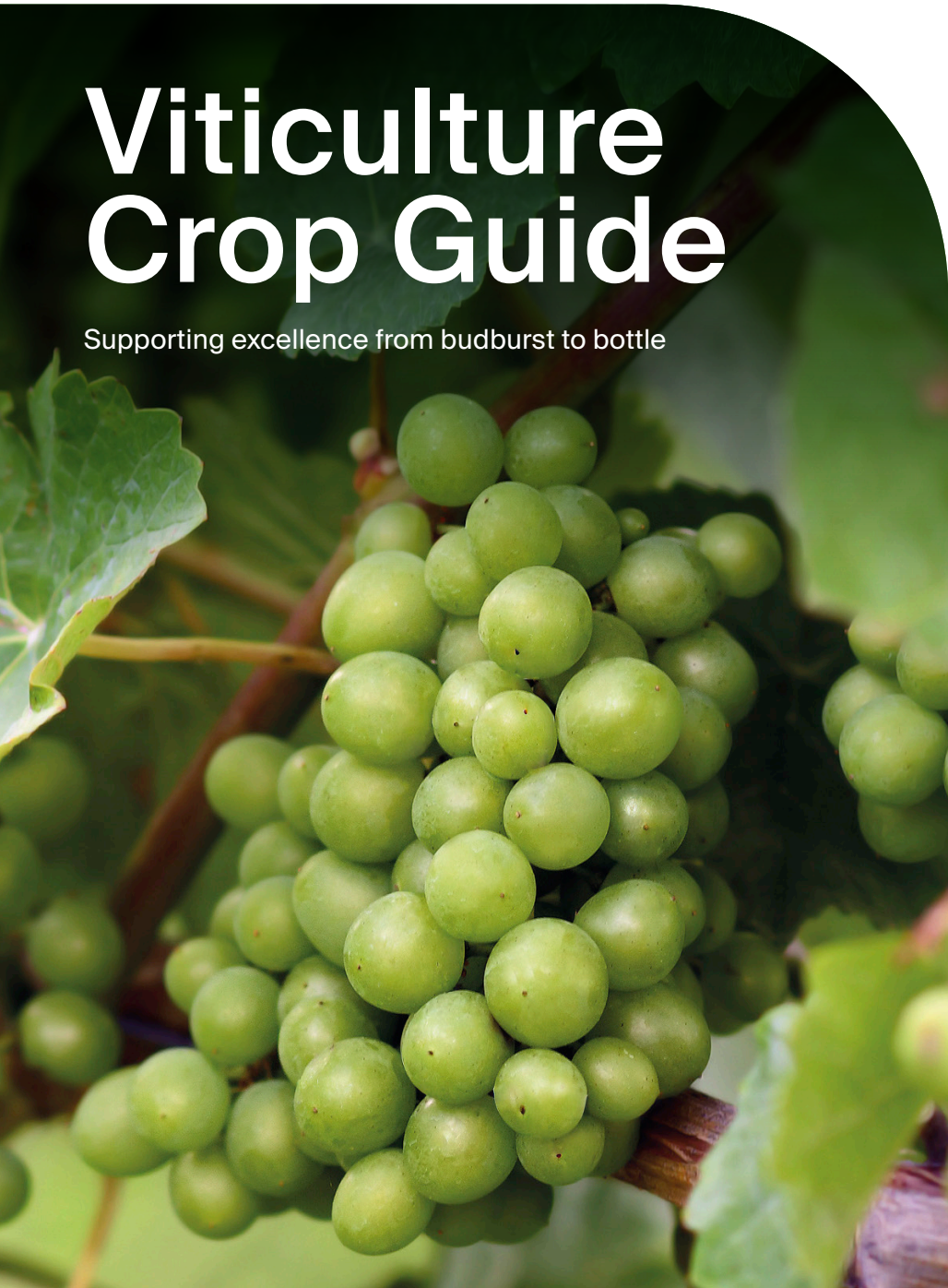


# Viticulture Crop Guide

Supporting excellence from budburst to bottle



Introduction

# Science-backed crop protection solutions



# Supporting excellence from budburst to bottle

New Zealand's wine industry is internationally recognised for quality and sustainability. At Nufarm, we're proud to support growers with science-backed crop protection products designed for our unique growing regions. This guide provides practical, up-to-date recommendations for managing vine health, weeds and pests throughout the growing season using Nufarm's portfolio.

This is designed to be used in conjunction with the **New Zealand Winegrowers Vineyard Spray Schedule (NZWSS) 2025/2026**. The NZWSS is the essential "agrichemical rule book" for members of Sustainable Winegrowing New Zealand (SWNZ), and adherence to its requirements is mandatory for SWNZ certification. Our aim is to help you navigate these rules and make informed decisions using Nufarm's registered viticulture products.

