



Changing bunch architecture for sustainable  
botrytis control

Mundy DCM

June 2010

A report prepared for:

SFF / Marlborough Research Centre Trust

Mundy DCM  
Plant & Food Research, Marlborough

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This report has been approved by:

Dion Mundy

Scientist, Pathology & Applied Mycology

Date: 28 June 2010

Bob Fullerton

Science Group Leader, Bioprotection

Date: 28 June 2010

## Final Report Template

Project Title:	Changing bunch architecture for sustainable botrytis control
Project Number:	L09/151
Date of Report:	June 2010

**Note: The Final Report is due in the SFF Office within two months after the project completion date.**

*If any material supplied in, or attached to, this report contains confidential information, or is otherwise unsuitable for wider dissemination, please clearly mark accordingly and highlight directly with your Project Adviser (including the reason for wishing to treat the material in this manner).*

We request that SFF and the Marlborough Wine Research Centre Trust hold the attached technical report until we check for return bloom in November so that growers do not go out and use the products before we determine if it will reduce return bloom.

**This information from Sections 2 – 5 and Section 11 will be published on the SFF website unless you advise us otherwise.**

### 1. Milestone Summary Table

Milestone Number	Milestone [As per SFF contract schedule]	Completion Date		Percent Complete
		Original	Actual	
1	Establishment of field site, GA3 procured, Group planning meeting held	08/09	08/09	100 %
2	GA3 applied, site field day held, mid season disease assessment conducted.	02/10	06/10 <sup>1</sup>	100 %
	<b>Final Report (including technical report)</b>	06/10	06/10	100%

<sup>1</sup> Milestone 2 was completed except for the field day/seminar on time. The seminar was changed to fit in with New Zealand Winegrowers' research seminars so that the information was delivered in Hawke's Bay as well as Marlborough.

## **2. Project Objectives**

One of the factors influencing disease risk for botrytis bunch rot is bunch compactness. This project aimed to investigate methods of changing bunch compactness to reduce botrytis risk using products acceptable to both conventional and organic growers. The project generated scientific information that will allow growers and wine companies to assess if this method can be used to change current vineyard disease control practices.

## **3. Approach**

We aimed to field test Gibberellic acids and organic (seaweed) products to assess the potential of these products for use by the Marlborough industry to reduce disease risk and thus allow the production of wine free of botryticide residues. Late season botrytis bunch rot was assessed to determine if any of the treatments reduced the risk of disease. We tested these products in relation to mid and late season disease risk.

The products used were selected from compounds already available to the industry or currently undergoing field trials. The experiment was run as a large plot trial and fruit was harvested and tested following disease assessment.

The results of the experiment were presented to growers in Hawke's Bay and Marlborough as part of the New Zealand Winegrowers Grape Day (1<sup>st</sup> and 3<sup>rd</sup> June 2010) and are available to growers via the members-only section of the website both as PDF files of the talks and video recordings of the presentations.

## **4. What were the main findings from this project?**

The SFF project aimed to investigate compounds that could be applied at flowering and change bunch shape at harvest and hence reduce the risk botrytis bunch rot risk without producing a residue in the wine. Gibberellic acids (GA) were selected for the experiment as they have been shown to change the shape of bunches. However, it is also known that they have undesired consequences in the form of reduced bloom the following season

The full treatments and results are presented in a technical report for the project. In summary, the application of GA3 resulted in a number of significant difference in the bunches and the berries compared with the control. These changes included decreased yield, lower bunch weight, increased bunch openness and increased shaded area. Significant increases in soluble solids were also observed for the GA3 treatment and changes in berry volume were observed with an increase in the number of small volume berries observed. When photos of GA3 treated bunches were shown at wine industry presentations, questions were asked about the number of shot berries (small incompletely formed berries in bunches. A high number of shot berries would not be desirable to the industry. Only the GA3 and GA4+GA7 treatments generated significant numbers of berries of this type.

None of the six treatments applied reduced the disease incidence or severity compared with the control. However disease incidence overall was low and disease

severity in the control was well below the penalty level normally used by wine companies.

