



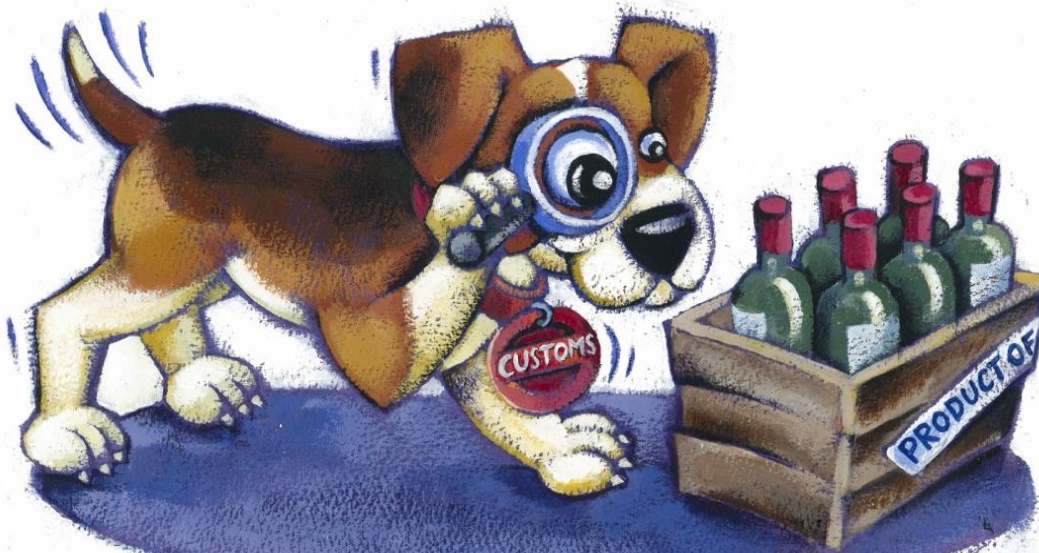
The Australian Wine  
Research Institute

# Agrochemical Update

2016/17

Milawa

Prepared by:  
Marcel Essling





- ❖ Dog book – what it's for
- ❖ Active constituents – what's in and what's out
- ❖ Recommendations
- ❖ Regional snapshot from last season

# Dog book – what it's for



The Australian Wine  
Research Institute

- ❖ meet good viticulture practices
- ❖ don't impact on wine quality
- ❖ meet export market requirements
- ❖ uphold the reputation of Australian wine as a 'clean and green' producer
- ❖ consider environmental and occupational health and safety concerns

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## COMMISSION IMPLEMENTING REGULATION (EU) No 400/2014

of 22 April 2014

concerning a coordinated multiannual control programme of the Union for 2015, 2016 and 2017  
to ensure compliance with maximum residue levels of pesticides and to assess the consumer expo-  
sure to pesticide residues in and on food of plant and animal origin

(Text with EEA relevance)

# EU testing

## ANNEX I

### Part A: Products of plant origin to be sampled in 2015, 2016 and 2017

2015	2016	2017
(b)	(c)	(a)
Aubergines	Apples	Beans with pod (fresh or frozen)
Bananas	Head cabbage	Carrots
Broccoli	Leek	Cucumbers
Table grapes	Lettuce	Oranges
Orange juice	Peaches, including nectarins and similar hybrids	Mandarins
Peas without pod (fresh or frozen)	Rye or oats	Pears
Peppers (sweet)	Strawberries	Potatoes
Wheat	Tomatoes	Rice
Virgin olive oil (unless a specific oil processing factor is available, oil processing factor = 5, taking into account an olive oil production standard yield of 20 % of the olive harvest. Member States are requested to report the processing factors used in the 'National Summary report')	Wine (red or white) made from grapes. (If no processing factors for wine are available, a default factor of 1 may be applied. Member States are requested to report the wine processing factors used in the 'National Summary report')	Spinach

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Acetamiprid

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Acrinathrin

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Aldicarb

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Aldrin and dieldrin

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Azinphos-methyl

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Azoxystrobin

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Bifenthrin

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Biphenyl

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Bitertanol

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Boscalid

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Bromide ion

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Bromopropylate

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Bupirimate

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Buprofezin

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Captan

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Carbaryl

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Carbendazim and benomyl

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Carbofuran

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Carbosulfan

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Chlorantraniliprole

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Chlorfenapyr

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Chlormequat

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Chlorothalonil

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Chlorpropham

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Chlorpyrifos

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Chlorpyrifos-methyl

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Clofentezine

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Clothianidin

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Cyfluthrin

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Cypermethrin

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Cyproconazole

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Cyprodinil

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Deltamethrin

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Diazinon

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Dichlorvos

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Dicloran

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Dicofol

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Diethofencarb

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Difenoconazole

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Diflubenzuron

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Dimethoate

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Dimethomorph

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Diniconazole

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Diphenylamine

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Dithianon

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Dithiocarbamates

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Dodine

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Endosulfan

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EPN

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Epoxiconazole

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Ethephon

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Ethion

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Ethirimol

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Etofenprox

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Famoxadone

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Fenamidone

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Fenamiphos

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Fenarimol

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Fenazaquin

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Fenhexamid

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Fenitrothion

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Fenoxycarb

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Fenpropathrin

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Fenpropidin

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Fenpropimorph

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Fenpyroximate

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Fenthion

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Fenvalerate and Esfenvalerate

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Fipronil

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Fludioxonil

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Flufenoxuron

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Fluopyram

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Fluquinconazole

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Flusilazole

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Flutriafol

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Folpet

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Formetanate

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Fosfiazate

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Glyphosate

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Hexaconazole

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Hexythiazox

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Imidacloprid
Indoxacarb
Iprodione
Iprovalicarb
Isocarbophos
Isoprothiolane
Kresoxim-methyl
Lambda-cyhalothrin
Linuron
Lufenuron
Malathion
Mandipropamid
Mepanipyrim
Mepiquat
Metalaxyl and metalaxyl-M
Methamidophos
Methidathion
Methiocarb
Methomyl and thiodicarb
Methoxyfenozide

Monocrotophos
Myclobutanil
Oxadixyl
Oxamyl
Oxydemeton-methyl
Paclobutrazole
Parathion
Parathion methyl
Penconazole
Pencycuron
Pendimethalin
Permethrin
Phosmet
Pirimicarb
Pirimiphos-methyl
Procymidone
Profenofos
Propamocarb

Propargite
Propiconazole
Propyzamide
Pymetrozine
Pyraclostrobin
Pyridaben
Pyrimethanil
Pyriproxyfen
Quinoxifen
Spinosad
Spirodiclofen
Spiromesifen
Spiroxamine
Tau-Fluvalinate
Tebuconazole
Tebufenozide
Tebufenpyrad
Teflubenzuron
Tefluthrin

Terbuthylazine
Tetraconazole
Tetradifon
Thiabendazole
Thiacloprid
Thiamethoxam
Thiophanate-methyl
Tolclofos-methyl
Tolyfluanid
Triadimefon and triadimenol
Triazophos
Trifloxystrobin
Triflumuron



# Removed active



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## Fenarimol

Name: Rubigan

Target: Powdery

Manufacturer: DuPont Australia Pty Ltd

Activity Group: 3 (*same family as Mycloss Xtra – myclobutanil*)



“DuPont supplied to distributors the last quantity of Rubigan SC in October 2014 .... and the registration with the APVMA stopped 30 June 2015. The APVMA PUBCRIS listing would suggests that product can be used up to 30 June 2016 (Expiry date).”



## Azinphos-methyl

Name: Gusathion 200 SC (Adama)

Target: LBAM, Weevils, Fig longicorn, moths

Activity Group: 1B

“We haven’t sold Gusathion since 2014.”

## Fenamiphos

Names: Assassinator 400, Fenamiphos 400, Fenamiphos 400EC, Nemacur 400

Target: Nematodes

Activity Group: 1B



# New active

## Fenpyrazamine

Name:	Prolectus
Target:	Botrytis
Manufacturer:	Sumitomo
Activity Group:	17 ( <i>same family as Teldor – fenhexamid</i> )
MRL wine grapes:	0.05 mg/kg
WHP:	Use no later than E-L 25, 80% capfall.
Grazing:	Do not graze livestock in treated vineyards.



## Flumioxazin

Name: Chateau  
APVMA: 80647  
Target: Weeds  
Manufacturer: Sumitomo  
Activity Group: G (*same family as carfentrazone ethyl and oxyfluorfen*)

MRL: 0.01\* mg/kg

### SAFETY DIRECTIONS

WARNING: CONTAINS FLUMIOXAZIN WHICH CAUSES BIRTH DEFECTS IN LABORATORY ANIMALS. WOMEN OF CHILD BEARING AGE SHOULD AVOID CONTACT WITH FLUMIOXAZIN.



## **Clarification regarding the warning statement on the CHATEAU (flumioxazin 500 WG) label**

Used in France and the USA for many years.

Application rates in France (1.2 kg/ha) and the USA (0.84 kg) are higher than in Australia (max. 0.7 kg/ha).

Flumioxazin showed some developmental toxicity in rats in the early toxicity testing work done in the 90's, and therefore labels require a warning regarding handling by women of child bearing age.

The packaging in water soluble bags has resulted in large Margins of Exposure safety calculated by OCS using standard Handler Exposure modelling. This is why CHATEAU has been scheduled as an S6 Poison. The main exposure risk comes at mixing and loading. The outer package is torn and the inner water soluble bag is simply dropped into the tank. This minimises any exposure.

Sumitomo Chemical Company in Japan has now conducted studies to elucidate the mechanism of the developmental toxicity in rats, and is continuing research to clarify the relevance to humans of the findings in rats.

