

Options for effective management of Lightbrown Apple Moth (LBAM)

Current titles in this LBAM Vitinote series include:

1. Developing a cost-effective monitoring program for lightbrown apple moth
2. Monitoring practice for lightbrown apple moth eggs and caterpillars
3. Options for effective management of lightbrown apple moth

DECIDING IF LBAM IS A PROBLEM

The cost of applying a treatment needs to be compared with the potential cost of not spraying, but there is a point, or threshold, at which a control is justified.

A threshold needs to be developed for each particular region, site and variety. This can only occur if an effective monitoring program and consistent record keeping is applied over a number of seasons.

A threshold needs to relate LBAM numbers found during a season with the level of bunch damage associated with LBAM and/or *Botrytis* at harvest.

Considerations for setting a threshold

- LBAM damage to berries provides an entry point for *Botrytis*. Therefore, vineyards/blocks with a history of *Botrytis* problems and/or susceptible varieties will have a lower tolerance for LBAM.

For example, vineyards in Sunraysia will generally have a higher tolerance for LBAM numbers than those in the Yarra Valley or, given the same LBAM numbers, some vineyards spray Chardonnay and not Cabernet Sauvignon.

- A large population of natural predators in the vineyard, such as lacewings and spiders, may affect threshold levels.

It takes time to build up confidence in monitoring and the historical data required to develop thresholds for a vineyard.

TIMING DIFFERENT MANAGEMENT OPTIONS

From budburst

Disrupting the mating of moths, using pheromone ties, provides an alternative to applying chemical sprays but there are limitations to their use:

- it is less effective if used to treat smaller areas or where high LBAM numbers are present;
- pheromone ties need to be used from the start of the season to be effective.; and
- as LBAM numbers vary between seasons and controls are not always required, mating disruption may be an unnecessary expense in some years.

Up to flowering

A number of broad spectrum insecticides, eg. organophosphates and related products, are registered for use against LBAM but there are restrictions on the timing of application and they impact on many other insects and mite species. Wherever possible it is best to utilise control options that have minimal impact on beneficials and other organisms.

NOTE: Use of chlorpyrifos is now restricted after 80% capfall. A number of new products have been developed recently that provide an alternative to chlorpyrifos and carbaryl, but these are also currently restricted to 80% capfall for grapes going into wine for export. This includes Mimic® (tebufenozide), which is selective for pests such as LBAM, and Success Naturalyte® (spinosad). It is important to check winery restrictions on the use of these products before application.

LATER IN THE SEASON

Bt

Bacillus thuringiensis (Bt) products are now one of the only options available for the management of LBAM after berry set. There are some considerations if using these products:

- to give Bt products the best chance of working they need to be applied soon after LBAM eggs hatch, as they are not effective against larger larvae; and
- monitoring should be conducted a week after application to assess effectiveness of the application.

Parasitic wasps

Trichogramma wasps can be bought from commercial insectaries for mass release in vineyards.

This wasp lays its eggs in the eggs of LBAM, killing the larvae and instead hatching a new generation of wasps which continue to parasitise any remaining LBAM eggs.

Effective monitoring is critical to ensure *Trichogramma* are released at the beginning of a LBAM egg laying period and are a success; there are limitations on their use, eg. low temperatures and sulphur adversely affect them.

MANAGING THE VINEYARD FLOOR

Removing other LBAM host plants, such as broadleaf weeds (eg. capeweed), from the vineyard and planting non-host cover crop species, such as grasses, may reduce LBAM pressure by reducing the build-up of numbers during the season and the survival of larvae during winter.

Monitoring for LBAM larvae in vineyard floor plants will enable the value of this strategy to be assessed. Such cover crops may not be appropriate in all vineyard circumstances.

SUMMARY

Effectively managing LBAM involves:

- looking critically at the effectiveness of current management programs;
- implementing a systematic monitoring program, with good record keeping; and
- focusing on vineyard practices to protect and support beneficial insects by using selective chemicals.

√ or X	LBAM monitoring checklist <i>The following checklist may assist in planning strategies this season. Focus on any practices not currently undertaken</i>
	Develop action thresholds based on data collected from monitoring and damage assessments at harvest over a number of seasons.
	Consult winery for restrictions on chemical use.
	Only apply controls when and where action thresholds are exceeded.
	Use selective chemicals or biological control options as first preference.
	Apply controls at the most vulnerable stage of LBAM lifecycle.
	Monitor for larvae after controls applied to assess spray efficacy.

FURTHER INFORMATION

Product or service information is provided to inform the viticulture industry about available resources and should not be interpreted as an endorsement.

A useful reference is:

- Nicholas P, Magarey PA and Wachtel M, (Eds.) (1994) Diseases and pests, Grape Production Series 1, Hyde Park Press, Adelaide (a glove box edition of this book is also available).

This publication is available from Winetitles, 08 8292 0888, or visit www.winetitles.com.au.

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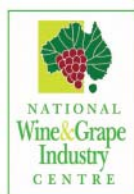
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