
















# 2020/2021 SPRAY PROGRAMME – ORGANIC



STAGE	TIMING	TARGET	PRODUCT	RATE/100 L	WATER/HA	pH	COMMENTS
 <b>FLUFFY BUD</b>	5–7 days pre-budbreak (BB)	Psa-V	Nordox75WG	37.5 g	600–800 L	6 - 7	Before budbreak. This spray is done at winter rates, remember to drop to summer rates after budbreak.
			OR Champion (BioGrow Certified)	70 - 90 g		6.5 - 7	
 <b>BUDBREAK</b>	Vegetative growth showing	Psa-V	Nordox75WG	37.5 g	600–800 L	6 - 7	Aim to apply before significant weather events. Where Psa-V has been an issue ensure new growth is protected.
			OR Champion (BioGrow Certified)	70 - 90 g		6.5 - 7	
<b>REFER TO FOLIAR NUTRITION – SPRING GROWTH</b>							
 <b>BUDPHASE</b>	Shoot extension (1–2 weeks post BB)	Psa-V	Aureogold	50 g	1000 L		Use while new growth is sensitive. Leave 7-10 days after Copper before applying and 7 days after Aureogold before another copper.
	Feeder root growth period	Psa-V	Kiwivax	200g/Ha	Min 700L recommend up to 2000L with rain		Apply with boom sprayer to moist soil. Soil temperature needs to be over 12 °C. Three applications per year recommended.
<b>REFER TO FOLIAR NUTRITION – SPRING GROWTH</b>							
	Shoot extension (3–4 weeks post BB)	Scale	D-C-Tron Plus Organic, Enspray 99, Excel Organic Oil	1 L	2000 L		Maximum of 2 oil sprays allowed before flowering at 1%.
	<b>PRE-FLOWER GIRDLE FOR HAYWARD – 30 DAYS BEFORE FLOWERING</b>						

STAGE	TIMING	TARGET	PRODUCT	RATE/100 L	WATER/HA	pH	COMMENTS
 PRE- FLOWERING	<b>REFER TO FOLIAR NUTRITION</b>						
	7–10 days pre-flowering	Scale	D-C-Tron Plus Organic, Enspray 99, Excel Organic Oil	1 L	2000 L		Maximum of 2 oil sprays permitted before flowering.
 Plant & Food RESEARCH	<b>FLOWER BUD THINNING</b>						
	3–5 days pre-flowering	Psa-V	Aureogold	50 g	1000 L		Continued protection against bud browning, and vine protection over flowering.
 FLOWERING	<b>POLLINATION - Bees in, supplementary or replacement. ENTER your FRUITSET DATE in your spray diary</b>						
	Flowering	Sclerotinia	Botry-Zen	400 g	1000 L		Apply during flowering, but not while bees are foraging, allow for 120 day withholding period. Also shows some effectiveness at Psa-V control when applied at 8 kg/ha (increase product rate or water rate).
	Flowering to petal fall	Sclerotinia	Timorex Gold	1.5 L	1000–1500 L		Apply up to 2 applications during high disease risk period. Do not apply while bees are foraging. Timorex Gold is not compatible with Oils.
 POST- FRUITSET	5–7 days post fruitset	Psa-V	Nordox75WG OR ChamplON (BioGrow Certified)	37.5 g 70-90 g	1000–1500 L	6 - 7	Pay extra attention to make sure any pruned males are adequately covered. Adjust water rate to suit canopy density.
						6.5 - 7	
<b>SIZE GIRDLE 28 – 35 DAYS AFTER MID BLOOM</b>							

STAGE	TIMING	TARGET	PRODUCT	RATE/100 L	WATER/HA	pH	COMMENTS
 <b>POST-FRUITSET</b>	10–14 days post fruitset	Leafroller	<i>Bacillus (BT) thuringiensis</i>	50 g	2000 L <b>Tank mix</b>		Do not spray while bees are in the orchard.
		Scale	D-C-Tron Plus Organic, Enspray 99, Excel Organic Oil	1 L			2 applications allowed between fruitset and the start of monitoring. See additional notes for timing information and skin sensitivity periods.
		Vine health	BioGro approved seaweed				Leave <b>5–7 days</b> between copper and seaweed applications. See additional notes for timing information.
	December	Passion Vine Hopper	Pyganic + Oroboost	100 ml 100–200 ml	2000 L		Spray shelterbelts if high numbers of nymphs are observed. UV sensitive—apply early morning or late evening. Leave 7- day interval between Oroboost and copper. UV sensitive, use morning or late afternoon.
	December to Harvest	Sooty Mould	Triple X	300 ml	1000 L		Use as a preventative. Max 9 sprays per period. Spray at 2-3 weekly intervals. Please read special notes attached.
 <b>FRUIT DEVELOPMENT</b>	<b>REFER TO FOLIAR NUTRITION</b>						
	<b>INFORMAL PEST MONITORING – PVH Follow KiwiGreen Guidelines</b>						
 <b>MONITORING</b>	January to March	Psa-V	Nordox75WG OR ChampION ++ OR Aureogold	37.5 g 70-90 g	1000–1500 L	6 - 7	Aim to apply before significant weather events. Adjust water rate to suit canopy density (7 day withholding period).
				50 g		6.5 - 7	
<b>DRY MATTER GIRDLE/S</b>							
	January to March	Leafroller	<i>Bacillus thuringiensis</i>	50 g 50 g	2000 L <b>Tank mix</b>		As per monitoring results. Can be tank mixed with seaweed (2 day withholding period).
		Scale	D-C-Tron Plus Organic, Enspray 99, Excel Organic Oil	1 L 1 L			As per monitoring results. Leave <b>3–5 days</b> between oil and copper (14 day withholding period).