The chemical was recently reviewed by APVMA and the Office of Chemical Safety it is clear that as long as label directions are followed CHATEAU will be safe to users.

# New active – coming soon

## Pyriofenone

Name: Kusabi

Target: Powdery

Manufacturer: Agnova

Activity Group: U8 (*same family as Vivando - metrafenone*)

MRL: 0.03 mg/kg

WHP Export: Use no later than E-L 31, berries pea size (7mm diameter).

WHP domestic: 35 days.

Notes: Apply as a protectant on a clean crop.

Grazing: Do not graze or feed treated crops to animals.



# New active – coming soon



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## Amisulbrom + tribasic copper sulphate

Name: Amicus Blue

Target: Downy Mildew

Manufacturer: Nufarm

Activity Group: 21

Resistance Mgt: DO NOT apply more than 2 consecutive applications and no more than 4 per season.

MRL: 0.5 mg/kg (proposed)

WHP Export: Use no later than E-L 31, berries pea size (7mm diameter).  
WHP domestic: 28 days.

Grazing: No restrictions.





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# Agrochemicals registered for use in Australian viticulture

AN ESSENTIAL REFERENCE WHEN  
GROWING GRAPES FOR EXPORT WINE

## 16/17



Active Constituent(s)	Activity group	Some registered products	Restriction on Use
<b>Black spot</b>			
captan	M4	Captan, Captan 800 WG, Captan 900 WG, Captan WG	Not recommended for use on grapes destined for export wines.
captan + metalaxyl	M4 + 4	Duplex WG	
benalaxyl + mancozeb	4 + M3	Galben M	Use no later than E-L 25, 80% capfall
metiram	M3	Polyram DF	
thiram	M3	Thiragranz, Thiram 800 WG	
ziram	M3	Ziragranz, Ziram DG, Ziram Granuflo,	
chlorothalonil	M5	Applonil 720, Barrack 720, Barrack Betterstick, Bravo 720, Bravo Weather Stik, Cavalry Weatherguard, Cheers 720, Cheers 720 Weathershield, Chemtura Chlorothalonil, Chlornil 720 SC, Chloro 720, Chloronil Pro, Chlorothalonil 720, Chlorothalonil 900 WG, Conan Sticks 720 SC, Echo 720, Echo 900 WDG, Elect 500, Fung-o-nil 500, Unite 720, Whack 720, Whack 900 WG	Use no later than E-L 29, berries pepper-corn size (4 mm diameter).
copper hydroxide + mancozeb	M1 + M3	ManKocide DF	Use no later than 30 days before harvest
copper oxychloride	M1	Copper Oxychloride WP, Oxydul DF	
dithianon	M9	Delan 700 WG, Dragon 700 WG	
mancozeb	M3	Choice Mancozeb 750 WG, Dithane Rainshield Neo Tec, <b>Fortuna Globe 750WG</b> , innova Mancozeb 750, Kencozeb 750DF, Mancoflo, Mancozeb 750 DF, Mancozeb 750 WG, Mancozeb DF, Manzate DF, Manzeb, Penncozeb 750DF, Sinozeb Xtend 750 DF, UniZeb 750 DF	

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**Botrytis bunch rot \***

boscalid <sup>1</sup>	7	Filan	Not recommended for use on grapes destined for export wines.
captan <sup>1</sup>	M4	Captan, Captan 800 WG, Captan 900 WG, Captan WG	
captan <sup>1</sup> + metalaxyl	M4 + 4	Duplex WG	
fenhexamid	17	Teldor 500 SC	Use no later than E-L 25, 80% capfall.
fenpyrazamine	17	Prolectus	
pyrimethanil <sup>2</sup>	9	Predict 600 SC, Protector 400SC, Pyrus 400 SC, Scala 400 SC	
azoxystrobin	11	Affix 250 SC, Amistar 250 SC, Avior 800 WG, Azaka, Azoxystrobin 250, Azoxystrobin 250 SC, Azoxystrobin 500 WG, Connect 800 WG, Mirador 250 SC, Spartacus 250 SC, Spartacus 500WG, Supernova 250SC	Use no later than E-L 29, berries pepper-corn size (4 mm diameter).
chlorothalonil	M5	Applonil 720, Barrack 720, Barrack Betterstick, Bravo 720, Bravo Weather Stik, Cavalry Weatherguard, Cheers 720, Cheers 720 Weathershield, Chemtura Chlorothalonil, Chlornil 720 SC, Chloro 720, Chloronil Pro, Chlorothalonil 720, Chlorothalonil 900 WG, Conan Sticks 720 SC, Echo 720, Echo 900 WDG, Elect 500, Fung-o-nil 500, Unite 720, Whack 720, Whack 900 WG	
tebuconazole + azoxystrobin	3 + 11	Custodia	
cyprodinil <sup>3</sup>	9	Solaris 300 EC	Use no later than E-L 29, berries pepper-corn size (4 mm diameter). Do not use within 60 days of harvest.
cyprodinil + fludioxonil <sup>3</sup>	9+12	Switch	
potassium salts of fatty acids	U1	Ecoprotector	Use no later than 14 days before harvest.
hydrogen peroxide + peroxyacetic acid (suppression only)	M + M	Peracetic acid, Peratec, Peratec PLUS, Peroxy Treat	Use no later than 7 days before harvest.
iprodione	2	Aquaflow 500 SC, Chief 250 Liquid, Chief Aquaflow, Corvette Flowable, Corvette Liquid, Ippon 500 Aquaflow, Ipral 250, Iprine 250, Iprine 500, Iprodex 250, Iprodione 250, Iprodione Aquaflow 500, Iprodione Liquid 250, Rovral Aquaflow, Rovral Liquid, Shelby 250, Sindon 500 SC, Sinpro 500 SC, Subscribe, Transact	Use no later than 7 days before harvest. Consult your winery/grape purchaser before spraying within 30 days of harvest.

## Downy mildew \*

captan <sup>4</sup>	M4	Captan, Captan 800 WG, Captan 900 WG, Captan WG	Not recommended for use on grapes destined for export wines.
captan <sup>4</sup> + metalaxyl	M4 + 4	Duplex WG	
phosphorous acid <sup>4</sup>	33	Agri-Fos 600, Phospot 400, Phospot 400 pH 7.2, Phospot 600, Dominator 600, Fungacid 600, Fungi-Fos 400, Fungi-Fos 400 pH 7.2, Grow-Phos 600, Phos Phyt 400, Sprayphos 400, Sprayphos 600, Sprayphos 620, Throw Down, Throw Down 600	
ametoctradin + dimethomorph	45 + 40	Zampro	Use no later than E-L 25, 80% capfall.
benalaxyl + mancozeb	4 + M3	Galben M	
dimethomorph	40	Acrobat SC, Downright, Sphinx	
metiram	M3	Polyram DF	
oxadixyl + propineb	4 + M3	Rebound WP	
zineb	M3	Zineb	
mandipropamid	40	Revus	Use no later than E-L 26 (cap-fall complete)
azoxystrobin	11	Affix 250 SC, Amistar 250 SC, Avior 800 WG, Azaka, Azoxystrobin 250, Azoxystrobin 250 SC, Azoxystrobin 500 WG, Connect 800 WG, Mirador 250 SC, Spartacus 250 SC, <b>Spartacus 500WG</b> , Supernova 250SC	Use no later than E-L 29, berries pepper-corn size (4 mm diameter).
chlorothalonil	M4	Applonil 720, Barrack 720, Barrack Betterstick, Bravo 720, Bravo Weather Stik, Cavalry Weatherguard, Cheers 720, Cheers 720 Weathershield, Chemtura Chlorothalonil, Chlornil 720 SC, Chloro 720, Chloronil Pro, Chlorothalonil 720, Chlorothalonil 900 WG, Conan Sticks 720 SC, Echo 720, Echo 900 WDG, Elect 500, Fung-o-nil 500, Unite 720, Whack 720, Whack 900 WG	
tebuconazole + azoxystrobin	3 + 11	Custodia	
trifloxystrobin	11	Flint 500 WG (suppression only)	Use no later than E-L 31, berries pea-size (7 mm diameter).
pyraclostrobin	11	Cabrio, Cabrio WG	Use no later than E-L 31, berries pea-size (7 mm diameter). Do not use within 63 days of harvest.

## Downy mildew \*

copper ammonium acetate	M1	Cop-IT	Use no later than 30 days before harvest.
copper ammonium complex	M1	Copperguard, Liquicop	
copper cuprous oxide	M1	Ag Copp 750, Nordox 750 WG, Red Copper WG	
copper hydroxide	M1	Blue Shield DF, Champ Dry Prill WG, Flo-Bordo, Hydrocop, Kocide Blue Xtra, Kocide Opti, Vitra 400WG	
copper hydroxide + mancozeb	M1 + M3	ManKocide DF	
copper octanoate	M1	Tricop	
copper oxychloride	M1	Copper Oxychloride, Copper Oxychloride 500 WP, Copper Oxychloride WP, Coppox WG, Coppox WP, Neoram 375 WG, Oxydul DF, Uni-Guard 500 WP	
copper sulphate tribasic	M1	Bordeaux WG, Cuprofix Disperss, Tri-Base Blue, Tribasic Liquid	
copper sulphate tribasic + mancozeb	M1 + M3	Copman DF, Novofix Disperss	
dithianon	M9	Delan 700 WG, Dragon 700 WG	
mancozeb	M3	Choice Mancozeb 750 WG, Dithane Rainshield Neo Tec, <b>Fortuna Globe 750WG</b> , innova Mancozeb 750, Kencozeb 750DF, Mancoflo, Mancozeb 750 DF, Mancozeb 750 WG, Mancozeb DF, Manzate DF, Manzeb, Penncozeb 420 SC, Penncozeb 750DF, Sinozeb Xtend 750 DF, UniZeb 750 DF	
metalaxyl - M + copper hydroxide	4 + M1	Ridomil Gold Plus	
metalaxyl - M + mancozeb	4 + M3	Ridomil Gold MZ WG	
metalaxyl + copper oxychloride	4 + M1	Axiom Plus, Copper Plus, Medley Plus, Metalaxyl + Copper Oxychloride WP, Zeemil Plus	
metalaxyl + mancozeb	4 + M3	Axiom MZ 720, Max MZ, Maxyl, Medley MZ, Metal-Man MZ 720, <b>Zeemil 720 WG</b> , Zeemil MZB 720 WP	
sulfur + copper oxychloride	M2 + M1	Mildex WG	
hydrogen peroxide + peroxyacetic acid (suppression only)	M + M	Peratec PLUS	Use no later than 7 days before harvest.