Our goal is to support technical advisors, growers and vineyard managers in planning and executing an integrated spray programme that aligns with industry best practices, resistance management guidelines and export MRL requirements. Whether you're protecting bunches in Marlborough, managing canopies in Hawke's Bay or keeping weeds in check in Central Otago, this guide will help you get the best from your vines, season after season.

Remember, this guide is a tool to support your decision-making. Always read and follow the specific instructions on individual Nufarm product labels and consult with technical experts when needed. The information presented here is based on the NZWSS 2025/2026 and the provided Nufarm product labels; always ensure you are referencing the most current versions of these documents.

**Let's grow gold-standard grapes – together.**

# Key disease management

This section gives crop-stage specific spray guidance for managing key fungal diseases: powdery mildew, botrytis and downy mildew. It includes product recommendations and highlights compliance requirements.



## Botrytis bunch rot (*Botrytis cinerea*)

A humidity-driven bunch rot that often infects at bloom and shows near harvest, especially in tight or damaged clusters. Favoured by frequent showers and slow drying (about 15–28 °C), symptoms start deep in compact bunches as brown berries that turn grey and fuzzy.

**Critical Control Points:** Bloom/capfall; pre-bunch-closure; wet pre-harvest; and after damage events (hail/cracks).



## Botector®

**Botector** is a cutting-edge biological fungicide designed to combat botrytis in grapes and kiwifruit using the power of *aureobasidium pullulans*. With a 1-day pre-harvest interval, proven field performance, and BioGro® organic certification, Botector offers growers a safe, sustainable, and highly effective solution for disease management – without compromising crop quality or harvest timing.

Botector			
Active ingredient:	Aureobasidium pullulans	MOA Group:	BM02
Target:	Botrytis		
Strategic timing:	Flowering to pre-harvest (EL19–38)		
Max sprays:	–	PHI:	1 day (EL38)
REI:	4 hours	Nil residue timing:	1 day/harvest (EL38)
Product rate(s):	100g/100L	Water rate(s):	700–1100L/ha



## Captan 600 Flo

Captan 600 Flo is a broad-spectrum fungicide containing 600g/L captan, ideal for managing key fungal diseases in grapes.

Captan 600 Flo			
Active ingredient:	Captan	MOA Group:	M04
Target:	Botrytis, downy mildew, phomopsis black spot (anthracnose)		
Strategic timing:	Shoots 10cm to pre-bunch closure (EL12-31)		
Max sprays:	Refer NZWSS regional limits	PHI:	28 days (EL35)
REI:	When fully dry	Nil residue timing:	28 days (EL35)
Product rate(s):	120-160g/100L	Water rate(s):	High volume spraying to run-off



## Prolectus®

**Excellent botrytis control in grapes.** In both New Zealand and international trials, Prolectus has proven to provide effective botrytis control under varying growing conditions. In all local trials, Prolectus provided equivalent levels of control to that of the reference fungicides. Prolectus is now well established in the grape spray programme and has proven to have reliable control of botrytis.

Prolectus			
Active ingredient:	Fenpyrazamine	MOA Group:	17
Target	Botrytis		
Strategic timing:	Flowering (EL19-25)		
Max sprays:	1 per season	PHI:	80% capfall (EL25)
REI:	When fully dry	Nil residue timing:	80% capfall (EL25)
Product rate(s):	100ml/100L	Water rate(s):	700-1000L/ha

## Botrytis bunch rot



### Nando®

**Nando** is a powerful protectant fungicide for grapes, providing effective control of botrytis, downy mildew, and phomopsis (dead arm). As a contact fungicide, it requires thorough canopy coverage and offers excellent crop safety.

Nando			
Active ingredient:	Fluazinam	MOA Group:	29
Target:	Botrytis, downy mildew, phomopsis		
Strategic timing:	Flowering to pre-bunch closure (EL19–31)		
Max sprays:	Refer NZWSS limits	PHI:	28 days (EL35)
REI:	When fully dry	Nil residue timing:	28 days (EL35)
Product rate(s):	100ml/100L	Water rate(s):	Spray to run-off



### Thiram 40F

**Thiram 40F** is a broad-spectrum protectant fungicide containing 400g/L thiram, effective against key vineyard diseases such as botrytis and blackspot. Its suspension concentrate formulation provides reliable coverage and disease prevention across fruit crops, supporting healthy vines and clean harvests. Ideal for integrated viticulture programmes.

