioBlast, Lime Sulphur	
	cicada control	1	To be advised		Grower trials during dormancy and at cicada emergence are to be run after promising initial trials. Contact ZESPRI to participate.
Pre- flowering	repel bird attack	2	methiocarb	Mesurool	Allowed on Hayward but rarely needed
	scale control	2 #	bifenthrin	Talstar, Venom	Oil may be added as an adjuvant or used on its own. Systemic products are best used after leaf expansion. # Best Practice: 1 spray of Movento close to flowering. An earlier second spray is also allowed where scale was a problem last year. A post-harvest spray of Movento is under trial, contact ZESRI to participate.
			spirotetramat	Movento	
			thiomethoxam	Actara	
			thiacloprid	Calypso, Topstar, Alpasso	
	leafroller control	1	indoxacarb	Steward	
methoxyfenozide			Prodigy		
tebufenozide			Mimic, Comic, Prolan		
Flowering	leafroller control	1	Bt	Dipel, Delfin, Bio-Bit, BMP, BioCrystal	
	<i>Sclerotinia</i> control	1 *	Ulocladium sp.	Botry-Zen	Use Flint only during flowering. Other products may be used later if applied less than 28 days after Fruit Set plus meets 100 day PHI. * Up to 2 <i>Sclerotinia</i> sprays allowed per season but a JA is required for the second spray.
			iprodione	e.g. Rovral, Defence, Ippon, Rapid	
			trifloxystrobin	Flint	
Fruit Set to start of Monitoring	leafroller control (up to 5 wks after Fruit Set)	3	emamectin benzoate	Proclaim, Vitis	
			spinosad	Success, Entrust	
			abamectin	Avid, Apostle, Vantal, Verdex	
			Bt	Dipel, Delfin, Bio-Bit, BMP, BioCrystal	
	scale control (up to 8 wks after Fruit Set)	2	oil, mineral	D-C-Tron Plus, D-C-Tron Plus (Organic) Excel Oil, Excel Organic, Organic JMS Stylet-Oil	Can apply 2 sprays during this period. Avoid spraying between 14-35 days from Fruit Set.
Monitoring to Harvest	passion-vine hopper control	no limit	pyrethrum	e.g. Pyganic, Key Pyrethrum	Check timing of application to minimize UV breakdown.
	leafroller control	‡	emamectin benzoate	Proclaim, Vitis	‡ if monitoring is over the KiwiGreen threshold. Other products can be used if PHIs can be met.
			Bt	Dipel, Bio-Bit, Delfin, BioCrystal, BMP	
scale control	‡	oil, mineral	e.g. Excel, D-C-Tron Plus,	‡ if monitoring is over the KiwiGreen threshold (7%)	



(Products or uses other than those specified above may be allowed under a Justified Approval)

Label states this product is bee toxic. Refer KiwiGreen Guidelines: Bee Safety.

* = Hayward (HW) & Green14 (HE)

CPP for Conventional gold varieties* (for PSA see page 21)

