

# CHATEAU®

## HERBICIDE

A contact and soil residual herbicide  
for season-long weed control in grapes,  
kiwifruit, pipfruit and stonefruit



# Chateau<sup>®</sup> is the proven foundation of residual weed control in orchards and vineyards

One well-timed application gives growers an economic option for controlling weeds without the need for repeated spraying during the growing season.

Extensively  
evaluated in  
New Zealand

25+ trials  
over 14 years

5 regions

10 crops

Chateau has been tested extensively for efficacy, crop safety and residues, under NZ conditions, on vineyards and orchards across the country. Chateau consistently provides season-long weed control in this wide range of climates and crops.

Chateau provides growers with an extremely effective alternative mode of action (MOA) herbicide for use in herbicide resistance management strategies. Chateau may be used either in sequence or in rotation with other effective herbicides of different MOA groups to control herbicide resistant weeds such as ryegrass or to prevent the further development of resistance.

## Registered crops

Grapes, pipfruit, kiwifruit, stonefruit.

## Active ingredient

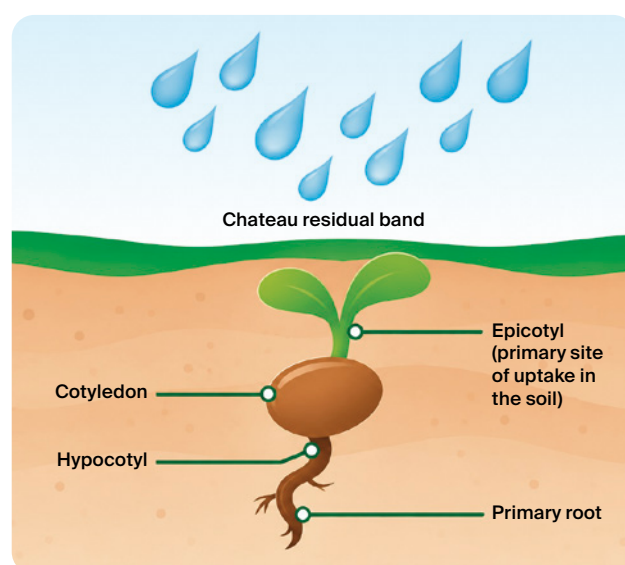
500 g/kg flumioxazin as a water dispersible granule.

## Mode of Action

A Group 14 herbicide with contact and foliar activity. Flumioxazin is a PPO inhibitor – involved in the synthesis of chlorophyll.

## Mechanism of Action

Germinating seedlings pick up flumioxazin as they grow through the treated zone. As soon as they reach the soil surface the flumioxazin reacts with sunlight and causes disruption of cell membranes and death of the plant. This action is very rapid and germinating weeds are not normally seen.



## Resistance Management

Chateau will control glyphosate/glufosinate/amitrole resistant ryegrass. A suitable knockdown herbicide will be required to remove established plants first.

# Chateau is a proven pre-emergence residual herbicide

## Broad spectrum

Controls a wide range of broadleaf and grass weeds. Rhizomatous or stoloniferous weeds may emerge through Chateau treated soil or creep in from unsprayed areas. Established weeds must be controlled prior to application of Chateau.

## Long lasting

Controls weeds for 4–8 months.

## Stays in place

Stays in place until rainfall or irrigation releases its activity. Does not leach or volatilise.

## Proven performance

Chateau has been widely used for effective weed control on vines and tree crops around the world for many years, providing residual weed control with no detrimental effects on long term vine and tree health.

## No residues

When used as directed no residues occur in fruit or vine foliage.

## Soil types

Safe and effective on a wide range of soil types.

## Convenient

Pre-packaged water soluble bags – no weighing or handling required.