STAGE	TIMING	TARGET	PRODUCT	RATE/100 L	WATER/HA	pH	COMMENTS
 <b>PRE-HARVEST</b>	March to April	Psa-V	Nordox75WG OR Champion (BioGrow Certified)	37.5 g 70-90 g	1000-1500 L	6 - 7 6.5 - 7	Aim to apply before significant weather events. Adjust water rate to suit canopy density (7 day withholding period).
	6-24 hours pre-harvest	Stain	Citric Acid	500 g	3000 L		Spray <b>6-24 hours</b> before harvest. Clearance samples will not be collected if fruit are wet or spraying is occurring in adjacent blocks. Repeat if staining is particularly bad.
<b>HARVEST</b>							
 <b>POST-HARVEST</b> <b>PRE-PRUNING</b>	After harvest	Psa-V	Nordox 75WG	55-70 g	1000-1500 L	6 - 7	Protect from autumn infection.
	Winter	Psa-V	Nordox75WG OR Hortcare Copper Hydroxide 300	55-70 g 70-90 g	600-800 L		Winter rates on dormant vines.
<b>SOIL TEST SUBMIT SAMPLE FOR ANALYSIS OF NUTRIENT LEVELS AND REQUEST A FERTILISER RECOMMENDATION</b>							
 <b>POST-PRUNING</b>	Winter	Psa-V	Nordox75WG	37.5 g	1000 L <b>Tank mix</b>		Summer rate for Nordox recommended when using with oil. <b>Add oil to tank first</b> and mix well, add Nordox whilst still agitating mix. See additional notes.
		Scale	D-C-Tron Plus Organic, Enspray 99, Excel Organic Oil	1 L			
Winter	Psa-V	Nordox75WG OR Hortcare Copper Hydroxide 300	55-70 g 70-90 g	600 - 800 L		Winter rates on dormant vines. Depending on the timing of your pruning, this additional spray may be applied at an earlier date than the pre-pruning spray.	
<b>APPLY BASE FERTILISER Follow rates suggested in your fertiliser recommendation. Enter into spray diary.</b>							

## ADDITIONAL INFORMATION

### SPRAY INTERVALS:

DAYS BEFORE														DAY OF SPRAYING	DAYS AFTER															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Kocide Opti														Aureogold	Kocide Opti															
Nordox															Nordox															
Copper														Oroboost	Copper															
Copper (Sum)														Seaweed	Copper															
Copper (Win)														Oil	Copper (Sum)															
				Copper (Win)											Copper (Win)															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Intervals between certain chemicals are necessary to avoid a reduction in efficacy and/or phytotoxicity. These are the minimum intervals recommended between applications. For example, if you apply an oil spray in summer 7 days is needed before a copper product is applied. If trying a new product check with your merchant for information on the interaction with other chemicals, especially copper.

	DAYS AFTER FRUIT SET														
	0	7	14	21	28	35	42	49	56	63	70	77	80		
HW				Risk											
GA					Risk										

### FRUIT SKIN SENSITIVITY PERIODS

Avoid damaging fruit during the risk periods above by minimising activity in the orchard during this time. Plan spraying and any work in the canopy such as pruning or thinning for before or after the risk period. What looks like a small amount of damage at the time can worsen as the fruit expands in size.

### IMPORTANT INFORMATION FOR MIXING OIL AND COPPER

- Use Excel oil at 1% and Nordox 75WG at 37.5 g/L (summer rate). No information is available for other oil or copper products, or different rates.
- When tank-mixing Excel oil and Nordox 75WG, add the oil to the tank first and mix well. Then add the Nordox 75WG whilst still agitating the mix.
- Do not exceed a water volume of 1000 L/ha.
- Do not apply oil to vines treated with lime sulphur.

## INSECT PEST CONTROL

### PYRETHRUM APPLICATION FOR THRIP CONTROL - JA ONLY

Greenhouse Thrips are a minor pest in terms of damage to kiwifruit but can create market access issues. If you are seeing higher than usual levels, follow the Zespri recommendations below. Pyrethrum can be combined with an oil along with an adjuvant (OroBoost). If you have a neighbour with a different crop which is also affected by Thrips discuss control options; then the pest can be effectively targeted at the correct time for both parties.