Period (Defined on p 6)	Use	Maximum Sprays / period	Spray options For full range of products see the lists of Allowed Agrichemicals.		Comments
Dormant	enhance bud break	1	hydrogen cyanamide Other options include Erger K & Activ Erger	e.g. Hi-Cane, Hi-break, Breaker, Cyan Armobreak, Waiken	Use Air Inclusion (AI) nozzles and Driftstop or equivalent to minimize drift.
	lichen removal	1	lime sulphur	BioBlast, Lime Sulphur	Will suppress scale.
	cicada control	1	To be advised		Grower trials during dormancy and at cicada emergence are to be run after promising initial trials. Contact ZESPRI to participate.
Pre- flowering	repel bird attack	2	methiocarb	Mesuroil	Use as on label. Re-apply after rain during the risk period.
	scale control	2 #	bifenthrin	Talstar, Venom	Oil may be added as an adjuvant or used on its own. Systemic products are best used after leaf expansion. # Best Practice: a single spray close to flowering, preferably of Movento. An earlier scale spray is also allowed where there was a scale problem last year. A post-harvest spray of Movento is under trial, contact ZESPRI to participate.
			spirotetramat	Movento	
			thiomethoxam	Actara	
			thiacloprid	Calypso, Topstar, Alpasso	
	leafroller control	1	buprofezin	Applaud, Mortar, Ovation, Pilan	One spray for leafroller control may be applied in the 3 weeks before flowering, preferably within 2 weeks. It counts as 1 of the 3 leafroller sprays allowed in total before monitoring.
indoxacarb			Steward		
methoxyfenozide			Prodigy		
Flowering	leafroller control	1	Bt	e.g. Dipel, Delfin, Bio-Bit, BMP	
	<i>Sclerotinia</i> control	1 *	<i>Ulocladium</i> sp.	Botry-Zen	Use Flint only during flowering. Other products may be used later if less than 28 days after Fruit Set plus meets 100 day PHI. * Up to 2 <i>Sclerotinia</i> sprays allowed per season but a JA is required for the second spray.
			iprodione	e.g. Rovral, Defence, Rapid	
			trifloxystrobin	Flint	
Fruit Set to the start of Monitoring	leafroller control (up to 7 wks after Fruit Set)	3	emamectin benzoate	Proclaim, Vitis	A maximum of 3 leafroller sprays in total allowed to the start of monitoring, including a single pre-flowering spray close to the start of flowering. Watch PHIs of products used after Fruit Set.
			spinosad	Success, Entrust	
			abamectin	Avid, Apostle, Vantal, Verdex	
			Bt	Dipel, Bio-Bit, Delfin, BioCrystal, BMP	
scale control (up to 9 wks after Fruit Set)	2	oil, mineral	e.g. D-C-Tron Plus, Excel Oil, Excel Organic, Organic JMS Stylet-Oil	At least 1 spray is critical. Oil can mark fruit if used more than 25 days after Fruit Set.	
Monitoring to Harvest	passion-vine hopper	no limit	pyrethrum	e.g. Pyganic, Key Pyrethrum	Check timing of application to minimize UV breakdown.
	leafroller control	‡	emamectin benzoate	Proclaim, Vitis	‡ if monitoring is over the KiwiGreen threshold. Other products can be used if PHIs can be met.
			Bt	Dipel, Bio-Bit, Delfin, BioCrystal, BMP	
scale control	‡	Contact KiwiGreen Helpline (0800 22 55 45) for options.		‡ if monitoring is over the KiwiGreen threshold (7%)	

(Products or uses other than those specified above may be allowed under a Justified Approval)



Label states this product is bee toxic. Refer KiwiGreen Guidelines: Bee Safety.

* = Gold3 (GA), Hort16A (GK), Gold9 (GL)

CPP for Organic – All varieties

Certified Organic growers must meet both the Bio-Gro Organic Standard and the ZESPRI Crop Protection Standard. Growers must have a copy of the current Bio-Gro certificate or written approval from Bio-Gro for any spray at the time it is used (Refer www.biogro.co.nz.)