**Eutypa dieback**

cyproconazole + iodocarb	3 + 28	Garrison Rapid	Dormancy treatment.
fluazinam	29	Emblem	
tebuconazole	3	<b>Gelseal</b> , Greenseal	
Trichoderma harzianum	unspecified	Vinevax Bio-Implants, Vinevax Wound Dressing	

**Phomopsis cane and leaf spot**

captan <sup>5</sup> + metalaxyl	M4 + 4	Duplex WG	Not recommended for use on grapes destined for export wines.
captan <sup>5</sup>	M4	Captan, Captan 800 WG, Captan 900 WG, Captan WG	
fluazinam	29	Emblem, Gem <sup>6</sup> , Shirlan <sup>6</sup>	Dormancy spray only.
metiram	M3	Polyram DF	Use no later than E-L 25, 80% capfall.
copper sulphate tribasic + mancozeb	M1 + M3	Novofix Disperss	Use no later than 30 days before harvest
dithianon	M9	Delan 700 WG, Dragon 700 WG	
mancozeb	M3	Choice Mancozeb 750 WG, Dithane Rainshield Neo Tec, <b>Fortuna</b> <b>Globe 750WG</b> , innova Mancozeb 750, Kencozeb 750DF, Mancoflo, Mancozeb 750 DF, Mancozeb 750 WG, Mancozeb DF, Manzate DF, Manzeb, Penncozeb 420 SC, Penncozeb 750DF, Sinozeb Xtend 750 DF, UniZeb 750 DF	

Powdery mildew *			
boscalid <sup>7</sup>	7	Filan	Not recommended for use on grapes destined for export wines.
hexaconazole	3	Viva	Use no later than E-L 25, 80% capfall.
metrafenone	U8	Vivando	
spiroxamine	5	Prosper 500 EC	
sulfur, present as elemental or crystalline sulfur	M2	Dusting Sulphur, Dusting Sulphur 900	Use no later than 12 weeks before harvest.
azoxystrobin	11	Affix 250 SC, Amistar 250 SC, Avior 800 WG, Azaka, Azoxystrobin 250, Azoxystrobin 250 SC, Azoxystrobin 500 WG, Connect 800 WG, Mirador 250 SC, Spartacus 250 SC, <b>Spartacus 500WG</b> , Supernova 250SC	Use no later than E-L 29, berries pepper-corn size (4 mm diameter).
sulfur + tebuconazole	M2 + 3	Unicorn 745WG	Use no later than E-L 31, berries pea-size (7 mm diameter).
tebuconazole	3	Buzz Ultra 750 WG, Folicur 430 SC, Laguna Xtreme 800 WG, Launch, Orius 430 SC, Zolo 430 SC	
tebuconazole + azoxystrobin	4 + 11	Custodia	
cyflufenamid	U6	Flute 50 EW	
paraffinic oil	n/a	BioPest	
trifloxystrobin	11	Flint 500 WG	Use no later than E-L 31, berries pea-size (7 mm diameter). Do not use within 63 days of harvest.
pyraclostrobin	11	Cabrio, Cabrio WG	
penconazole	3	Azotic, Delos, <b>Pearl, Ruby 100EC</b> , Topas 100 EC	Use no later than E-L 31, berries pea-size (7 mm diameter). Do not use within 60 days of harvest.
tetraconazole	3	Domark 40ME, Mettle 40ME	Use no later than E-L 34, (before commencement of veraison). Do not use within 42 days of harvest.
quinoxifen	13	Legend, <b>Quinfen250 SC</b>	
triadimefon	3	Slingshot, Triadimefon 125	
triadimenol	3	Allitron, Bayfidan 250 EC, Citadel, Triadimenol 250 EC, Tridim 250 EC	

# Powdery mildew \*

copper ammonium acetate	M1	Cop-IT	Use no later than 30 days before harvest
copper ammonium complex	M1	Copperguard, Liquicop	
myclobutanil	3	Mycloss Xtra	
proquinazid	13	Talendo	
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, David Grays Sulphur Spray, Flosul 800, GranuSulf 800 WG, InnoSulph 800 WG, Kendon Sulphur, Microsul WG Elite, Microthiol Disperss, Notion, Rutech Sulfur, Solo 800WG, Sulfostar DF, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet, Top Wettable Sulphur, Uni-Shield, Wettable Sulphur	
sulfur + copper oxychloride	M2 + M1	Mildex WG	
hydrogen peroxide + peroxyacetic acid (suppression only)	M + M	Peratec PLUS	Use no later than 7 days before harvest.
potassium bicarbonate	M2	Ecocarb	





## Australian plague locust

<i>Metarhizium anisopliae</i> var. <i>acridum</i>	n/a	Green Guard SC, Green Guard SC Premium	Use no later than 7 days before harvest
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## Bud mite

sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst.
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, GranuSulf 800 WG, InnoSulph 800 WG, Microsul WG Elite, Microthiol Disperss, Notion, <b>Solo 800WG</b> , Sulfostar DF, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet, Top Wettable Sulphur, Uni-Shield, Wettable Sulphur	Use no later than 30 days before harvest.

## Bunch mite

sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst.
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, GranuSulf 800 WG, InnoSulph 800 WG, Microsul WG Elite, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet, Wettable Sulphur	Use no later than 30 days before harvest

## Garden weevil

indoxacarb	22A	Avatar	Use no later than E-L 31, berries pea size (7 mm diameter). Do not use within 56 days of harvest.
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## Grapeleaf blister mite

paraffinic oil	n/a	Heavy Paraffinic Dormant Spray Oil	Dormant spray only.
petroleum oil	n/a	Stifle, Vicol Winter Oil	
sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst.
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, David Grays Sulphur Spray, Flosul 800, GranuSulf 800 WG, InnoSulph 800 WG, Kendon Sulphur, Microsul WG Elite, Microthiol Disperss, Notion, Rutec Sulfur, <b>Solo 800WG</b> , Sulfostar DF, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet, Top Wettable Sulphur, Uni-Shield, Wettable Sulphur	Use no later than 30 days before harvest.

<b>Grapeleaf rust mite</b>			
sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst.
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, Flosul 800, GranuSulf 800 WG, InnoSulph 800 WG, Kendon Sulphur, Microsul WG Elite, Microthiol Disperss, Notion, Rutech Sulfur, <b>Solo 800WG</b> , Sulfostar DF, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet, Top Wettable Sulphur, Uni-Shield, Wettable Sulphur	Use no later than 30 days before harvest.
<b>Grapevine moth</b>			
chlorantraniliprole	28	Altacor	Use no later than E-L 25, 80% capfall.
spinetoram	5	Delegate	Use no later than E-L 31, berries pea-size (7 mm diameter).
emamectin	6	Proclaim, Warlock	Use no later than E-L 31, berries pea-size (7 mm diameter). Do not use within 56 days of harvest.
indoxacarb	22A	Avatar	
<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>	11	Bacchus WG	May be used until harvest
<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>	11	Delfin, DiPel DF	
<i>Trichogrammanza carverae</i>	n/a	Trichogramma parasitic wasp	
<b>Grapevine scale <sup>8</sup></b>			
paraffinic oil	n/a	Bioclear, BioPest, Heavy Paraffinic Dormant Spray Oil, Trump Spray Oil	Dormant spray only.
petroleum oil	n/a	All Seasons White Oil, D-C-Tron Plus Spray Oil, Sacoa Summer Spray Oil, Stifle, Vicol Summer Oil, Vicol Winter Oil	
spirotetramat (suppression only)	23	Movento 240 SC	Use no later than E-L 18.

Light brown apple moth			
chlorantraniliprole	28	Altacor	Use no later than E-L 25, 80% capfall.
methoxyfenozide	18	Prodigy	
spinetoram	5	Delegate	Use no later than E-L 31, berries pea-size (7 mm diameter).
emamectin	6	Proclaim, Warlock	Use no later than E-L 31, berries pea-size (7 mm diameter). Do not use within 56 days of harvest.
indoxacarb	22A	Avatar	
<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>	11	Bacchus WG	May be used until harvest
<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>	11	Delfin, DiPel DF	
tetradecenyl acetate + tetradecadienyl acetate	n/a	Isomate LBAM Plus Pheromone, MD LBAM Corto, MD LBAM Flex Pheromone, MD LBAM Pheromone	
<i>Trichogramma manzanarae</i>	n/a	Trichogramma parasitic wasp	
Mealybug <sup>9</sup>			
paraffinic oil	n/a	Bioclear, BioPest, Trump Spray Oil	Dormant spray only.
spirotetramat	23	Movento 240 SC	Use no later than E-L 18.
buprofezin	16	Applaud, Scale & Bug, Strident	Use no later than E-L 25, 80% capfall.
Mediterranean/Queensland Fruit Fly			
A baiting program that does not target fruit or foliage is recommended.			
Control options for fruit fly are subject to APVMA permit conditions.			
Contact your winery or grape purchaser prior to any 1A, 1B, 2B or 3A insecticide.			
Snails			
copper complex	n/a	Escar-Go, <b>Socusil</b>	Dormant spray only.
metaldehyde	n/a	Meta (pellets), Metarex Snail and Slug bait, Pestmaster Snail and Slug Pellets, Slug Out (bait), Slugger (slug and snail pellets)	Ground application only. Use no later than 7 days before harvest.
iron EDTA complex	n/a	Multiguard Snail and Slug Killer	Ground application only. May be used until harvest.

