LEAFROLL CONTROL STRATEGY

10.2 CHEMICAL CONTROL OF MEALYBUG IN VINEYARDS

The vine mealybug is the main vector responsible for the spread of grapevine leafroll-associated virus 3 (GLRaV-3) in South African vineyards. Therefore, mealybug control is important to manage and control the spread of grapevine leafroll disease. An integrated pest management (IPM) system, consisting of management practices, biological control and chemical control, is required to suppress mealybug in vineyards. This fact sheet will only cover the chemical control of mealybugs.

10.2.1 Chemical control when establishing new vineyards

When establishing a vineyard with young grapevines, always use certified (virus free) planting material to reduce the possibility of grapevine leafroll disease from infected planting material. Young grapevines should be treated with a systemic insecticide (Imidacloprid) to prevent the spread of leafroll by virus carrying (viruliferous) mealybugs from any potentially infected grapevine to those surrounding it (secondary spread).

This systemic insecticide (Imidacloprid) should be applied as a soil drench around the trunk of the grapevine on moist soil. Before application, all organic matter on the soil surface must be removed; otherwise the active ingredient will not be absorbed by the grapevine's roots, but will bind to the organic matter. Grapevines with leafroll symptoms must be removed in the subsequent seasons.

10.2.2 Chemical control of mealybugs in established vineyards during dormancy

Mealybugs spend the winter under loose bark, in cracks of the trunk and cordon and on the roots of the grapevine. During dormancy in winter, grapevines must be treated with a contact insecticide (Chlorpyrifos or Prothiophos) in vineyards where high levels of mealybug infestation occurred during the previous season.

10.2.3 Chemical control of mealybugs in established vineyards during the growing season

During the growing season, chemical control with contact insecticides can be based on monitoring for mealybugs. With the use of pheromone traps, monitoring threshold values will indicate the necessity of physical monitoring of grapevines by means of grapevine inspection. Only when the threshold values for physical monitoring (2 %) are exceeded, chemical control can be applied. When this occurs (2 % and more) early in the season (before end November) the infested grapevines and the two adjacent grapevines or the infested spot should be treated with contact insecticide (Chlorpyrifos or Prothiophos). If the infestation exceeds 2 % and only if records show that the outbreak occurred later in the season, spot treatments

with contact insecticide (Chlorpyrifos or Prothiophos) can be applied. If monitoring indicates that infestation in the latter case is so widespread throughout the block that spot sprays are not feasible, the whole block should be treated. Refer to product labels or chemical representative for withholding periods for treatment later in the season.

Furthermore, a systemic insecticide (Spirotetramat) can be used when infestation levels are more than 2 % early in the season. Application of this active ingredient consists of two applications and may not be made after berry development reached pea size.

Other systemic insecticides (Imidacloprid) can be used as a soil drench at the trunk of the grapevine on moist soil. The treatment should be preceded with a contact insecticide (Chlorpyrifos or Prothiophos) during dormancy.

It is important to vary applications of insecticides from different insecticide groups to prevent mealybugs from building up resistance to a specific insecticide.

10.2.4 Insecticide resistance

Mealybug populations may contain individuals which are naturally resistant to insecticides, from any group code, used to control them. When an insecticide from any group code is used repeatedly, these resistant individuals in the mealybug population can eventually dominate the population. Therefore, the resistant mealybugs may not be controlled by the insecticide in the specific group code or any other insecticide in the same group code. To delay insecticide resistance, avoid using insecticides from the same group code repeatedly by alternating insecticides from different group codes. An IPM system will also be advantageous to delay insect resistance to chemical control.

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