## Weed-free orchards and vineyards after Chateau application

### Hawke's Bay apple orchard:



3 months after treatment



6 months after treatment



8 months after treatment

### Hawke's Bay vineyard:



Left: Chateau 840 g/ha; Right: Knockdown herbicide – 4 months after treatment



## Trial No. NUNZ1533

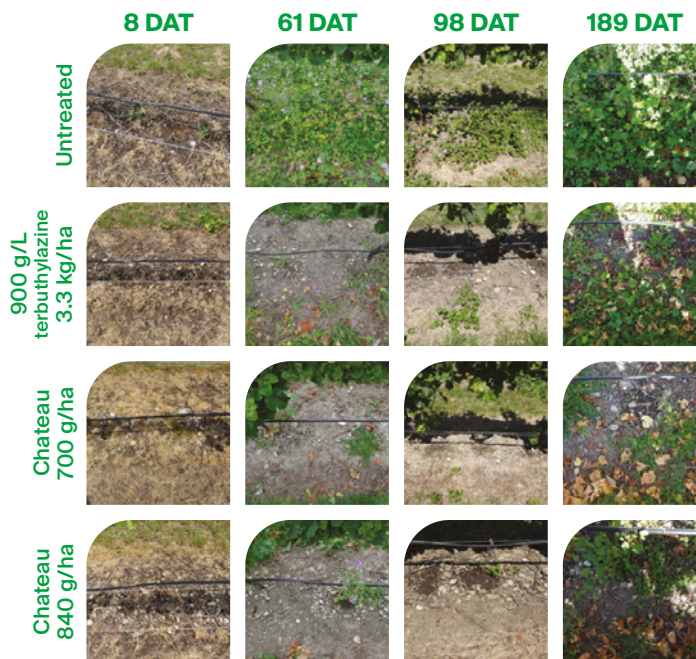
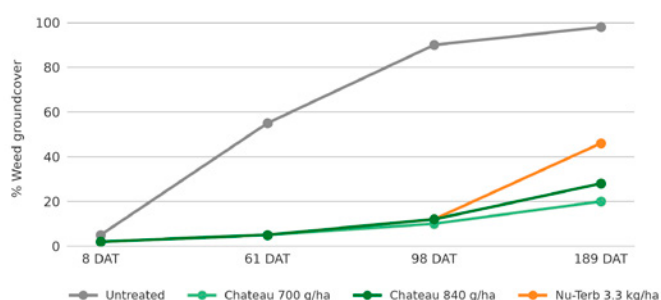
**Trial conducted by:** Horteye Ltd

**Location:** Nelson

**Crop:** Grapes : c.v. Riesling

A knockdown was applied to all plots ahead of treatments to give a bare herbicide strip. Chateau was applied early season and compared with Nu-Terb® (900 g/kg terbuthylazine WDG) at 3.3 kg/ha. Weed ground cover was assessed to 189 days after treatment.

### Total weed cover (%)



Photos taken at each assessment  
DAA = Days After Application



## Trial No. NUNZ2519

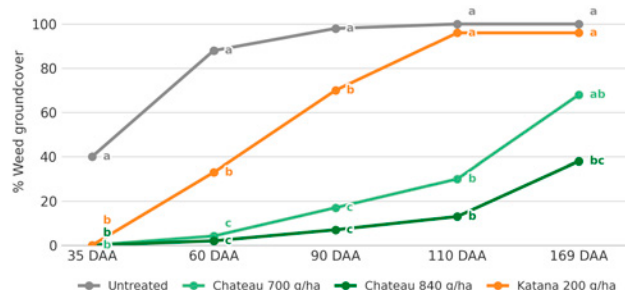
**Trial conducted by:** Field-Tek Ltd

**Location:** Blenheim, Marlborough

**Crop:** Winegrapes : c.v. Sauvignon Blanc

Chateau was applied to the bare under-vine strip prior to weed emergence and compared with Katana® (250 g/kg flazasulfuron WDG) at 200 g/ha. All herbicide treatments were tank mixed with a knockdown herbicide. Weed cover was assessed through to commercial harvest (169 days after application).

### Total weed cover (%)



### Total weed cover (%)

| Treatment | Rate/ha  | 35 DAA | 60 DAA | 90 DAA | 110 DAA | 169 DAA |
|-----------|----------|--------|--------|--------|---------|---------|
| Untreated | –        | 40.0 a | 88.0 a | 98.0 a | 100.0 a | 100.0 a |
| Chateau   | 700 g/ha | 0.0 b  | 4.2 c  | 17.0 c | 30.0 b  | 68.0 ab |
| Chateau   | 840 g/ha | 0.0 b  | 2.0 c  | 7.0 c  | 13.0 b  | 38.0 bc |
| Katana    | 200 g/ha | 0.0 b  | 33.0 b | 70.0 b | 96.0 a  | 96.0 a  |

Means within a column followed by the same letter do not differ significantly ( $P = 0.05$ ); ns = no significant differences.  
Statistical analysis as published in the trial report.