Two spotted mite			
petroleum oil	n/a	Stifle	Dormant spray only.
sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, GranuSulf 800 WG, InnoSulph 800 WG, Microsul WG Elite, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet	Use no later than 30 days before harvest.
etoxazole	10B	ParaMite	Use no later than 21 days before harvest.
Wingless grasshopper			
indoxacarb	22A	Avatar	Use no later than E-L 31, berries pea size (7 mm diameter). Do not use within 56 days of harvest.
<i>Metarhizium anisopliae</i> var. <i>acridum</i>	n/a	Green Guard SC, Green Guard SC Premium	Use no later than 7 days before harvest.

Two spotted mite			
petroleum oil	n/a	Stifle	Dormant spray only.
sulfur, present as polysulfide	M2	Lime Sulphur	Apply as near as possible to budburst
sulfur, present as elemental or crystalline sulfur	M2	Chemtura Sulphur WG, Cosamil, Cosavet WG, GranuSulf 800 WG, InnoSulph 800 WG, Microsul WG Elite, Sulfur 800 WG, Sulgran WG, Sulphur 800 WG, Thiovit Jet	Use no later than 30 days before harvest.
etoxazole	10B	ParaMite	Use no later than 21 days before harvest.
Wingless grasshopper			
indoxacarb	22A	Avatar	Use no later than E-L 31, berries pea size (7 mm diameter). Do not use within 56 days of harvest.
<i>Metarhizium anisopliae</i> var. <i>acridum</i>	n/a	Green Guard SC, Green Guard SC Premium	Use no later than 7 days before harvest.

## Re-entry periods

# NE Vic Spray Program Review



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## ❖ Detailed spray records provided by AgSmart

Variety	Block	Growth stage	Target pest, disease or weed	Full registered product name(s)	Winery restriction on use	Chosen label rate of registered product used per 100L (g, kg, ml, L)	Conc. factor (CF)	Amount of water sprayed (L/ha or L/100m)	Amount of registered product used (per ha or per 100m) (g, kg, ml, L)	Comments	NSW & Vic)	(Compulsory)
Date										Start/Finish		
										Wind Sp./Dir.		
										Operator		
										Weather: Temp/Humidity		
										Equipment		
Date										Start/Finish		
										Wind Sp./Dir.		
										Operator		
										Weather: Temp/Humidity		
										Equipment		
Date										Start/Finish		
										Wind Sp./Dir.		
										Operator		



## ❖ Lots of Questions

- Number sprays per block (tractor passes)
- Number of sprays per pest/disease
- Number of products used at once
- Timing of sprays
- Active ingredient/Mode of action used
- Rates of sulphur for Mites and Powdery Mildew
- Resistance management
- Protect vs. eradicate for Downey Mildew
- Program variation between varieties
- Cost of spray programs



## ❖ Example analysis

**King Valley**, Alpine Valleys, Beechworth, Strathbogie Ranges and  
Rutherglen – 35 growers, 112 blocks

compared with

**Orange**, Tumbarumba, Gundagai, Hilltops and  
Canberra – 17 growers, 104 blocks

## ❖ Feedback

- Value of the analysis
- Any other questions to 'ask' the data?



# Regional growing conditions



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## Growing season temp

Cool	up to 17.5
Mild	17.5-18.5
Warm	18.5-19.5
Hot	19.5+

## Median Et/P

Damp	up to 0.85
Dry	0.85 to 0.95
Very dry	0.95+

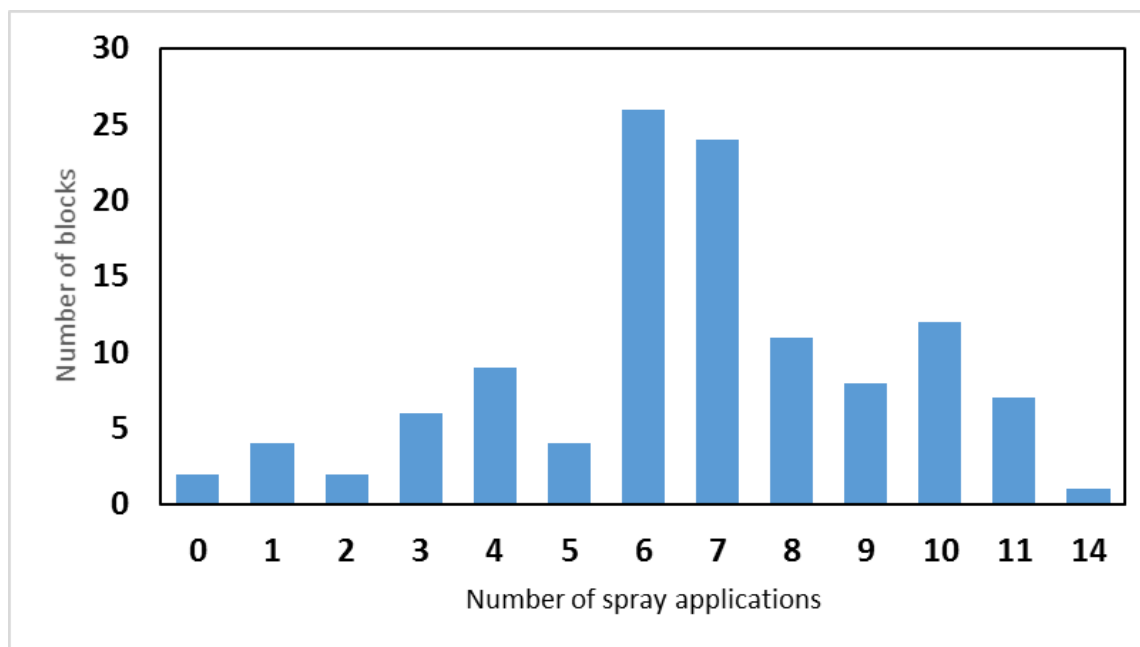
	Damp	Dry	Very Dry
<b>Cool</b>	Macedon Ranges	Mount Gambier	Geelong
	Mornington Peninsula	Henty	Pyrenees
	Orange	Grampians	
	Canberra District	Kangaroo Island	
	Yarra Valley	Sunbury	
	Beechworth	Wrattonbully	
	Upper Goulburn	Coonawarra	
	Strathbogie Ranges	Robe	
	Southern Fleurieu	Mount Benson	
	Adelaide Hills		
<b>Mild</b>	Alpine Valleys	Blackwood Valley	Great Southern
	Pemberton	Eden Valley	McLaren Vale
	Tumbarumba	Manjimup	Bendigo
		Granite Belt	
		Currency Creek	
		Padthaway	
		Heathcote	
<b>Warm</b>	Geographe	Peel	Rutherglen
	New England Australia	Gundagai	Goulburn Valley
	Shoalhaven Coast	Glenrowan	Pericoota
	Southern Highlands	Clare Valley	Langhorne Creek
	Margaret River	Mudgee	Barossa Valley
<b>Hot</b>	Hunter Valley	Perth Hills	South Burnett
	Hastings River	Swan District	Cowra
		Southern Flinders Ranges	Riverina
			Adelaide Plains
			Riverland
			Swan Hill
			Murray Darling

# Fungicide sprays per block, 2016



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- ❖ Tractor passes
- ❖ NE Victoria
- ❖ All varieties
- ❖ Most growers 6-8 passes
- ❖ High values are questionable

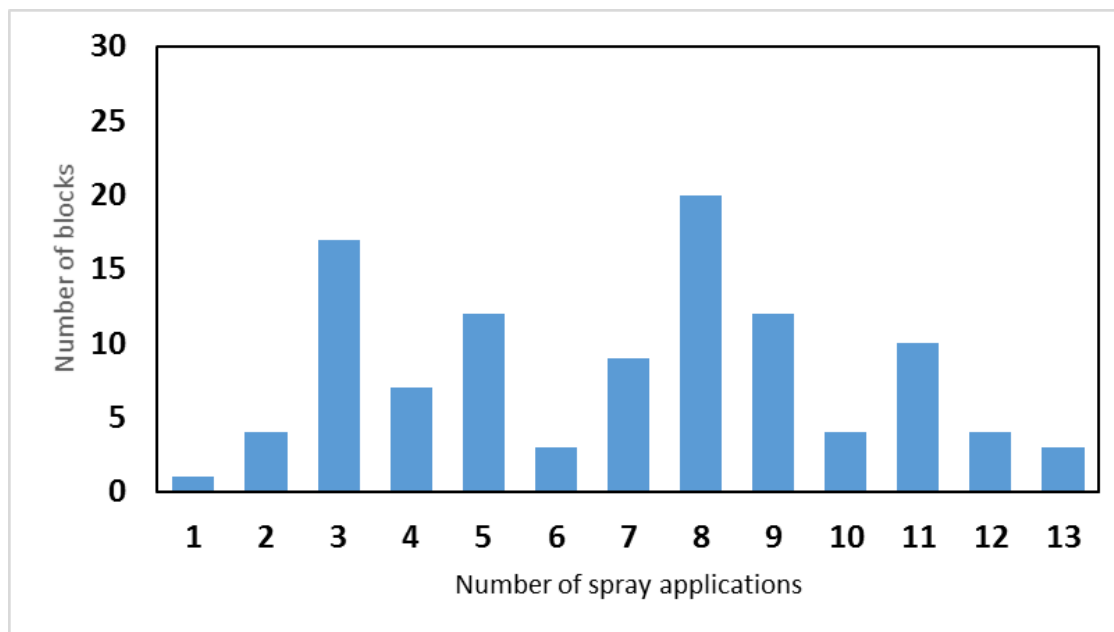


# Fungicide sprays per block, 2016



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- ❖ Tractor passes
- ❖ **NSW inland** (Orange, Tumbarumba, Gundagai, Hilltops and Canberra)
- ❖ All varieties

