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PROTOCOL:

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vine mealybug pheromone trapping and monitoring in South African vineyards

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Introduction

Vine mealybug, *Planococcus ficus*, is one of the key pests in South African vineyards causing economic damage to infested grapevines. Pheromone baits have recently been developed and can be used to monitor the presence of vine mealybug pest populations. This information can be used to determine where physical vine stem monitoring is needed. This protocol aims to summarise the seasonal vine mealybug monitoring system.

Pheromone trapping and physical monitoring protocol

Pheromone trapping protocol:

Pheromone traps:
It is recommended that the commercially available vine mealybug pheromone capsules, yellow delta traps and sticky pads are used by producers and plant propagation units These products are available from Chempack (Tel. 021 874 1055, Fax 021 874 1214). Pheromone capsules need replacement every three months.

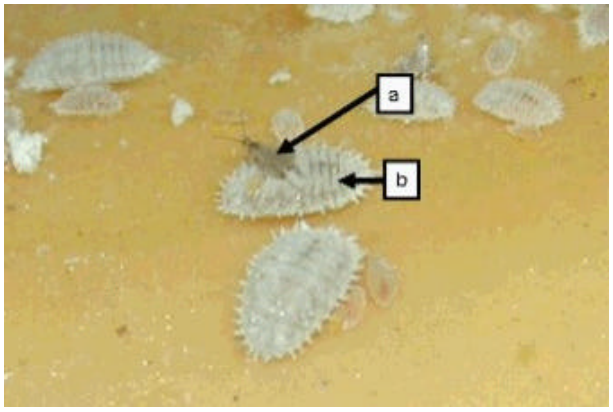

Fig. 1. The adult male vine mealybug (arrow a), has located the female by means of a pheromone plume secreted by the sexually mature female mealybug (arrow b).

Trap readings and trapping frequency:
Because of the small size of adult male vine mealybugs compared to females (Fig. 1), accurate trap counts are difficult without the aid of a stereomicroscope. Accurate identification and counting can be done at the Pest Management Division of ARC Infruitec-Nietvoorbij (Tel. 021 809 3458, Fax 021 809 3458) at a preset fee.

Results of counts can be e-mailed to the client in a period of five working days. Traps need to be changed on a biweekly basis, but only when vine mealybug males are caught. If no vine mealybug males are found on the sticky pads, they can be left in the traps until the next sticky pad change is scheduled. Biweekly pheromone trapping should start in October and continue until before harvest. Pheromone trapping could continue on a monthly basis after this period in commercial blocks with a history of high

P. ficus infestation. Out-of-season pheromone trapping should, however, continue throughout the year at vine propagation and quarantine vineyard units.

In-vine and block placement:
Traps can be hung at or above the cordon (Fig. 2) and the trellis wires can be used for attachment. The open ends should be exposed so that vine mealybug males can easily fly into the triangular center of the yellow delta trap.

Traps should be placed at 100 m intervals in blocks, each more or less 1 ha in size. Traps should further be placed in areas where human movement takes place at regular intervals, such as near roads, end rows and packsheds. Traps should also be placed in new vineyards planted on soil where old established and *P. ficus* infested vineyards were taken out.

Action thresholds, pheromone traps:
A biweekly trap count of 65 or more mealybug males should be followed by physical stem monitoring.

Fig. 2. Position of yellow delta sticky trap with *Planococcus ficus* (vine mealybug) pheromone lure.

Physical monitoring protocol:

This monitoring is still essential, but only necessary when the action threshold for pheromone trap monitoring has been reached. Physical mealybug monitoring should be done as follows:

- Draft a plan of the specific vineyard block with a clear indication of each row and the number of sections per row.
- Select twenty sections with five grapevines each, proportionately spread throughout the block.
- Monitor each of the five grapevines in each section in those areas where new growth is found.
- Record the presence or absence of mealybug on each grapevine.

The total number of infected grapevines will indicate the percentage of mealybug infection for that specific block.

Action thresholds, physical monitoring:
Stem infestation rates of above 2% warrants control by chemicals, or mass releases of commercially available natural enemies such as *Coccidoxenoides peregrinus*.

Conclusions

Pheromone traps aid in mealybug monitoring in the integrated management of vine mealybugs. The extreme sensitivity of these traps also helps to detect low populations of *P. ficus* in vineyards and can be used as a quarantine and early warning tool. Physical monitoring is, however, necessary before control actions can follow.

The Pest Management Division at ARC Infruitec-Nietvoorbij can be contacted at tel. 021 809 3458 if further information is required.