

Friday, 6 May 2005

Summary Report

Independent Assessment of FoliActive Efficacy performed on Chardonnay at the HortResearch Lawn Road Research vineyard in Hawke's Bay

TREATMENT APPLICATIONS

The evaluation has proceeded exactly to plan with 13 applications of treatments, as detailed in figure 1.

Figure 1 - Treatment application schedule.

	application 1	application 2	application 3	application 4	application 5	application 6	application 7	application 8	application 9	application 10	application 11	application 12	application 13
	5-25mm				5% capfall	80% capfall	post-bloom	Berries Pea Size	Pre-Bunch Closure	Post Bunch Closure	Veraison	4 wk Pre-vintage	2 wk Pre-vintage
untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated	untreated
mildew control	Thovit Jet 1.5 Kg/ha	Thovit Jet 1.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	untreated	untreated
Standard fungicides	Dithane	Dithane	Dithane	Dithane	Euparen Multi	Switch	Dithane	Captan	Teldor	Captan	SCALA	Captan	untreated
FoliActive flow residue	Thovit Jet 1.5 Kg/ha	Thovit Jet 1.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha
FoliActive 3 L	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha	FoliActive 3 L/ha
FoliActive 6 L	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha
FoliActive 9 L	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha	FoliActive 9 L/ha
L/ha sulphur composite	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha	FoliActive 6 L/ha
L/ha /Ultra low sulphur	Thovit Jet 1.5 Kg/ha	Thovit Jet 1.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 2.5 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha	Thovit Jet 3 Kg/ha
sulphur comparison	Thovit Jet .35 Kg/ha	Thovit Jet .35 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha	Thovit Jet .63 Kg/ha

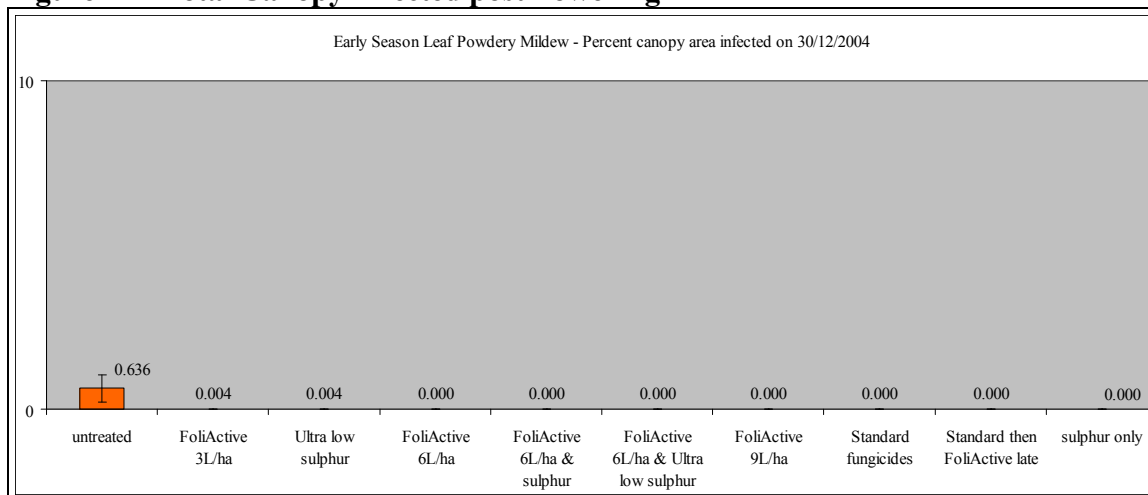
RESULTS; Early-Season Assessments (pre and post-flowering)

Powdery Mildew and Phomopsis;

Pre-flower and during flowering powdery mildew was not evident however by 30th December 14% of leaves on unsprayed vines were infected. The only other treatments to show powdery mildew infections (less than a half a percent of leaves were infected) were the mid rate FoliActive and the low sulphur treatments. However as the average severity of these infections was only 1% so the total canopy area infected was negligible (Figure 2).

Powdery Mildew was not detected on bunches at this time nor was Phomopsis observed at any stage.