Thiram 40F			
Active ingredient:	Thiram	MOA Group:	M03
Target:	Botrytis, black spot (anthracnose)		
Strategic timing:	Shoots 10cm to pre-capfall (EL12–18)		
Max sprays:	Refer NZWSS limits	PHI:	Pre-capfall (EL18)
REI:	When fully dry	Nil residue timing:	Pre-capfall (EL18)
Product rate(s):	300–400ml/100L	Water rate(s):	Spray to run-off

### Resistance Management

Rotate products from different FRAC groups (2, 17, 29, BM02, M03, M04). Adhere to maximum application limits for at-risk groups (FRAC 2, 17, 29). Botector (BM02) has a low resistance risk.



## Downy mildew (*Plasmopara viticola*)

A warm-wet disease from leaf litter: after the first warm rains and any later wet spell, expect yellow oil spots that develop white down overnight.

**Critical Control Points:** Early after first warm rains; ahead of forecast warm-wet periods; prioritise young tissue and slow-drying pockets.



## Champion®++

**Champion++** is a high-performance copper fungicide formulated as a water-dispersible granule for superior disease control in vineyards. Featuring small particle size for excellent coverage at low use rates, it's approved for organic use by BioGro – delivering effective protection with reduced environmental impact.

Champion++			
<b>Active ingredient:</b>	Copper hydroxide	<b>MOA Group:</b>	M01
<b>Target:</b>	Downy mildew, black spot (anthracnose)		
<b>Strategic timing:</b>	Dormancy to flowering (ELO-23)		
<b>Max sprays:</b>	Contributes to 3kg/ha elemental copper seasonal max	<b>PHI:</b>	1 day (EL38)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	1 day (EL38)
<b>Product rate(s):</b>	65-130g/100L	<b>Water rate(s):</b>	Ensure complete coverage



## Downy mildew



### Tri-Base® Blue (exclusive to Fruited Supplies)

Tri-Base Blue is a premium liquid copper fungicide formulated with ultra-fine tribasic copper sulphate particles for superior foliar coverage and disease protection. Ideal for viticulture, it offers reliable control of fungal and bacterial pathogens, including PSA, while being easy to mix, apply and compatible with most tank mixes. With no withholding period, Tri-Base Blue is a smart, sustainable choice for vineyard health.

Tri-Base Blue			
Active ingredient:	Copper as tribasic copper sulphate	MOA Group:	M01
Target:	Downy mildew		
Strategic timing:	Shoots 10cm to pre-harvest (EL12–38); repeat at 10–14 day intervals		
Max sprays:	Contributes to 3kg/ha elemental copper seasonal max	PHI:	1 day (EL38)
REI:	When fully dry	Nil residue timing:	1 day (EL38)
Product rate(s):	250–350ml/100L	Water rate(s):	Spray to run-off

Captan 600 Flo			
Active ingredient:	Captan	MOA Group:	M04
Target:	Botrytis, downy mildew, phomopsis black spot (anthracnose)		
Strategic timing:	Shoots 10cm to pre-bunch closure (EL12–31)		
Max sprays:	Refer NZWSS regional limits	PHI:	28 days (EL35)
REI:	When fully dry	Nil residue timing:	28 days (EL35)
Product rate(s):	120–160g/100L	Water rate(s):	High volume spraying to run-off

Nando			
Active ingredient:	Fluazinam	MOA Group:	29
Target	Botrytis, downy mildew, phomopsis		
Strategic timing:	Flowering to pre-bunch closure (EL19–31)		
Max sprays:	Refer NZWSS limits	PHI:	28 days (EL35)
REI:	When fully dry	Nil residue timing:	28 days (EL35)
Product rate(s):	100ml/100L	Water rate(s):	Spray to run-off

### Resistance Management

Copper (M01) and captan (M04) are multi-site protectants with low resistance risk, forming a good base. Rotate with or other recommended Downy Mildew fungicides (eg. Group 29 fungicide Nando.)



## Powdery mildew (*Erysiphe necator*)

A warm, dry-canopy fungus (no free water needed) that peaks from bloom to 4–6 weeks after set; watch for grey-white dust and flag shoots.

**Critical Control Points:** 10–15 cm shoots → bloom; bloom → 4–6 weeks post set; verify bunch-zone coverage; remove flag shoots where practical.



## Digger® EW

**Digger EW** is a systemic fungicide for wine grapes, delivering strong protection against powdery mildew with both preventative and curative action. Approved by SWNZ and safe for wine quality, it's ideal for integrated vineyard disease management.

