

GRAPES

USER GUIDE

Luna Sensation

Powerful Powdery Mildew
Control for Grapes



Luna[®]
SENSATION

“I’m in sensational shape.”

Powdery mildew – an increasingly problematic disease in New Zealand vineyards.

Powdery mildew (*Erysiphe necator*) is a common and widespread disease that occurs throughout New Zealand. In recent years powdery mildew has become more problematic with epidemics appearing in all the key grape growing regions. Apart from being unsightly, powdery mildew can cause significant economic losses. Bunch infections reduce yields through retarding berry growth, delaying maturity and causing splitting. Winemakers detest powdery mildew infected grapes as they cause off-flavours in wine. Bunches with even minor infections (less than 5%) may be rejected or result in a severe financial penalty.

Now with Luna Sensation growers have a powerful new fungicide tool to incorporate into their powdery mildew control programmes.

www.lunasensation.bayer.co.nz



Science For A Better Life

Grape Powdery Mildew



Powdery mildew is often described as a “hot” weather disease as it develops under relatively dry conditions and does not require free moisture for infection. Disease spread is favoured by warmer temperatures, cloudy days with high humidity. The obvious symptoms of powdery mildew infection are seen as grey to white powdery growth on leaves (on both upper and lower surfaces) and on bunches (*see photos below*).

Powdery mildew infections can arise in the spring from two sources. The most important in New Zealand is from diseased shoots called “flag shoots”. These appear from overwintering diseased buds that were infected the previous season. These flag shoots are distorted and are stunted and produce spores which then infect nearby healthy foliage. An epidemic the previous season will result in higher levels of “flag shoots” (*see photo*) infected and should prepare vineyard managers for increased vigilance regarding powdery mildew management for the next season. The second source of infections can be through overwintering fruiting bodies (sexual stage) called *cleistothecia* (*see photo*). Until recently this sexual stage has not been present in New Zealand vineyards and its importance as an inoculum source is not yet understood. Cleistothecia are tiny yellow to black (when mature) specks that are more easily seen under magnification with a hand lens. The presence of the sexual stage will

increase the genetic diversity of the powdery mildew fungus in New Zealand. This increases the risks of possible resistance developing to fungicides and emphasizes the importance of fungicide resistance management strategies in grapes.

Once infections develop a new generation of spores can be produced every 5-10 days. Its spread is favoured by mild-cloudy weather (optimum 22-28°C) with relative humidity greater than 40%. If not controlled, powdery mildew can steadily and then more rapidly spread. 90 days post infection the severity of leaf and bunch infections develops rapidly.

Controlling powdery mildew requires the use of a season long fungicide programme. Controlling early season infections to prevent later epidemics occurring is vital. A season long fungicide programme starting from early shoot development through to pre-bunch closure is necessary to prevent powdery mildew development. As powdery mildew grows on the outside of plant surfaces it is easily targeted by direct contact with fungicides. For this reason it is critical that excellent and complete coverage is achieved with fungicide spray applications. Other management techniques that can assist control include physical removal of flag shoots and management of crop canopies. Dense canopies favour disease development and restrict spray coverage.



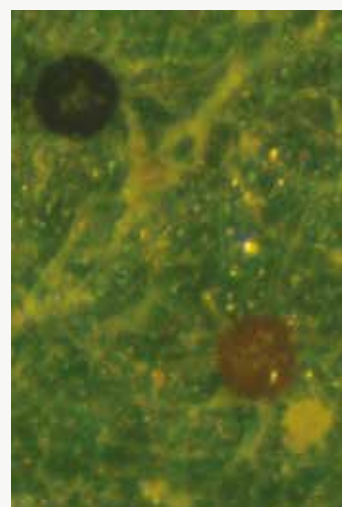
Powdery mildew on leaves.



Powdery mildew on bunches.



Flag shoots.



Cleistothecia.



Luna Sensation – The Product

Luna Sensation is a co-formulation of two active ingredients, fluopyram and trifloxystrobin. The formulation provides synergistic activity that gives outstanding disease control, including powdery mildew in grapes. The complementary properties of Luna Sensation that provide the outstanding disease control include:

- Upward systemic movement
- Translaminar activity
- Strong protectant activity
- Continuous penetration – small amounts of the fungicide continue to penetrate the leaves over time
- Vapour activity
- Strong affinity with plant surfaces – binds and penetrates into the wax layer
- Good rainfastness

Environmental Effects

Luna Sensation has a favourable environmental and toxicological profile. Being harmless and/or moderately harmful to key beneficials, Luna Sensation is suitable for use in IPM programmes. Luna Sensation has no detrimental effects on bees.