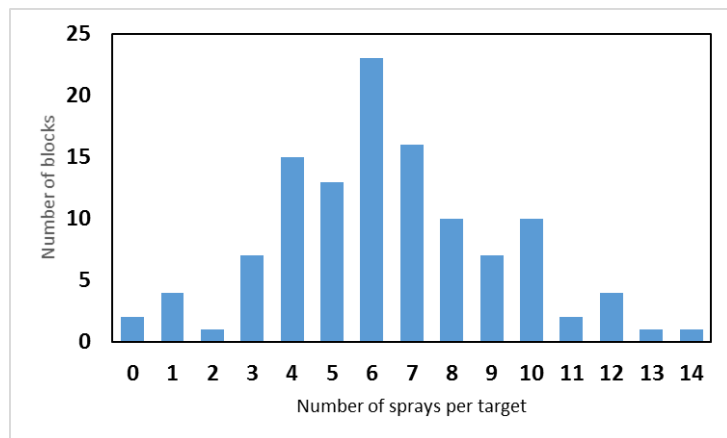


# Number of sprays/target - Powdery

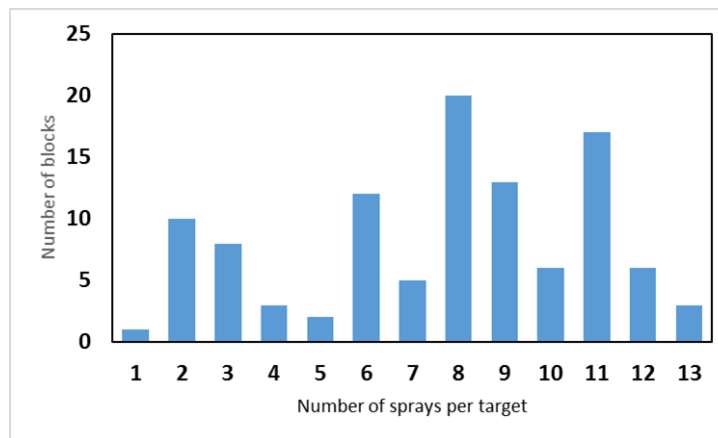


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## ❖ NE Vic



## ❖ NSW



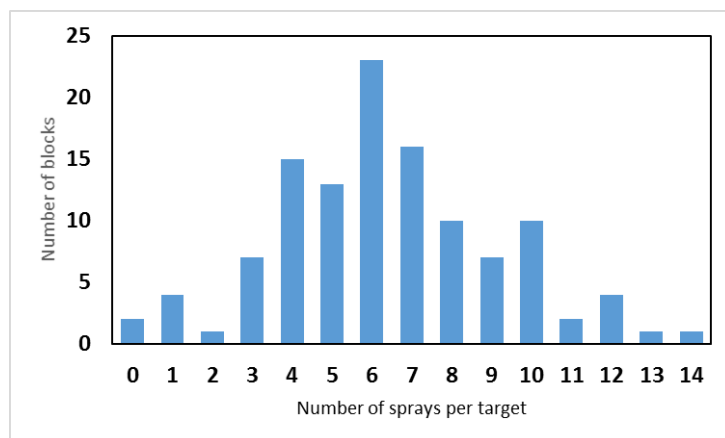
2016

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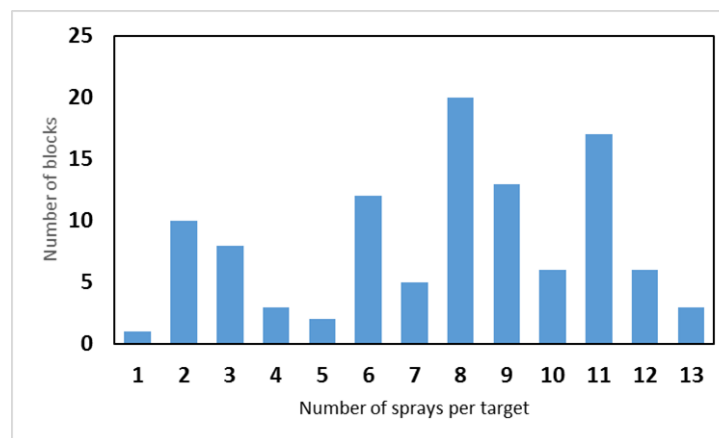


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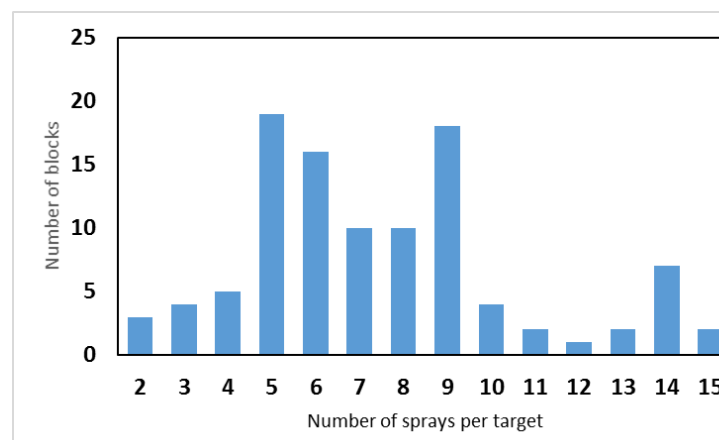
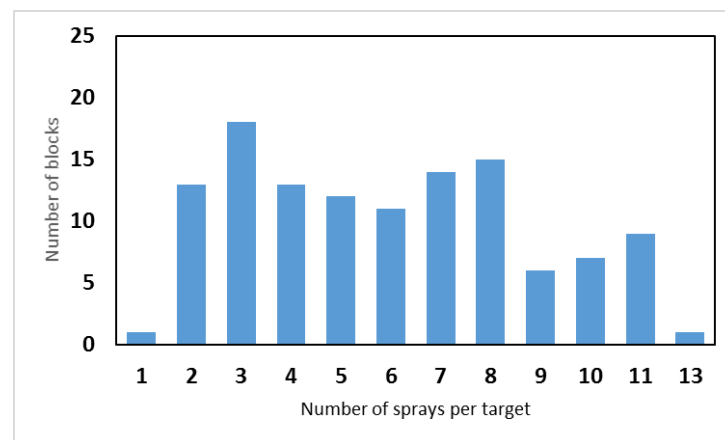
## ❖ NE Vic



