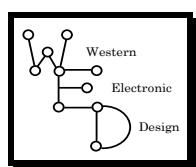




GrowCare Clare



Clare Region
Winegrape Growers
Association



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Season to date

- The season 2013/14 is showing its variability. Windy one day and windy the next (!!), making it very difficult to keep up with spraying, especially for powdery mildew. Then along comes a frost in cold, still, conditions leading to damage in some low lying (and some not so low lying) vineyards.
- Recent seasons have in the main been relatively calm. So, the onset of a windy spring that is also warmer than usual is thought by some to be evidence of climate change. Others take another view and check longer memories and are reminded that the 'average' South Australian spring weather is fickle, with windiness, rain and occasional storms, at times heat and at times cold and frost. We have had all this so far and it is probable (given the 'law of averages') that we will see more variability before we leave spring behind and we greet summer.

Frost

- Some localities have suffered frost damage in recent weeks. In these spots, some crop loss has been sustained. In general, the severity of the damage has been variable – the result of variable expressions of freeze damage as cold air has drifted across vineyards.
- Interestingly, some of the damage has been on slopes not normally frosted. There are two types of frost: 1) radiation frost, which occurs on clear nights with little or no wind when the outgoing radiation is excessive and the air temperature is not necessarily at the freezing point, and 2) wind borne or advection, frost, which occurs when wind moves air in from cold regions or colder upper portions of the atmosphere, associated with an inversion layer. Both types may occur simultaneously and may have accounted for the different areas frost recently.
- Damage to soft vine tissue occurs at temperatures in the vicinity of -2°C to -4°C when water in the cells freezes, expands and disrupts the cell walls, killing the tissue.
- From reports from the Barossa, the frost damage in vineyards around Ebeneezer (just north of Nuriootpa) was quite severe, causing more damage than has been seen in most vineyards in the Clare Valley.
- As bad as it looks now, often the crops yield better than it appears they will at present. This is because the surviving bunches compensate and grow bigger berries. The severity of a frost depends on the damage done to shoots and particularly to the young inflorescences (the young 'bunches'). The deeper the frost, the more the base of shoots is killed. And as a result, this forces the vine to push new shoot growth from secondary buds at the base of spurs. Less severe damage means that the original shoots from this season die back but regrowth occurs and the surviving bunches do not suffer as much.

Flowering

- Most Riesling vineyards are at or near flowering (E-L 17-19) as are a number of red varieties. This means that fruit set and the withholding period thresholds for some fungicides, is not far away. This is particularly so for a number of fungicides after 80% capfall (EL 25) including sprays for bunch rot and the mildews and LBAM. Others are prohibited after berries are pea-size (E-L 31).
- In planning mid-season spray schedules be sure to review these withholding periods especially for fungicides for bunch rot. If uncertain about which products are available to use, check with your winery rep before spraying, or with the [Dog Book](#) at: www.awri.com.au/industry_support/viticulture/agrochemicals/app/.
- An old proverb says don't apply copper or sulphur at flowering – it will damage the flowers. In pursuing this matter, we find no Australian evidence of this.
- In Europe, the possibility of very long periods of wet foliage is much higher than in the usual drier Australian atmosphere. Particles of copper or sulphur in spray droplets may remain in suspension for long periods within the foliage. These fungicides in solution may be toxic and burn the leaves and the flowers, potentially disrupting fruit set. However, in the Australian climate, the conditions that lead to burning the flowers rarely occur.

Recent Rains and Downy Mildew

- The relatively short periods of rain/leafwetness in recent weeks means that there has been little risk of downy mildew primary infection in the Clare Valley. Although some falls of 8mm to 16mm have been recorded, the duration of rainfall has been too short for action.
- Remember that downy needs rain (or irrigation) to wet the soil for 16hrs or more at temperatures sufficient for oospores to germinate and release zoospores in the soil ($\geq 8^{\circ}\text{C}$). And more rainfall is needed after that 1) to splash the zoospores into the air currents to disperse the spores to the underside of leaves in the grapevine canopy; and 2) to keep the leaves wet while it was warm enough for long enough for infection to be completed.
- If after flowering, there still has been no significant risk of downy mildew, consider checking your foliage for any sign of oilspots. If present, they will be on the older, lower leaves. If there are none observed, you may consider not spraying a protective fungicide such as copper or mancozeb with your next spray for powdery mildew. You are taking very few risks in this action, and especially so, if you have a stock of Ridomil in the shed. This would allow you to tackle downy if you missed an infection event.