Figure 2 — Total Canopy Infected post flowering

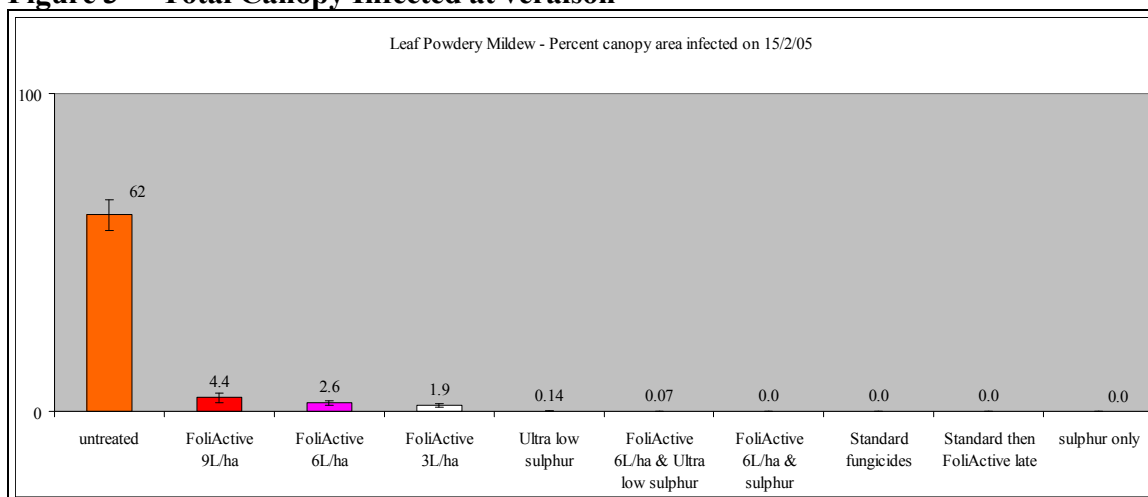


RESULTS; Mid-Season Assessments (veraison)

Powdery Mildew infections of foliage at veraison

During January to the present time conditions have been highly pathogen-favourable (dry and warm (20-27C) conditions). Therefore powdery mildew levels on unsprayed vines were extreme creating inordinately high pressure on the treated plots. At veraison (15/2/05) we recorded 30-41% incidence on FoliActive sprayed vines, however as the average severity of these infections was only 6-10% the total canopy area infected was only 1.9 - 4.4% (Figure 3) compared to 62% on the untreated.

Figure 3 — Total Canopy Infected at veraison



Powdery Mildew infections of fruit

In common to the foliage, by veraison powdery mildew disease on unsprayed fruit had become very severe, with total destruction of a commercially harvestable crop, as the infected berries (exampled in Figure 4) will be unsuitable for winemaking.

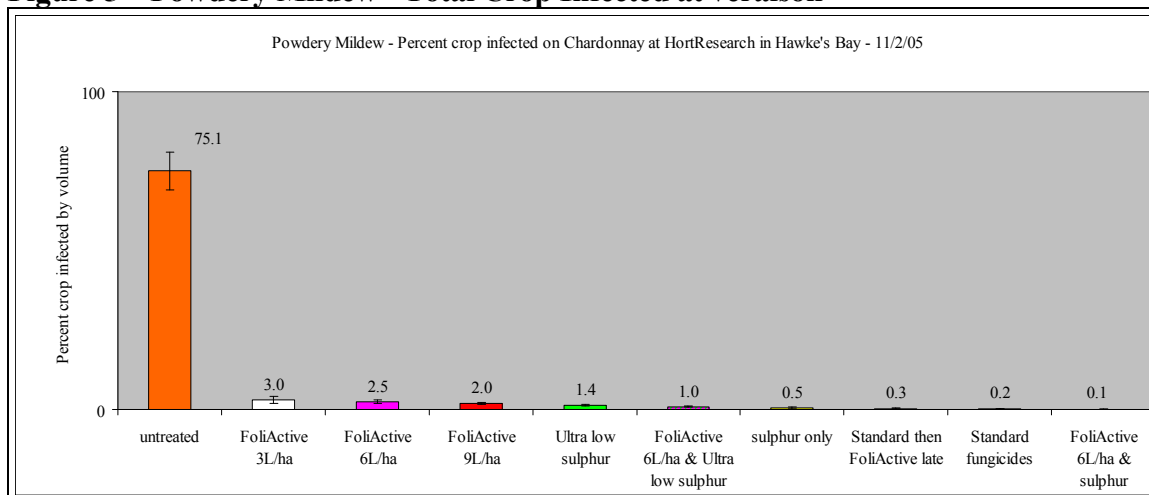
Under such extreme pressure even the full rate sulphur treated vines had on average 28% bunches infected with FoliActive treated 76-80% being similar to the low rate sulphur 72%. When the mid rate FoliActive was used in conjunction with low or normal rate sulphur there was clearly an improvement in powdery mildew control.