Digger EW			
Active ingredient:	Difenoconazole	MOA Group:	3
Target:	Powdery mildew		
Strategic timing:	Pre-flowering (EL12–19)		
Max sprays:	1 per season	PHI:	56 days (EL33)
REI:	When fully dry	Nil residue timing:	56 days (EL33)
Product rate(s):	50ml/100L	Water rate(s):	700–1000L/ha

## Resistance Management

FRAC 3 fungicides are at high risk. Strict adherence to the “max 1 application per season of any Group 3 in tank mix with sulphur” rule is mandatory (NZWSS Section 5.4). Rotate with other MOA groups.



## Phomopsis cane and leaf spot (*Diaporthe ampelina*)

An early-season rain-splash disease from old cane lesions that scars basal shoots, leaves and rachis. Infections follow cool, wet spring rains from budburst to 10–30 cm shoots.

**Critical Control Points:** Dormant/pruning clean-up; early spring rains (focus basal 4–6 nodes and young leaves).

### Captan 600 Flo

<b>Active ingredient:</b>	Captan	<b>MOA Group:</b>	M04
<b>Target:</b>	Botrytis, downy mildew, phomopsis black spot (anthracnose)		
<b>Strategic timing:</b>	Shoots 10cm to pre-bunch closure (EL12–31)		
<b>Max sprays:</b>	Refer NZWSS regional limits	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	120–160g/100L	<b>Water rate(s):</b>	High volume spraying to run-off

### Nando

<b>Active ingredient:</b>	Fluazinam	<b>MOA Group:</b>	29
<b>Target:</b>	Botrytis, downy mildew, phomopsis		
<b>Strategic timing:</b>	Flowering to pre-bunch closure (EL19–31)		
<b>Max sprays:</b>	Refer NZWSS limits	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	100ml/100L	<b>Water rate(s):</b>	Spray to run-off



## Anthracnose (Black spot)

*(Elsinoë ampelina)*

A warm-wet disease that makes sunken shoot/leaf lesions and classic 'bird's eye' berry spots before veraison. It needs free water and cycles quickly in wet spells soon after budburst.

**Critical Control Points:** Early post-budburst on rapidly expanding tissue; ahead of repeated rain events.

### Captan 600 Flo

<b>Active ingredient:</b>	Captan	<b>MOA Group:</b>	M04
<b>Target:</b>	Botrytis, downy mildew, phomopsis black spot (anthracnose)		
<b>Strategic timing:</b>	Shoots 10cm to pre-bunch closure (EL12–31)		
<b>Max sprays:</b>	Refer NZWSS regional limits	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	120–160g/100L	<b>Water rate(s):</b>	High volume spraying to run-off

### Champion++

<b>Active ingredient:</b>	Copper hydroxide	<b>MOA Group:</b>	M01
<b>Target:</b>	Downy mildew, black spot (anthracnose)		
<b>Strategic timing:</b>	Dormancy to flowering (EL0–23)		
<b>Max sprays:</b>	Contributes to 3kg/ha elemental copper seasonal max	<b>PHI:</b>	1 day (EL38)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	1 day (EL38)
<b>Product rate(s):</b>	65–130g/100L	<b>Water rate(s):</b>	Ensure complete coverage

### Thiram 40F

<b>Active ingredient:</b>	Thiram	<b>MOA Group:</b>	M03
<b>Target:</b>	Botrytis, black spot (anthracnose)		
<b>Strategic timing:</b>	Shoots 10cm to pre-capfall (EL12–18)		
<b>Max sprays:</b>	Refer NZWSS limits	<b>PHI:</b>	Pre-capfall (EL18)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	Pre-capfall (EL18)
<b>Product rate(s):</b>	300–400ml/100L	<b>Water rate(s):</b>	Spray to run-off

# Insect pest management

This section outlines key insect pests in vineyards (especially mealybug) and provides product options, timing advice and compliance information.



## Mealybugs

(Leafroll vectors: honeydew → sooty mould)

Hidden sap feeders that produce honeydew (sooty mould) and vector Leafroll virus. Populations build in warm weather and move into bunches from bloom to closure.

**Critical Control Points:** Early season (bark checks; ant management); bloom → pre-close (protect bunch interiors); late-season management around marked vines.



## Grandevo® WDG

Grandevo WDG is a biological insecticide offering broad-spectrum control of mealybugs in grapes, with complex modes of action that reduce feeding, reproduction, and pest survival. Approved for organic use and exempt from MRLs, it's bee-friendly, safe for beneficials, and ideal for resistance management in sustainable vineyard.

Grandevo WDG			
<b>Active ingredient:</b>	Chromobacterium subsugae	<b>MOA Group:</b>	UN/NC (biological)
<b>Target:</b>	Mealybug		
<b>Strategic timing:</b>	Shoots 10cm to bunch closure (EL12-32)		
<b>Max sprays:</b>	4	<b>PHI:</b>	65 days (EL31)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	65 days (EL31)
<b>Product rate(s):</b>	340g/100L	<b>Water rate(s):</b>	700-1100L/ha



## Leafroller caterpillars (Tortricids incl. LBAM)

Larvae web and feed in flowers and bunches, creating Botrytis entry points. Pressure peaks around bloom to pea-size.