### Key messages

- At 110 days after application, Chateau held total weed cover to 13–30%, while Katana plots (96%) were statistically indistinguishable from untreated (100%).
- Total control of black nightshade, mallow, dovesfoot, broadleaf plantain and fatten through to crop harvest; excellent reduction in scrambling speedwell.
- No crop damage to vines or berries at any rate, at any assessment.



## Trial No. NUNZ2520

**Trial conducted by:** Peak Research Ltd

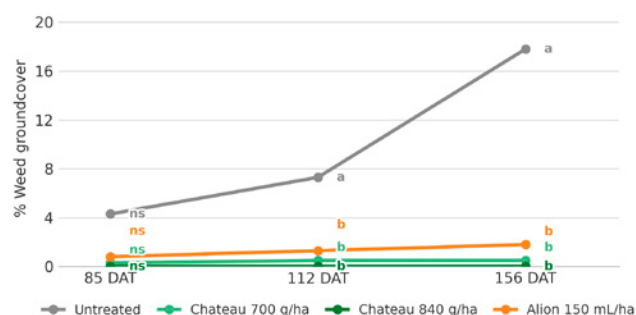
**Location:** Havelock North, Hawke's Bay

**Crop:** Apples : c.v. Jazz

A knockdown was applied to all plots ahead of treatments to give a bare herbicide strip. Chateau was applied early season and compared with Alion® (500 g/L indaziflam SC) at 150 mL/ha. Weed ground cover was assessed to 156 days after treatment.

### Total weed cover (%)

### Total weed cover (%)



| Treatment | Rate/ha   | 85 DAA  | 112 DAA | 156 DAA |
|-----------|-----------|---------|---------|---------|
| Untreated | –         | 4.30 ns | 7.30 a  | 17.80 a |
| Chateau   | 700 g/ha  | 0.30 ns | 0.50 b  | 0.50 b  |
| Chateau   | 840 g/ha  | 0.00 ns | 0.00 b  | 0.00 b  |
| Alion     | 150 mL/ha | 0.80 ns | 1.30 b  | 1.80 b  |

Means within a column followed by the same letter do not differ significantly ( $P = 0.05$ ); ns = no significant differences. Statistical analysis as published in the trial report.

### Key messages

- Chateau held weed cover to 0.5% or less for more than five months from a single application.
- Weed control was equivalent to or better than the newer standard Alion at label rate.
- No phytotoxic effects on foliage or fruit in any treatment at any assessment.

## Trial No. NUNZ2523

**Trial conducted by:** Peak Research Ltd

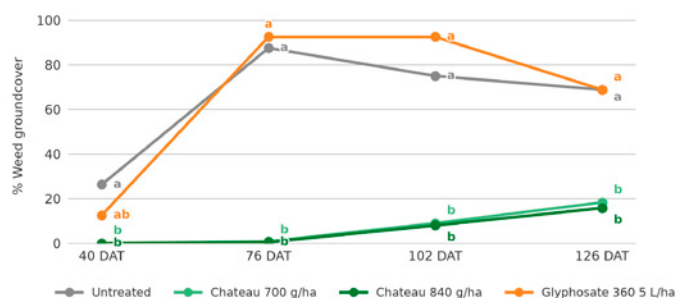
**Location:** Tauriko, Bay of Plenty

**Crop:** Kiwifruit – Hayward

A knockdown was applied ahead of treatments to give a bare herbicide strip. Chateau was applied early season and compared with a grower-standard glyphosate knockdown programme (Glyphosate 360 at 5 L/ha). Weed ground cover was assessed to 126 days after treatment.