## ❖ NSW



2016



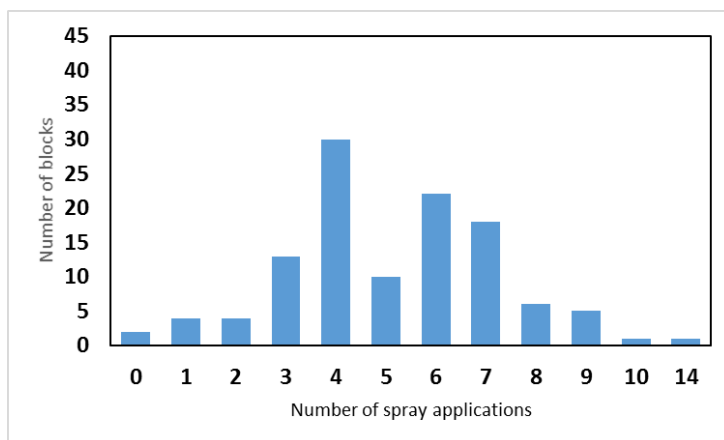
2015

# Number of sprays/target - Downy

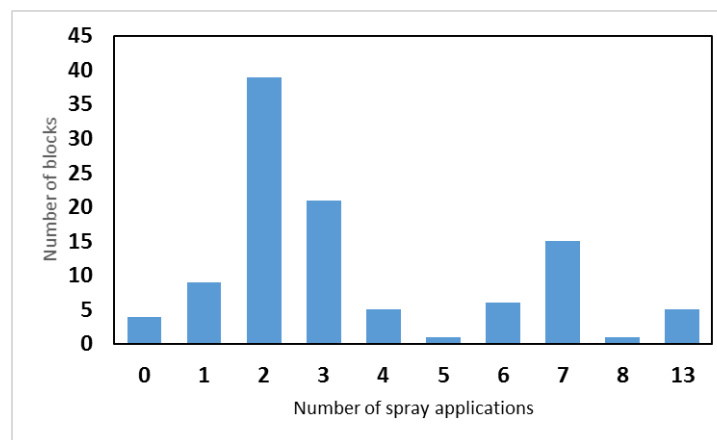


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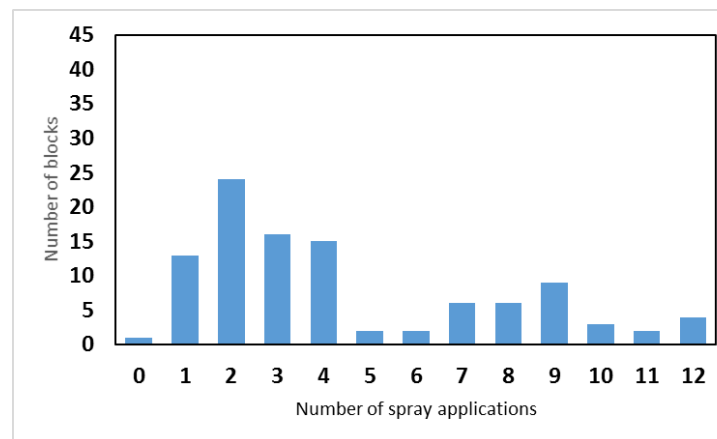
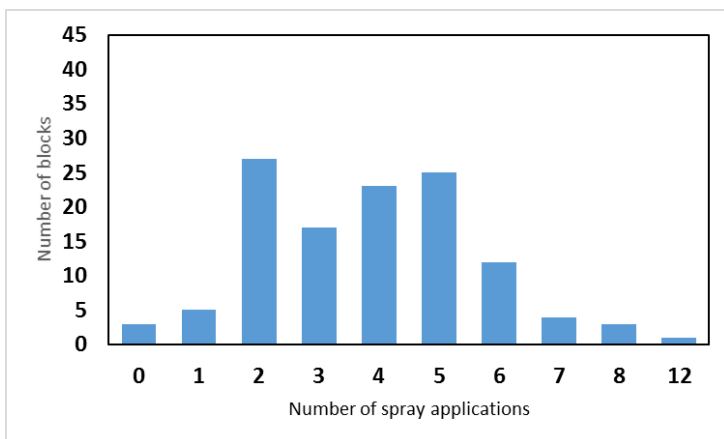
## ❖ NE Vic



## ❖ NSW



2016



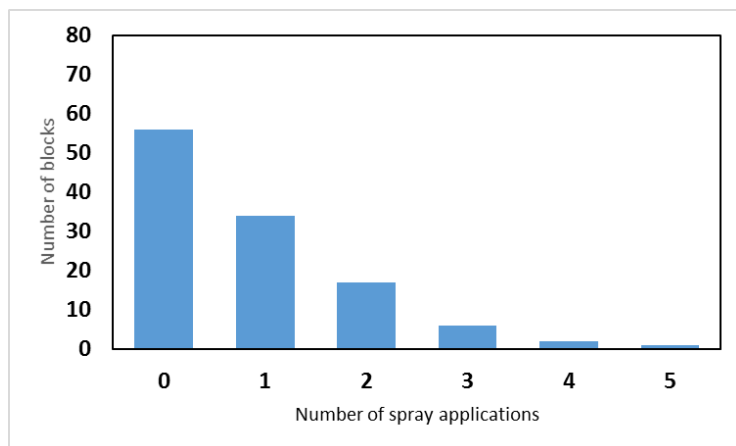
2015

# Number of sprays/target - Botrytis

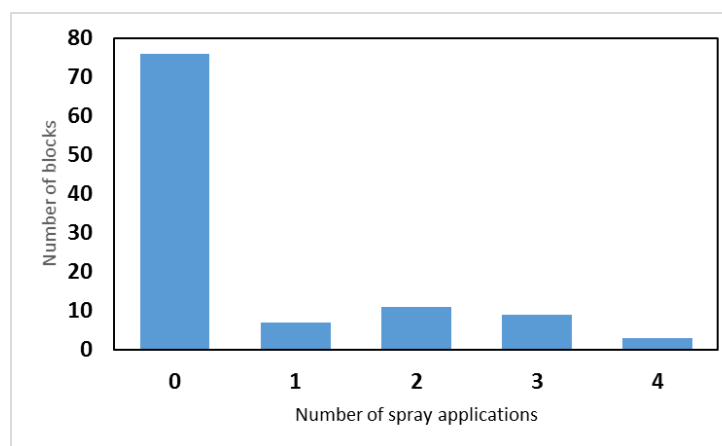


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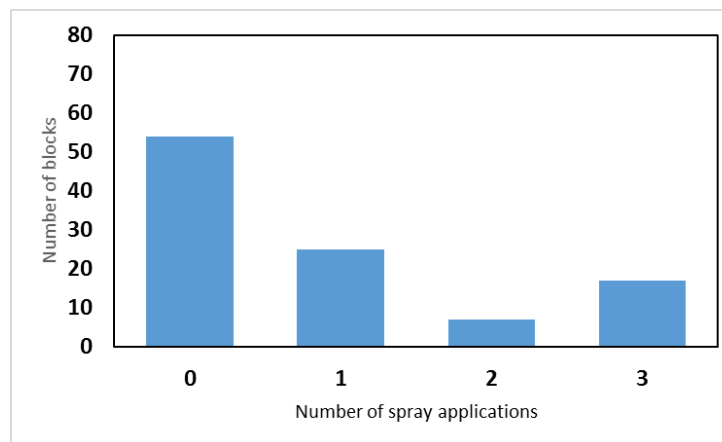
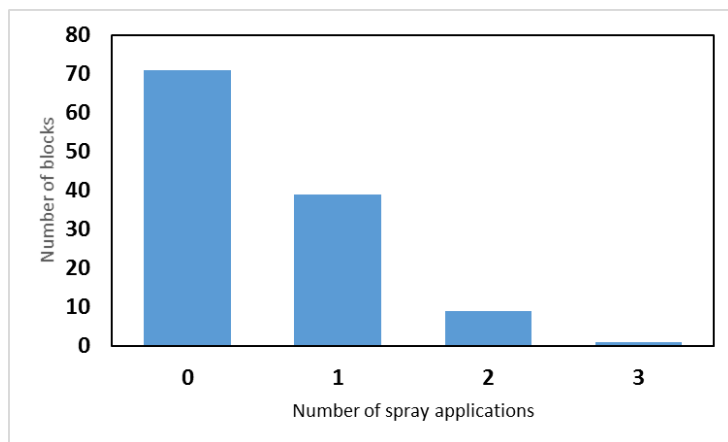
❖ NE Vic



❖ NSW



2016



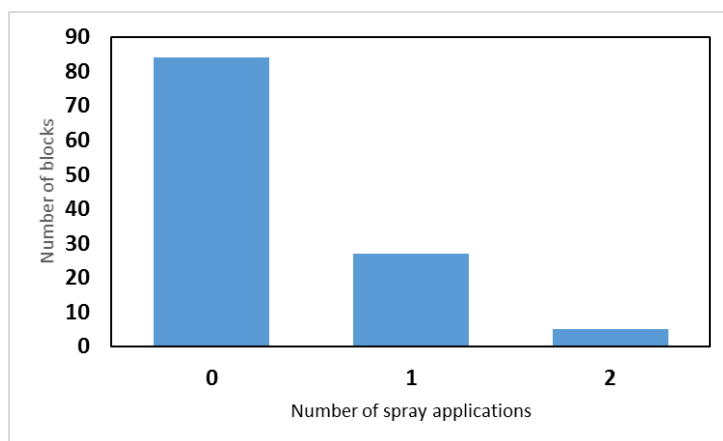
2015

# Number of sprays/target - LBAM

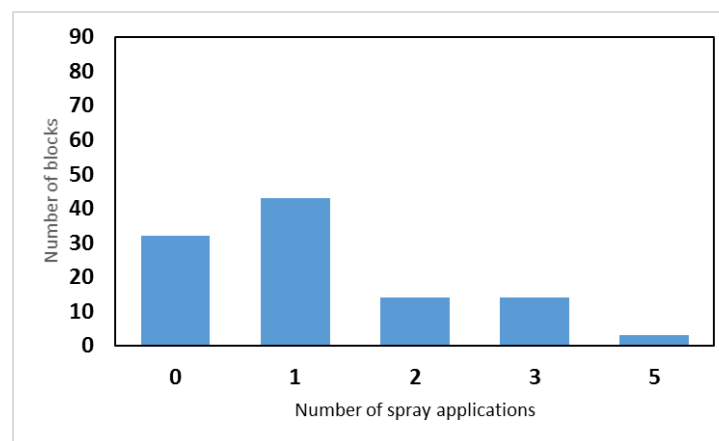


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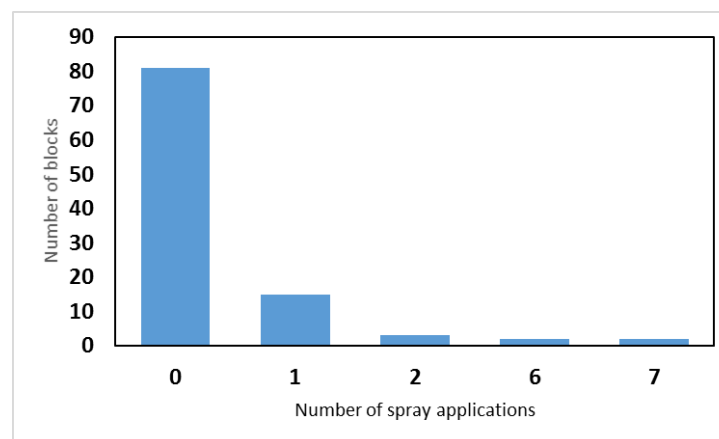
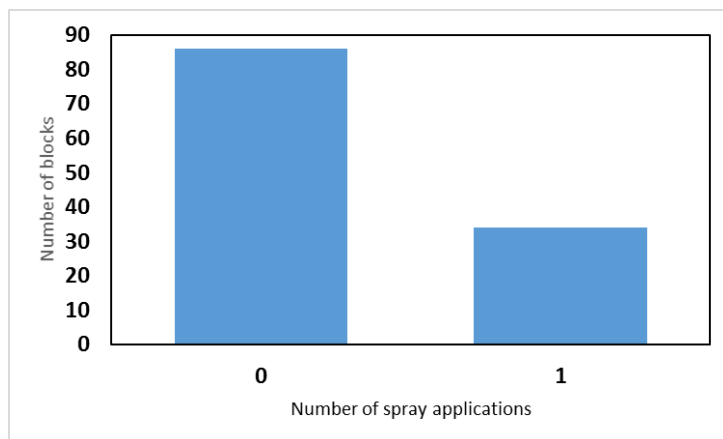
❖ NE Vic