**Critical Control Points:** Time action to egg hatch/young larvae using trap catches and cluster inspections; follow-up at pea-size if pressure remains.



### DiPel® DF

DiPel DF is a high-performance biological insecticide providing targeted control of leafroller caterpillars. Powered by *Bacillus thuringiensis*, it stops larvae feeding immediately upon ingestion, protecting bunch quality. With BioGro organic certification and excellent safety for beneficials, DiPel DF is an essential tool for sustainable, integrated pest management programmes.

DiPel DF			
<b>Active ingredient:</b>	Bacillus thuringiensis	<b>MOA Group:</b>	11A
<b>Target:</b>	Leafroller caterpillars		
<b>Strategic timing:</b>	Flowering to pre-harvest (EL19-38)		
<b>Max sprays:</b>	N/A	<b>PHI:</b>	1 day (EL38)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	1 day (EL38)
<b>Product rate(s):</b>	25-50g/100L	<b>Water rate(s):</b>	Spray to run-off



## Thrips (Flower/berry scarring)

Tiny rasping insects that scar flowers and young berries, especially in warm, dry, windy weather. Highest risk is bloom to early set and after mowing/wind events.

**Critical Control Points:** Monitor with tap-tests/cards at bloom/early set; act at first flower/berry damage; follow-up after mowing/wind influx.



## Kaiso® 50WG

**Kaiso 50WG** is a powerful contact insecticide designed for the rapid knockdown of thrips and bronze beetle. Its advanced granule formulation delivers the efficacy of an emulsifiable concentrate with superior handling safety and ease of mixing. Kaiso 50WG provides reliable, broad-spectrum protection during critical pest pressure periods.

Kaiso 50WG			
Active ingredient:	Lambda-cyhalothrin	MOA Group:	3A
Target:	Thrips, bronze beetle		
Strategic timing:	Shoots 10cm to pre-capfall (EL12-18)		
Max sprays:	2 per season	PHI:	Pre-capfall (EL18)
REI:	5 days	Nil residue timing:	Pre-capfall (EL18)
Product rate(s):	20g/100L	Water rate(s):	Spray to run-off



## Bronze beetle (Adults)

Adults chew young leaves and can clip berries, mainly at dusk/night in spring/early summer, often on edge rows.

**Critical Control Points:** Dusk monitoring during spring flights; treat edge rows/hot spots when adults are active; tidy weedy margins.

### Kaiso 50WG

<b>Active ingredient:</b>	Lambda-cyhalothrin	<b>MOA Group:</b>	3A
<b>Target:</b>	Thrips, bronze beetle		
<b>Strategic timing:</b>	Shoots 10cm to pre-capfall (EL12-18)		
<b>Max sprays:</b>	2 per season	<b>PHI:</b>	Pre-capfall (EL18)
<b>REI:</b>	5 days	<b>Nil residue timing:</b>	Pre-capfall (EL18)
<b>Product rate(s):</b>	20g/100L	<b>Water rate(s):</b>	Spray to run-off

### Resistance Management

Rotate insecticides with different Modes of Action (MoA). Limit synthetic pyrethroids (Group 3A, eg. Kaiso 50WG) to a maximum of 2 applications per season. Utilise low-risk biologicals like DiPel DF (Group 11A) and Grandevo WDG (Group UN) as effective rotation partners to preserve chemistry and break resistance cycles.



# Weed management

Weed pressure robs young vines, slows dry-down and shelters pests. Move beyond single-tool control.

## Programme building blocks

- **Knockdown (contact/systemic):**  
Clean-up ahead of key growth stages; avoid drift into canopy.
- **Residuals (pre-emergent):**  
Apply under the right growth stage window; rotate MOAs; know crop safety.
- **Grass selective (post-emergent):**  
Reserve for resistant grasses; follow permission rules where applicable.

## Resistance Management

Rotate between HRAC groups (1, 9, 10, 14). Avoid consecutive applications of the same group. Use residuals and contact herbicides as alternatives to glyphosate.



## Contact and knockdown herbicides

Non-selective, non-residual. Absorbed by foliage. Avoid contact with desirable plants. Resistance is an issue; rotate MOAs.



### CRUCIAL®

CRUCIAL is a high-strength, non-selective herbicide with 600g/L glyphosate in a world-first triple salt, triple surfactant formulation. It delivers fast knockdown – 1 day for annual, 3 days for perennial weeds – and is rainfast in 15 minutes with Pulse® Penetrant, ideal for vineyard floor management. With excellent tank mix compatibility and anti-foam technology, CRUCIAL ensures precision and productivity in viticulture.