### Total weed cover (%)

### Total weed cover (%)



| Treatment      | Rate/ha  | 40 DAA   | 76 DAA  | 102 DAA | 126 DAA |
|----------------|----------|----------|---------|---------|---------|
| Untreated      | –        | 26.30 a  | 87.50 a | 75.00 a | 68.80 a |
| Chateau        | 700 g/ha | 0.00 b   | 0.80 b  | 9.00 b  | 18.30 b |
| Chateau        | 840 g/ha | 0.00 b   | 0.50 b  | 8.00 b  | 15.80 b |
| Glyphosate 360 | 5 L/ha   | 12.50 ab | 92.50 a | 92.50 a | 68.80 a |

Means within a column followed by the same letter do not differ significantly ( $P = 0.05$ ); ns = no significant differences. Statistical analysis as published in the trial report.

### Key messages

- The residual difference: by 76 DAT the glyphosate-only strip had regrown to 92.5% weed cover – worse than untreated – while Chateau plots were below 1%.
- Black nightshade, the dominant weed, was significantly reduced by both Chateau rates and uncontrolled under the knockdown-only programme.
- A companion trial under mounded mulch (NUNZ2522, Paengaroa) confirmed the result: Chateau 0–5% cover at 126 DAT vs 36–48% for glyphosate and untreated.
- No phytotoxic effects on vines or fruit in any treatment at any assessment.

## Trial No. NUNZ1537

**Trial conducted by:** Nufarm

**Location:** Central Otago

**Crop:** Cherries : c.v. Sentennial 2 years old

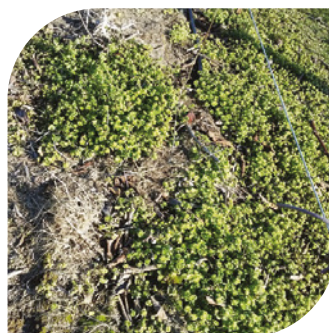
**Applied:** 16 September 2015



Untreated – 131 DAA



Chateau 840 g/ha – 131 DAA



Untreated – 315 DAA



Chateau 840 g/ha – 315 DAA

## Crop Safety

When applied as per label directions, Chateau has been proven to be safe to young and established trees and vines.

### Recommendation:

- DO NOT apply to trees established for less than 1 year.
- DO NOT apply to vines established for less than 2 years.
- DO NOT apply Chateau to green bark.

## Chateau in the soil

### Chateau poses no threat to soil health:

- Chateau does not leach.
- Chateau has no negative effects on earthworms.
- Chateau has no negative effects on soil micro-organisms.
- Chateau does not bioaccumulate in the soil.

## Best practice application to avoid crop damage when using Chateau

### Crop Safety:

Chateau has excellent crop safety when used as directed. The only way Chateau can cause damage to the crop is direct contact with roots, foliage or fruit. When Chateau is applied according to label directions root, foliage and fruit contact will not occur.

### Application timing and sprayer set up:

Chateau is not volatile – there is no risk of drift of volatile gases.

Chateau can contact foliage or fruit via spray droplet drift resulting in fruit and leaf spotting.

Apply at the correct timing as directed on the label to prevent contact with foliage or fruit.

Prior to application of Chateau conduct a sprayer check and calibration. Chateau must be applied using a ground based low boom using a coarse droplet spray. Ensure that sprayers have the correct nozzles and pressures to achieve a coarse droplet spray quality.

Avoid applying when wind or other environmental conditions are likely to cause droplets to drift onto the crop. DO NOT apply when wind speeds are less than 3 km/hour or greater than 30 km/hour.

### Dusty Situations:

Chateau treated soil may be blown onto fruit or foliage and under certain conditions spotting may occur.

Apply irrigation to moisten soil and prevent dust in situations where there is a risk especially immediately after application. DO NOT undertake mowing or disturb the soil until at least 15 mm rain or irrigation has occurred after application.

Chateau applied at the correct timing and under the correct conditions poses a low risk.

## Planting into Chateau treated ground

While Chateau does not move through the soil to contact roots there is a risk that Chateau may contact roots during the planting process.

When planting new vines or trees within 12 months of a Chateau application remove the top 3 cm of soil from a 0.5 m radius before the hole is dug. Ensure that none of this removed soil ends up in the planting hole or comes into contact with the new vine/tree.

To ensure correct application of Chateau please read and follow all label directions – including those listed in the RESTRAINTS section.