❖ NSW



2016



2015

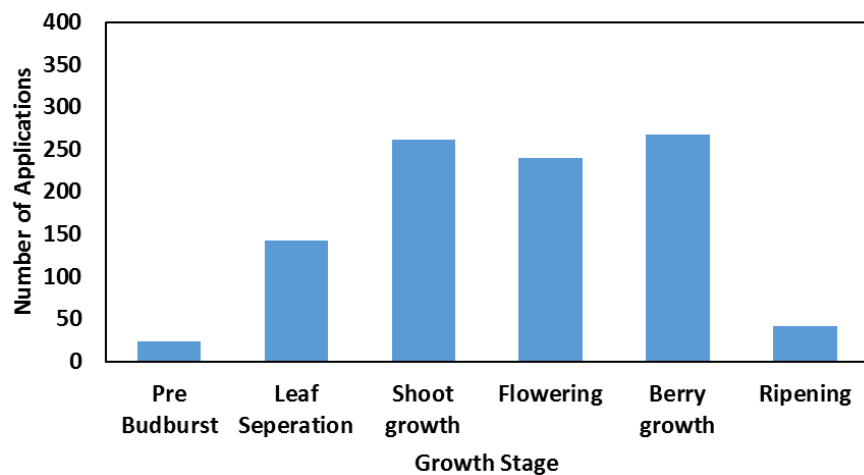


# Timing of sprays – Powdery 2016

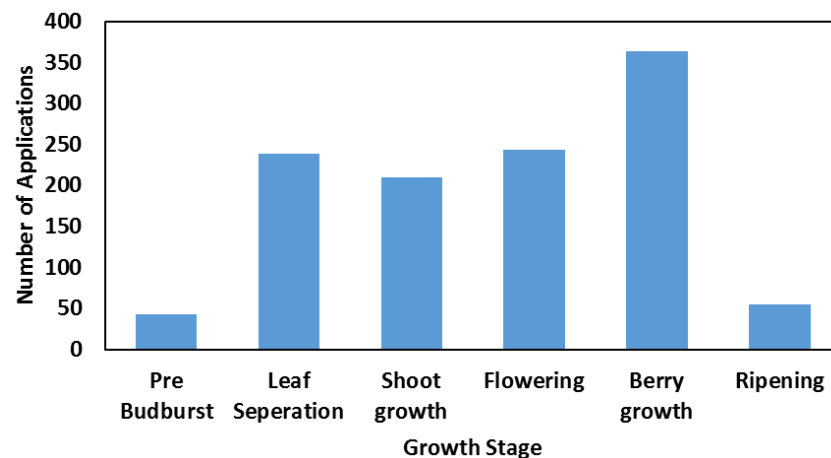


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❖ VIC



❖ NSW

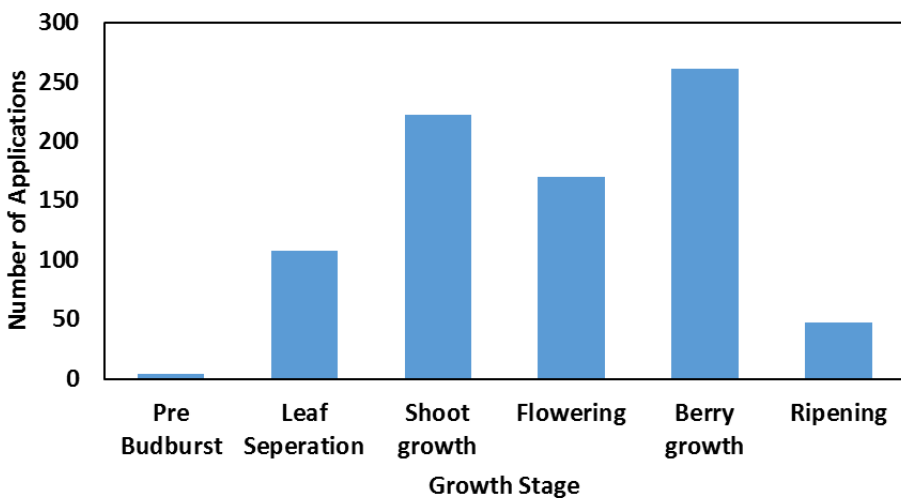


# Timing of sprays – Downy 2016

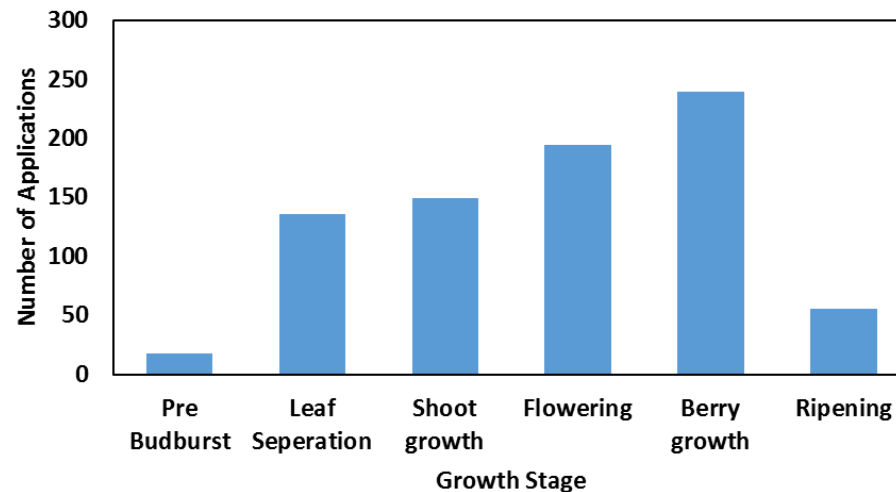


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❖ VIC



❖ NSW

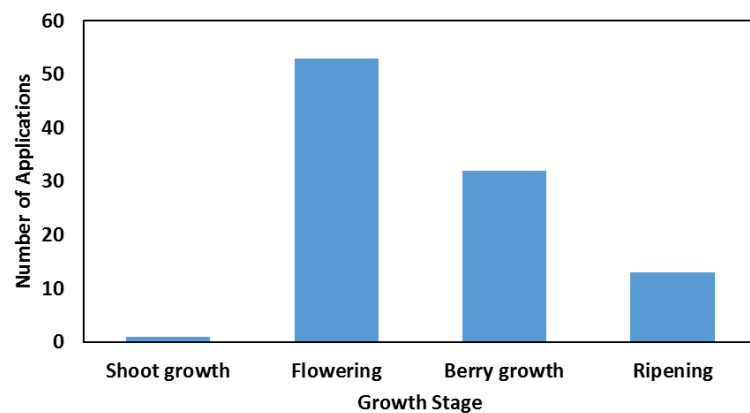


# Timing of sprays – Botrytis

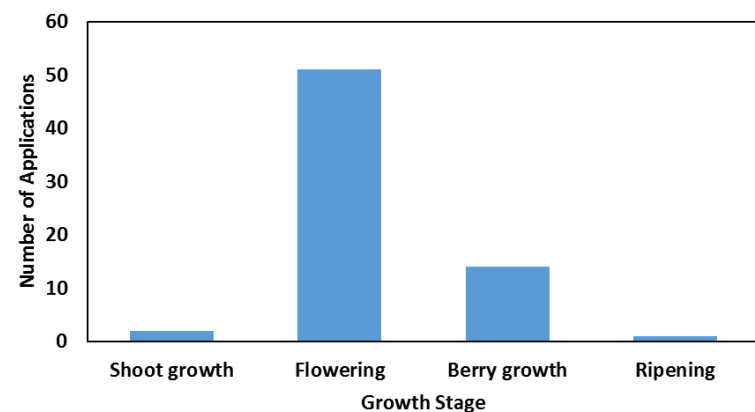


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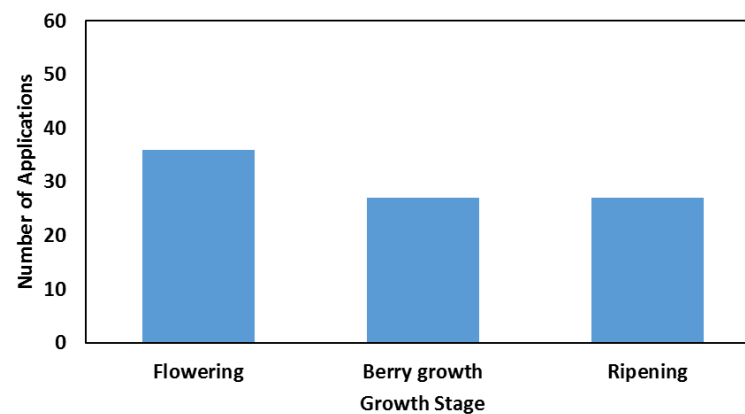
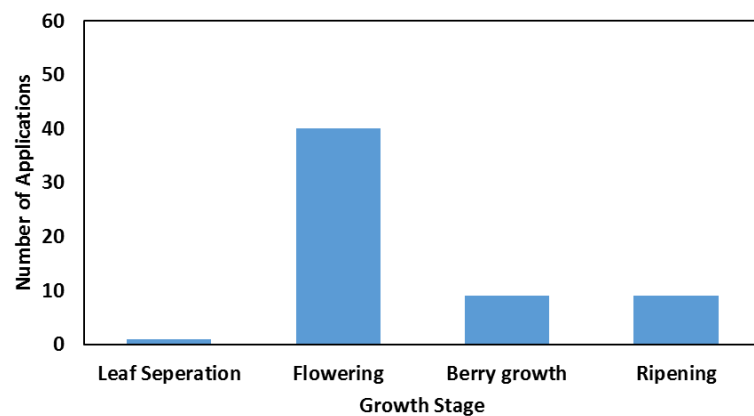
❖ VIC