#### CRUCIAL

<b>Active ingredient:</b>	Glyphosate	<b>MOA Group:</b>	9
<b>Target:</b>	Broadleaf and grass weeds		
<b>Strategic timing:</b>	Dormancy to pre-budburst (ELO-3)		
<b>Max sprays:</b>	N/A	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	1.8–5.4L/ha	<b>Water rate(s):</b>	100–200L/ha



### Biffo®

**Biffo** is a non-selective contact herbicide containing 200g/L glufosinate-ammonium, ideal for controlling a broad spectrum of grasses and broadleaf weeds including clover in vineyard undergrowth. Its fast-acting formulation helps maintain clean vine rows without systemic uptake, making it a practical choice for integrated weed management in viticulture. Always use in combination with Contact™ Xcel.

Biffo			
<b>Active ingredient:</b>	Glufosinate	<b>MOA Group:</b>	10
<b>Target:</b>	Non-selective knockdown weed control		
<b>Strategic timing:</b>	Spring to summer (avoid green tissue)		
<b>Max sprays:</b>	Refer label & NZWSS	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	3.0-10.0L/ha	<b>Water rate(s):</b>	200-300L/ha

### Resistance Management

Rotate glufosinate and glyphosate for resistance management.

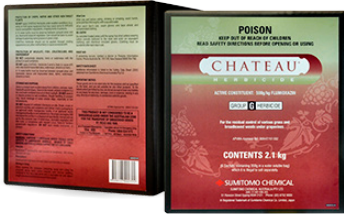




## Residual herbicides

Soil residual herbicides.

Apply to bare ground before weed emergence.



### Chateau®

Chateau is a powerful pre-emergence herbicide designed for season-long weed control in vineyards. With its broad-spectrum activity and long-lasting residual effect (4–8 months), Chateau helps growers reduce the need for repeated spraying. Proven under New Zealand conditions, it offers effective control without compromising vine health or leaving residues – making it a reliable and convenient solution for clean, productive vineyard floors.

Chateau			
Active ingredient:	Flumioxazin	MOA Group:	14
Target:	Pre-emergent weed control		
Strategic timing:	Dormancy to budburst (ELO-4)		
Max sprays:	1	PHI:	Pre-capfall (EL18)
REI:	When fully dry	Nil residue timing:	Pre-capfall (EL18)
Product rate(s):	700–840g/ha	Water rate(s):	Minimum 200L/ha





## Goal® Advanced

Goal Advanced is a versatile herbicide for grapevines, offering both pre- and post-emergence control of broadleaf weeds. With contact activity on small weeds and long-lasting residual action, it's ideal for maintaining clean vineyard rows – especially when applied to bare or low-organic soils. Compatible with other herbicides, it supports efficient and flexible weed management in viticulture.

### Goal Advanced (dormant)

<b>Active ingredient:</b>	Oxyfluorfen	<b>MOA Group:</b>	14
<b>Target:</b>	Residual broadleaf (pre-emergence); knockdown aid (post-emergence spike)		
<b>Strategic timing:</b>	Pre-emergence residual; dormancy (ELO-2)		
<b>Max sprays:</b>	1 pre-emergence or 1 spike	<b>PHI:</b>	Bud swell (EL2)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	Bud swell (EL2)
<b>Product rate(s):</b>	3.0L/ha in 300-400L	<b>Water rate(s):</b>	300-400L/ha

### Goal Advanced (spike)

<b>Active ingredient:</b>	Oxyfluorfen	<b>MOA Group:</b>	14
<b>Target:</b>	Residual broadleaf (pre-emergence); knockdown aid (post-emergence spike)		
<b>Strategic timing:</b>	In-season spike with glyphosate (directed spray only)		
<b>Max sprays:</b>	1 pre-emergence or 1 spike	<b>PHI:</b>	28 days (EL35)
<b>REI:</b>	When fully dry	<b>Nil residue timing:</b>	28 days (EL35)
<b>Product rate(s):</b>	40-75ml/ha	<b>Water rate(s):</b>	300-400L/ha



## Grass selective herbicides

Post-emergent control of actively growing grass weeds.



### SeSequence®

SeSequence is a selective post-emergence herbicide for vineyards, delivering effective control of ryegrass, summer grasses, wild oats and poa. With clethodim as its active ingredient, it protects vines from grass weed competition – supporting clean rows and healthy growth in young, actively growing vineyards. Add Bonza® Gold to control over 20 grass weeds.