PYRETHRUM APPLICATION TIMING FOR THRIP CONTROL - JA ONLY	
	SPRAY ALLOWANCE
JAN/FEB	If higher than usual numbers detected
18-21 DAYS PRE HARVEST	If higher than usual numbers detected – Knockdown but not control
2-3 DAYS PRE HARVEST	If higher than usual numbers detected – Knockdown of any new generations

### PEST THRESHOLDS

During the monitoring period spray controls must be in response to pest levels meeting or exceeding thresholds.

LEAFROLLER THRESHOLDS		SPRAY ALLOWANCE
NORMAL MONITORING	>0.5%	1 application before next monitor result
4 WEEKS PRE-HARVEST	>0.1%	1 application before next monitor result (consider re-entry interval)

SCALE THRESHOLDS		SPRAY ALLOWANCE
MONITORING	4-20%	1 application before next monitor result
	>20%	2 applications before next monitor result

### TRIPLE X

- Spray once honey dew is present
- Repeat applications every 10 days until harvest
- Ensure good coverage

### PEST MONITORING TIMING

Please provide us with your fruitset date so we can monitor at the correct time.

TIMING AFTER FRUITSET		
	SCALE	LEAFROLLER
HW, G14	8-weeks	5-weeks
GA	8-weeks	7-weeks

## RE-ENTRY AND PRE-HARVEST INTERVALS

PRODUCT	PRE-HARVEST INTERVAL (PHI)
<i>Bacillus thuringensis (Bt)</i>	2-days
Copper	7-days
Botry-Zen	Do not apply after flowering 120-days
Pyrethrum	14-days
Aureogold	14-days
Timorex Gold	14-days
Mineral Oil	14-days
RE-ENTRY INTERVAL (REI)	
Copper	When Fully Dry (WFD)
Bt	WFD
Pyrethrum	WFD
Mineral Oil	WFD
Botry-Zen	WFD
Timorex Gold	WFD
Kiwivax	WFD
Aureogold	4-hours

**FOLIAR FERTILISERS/BIOSTIMULANTS:** Product labels often advise first use from budbreak stage but the number of applications and when to cease use for the season is not always clear with different products. Caution is advised for use after fruitlet stage as it is uncertain whether the increase in vine health and growth is at the expense of fruit dry matter accumulation.

Nitrogen: Power new growth early in season

Calcium: Build fruit cell wall strength at cell division stage

Potassium: Assist in fruit maturity

The below table is a guide only; please seek advice from trusted advisors if you're unsure about timing and number of applications.

FOLIAR APPLICATION STAGES	
1	Pre-flower
2	Pre-flower
3	Early fruit formation
4	1-2 weeks later
Optional	1-2 weeks later

**AGRICHEMICAL USE AND NOTIFICATION:** Responsible use means the ongoing availability of products which assist in growing a successful crop. Communicate with your neighbours and work together to devise a satisfactory plan. We recommend requiring your spray contractor to use an automated notification system to protect you and the spray contractor against prosecution. Ensure contact details are up to date.

It's vital to comply with legislation. Notify neighbours within 50 m of your property when spraying (needs to be within 72 hours to 12 hours before). Prominently display signage at property entrances to indicate spraying is taking place (signs must be in place no less than 24 hours before spraying). Many products have different use requirements – sprayer set up, weather conditions, compatibility etc. Be certain the applicator is fully aware of these and responding accordingly.

Agrichemical use rules are governed by your regional council, make sure you are aware of the specifics for your region.

While only low levels of copper resistant Psa have been found it's always important to use agrichemicals correctly to avoid resistance occurring. Resistance can occur in disease, weeds and insects. Follow these guidelines:

1. Use full label rates (use of lower rates assists survival of resistant individuals that then start to dominate the population leading to control failure over time)
2. Ensure adequate coverage
3. Alternate products with different modes of action

Any tank mixes suggested above (indicated by bold borders and shaded grey) are based on manufacturer compatibility information and feedback from spray diary information.

**ADDITIONAL SPRAYS:** Growers who are concerned about their holistic orchard environment might like to consider spraying beneficial biological sprays regularly to replenish some of the beneficial non-target organisms that are also being affected by the copper sprays. Other sprays such as lime sulphur (lichen/scale habitat) may be needed if targets are at a problematic level.

**GENERAL/GUIDELINES:** Some labels stipulate a rate per hectare, in these cases a rate per 100 L has been calculated to match the suggested water rate given here, please check the product label and recalculate the rate per 100 L if using water rates different from those listed in this programme, refer to the Zespri Spray Techbox for assistance <https://goo.gl/k48T17>.

Keep in mind this isn't a list of every spray you could use, but a set of guidelines showing what a fairly intensive spray programme could include. The complete list of products is updated each season in the Zespri Crop Protection Standard, and the allowed other compounds (AOC) list.

Cultural control is an important part of responsible orcharding and cultural control methods should be used as part of any complete integrated pest management (IPM) programme.



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