On sprayed vines infection severity was very light with on average only 1-4 berries per bunch infected, hence on the FoliActive treatments only 2-3% of the total crop infected (Figure 5).

Figure 4 – Powdery mildew infected unsprayed bunches at veraison 2005



Figure 5 – Powdery Mildew - Total Crop Infected at veraison

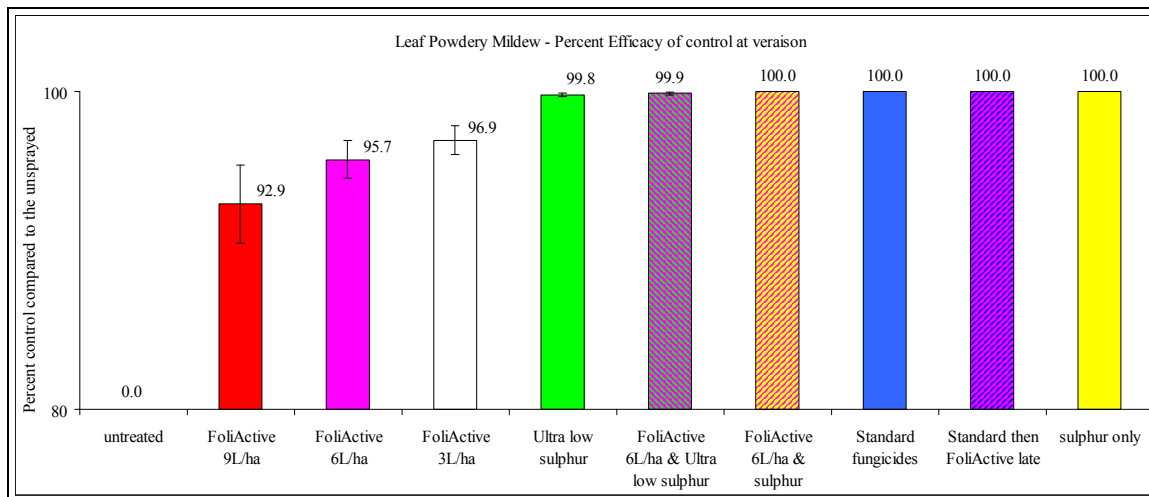


Summary of Powdery Mildew Control – Treatment Efficacy

The relative efficacy of each treatment was calculated from the difference between the level of disease on the untreated and the treatment, with this difference being expressed as a percentage of the total infection (canopy or crop) on the untreated plots.

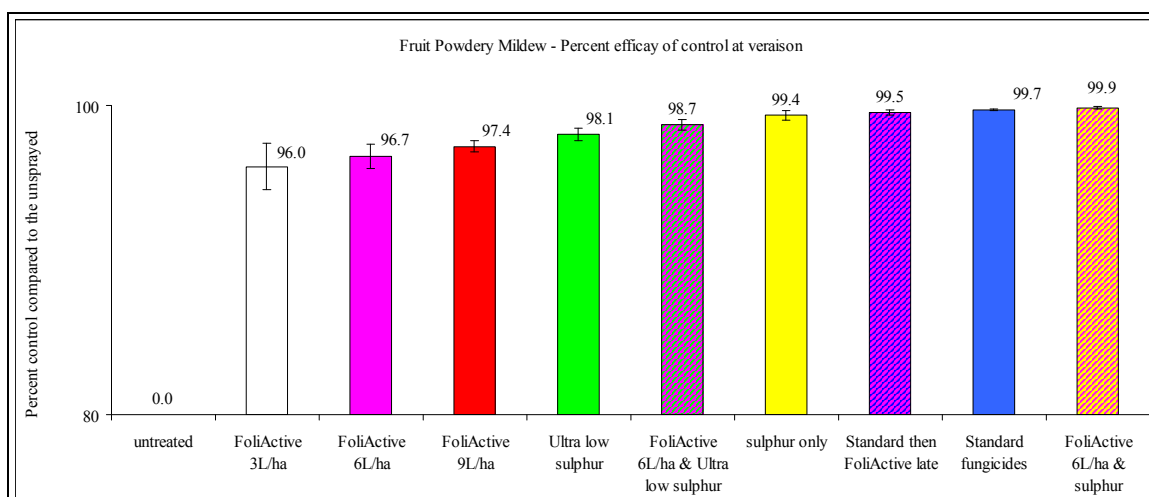
On leaves FoliActive appeared to give a weak inverse rate response (Figure 6) which has been previously been seen with a similar product Serenade®. The sulphur-based treatments provided excellent control with an indication (in common with the results on fruit) that FoliActive assisted with the performance of the low rate sulphur.

