Eradiation of powdery mildew
The results of the January 2014 trial have been confirmed in the 2015/16 season trial work. Reliable eradication of powdery mildew infection is achievable.

The recommended recipe
HML32, copper and potassium bicarbonate at the rates specified on the centre page.

The application method
Key elements are:
• Water rates
• Bunch exposure
• Spraying direction
• Tractor speed

Best practice
For best practice information, go to www.henrymanufacturing.co.nz/products/hml-32/research-and-trials/best-practice-powdery-mildew-infection-eradication-2015.pdf or scan the QR code below:

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Our values:
Grower focused
Everything we do is to help the grower

Integrity
We are upfront and honest and trusting and we expect others to be too

Partnership
We work with like-minded people and organisations

Evidence based
No evidence, no claim

Solution focused
We promote the best solution for growers, not products

Henry Manufacturing Ltd
Visit www.henrymanufacturing.co.nz - Call Chris Henry on 027 294 1490
email chris@henrymanufacturing.co.nz or contact your local Farmlands technical advisor.

Let Battle Commence
This programme has powdery mildew control as the priority and contains both preventative and eradicative elements.
## Protector\textsuperscript{hml} and HML 32: Fungal Spray Programme

Powdery mildew is an important precursor to botrytis and other rots. This programme has powdery mildew control as the priority and contains both preventative and eradicative elements.

<table>
<thead>
<tr>
<th>Growth stage</th>
<th>Woolly bud</th>
<th>First leaf unfolded to 5% capfall</th>
<th>5% to 80% capfall</th>
<th>80% capfall to pre-bunch closure to veraison</th>
<th>Post veraison</th>
<th>Post harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease focus</td>
<td>Powdery mildew</td>
<td>Powdery mildew</td>
<td>Botrytis</td>
<td>Powdery mildew</td>
<td>Botrytis</td>
<td>Powdery mildew</td>
</tr>
<tr>
<td>Low challenge situations</td>
<td>• low powdery mildew pressure in previous season</td>
<td>7% lime sulphur (only in areas where there were powdery mildew issues last season).</td>
<td>Spray with 0.5% Protector + sulphur at 10-14 day intervals. Add copper if required for the control of other diseases. Bracket Flowering - spray with HML32 + sulphur + copper as close as possible to 5% capfall. Copper is recommended as it provides a higher level of powdery mildew eradication.</td>
<td>HML32 is safe to use during this period. If desired other products can be used at this growth stage for enhanced botrytis control.</td>
<td>Spray HML32 + sulphur* + copper* at 80% capfall, pre-bunch closure and again just before veraison. In between, spray 0.5% Protector + sulphur at 10-14 days intervals. Add copper if required for the control of other diseases. *Check with winery PHIs</td>
<td>HML32 by itself can improve botrytis control (bunch rot and slipskin) and enhance maturity. Timing and application are critical so discuss site-specific options directly with Chris Henry from Henry Manufacturing Ltd.</td>
</tr>
<tr>
<td>Higher challenge situations</td>
<td>• powdery mildew problems in previous season</td>
<td>• susceptible varieties (Chardonnay, Pinot Noir)</td>
<td>Spray an additional HML32 + sulphur + copper before flowering.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Why is this programme based on the control of powdery mildew?

**Powdery mildew**

Powdery mildew infection is one of the main reasons wineries reject a crop - because it can cause a musty off-flavour in finished wine. It is also an important pre-cursor to botrytis and other rots.

**Other diseases**

The addition of copper offers effective control of phomopsis, downy mildew and black spot. Copper should always be applied in good drying conditions. The spray of HML32 + sulphur + copper before flowering and then at 80% cap fall eradicates and protects against further microscopic powdery mildew or botrytis infection. Trial work has shown HML32 application at critical timings after veraison can thicken skins giving resilience to botrytis and other end-of-season rots. Maturity, including heightened colour, may also be advanced.

### Notes for growers and spray operators

**Rates**

- **HML32** - always use at the prescribed rate and appropriate water rate
- **Sulphur** - 3-5 Kg/ha all season
- **Copper** - 45g metallic copper / 100 litres. Our preference is red copper (cuprous oxide) as it presented no spray tank issues in the field trials.
- **Potassium bicarbonate** - 300g / 100 litres For both sulphur and copper, take into account local use rates and manufacturer's recommendations.

**Application**

Good coverage is critical. Sprayer performance should be confirmed with water sensitive papers. Application should take into account canopy density and bunch exposure. Adjust operating speeds accordingly and consider alternating spraying direction.

**Water rates**

Avoid low or ultra-low rates.

**Compatibility with other products**

Both Protector\textsuperscript{hml} and HML32 are alkaline. Under normal conditions both products are compatible with wettable sulphurs and copper hydroxide/oxide fungicides, as well as seaweed products. Incompatibility occurs with some foliar fertilisers such as calcium, and several synthetic chemistries.

**Before mixing in the sprayer, do a ‘jar test’ with spray water and all ingredients to check for flocculation, separation, etc.**

**Further information and advice**

Visit [www.henrymanufacturing.co.nz](http://www.henrymanufacturing.co.nz) for full trial reports and supporting data, including notes on sprayer audit.

Call Chris Henry on 027 294 1490 or email: chris@henrymanufacturing.co.nz

Contact your local Farmlands technical advisor.

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**DISCLAIMER:** The Supply Terms of Henry Manufacturing Limited apply to the use of this spray programme. Liability whether in tort (including negligence), contract or otherwise, for any loss, crop or vine injury or crop or vine failure, resulting from the application of this spray programme is excluded. Any user of this spray programme accepts this disclaimer.
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