# Optimising weed control with Chateau

- To achieve weed control for the entire growing season apply Chateau (700-840 g/ha) prior to flowering for all crops except pears (pears apply before bud break).
  - > The high rate (840 g/ha) will provide more persistent weed control especially in high rainfall regions.
- Chateau must be applied to bare soil.
- Assess the ground under your trees or vines a couple of months before planned Chateau application and immediately prior to application.
  - > Remove large or dense vegetation with a suitable knockdown herbicide before applying Chateau. Allow sufficient time for these weeds to die down before applying Chateau.
  - > An effective knockdown herbicide should be tank mixed with Chateau if there are small weeds present at application.
  - > Dense trash, mulch or prunings must be removed prior to Chateau application to enable good even soil coverage.
- Chateau should be applied to moist soil and requires at least 15 mm rainfall or irrigation within 3 weeks of application to fully activate the herbicide.
  - > Sprinkler irrigation may be used to pre-moisten and or activate the herbicide.
- Avoid soil disturbance after application as this will disrupt the treated zone and allow weeds to emerge through unprotected soil.
- Apply to an even band under the trees or vines.
- Use sufficient water to provide even coverage.
- DO NOT apply in high pH (>7) water or allow the spray mix to stand overnight.



**Too much weed growth:**  
Weeds need to be controlled with a knockdown herbicide and vegetation allowed to die down before applying Chateau

## Residues and withholding periods

No detectable residues have been found in produce harvested from Chateau treated crops. No Chateau residues were detected in foliage sampled from grapevines prior to leaf plucking by sheep.

Chateau was detected at very low levels in surviving weeds within treated areas. The likely cause was dust from the surrounding bare soil contacting foliage close to the ground. However, weeds comprise only a small proportion of the grazing diet and, provided the specified grazing withholding periods are followed, residues are not expected in animal products.

### Chateau WHPs:

DO NOT apply after the start of flowering.

### Grazing orchards:

DO NOT graze orchards before 2 months after application.

### Grazing vineyards (including leaf plucking):

Sheep that have been grazing or fed treated crops should be placed on clean feed for 2 months prior to slaughter.

## Compatibility

Chateau is compatible with a range of herbicides including: WeedMaster® G360, WeedMaster TS470, WeedMaster Dry, CRUCIAL®, Lion® Herbicide, Lion 490DST, Biffo®, Gramoxone® 250, SeQuence® and Bonza® Gold.

Follow all use directions and precautions  
on the tank mix partner label.



**Right conditions for Chateau application:**  
Minimal weed growth / organic matter to stop Chateau reaching the soil surface – add a knockdown to control seedling weeds