SeSequence			
Active ingredient:	Clethodim	MOA Group:	1
Target:	Glyphosate or glufosinate resistant grass weeds		
Strategic timing:	Budburst to pre-capfall (EL2-18)		
Max sprays:	1	PHI:	Pre-capfall (EL18)
REI:	When fully dry	Nil residue timing:	Pre-capfall (EL18)
Product rate(s):	0.25-3.0L/ha	Water rate(s):	100-300L/ha

### Compliance

HRAC 1 (Resistance risk), Do not apply after start of flowering (EL19).  
 Prior written SWNZ approval required for use on glyphosate-resistant ryegrass (EL2-EL18) (NZSS Section 5.2).



# Adjuvants

Selecting the appropriate adjuvant enhances product efficacy, deposition, coverage and penetration, while minimising drift, water use and phytotoxicity for more sustainable spray applications.



## Amigo®

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Phosphatidylcholine, methyl esters of fatty acids and alcohol ethoxylate.

Use where a drift agent or anti-foam is required or recommended with agrichemicals.



## Bonza® Gold

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500g/L Ethyl esters of canola oil fatty acid and other surfactants.

Wherever an oil-based adjuvant is recommended on the label of the agrichemical, unless Bonza Gold or esterified seed-oil adjuvants are specifically excluded. Always use with SeSequence.



## Contact™ Xcel

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980g/L Linear alcohol ethoxylate (non-ionic).

Where the addition of a non-ionic surfactant is required or recommended on the agrichemical label. Must be used with Biffo. Can be used with DiPel DF, Grandevo WDG, Kaiso 50WG, Prolectus and Tri-Base Blue.



## Flume®

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Proprietary blend of organosilicone and non-ionic adjuvants.  
 Super spreader adjuvant. Do not use where the agrichemical label prohibits the use of adjuvants.



## Foam Wrecker

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Polydimethylsiloxane emulsion.  
 Anti-foam agent for spray tanks. Use 1–5ml/100L to prevent or knock down foam when filling.



## Pulse® Penetrant

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Organosilicone penetrant (organomodified polydimethyl siloxane).  
 Where the use of an organosilicone penetrant is recommended on the agrichemical label. Use with CRUCIAL and other glyphosates.

## Application rates

Product	FRAC/ IRAC/HRAC Group	Application Rate	Water Rate/Ha	Total Ha Required	Total Product Required
<b>Fungicides</b>					
Botector	BM02	100g/100L			
Captan 600 Flo	M04	120-160g/100L			
Champion++	M01	65-130g/100L			
Digger EW	3	50ml/100L			
Nando	29	100ml/100L			
Prolectus	17	100ml/100L			
Thiram 40F	M03	300-400ml/100L			
Tri-Base Blue	M01	250-350ml/100L			
<b>Insecticides</b>					
DiPel	11A	25-50g/100L			
Grandevo	UN	340g/100L			
Kaiso 50WG	3A	20g/100L			
<b>Adjuvants</b>					
Amigo	Drift control / anti-foam	125-200ml/100L			
Bonza Gold	Oil adjuvant	500ml-1L/100L			
Contact Xcel	Non-ionic surfactant	25ml/100L			
Flume	Spreader	200-350ml/100L			
Foam Wrecker	Anti-foam	1-5ml/100L			
Pulse Penetrant	Penetrant	100ml/100L			

Product	FRAC/ IRAC/HRAC Group	Application Rate	Total Ha Required	Total Product Required
<b>Herbicides</b>				
<b>Biffo</b>	10	3.0-10.0L/ha		
<b>Chateau</b>	14	700-840g/ha		
<b>CRUCIAL</b>	9	1.8-5.4L/ha		
<b>Goal Advanced (Dormant Application)</b>	14	3.0L/ha		
<b>Goal Advanced (Spike Application)</b>	14	40-75ml/ha		
<b>SeQuence</b>	1	0.25-3.0L/ha		



# Viticulture Spray Calendar

PRODUCT	DISEASE					INSECTS					
	POWDERY MILDEW	DOWNY MILDEW	BOTRYTIS	PHOMOPSIS	BLACK SPOT (ANTHRACNOSE)	MEALYBUG	THRIPS; BRONZE BEETLE; GRASS GRUB BEETLE	LEAFROLLER	DORMANT (ELO)	BUDBURST (EL4-7)	SHOOT DEVELOPMENT (EL7-12)
Botector®			✓								
Captan™ 600 Flo		✓	✓	✓	✓					✓	
ChamplON®++		✓			✓			✓	✓	✓	
Digger® EW	✓										
Nando®		✓	✓	✓							
Prolectus®			✓	✓							
Thiram™ 40F			✓		✓				✓	✓	
Tri-Base® Blue		✓								✓	
DiPel®							✓			✓	
Grandevo®						✓			✓	✓	
Kaiso® 50WG							✓		✓	✓	
Biffo®								✓	✓	✓	
Chateau®								✓	✓	✓	
CRUCIAL®								✓	✓	✓	
Goal® Advanced (Dormant Application)								✓			
Goal® Advanced (Spike Application)								✓	✓	✓	
Lion® 490DST / WeedMaster® TS470								✓	✓	✓	
SeQuence®								✓	✓	✓	