Figure 6 – Efficacy of Powdery Mildew Control - based on Canopy Area Infected



On fruit FoliActive appeared to give a very slight rate response (Figure 7). Again there were indications that FoliActive assisted with the low rate sulphur performance. Likewise improved performance of full rate sulphur is suggested by the data.

Figure 7 – Efficacy of Powdery Mildew Control - based on Total Crop Infected



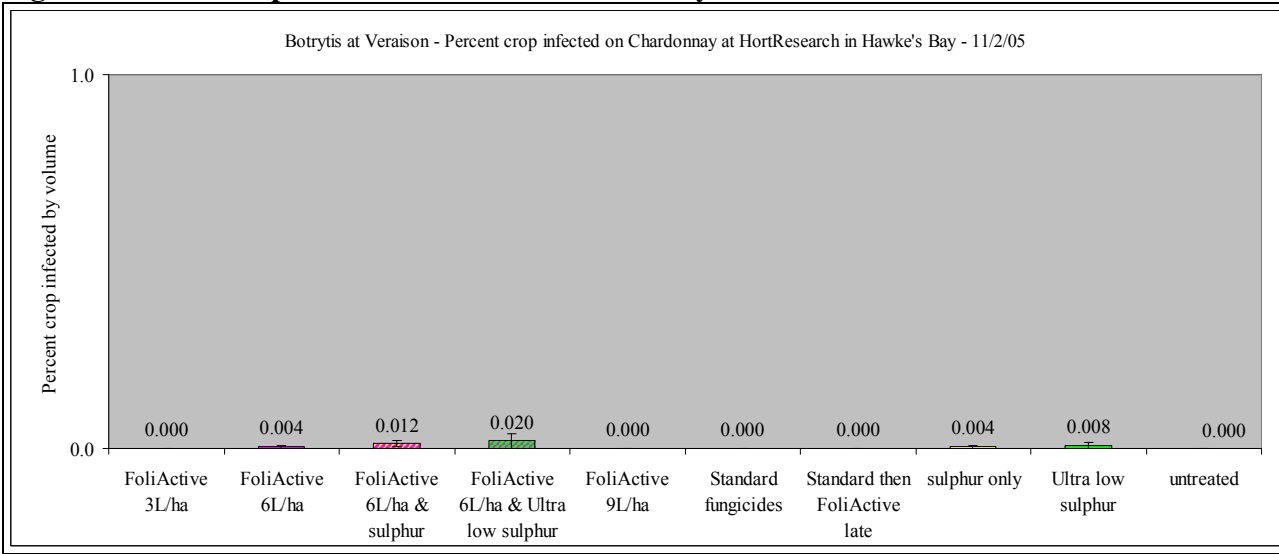
Downy Mildew

Plasmopara viticola infections have not been observed to date.

Botrytis Bunch Rot at Veraison

At veraison we noted that fruit rot levels were very low, 0-1.2% incidence, and that the total level of crop infected was insignificant (Figure 8), consequently no treatment trends were apparent. This is quite normal for this time of year for our Chardonnay clone 6 vineyard.

Figure 8 - Total Crop Infected at veraison with Botrytis



Botrytis Bunch Rot at Vintage

At vintage we noted that fruit rot levels were much higher as it had been raining constantly for 2 weeks prior to harvest. The total level of crop infected was significant (Figure 9) in the sulphur treated and the FoliActive 3l/ha with on average 10% of the whole crop infected. The other FoliActive treatments produced fruit with half the level of rot.

Where FoliActive had been used as a late season treatment [to reduce fungicide residues] rot levels were similar to the full season fungicide program.

