MOVENTO®
Best Management Practices

Vine Mealybug

California Grape Production

Vine mealybug has become one of the most significant insect pests in the grape growing regions of California. First discovered in the 1990s, vine mealybugs can be found on several crops, but grapevines are the preferred host. Mealybugs produce honeydew that attracts ants and supports the growth of Sooty mold, which can contaminate grape bunches, affecting yield, harvest and overall vine health. They have also been found to be vectors of Grapevine leafroll virus, which can also result in loss of yield and a reduction in fruit quality. With the introduction of Movento® insecticide in 2008, grape growers have a valuable tool to help manage vine mealybugs.

Best Practices for Managing Mealybugs in Grapes

Successful management of mealybugs will require a basic understanding of your vineyard. Knowing the variety category, the extent of mealybug pressure within the vineyard and the use of biological controls and ant control are all factors that should be considered when developing and implementing a mealybug control program.

Grape Varieties

Know your grape varieties.

In many cases, the success of a mealybug control program is dependent on the variety classification in your vineyard. Early-season, mid-season or late-season varieties may need different vine mealybug management programs. To avoid crop loss due to damage from mealybugs, mid- to late-season varieties which mature more slowly may require multiple in-season insecticide applications, whereas, shorter season varieties may require fewer insecticide treatments.

Mealybug Population Densities

Know the mealybug infestation situation in your vineyard.

Mealybug population density is a critical factor in developing a treatment program. Heavy populations are likely to require more aggressive control programs to effectively reduce populations to manageable levels.

Biological Controls

The use of natural enemies can provide an effective integrated approach to a mealybug control program.

Parasitic wasps (*Anagyrus pseudococci*), lady beetles (*Cryptolaemus montrouziere*) and lacewings can be important in an Integrated Pest Management (IPM) system. Selecting insecticides that have little or no impact on these beneficial insects will provide for a more sustainable pest management program.

Ant Control

Ants are often found in vineyards where mealybugs are present and feeding.

Argentine and native gray ants are attracted to the honeydew produced by mealybug feeding. Both of these ant species are known to protect mealybugs from attack by natural enemies thereby disrupting the effectiveness of biological controls. Ants can also aid in dissemination of mealybugs in a vineyard. It is recommended that growers include ant control along with their mealybug control programs.

Cultural Controls

A management practice often overlooked is protecting your vineyard from mealybug infestations.

Mealybugs can be carried into your vineyards by various means. Movement of equipment and people from vineyard to vineyard is a common means of introducing and spreading mealybugs. Implementing good sanitation practices when moving equipment or workers into a vineyard is recommended.

Using Movento® Insecticide as Part of a Mealybug Management System

Timing of Movento Applications

I. Early-season varieties or for vineyards with light mealybug infestations:

A single Movento® application per season

a) Apply when the new shoot growth is between 18–24 inches in length and the grapes are pea-sized.

b) The use rate of 8 fl. oz. per acre is recommended for a single seasonal application of Movento.

II. Mid- to late-season varieties or when mealybug populations are moderate to high:

Two applications of Movento per season

a) Apply first when the new vine growth is between 18–24 inches in length and grapes are pea-sized.

b) The second application should be made post-harvest before the leaves begin to senesce, no later than the first frost. This application is best timed shortly after harvest when mealybugs are moving from the vines to the trunk.

c) The use rate of 6.25 fl. oz. per acre is recommended for both the first and second applications of Movento.

Key Information	
Use Rate	6–8 fl. oz./A
Season Maximum	12.5 fl. oz./A
pH Requirements	Buffer spray solution to pH 7 or below
PHI	7 days
REI	24 hours
Adjuvant	High-quality, spreading and penetrating
Coverage	Thorough coverage of canopy, avoiding runoff

Movento® Application Placement and Coverage

The placement of the Movento spray is critical.

For Movento® to provide effective control of mealybugs, it must be absorbed into the leaves where it can then translocate through the vascular tissue of the grapevine. Movento does not effectively penetrate bark tissue. The spray application should be concentrated on the area of the vine that will optimize coverage of the foliage.

Carrier volume should be limited to provide thorough coverage of the leaves and fruits with minimal runoff.

Spray Adjuvant Use with Movento

The use of proper adjuvants with Movento is very important to optimize mealybug control.

Movento must be tankmixed with a spray adjuvant/additive with spreading and penetrating properties to help maximize leaf uptake and systemic movement. It is recommended that you contact your local Bayer representative or Pest Control Advisor (PCA) for specific adjuvant recommendations.

In general, it is recommended that a high-quality, spreading-penetrating adjuvant be used at a rate known to be safe for the crop.

Managing Mealybug Resistance to Movento

Proper planning of mealybug control programs will help maintain the viability of Movento and other insecticides.

To prevent the development of mealybug resistance to Movento insecticide (IRAC Group 23), it is important to use Movento in rotation with other insecticides that have different modes of action. The following are examples of insecticides that would be good rotation options: Applaud® (Group 16), Admire® Pro (Group 4A), Belay® (Group 4A), Assail® (Group 4A) and Sivanto™ Prime (Group 4D).

University of California Information

For more information regarding mealybug identification, monitoring, cultural practices, biological control and chemical control, refer to the University of California Pest Management guidelines at www.ipm.ucdavis.edu.

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