Period (Defined on p 6)	Use	Maximum Sprays / period	Spray options.		Comments
Dormant	remove lichen, suppress scales	1	lime sulphur	BioBlast, Gro-Chem Lime Sulphur, Orion Lime Sulphur	Restricted spray
	fungal clean-up, Psa prevention	-	copper sprays	Blue Shield, Nordox 75 WG	Restricted spray. Limited to a maximum of 6kg of copper per ha per year. For Psa prevention see following page.
Pre- flowering	scale control	2	oil, mineral	Excel Organic Oil, Organic JMS Stylet-Oil, D-C-Tron Plus (Organic)	Restricted spray
Flowering	leafroller control	1	Bt, <i>Bacillus thuringiensis</i>	Bio-Bit DF, Delfin WG, Dipel DF	
	<i>Sclerotinia</i> control	2	<i>Ulocladium</i> sp.	Botry-Zen	Can be used up to 28 days after Fruit Set.
Fruit Set to start of Monitoring	leafroller control Hayward 5 weeks Hort16A 7 weeks	4	Bt, <i>Bacillus thuringiensis</i>	Bio-Bit DF, Delfin WG, Dipel DF	
	scale control Hayward 8 weeks Hort16A 9 weeks	2	oil, mineral	Excel Organic Oil D-C-Tron Plus (Organic) Organic JMS Stylet-Oil	Restricted spray. H16A: Oil may mark fruit after 25 days post Fruit Set. Hayward: Fruit marking is likely from 14-35 days from Fruit Set
Monitoring to Harvest	passion-vine hopper control	‡	pyrethrum	PyGanic Betta-Crop Garlic & Pyrethrum	Restricted spray. PHI = 20 days.
	leafroller control	‡	Bt, <i>Bacillus thuringiensis</i>	Bio-Bit DF, Delfin WG, Dipel DF	‡ if monitoring is over the KiwiGreen threshold. PHI = 2 days.
	scale control	‡	oil, mineral	Excel Organic Oil D-C-Tron Plus (Organic) Organic JMS Stylet-Oil	Restricted spray. ‡ if monitoring is over the KiwiGreen threshold (7%). PHI = 14 days. H16A: Oil may affect fruit if used after 25 days post Fruit Set.

- ➔ Oil sprays require particular care, and use varies with variety, see best practice guidelines for full details.
- ➔ “Peppering” is allowed although unproven.
- ⦿ Serenade Max, Clarity are registered with label claims for Botrytis control on kiwifruit, see list of Allowed by Unproven.

CPP for MANAGEMENT OF PSA – All varieties

Psa Crop Protection Programme For All Varieties Late Spring – Early Autumn 2011 – 2012

	Period (defined p 6)	Activity	Best practice management	Spray options		Comments
SPRING	Flowering	Protectant spraying	Apply protectant sprays prior to high infection risk periods.	Biological compounds	Refer ZESPRI Psa Products list. Copper compounds are not recommended during flowering unless other options are unavailable.	Apply biological compounds based on information available at the time on the efficacy against Psa. If necessary during flowering, spray in the evening or early morning when bees are inactive.
	Fruit set	Monitor for leaf spotting & exudate - remove vines / canes with secondary symptoms and protect cuts with wound protectant				
SUMMER	Cropping	Fruitlet thinning	Spray as soon as practical after fruitlet thinning (same day is ideal).	Copper compounds, Biological compounds	Refer ZESPRI Psa Products list.	Apply biological compounds based on information available at the time on the efficacy against Psa. If possible, time thinning activities when long dry periods are forecast.
		Canopy management	Apply wound dressings to pruning cuts. Apply a copper spray after each round of pruning / tip squeezing.	Wound protectant, Copper compounds	Garrison NF, Bacseal Super, Greenseal Ultra, Vinevax, Betta Crop, Refer CPP - page 11	Avoid pruning or tip-squeezing activities in wet conditions and on days with a moderate to high risk of rainfall. If possible, time pruning activities when long dry periods are forecast. Follow KVH Orchard Hygiene guidelines.
	Monitoring	Monitor for leaf spotting & exudate - remove vines / canes with secondary symptoms and protect cuts with wound protectant				
AUTUMN	Cropping	Trunk girdling	Spray the trunk area to be girdled with a bactericide / sanitiser. Apply wound dressings immediately following girdling.	Bactericide/ Sanitiser Wound protectant	Refer ZESPRI Psa Products list. Garrison NF, Bacseal Super, Greenseal Ultra, Vinevax, Betta Crop, Refer CPP - page 11	Avoid trunk girdling in wet conditions and on days with a moderate to high risk of rainfall.
		Protectant spraying	Apply protectant sprays prior to and after high infection risk periods. Alternate protectant sprays with label claim.	Copper compounds, Biological compounds	Refer ZESPRI Psa products list	Check compatibility of protectant sprays with other products used in the Crop Protection Programme (refer Copper Spray use guide). Apply biological compounds based on information available at the time on the efficacy against Psa. Apply for a JA if more than 7 copper sprays are to be applied between fruit set and harvest. Check pre harvest intervals for each product.
	Damaging weather events					