

Protector^{hml} and HML32
Fungal Spray Programme
Armour plate for grapes



Let Battle Commence

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Protector^{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 eradicated elements.

Growth stage	Woolly bud	First leaf unfolded to 5% capfall	5% to 80% capfall	80% capfall to pre-bunch closure to veraison	Post veraison	Harvest	Post harvest
Disease focus	Powdery mildew	Powdery mildew	Botrytis	Powdery mildew	Botrytis (bunch rot and slipskin)		
Low challenge situations <ul style="list-style-type: none"> low powdery mildew pressure in previous season less susceptible varieties 	7% lime sulphur (only in areas where there were powdery mildew issues last season).	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.	HML32 is safe to use during this period. If desired other products can be used at this growth stage for enhanced botrytis control.	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. <small>*check with winery PHIs</small>	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.		For eradication, spray HML32 + copper + potassium bicarbonate. Do not add additional potassium bicarbonate if plants are water stressed. Use moderate to high water rates, focussing on mid and upper canopy. Application is critical.
Higher challenge situations <ul style="list-style-type: none"> powdery mildew problems in previous season susceptible varieties (Chardonnay, Pinot Noir) 		Spray an additional HML32 + sulphur + copper before flowering.		Spray HML32 + sulphur + copper instead of 0.5% Protector and sulphur. In the event of powdery mildew infection during this period, spray HML32 + copper + potassium bicarbonate 7 days apart. (Refer eradication section overleaf)			

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.

Spray timing

The spray programme above nominates a 10-14 day spray pattern. This timing should be tempered by best local practices, disease pressure as well as weather. Epidemic conditions will require closer spray intervals. Where possible, spray ahead of weather events.

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^{hml}** and **HML32** are alkaline. Under normal conditions both products are compatible with wetttable 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

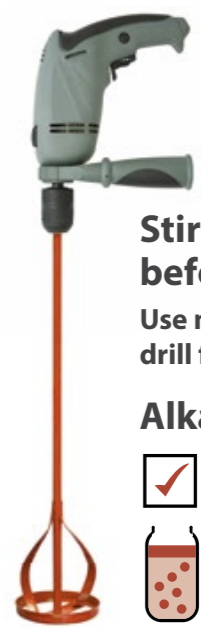
Visit www.henrymanufacturing.co.nz for full trial reports and supporting data, including notes on sprayer audit.

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

Contact your local Farmlands technical advisor.



IMPORTANT



Stir thoroughly before use

Use mixer with power drill for best result.

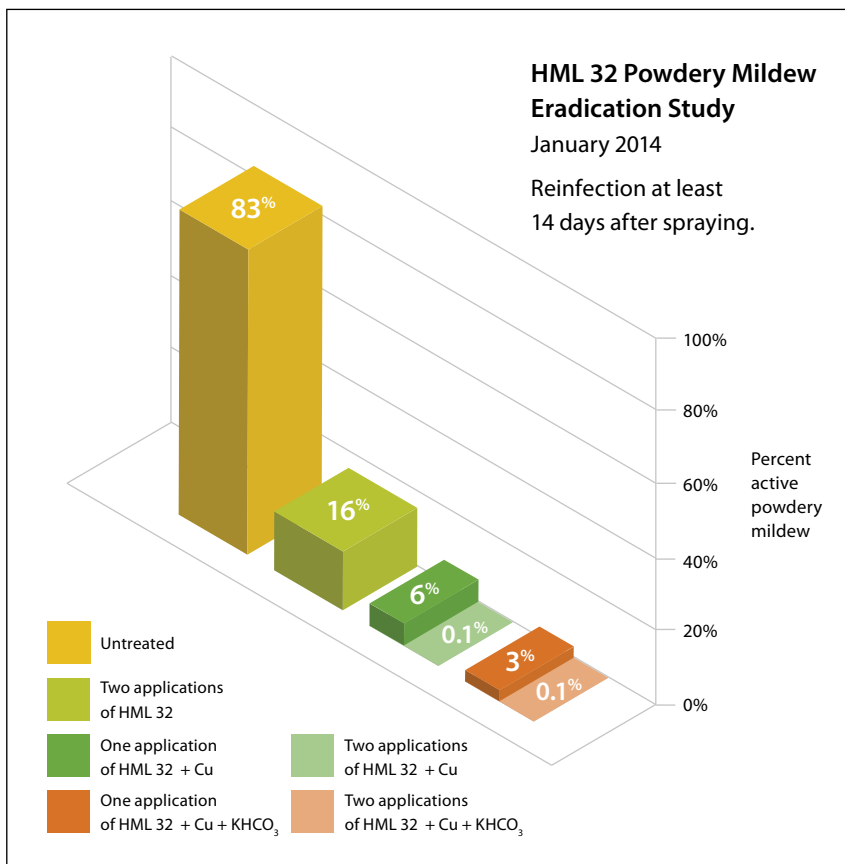
Alkaline product

Check other products for compatibility

Jar test with other products before adding to spray tank

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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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Everything we do is to help the grower

We are a family-owned New Zealand company.

Our business is helping growers succeed in a demanding industry. We do this by providing crop protection products which have been proven in the field by us, then by growers themselves. We specialise in wine grapes.

The legacy we wish to leave is one where well researched, field-tested, plant-based products offer no toxicity to the grower, yet provide excellent efficacy for a reasonable price.

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

Eradication 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:



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.