Powdery Mildew Control vs Vine Growth

- As we approach flowering, the density and shading of the canopy is increasing. Later, after fruit set, shoot growth will slow down when the developing bunches draw more of the vine's nutrients and the goodness goes into the berries. However, the leaves will continue to expand along with the young berries.
- Expanding leaf and bunch tissue becomes increasingly exposed to spores of powdery mildew – if there are many left in your vineyard. The supply of powdery spores (inoculum) that are at risk of infecting your fruit comes from leaf infection in your vineyard. Good early season control will have kept foliage infection at a very low level. This will have provided the best foundation for the production of powdery mildew free fruit at harvest.
- As the leaf tissue expands in the next few weeks, existing spray coverage reduces in effectiveness as the spray droplets are separated when the tissue expands. It is like dots on a balloon are separated as it is blown up. The photo below illustrates the expansion of this older leaf in just one week.



The black lines were drawn on the leaf as a 1 cm square just 7 days before this photo was taken. It shows that this Shiraz leaf area (=length x breadth) has nearly tripled in size in that time.

Photo: Nicole Pitman, CCW.

- As the canopy continues to expand, so the difficulty to achieve effective spray cover increases. Not only has the once exposed early growth of canopy now become shaded (the 'outer' foliage becoming the over-grown 'inner' foliage) but it has also grown in density.
- Together these factors mean that in the higher humidity of the denser more shaded canopy, powdery mildew will find more favourable conditions to breed and it is more protected from a major opponent of the fungus: effective fungicide cover!
- Be sure to monitor closely for powdery at this time to ensure you have effective control of the disease before the canopy closes over more fully.**
- Any registered fungicide is effective against powdery and while sulphur is cheaper than most equivalent products, it has no trans-laminar (across the leaf) coverage like the DMI's for instance. But, it does have volatile activity which helps compensate for reduced spray coverage in dense canopies.

LBAM

- There have been reports of LBAM in some vineyards. Levels have varied but numbers are generally low.
- It pays to keep an eye open for these especially in patches where LBAM was a problem last season.
- The next generation of LBAM are generally expected to show up at around EL 31 – but control at that time (pea-size) is difficult to achieve. If in doubt, contact your winery rep for advice on action required, if any.

Monitoring for LBAM

LBAM lifecycle stage	How to monitor	When to monitor	Common threshold*
Egg masses	Inspect the upper side of expanded leaves on 100 shoots	Once first leaves have expanded and then through the season	>3 viable egg masses per 100 shoots
Larvae on shoots	Inspect shoot tips and leaves webbed together on 100 shoots	Throughout the season	>20 larvae on foliage per 100 shoots
Larvae in bunches	Inspect inflorescences and bunches on 100 shoots	From inflorescence development onwards	>10 larvae within bunches per 100 shoots

Source: Andrew Weeks and Nicole Pitman, 'Lightbrown Apple Moth', Fact Sheet No. 4, CCW, Berri, SA.



LBAM caterpillar. Photo: Andrew Weeks and Nicole Pitman, 'Lightbrown Apple Moth', Fact Sheet No. 4., CCW, Berri, SA.

Nutrients

- Some Shiraz vineyards have been showing a yellowing of leaves, perhaps with the veins staying green. This is typical of iron deficiency in the foliage and is often associated with cold soils and a reduced uptake of iron.
- When soils warm up, the symptoms will fade away. See [Disease Diagnosis](http://www.winetitles.com/diagnosis/details.asp?view=237) at the following address: <http://www.winetitles.com/diagnosis/details.asp?view=237>

Petiole Sampling

- At and near flowering is a good time to check on the nutrient status of your vines.
- It is worth the cost of getting this checked to ensure maximum nutritional state of your vines. This ensures best possibilities for the growth and development of your vines and, as a result, of the crop you harvest at vintage.

*This message was prepared for
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