**NOTE:** PLEASE REFER TO THE LABEL AND THE LATEST SWNZ SPRAY SCHEDULE FOR FULL RECOMMENDATIONS

## ADJUVANTS

PRODUCT	PURPOSE & USE
Amigo®	Where the use of a drift agent or anti-foam is required or recommended with agrichemicals.
Bonza® Gold	Wherever an oil-based adjuvant is recommended on the label of the agrichemical, unless Bonza Gold or esterified seed-oil adjuvants are specifically excluded.
Contact™ Xcel	Where the addition of a non-ionic surfactant is required or recommended on the agrichemical label.
Flume®	Spreading Adjuvant. Do not use where the agrichemical label prohibits the use of adjuvants.
Foam Wrecker	Where an anti-foam agent is required or recommended for agrichemicals.
Pulse® Penetrant	Where the use of an organosilicone penetrant is recommended on the agrichemical label.

Always consult the product label before use. Only APE-free adjuvants approved by NZ Winegrowers should be used (NZWSS Section 1.10). Always check the current NZW approved adjuvant list.

For further information consult your local Nufarm Business Development Manager.

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GROWTH STAGE									COMPLIANCE / PRODUCT INFO				
PRE-FLOWERING (EL13-17)	FLOWERING (EL18-19)	FLOWERING 10% CAPFALL (EL20)	FLOWERING 80% CAPFALL (EL25)	FRUIT SET (EL27)	BUNCH CLOSURE (EL32)	VERAISON (EL35)	RIPENING TO HARVEST (EL36-38)	POST-HARVEST	FRAC, IRAC, HRAC	MAX SPRAYS	PHI RESIDUE (NIL OR WINE)*	RATE (100L OR HA)	REI
	🟡	🟡	🟡	🟡	🟡	🟡	🟡		BM02	-	1 day	100g/100L	4 hrs
🟡	🟡	🟡	🟡	🟡	🟡	🟡			M04	-	28 days (EL35)	120-160g/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡	🟡			M01	-	1 day	65-130g/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡				3	1	56 days	50ml/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡	🟡			29	3	28 days (EL35)	100ml/100L	WFD
🟡	🟡	🟡	🟡						17	2	EL25	100ml/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡	🟡			M03	-	EL18	300-400ml/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	M01	-	1 day	250-350ml/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	11A	-	1 day	25-50g/100L	WFD
🟡	🟡	🟡	🟡	🟡	🟡				UN/UN	-	65 days (EL31)	340g/100L	WFD
🟡	🟡								3A	2	EL18	20g/100L	5 days
🟢	🟢	🟢	🟢	🟢	🟢	🟢		🟢	10	-	28 days (EL35)	3.0-10.0L/ha	WFD
🟢					🟢	🟢			14	1	EL18	700-840g/ha	WFD
🟢	🟢	🟢	🟢	🟢	🟢	🟢		🟢	9	-	28 days (EL35)	1.8-5.4L/ha	WFD
									14	-	EL1 - EL2	3.0L/ha in 300-400L	WFD
🟢	🟢	🟢	🟢	🟢	🟢	🟢		🟢	14	-	28 days (EL35)	40-75ml/ha	WFD
🟢	🟢	🟢	🟢	🟢	🟢	🟢		🟢	9	-	28 days (EL35)	2.2-6.6L/ha	WFD
🟢								🟢	1	1	SWNZ	0.25-3.0L/ha	WFD

\*As per the NZ Winegrowers Spray Schedule 2025-2026

#### ACTIVES

Phosphatidylcholine, methyl esters of fatty acids and alcohol ethoxylate

500g/L ethyl esters of canola oil fatty acid and other surfactants

980g/L linear alcohol ethoxylate (non-ionic)

Proprietary blend of organosilicone and non-ionic adjuvants

Polydimethylsiloxane emulsion

Organosilicone penetrant

#### KEY

🟡 Fungicides

🟡 Insecticides

🟢 Herbicides



Scan for more info

SWNZ = SWNZ members must apply for written permission to use this product

WFD = When Fully Dry

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The information contained in this guide is a quick reference only.  
Always consult the product label and the most current NZWSS before use.



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