Residue Profile

When used as directed Luna Sensation will result in nil – detectable residues in wine grapes at harvest.

Resistance Management

Luna Sensation has in-built resistance management. The two active ingredients are from different chemical groups (Group 7+11) which have different modes of action. To minimise resistance risk always use Luna Sensation preventatively and do not use more than two consecutive applications.

APPLICATION RECOMMENDATIONS:

USE RATE	WATER RATE/SPRAY COVERAGE
150 ml/ha	Apply Luna Sensation in 250-500 litres of water per hectare by ground based methods. Ensure full coverage of the canopy without runoff
SPRAY TIMING/NUMBER OF APPLICATIONS	COMPATIBILITY
Apply from immediately before flowering through to 80% flowering. Make no more than two applications per season. Ensure an interval of no less than 10 days between the applications	The following mixes are compatible and crop safe when using Luna Sensation on grapes Luna Sensation + Movento 100SC Luna Sensation + Movento 100SC + mancozeb Luna Sensation + Mortar + mancozeb Luna Sensation + Teldor Luna Sensation + Scala + Gem Luna Sensation + Scala + Gem + Du-Wett Luna Sensation + Switch Luna Sensation + BM86 Luna + BM86
RAINFASTNESS	
Luna Sensation is rainfast once fully dry on the plant	
ADJUVANTS	WATER PH
None required	Luna Sensation is stable in water pH 5-8
WITHHOLDING PERIOD	SHEEP GRAZING
Do not apply after 80% capfall	Livestock that have been grazing or fed treated crops should be placed on clean feed for two months prior to slaughter

Luna Sensation – New Zealand Trials

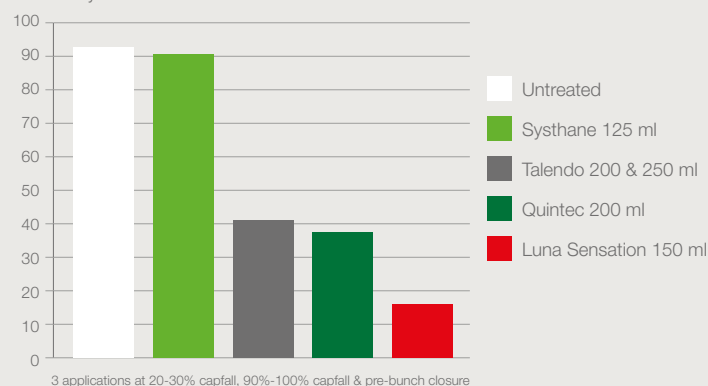
Trials in New Zealand have demonstrated the outstanding efficacy of Luna Sensation in controlling powdery mildew in grapes (see results below). All the trials had grower applied sulphur sprays applied prior to flowering.

The trials had 3-4 applications of Luna Sensation applied to demonstrate efficacy. Please note the Luna Sensation label allows for a maximum of 2 applications per season. Please note all rates used in the below trials were rates per hectare.