Figure 9 - Total Crop Infected at vintage with Botrytis

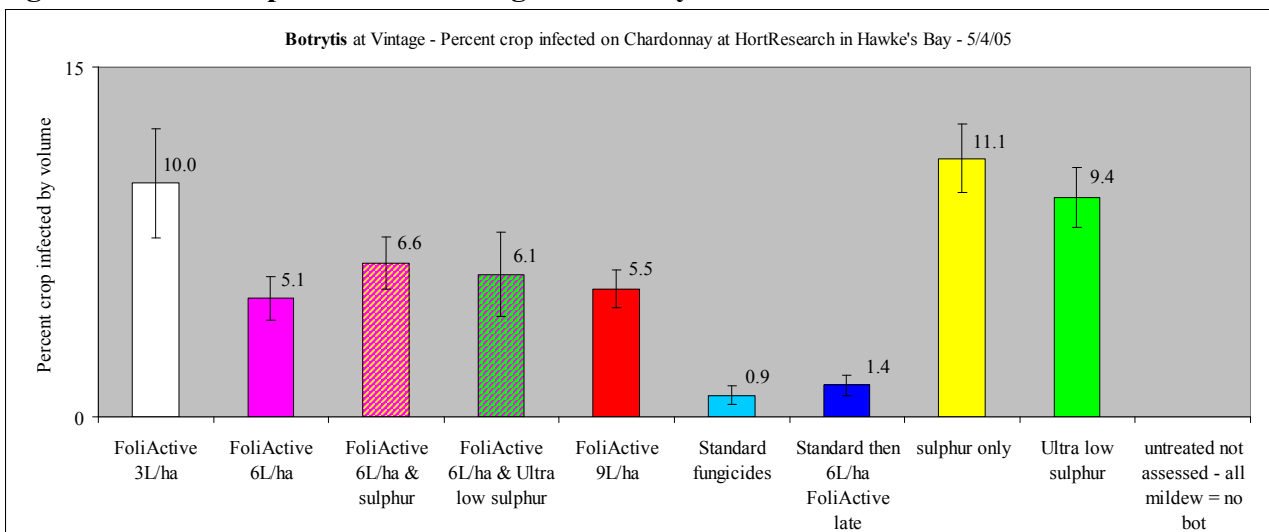
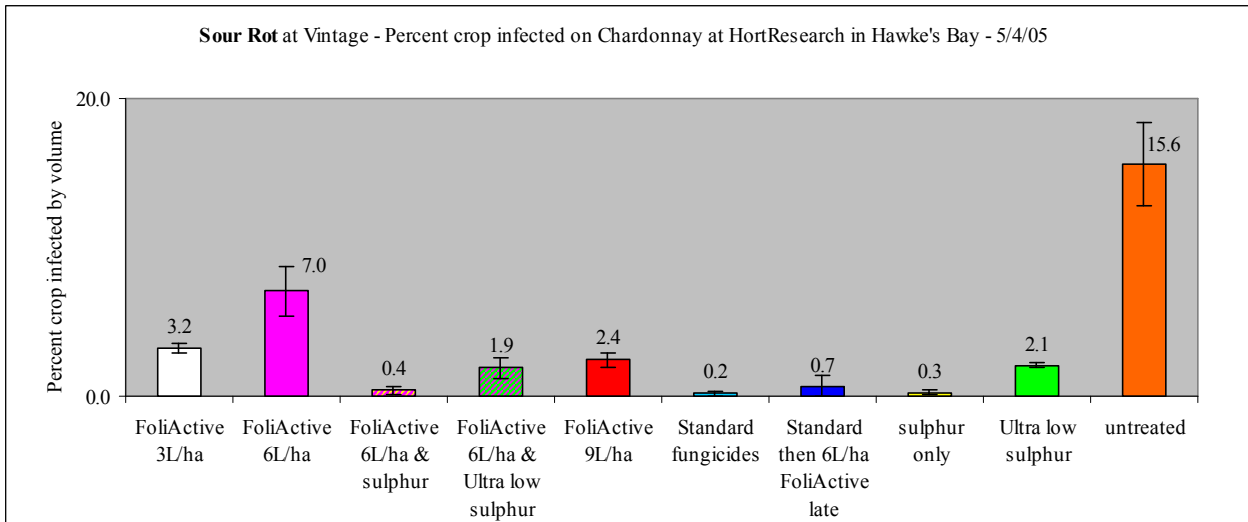
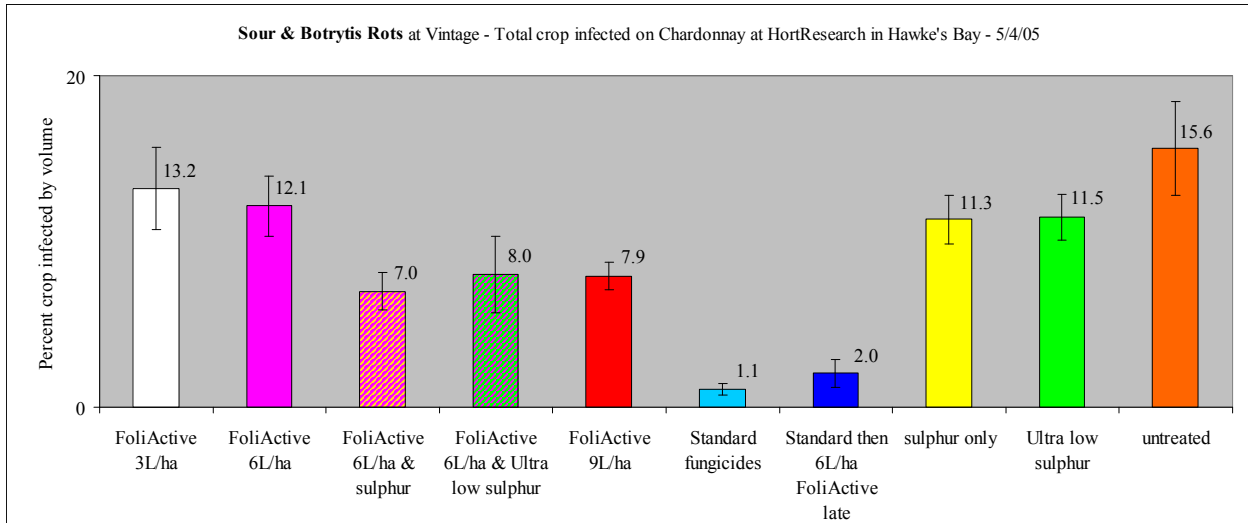