❖ NSW



2016



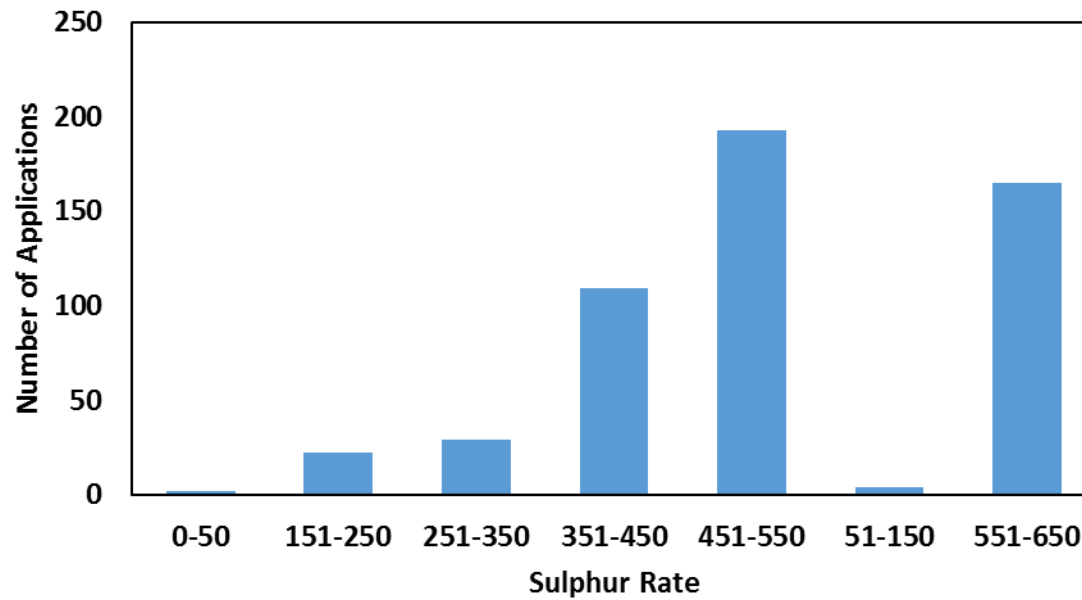
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# Sulphur Rates



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## ❖ Victoria

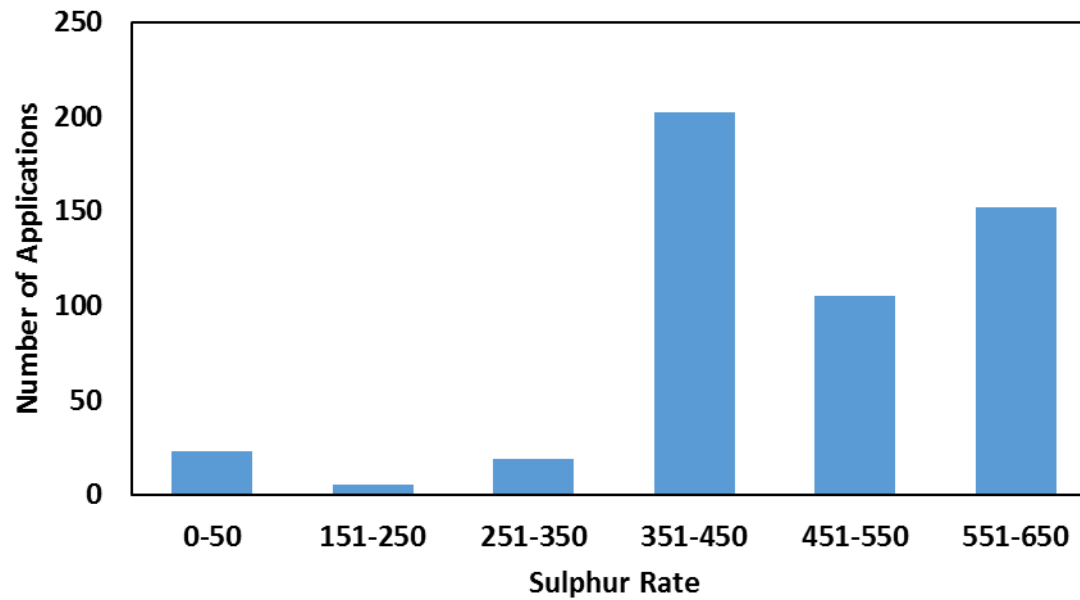


# Sulphur Rates



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## ❖ NSW

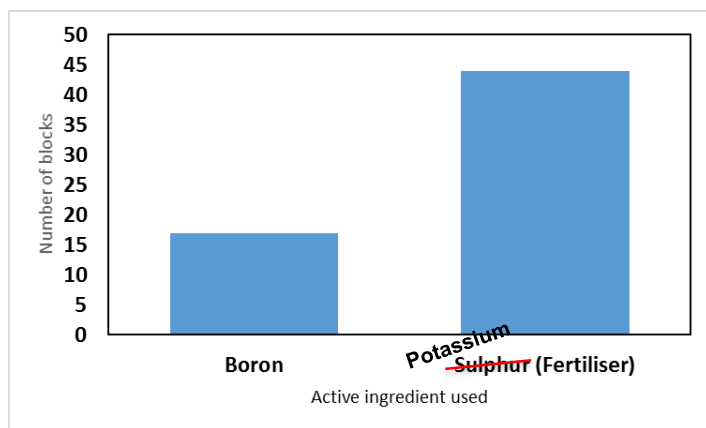


# Timing of sprays – Nutrition

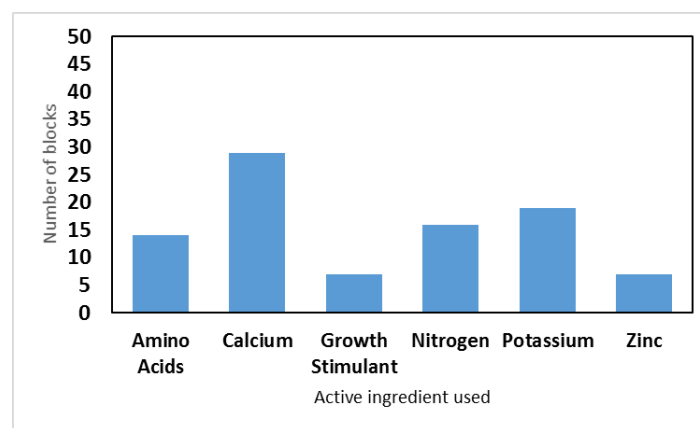


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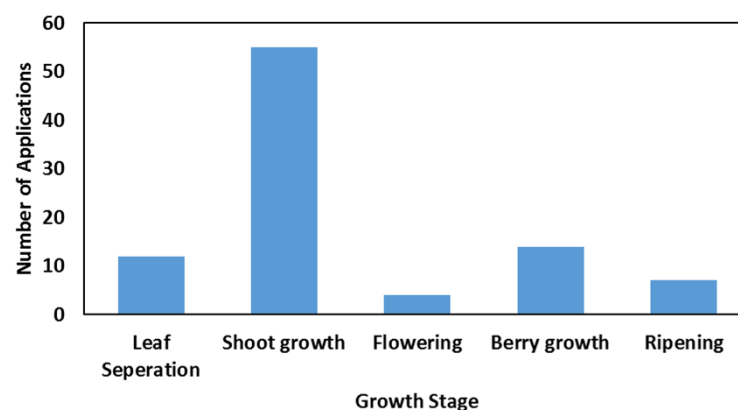
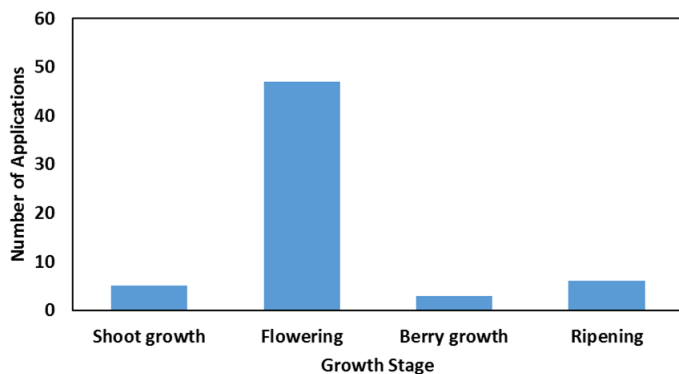
❖ VIC



❖ NSW



Nutrient



Timing

# Conclusions



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- ❖ Strong opportunity for benchmarking
- ❖ Fungicide focus
  - Also insecticide and herbicide?



# Questions??