Grape – Powdery Mildew Trial 2013/14

Chardonnay - Twin Rivers, Hawke's Bay

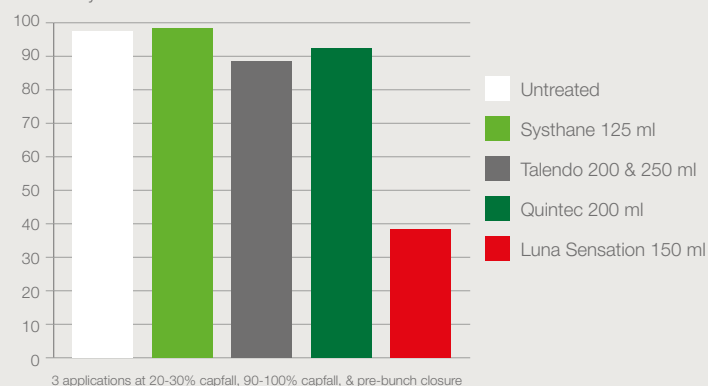
% Severity on bunches. Assessed 78 DALT



Grape – Powdery Mildew Trial 2013/14

Chardonnay - Korokipo Vineyard, Hawke's Bay

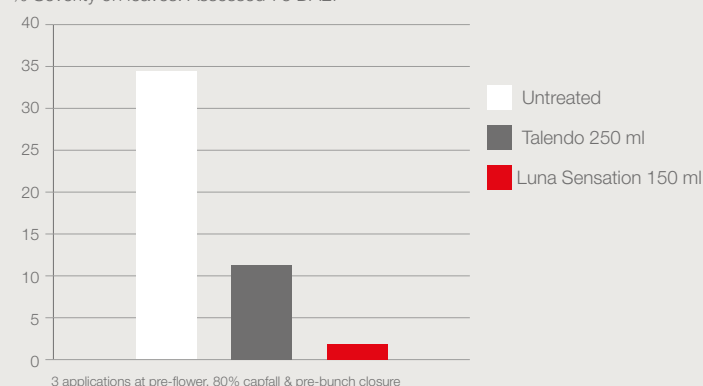
% Severity on bunches. Assessed 82 DALT



Grape – Powdery Mildew Trial 2013/14

Riesling - Canterbury

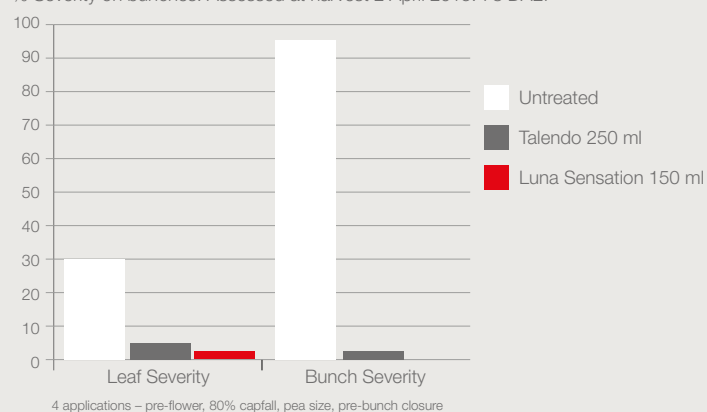
% Severity on leaves. Assessed 76 DALT



Grape – Powdery Mildew Trial 2014/15

Sauvignon Blanc - Blenheim

% Severity on bunches. Assessed at harvest 2 April 2015. 78 DALT



To see Luna Sensation in action go www.lunasensation.bayer.co.nz to view the trial video.