Figure 10 - Total Crop Infected at vintage with Sour rot



For unknown reasons sour rot was higher on the FoliActive 6l/ha (Figure 10), which resulted in the total rot levels [botrytis plus sour] being the same as for the 3l/ha rate (Figure 11).

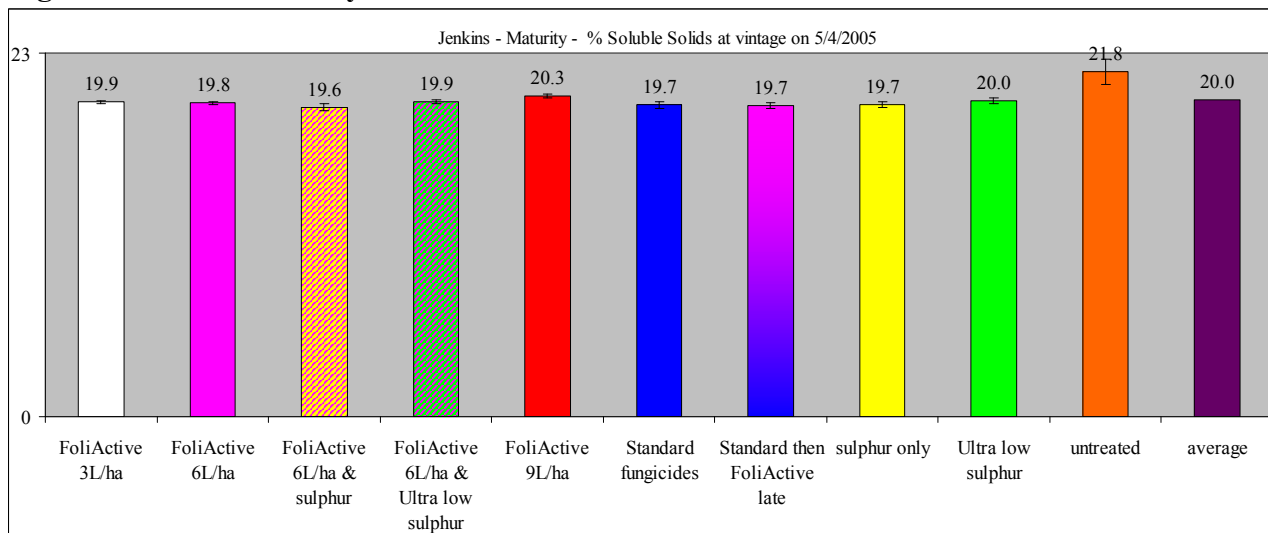
Figure 11 - Total Crop Infected at vintage with Botrytis and Sour rot combined



Fruit Maturity

All treatments produced fruit of equivalent ripeness as shown by the soluble solids levels in Figure 12.

Figure 12 – Fruit maturity



Phytotoxicity

All sprayed vines are entirely free of treatment-induced foliage or fruit damage.

Please contact me on 06 877 8196 or 0275 653118 if you wish to discuss these findings further.

Yours sincerely,

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