## **5. What difference has this project made to your group / community of interest / industry?**

(Include intangible benefits where significant — e.g. “enabled us to develop a strong on-going working relationship with the scientists”).

The project in combination with related GA3 work carried out in Gisborne and Hawke’s Bay in the same season have highlighted the value of cooperation and sharing of information between researchers and regions. The combined knowledge can be applied to more than one disease with the Marlborough results stimulating discussion at the NZW 2010 Grape Days on the potential for opening up bunches as a means to control both botrytis bunch rot and sour rot in sour rot prone districts such as Gisborne and Hawke’s Bay.

A group of compounds have now been assessed and the information is in a format that allows vineyard managers to consider if they should try one or more of the products. Because of the potential for the products to reduce return bloom their use on a wider scale in the 2010-2011 season is not recommended until the return bloom on the trial plots has been assessed.

## **6. If you did the project again what would you do differently?**

If setting up a similar project again we would not include a February seminar. The end of season seminar was more effective in that the experiment had been completed and results were able to be presented directly to both Hawke’s Bay and Marlborough growers at the NZW Grape Days.

The possible reduction of return bloom was raised as an issue of concern. Comparisons of bloom in the plots that had been treated in the 1009-2010 season will be made. In hindsight this should have been included as a component of the trial from the outset.

## **7. Is there anything the SFF could have done differently?**

It is important that SFF staff maintain contact with the project team. The notes on the bottom of the claims, emails, phone calls and visits have been very useful. We appreciate that the staff cannot attend all of the field days or seminars but the personal relationships and mutual understanding established during these meetings is invaluable for the smooth running of the programme Please keep up the good work.

## **8. Is there anything that you have learnt that would be useful for new project teams?**

Once a project starts it can be useful to talk to a wide range of individuals about the project. Discussions with apple scientists, chemical company representatives, other researchers from around New Zealand and wine company personnel all helped to refine the experimental design.

## 9. Where to from here – what are the next steps?

1. Once the return bloom flowering measurements are made the science team will prepare a popular article for the wine industry journal.
2. A report on the project will be published in the Marlborough Wine Research Centre annual report
3. The annual report will be posted on the Marlborough Wine Research Website
4. The results of the project will be presented as part of an invited presentation at a workshop “W29 Altering the time of pruning to optimise production” at the 14th Australian Wine Industry Technical Conference, July 2010.
5. The research results will be communicated to the science team working on sour rots in Gisborne so that they can make use of the results.
6. Return flowering measurements will be made in November to determine if any negative effects resulted from the use of the treatments.
7. Following the flowering assessments an industry discussion group will be held to review if any other work is required in this area.
8. In time, following other research, the science staff would also like to include these results in a journal like New Zealand Plant Protection which growers can freely access.

## 10. Financial summary

Provide a brief comment as to whether the project was completed on budget; whether there is any grant money left unspent. Please provide a financial statement to summarise the incomings/ outgoings over the life of the project – you can either attach a copy of your own financial statement or use the “final financial template” available at our website <http://www.maf.govt.nz/sff/forms/index.htm>

## 11. List and attach any major outputs from the project.

Examples could include:

- Scientific report on results
- Fact sheet
- Further details on the botrytis disease research is available on <http://www.wineresearch.org.nz/projects/Biodigital.htm>

<p><b>If appropriate, we would like to publish a copy of the above on our website: please provide an electronic copy for this purpose preferably in Word format.</b></p>
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## Report Confirmation

Name [Project Manager]	Confirmation	Date
	I hereby confirm the above information is true and correct:	

### **Submission Note - By the due dates Final Reports should be sent:**

**1. Electronically** to the SFF Process Coordinator **and** copy/cc. your Project Adviser (usually in the same e-mail as the final Request for Payment (R4P) form).

### **Please ensure you put your project number in the e-mail's subject line:**

e.g., 06/999 Final report 2007.

**2. In hardcopy**, together with any associated attachments, to **both** the Process Coordinator **and** your Project Adviser.

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