Grape Powdery Mildew Trial 2013/14 Season

Variety - Chardonnay
Twin Rivers | Hawke's Bay | 01/03/2014

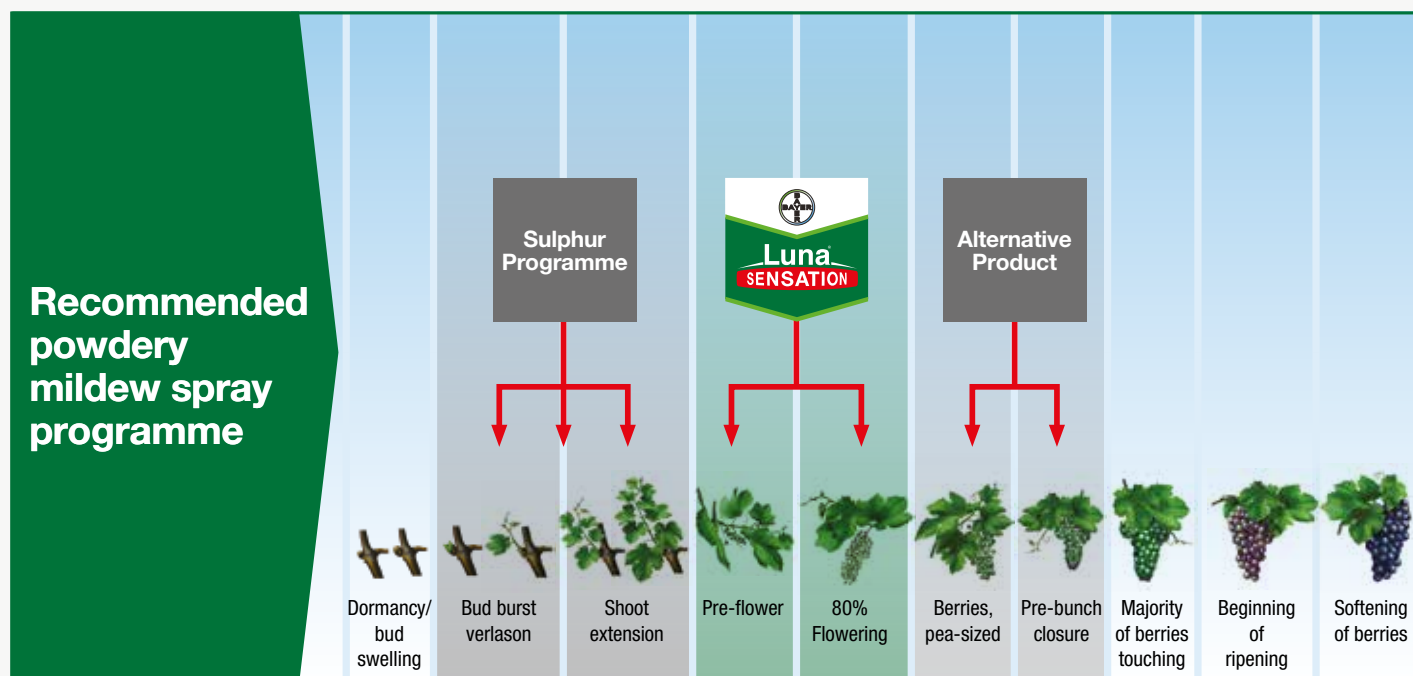


Powdery Mildew Control Programmes



Luna Sensation should be incorporated into a season long powdery mildew spray programme.

Prior to flowering, a strong protectant (e.g. sulphur) programme should be used, starting early (when shoots are 5 cm long) and repeated every 10-14 days. Two applications of Luna Sensation can then be used over the crucial flowering period. The first is recommended just prior to flowering and the second at 80% flowering. After flowering, through to pre-bunch closure other suitable fungicides should be used. Ensure sprayers are well calibrated to ensure complete coverage.



LUNA SENSATION: RECOMMENDATIONS FOR TREATMENT OF BOTRYTIS

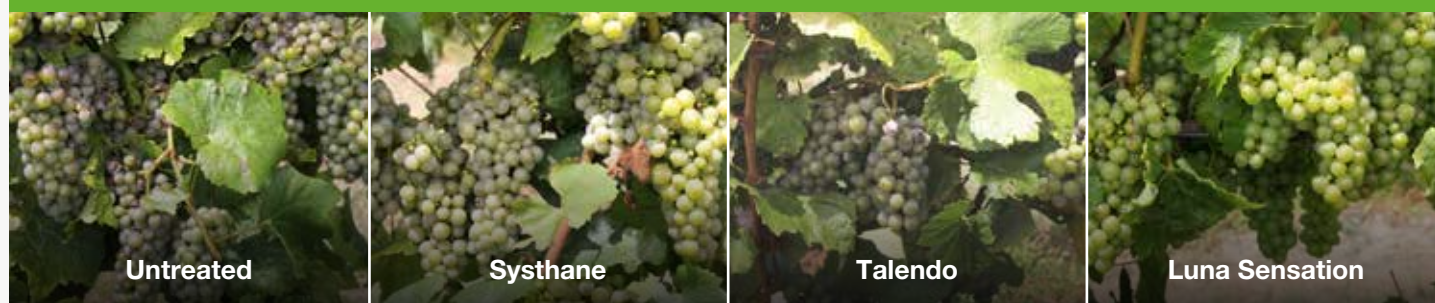
Luna Sensation will not control botrytis. If botrytis is being targeted along with powdery mildew a suitable botrytis specific fungicide should be tank mixed with Luna Sensation. E.g. at 80% flowering Luna Sensation should be mixed with Teldor (or another botrytis fungicide).



LUNA SENSATION: USE IN GRAPES AT A GLANCE

DISEASE	Powdery mildew (<i>Erysiphe necator</i>)
RATE	150 ml/ha
WATER RATE	Use 250-500 litres of water per hectare. Ensure complete coverage is achieved
SPRAY TIMING	Apply from immediately prior to flowering through to 80% capfall
NUMBER OF APPLICATIONS	Maximum of 2 applications per season
SPRAY INTERVAL	Ensure an interval of no less than 10 days between applications
WITHHOLDING PERIOD	Do not apply after 80% capfall
ADJUVANTS	None required
PACK SIZE	1 litre plastic bottle. Agrecovery compatible

Hawke's Bay trial 2013/14



Regional Territory Managers

Upper North Island	Phil Bertram	021 426 825
Gisborne / Hawke's Bay / Nelson / Marlborough	Marc Fox	021 426 823
Lower North Island	Jeff Smith	021 426 824
North and Mid Canterbury	David Parker	021 426 794
Otago and Southland	Daniel Suddaby	021 426 822

Insist on Luna Sensation from Bayer.

www.lunasensation.bayer.co.nz



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