## Use directions

| Crop                                                                      | Weeds controlled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rate per sprayed ha | Critical Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grapes</b><br><b>Kiwifruit</b><br><b>Pipfruit</b><br><b>Stonefruit</b> | Annual poa ( <i>Poa annua</i> )<br>Barnyard grass ( <i>Echinochloa spp</i> )<br>Black nightshade ( <i>Solanum nigrum</i> )<br>Bristly hawksbeard ( <i>Crepis setosa</i> )<br>Broad-leaved fleabane ( <i>Conzysa sumatrensis</i> )<br>Broad-leaved plantain ( <i>Plantago major</i> )<br>Chickweed ( <i>Stellaria media</i> )<br>Creeping mallow ( <i>Modiola caroliniana</i> )<br>Dandelion ( <i>Taraxacum officinale</i> )<br>Dove's foot ( <i>Geranium molle</i> )<br>Fathen ( <i>Chenopodium album</i> )<br>Hawksbeard ( <i>Crepis setosa</i> )<br>Mallow ( <i>Malva spp</i> )<br>Narrow-leaved plantain ( <i>Plantago lanceolata</i> )<br>Paspalum ( <i>Paspalum dilatatum</i> )<br>Perennial ryegrass ( <i>Lolium perenne</i> )<br>Scarlet pimpernel ( <i>Anagallis arvensis var. arvensis</i> )<br>Scrambling speedwell ( <i>Veronica persica</i> )<br>Small flowered mallow ( <i>Malva parviflora</i> )<br>Sow thistle ( <i>Sonchus oleraceus</i> )<br>Stinging nettle ( <i>Urtica urens</i> )<br>Summer grass ( <i>Digitaria sanguinalis</i> )<br>Tall fescue ( <i>Festuca arundinacea</i> )<br>Tall willow-herb ( <i>Epilobium ciliatum</i> )<br>White clover ( <i>Trifolium repens</i> )<br>Wild portulaca ( <i>Portulaca oleracea</i> )<br>Wireweed ( <i>Polygonum aviculare</i> )<br>Yarrow-seedlings ( <i>Achillea millefolium</i> ) | 700–840 g/ha        | <p>Use the higher rate for more persistent weed control.</p> <p>CHATEAU Herbicide needs at least 15 mm of rain or irrigation to activate, and therefore is best applied just prior to a period when rain is likely, or should be followed by adequate irrigation.</p> <p>The best application time for CHATEAU Herbicide is during the period following final harvest up to bud break.</p> <p><b>DO NOT apply to pears after budbreak.</b></p> <p><b>DO NOT apply to other crops after the start of flowering.</b></p> <p>Apply as a directed spray using even flat fan nozzles onto bare soil in the herbicide strip at the base of vines or trees. When large weeds are present apply a knockdown herbicide at the full rate and then allow weeds to die down before applying CHATEAU Herbicide. If small weeds are present (&lt;5 cm height/diameter) apply CHATEAU Herbicide in tank mixture with a knockdown herbicide.</p> <p><b>DO NOT allow spray to contact to foliage, suckers, green bark or exposed roots.</b></p> <p>For residual use CHATEAU Herbicide does not require an adjuvant, but if it is being used with a knockdown herbicide then follow the recommendation for this herbicide.</p> |



## Restraints

DO NOT apply by air.

DO NOT apply for residual weed control until significant rain has occurred and at least 15 mm rain is expected or can be applied by sprinklers within 3 weeks.

DO NOT apply during the period after bud break, unless using shielded application equipment and applicator can ensure spray or spray drift will not come in contact with fruit or foliage.

DO NOT apply to trees established less than 1 year or vines established less than 2 years.

DO NOT use in crops where the fruiting buds are less than 40 cm above the soil. Remove low branches and suckers if they are likely to come into contact with the spray.

DO NOT apply in areas prone to strong winds or to powdery soils or soils that are susceptible to wind displacement unless sprinkler or microjet irrigation can be applied immediately after application to cover the entire sprayed area.

DO NOT use in grapes or kiwifruit that are not trellised or staked unless they are free standing.

DO NOT operate any machinery (eg. sprayers, mowers, cultivators) that may blow treated soil onto leaves and fruitlets until at least 15 mm of rainfall or irrigation has been applied by sprinklers to the treated area.

DO NOT mow, cultivate or otherwise disturb the soil in the treated area between application and harvest unless the operator can ensure the any dust created will not drift onto foliage or fruit.

DO NOT use for residual weed control if a large population of established weeds or large amounts of trash are present as these will prevent the chemical reaching the soil.

DO NOT apply in high pH water (pH>7) or allow spray mix to stand overnight.

DO NOT disturb treated soil surface after application.

DO NOT treat weeds under poor growing or dormant conditions (such as occur in drought, waterlogging, disease, insect damage or following frosts) as reduced control may result. Weeds should be actively growing at time of treatment.

DO NOT apply by misting machines or any other equipment likely to cause excessive drift.

DO NOT apply to farm alleys or roads where traffic may result in treated dust settling onto crops or other desirable vegetation

DO NOT replant trees or vines within 12 months of an application unless the top 3 cm of soil from a 0.5 m radius around the tree/vine to be replaced is removed before the hole is dug. Ensure treated soil does enter the hole or contact the replant.

**DO NOT apply more than one application per season.**

**Buffer Zones:** DO NOT apply within 5 m of a water body. DO NOT apply within 15 m of downwind non-target plants.



## Powerful rewards for loyalty to Nufarm

Every purchase of Chateau earns you valuable reward points in Priority Partnership®, the rewards programme for New Zealand farmers.

If you would like to know more visit [www.prioritypartnership.co.nz](http://www.prioritypartnership.co.nz)

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