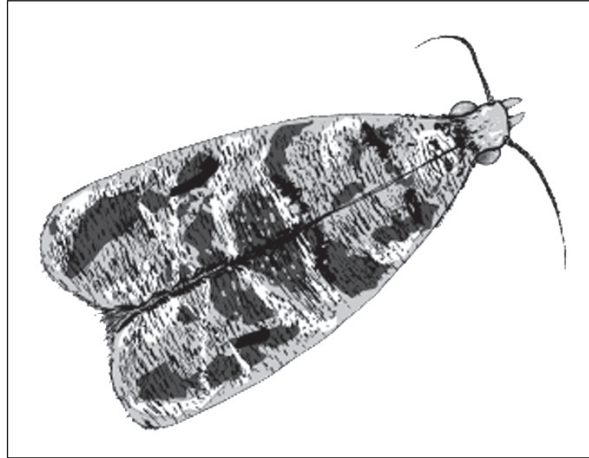


European Grapevine Moth

Background – Invasive species are organisms that are moved by nature, people, or animals into an ecosystem where they have not been previously found. Some of these organisms are spread naturally or accidentally by people, while others are spread intentionally, without understanding the harm they might cause. Although most of the organisms brought into our state cause no harm, a few are able to thrive in California to the detriment of native ecosystems, recreation, agriculture, including specialty crops, infrastructure, and public or animal health. These invasive species include plants and animals, insects and other arthropods, and pathogens.



Description: The European grapevine moth (EGVM) causes major damage to flowers and berries of grapevines. Adult moths are about a quarter of an inch long with wings that are tan with patches of gray, blue, black and brown. Female moths will only mate once in their life time and can lay approximately 35 eggs each day for six days following mating. Eggs are round and flat and are laid individually or in groups of two to three near grape buds, fruit, and flowers. The larvae, or caterpillars, that emerge from the eggs will grow to about one-and-a-half centimeters long. Their coloring can vary from light yellow-green to pale brown with a darker colored head. The pupa is dark brown and is wrapped in a light-gray cocoon, usually in a rolled-up leaf or under bark.

Habitat: The European grapevine moth is from Italy and was first discovered in the United States in 2009 in Napa County, California. The EGVM has become a serious pest to vineyards throughout Europe, the Middle East, Northern and Western Africa, Southern Russia, Japan, and Chile.

How they spread: The European grapevine moth can only fly one-tenth of a mile. However, they can travel long distances if people unknowingly transport grapes, nursery plants, and vineyard farm equipment that carry the moths, larva, pupae, or eggs.

Why the EGVM is a problem: The European grapevine moth can produce up to three generations of offspring each year in California, where it has no natural predators to reduce its population. The caterpillar stage causes a lot of damage. For example, caterpillars that hatch early in

spring feed on the grape flowers. The second generation of caterpillars usually hatch in mid-summer and feed on the developing grapes. Sometimes a partial, third generation of caterpillars hatch in late summer and feed on ripening grapes. They also spin webbing around grape bunches and their feeding can lead to fungal infection and grape rot. Grapes are one of California's most valuable crops and California is the top grape producer in the U.S. Losing this crop would cause serious losses for farmers and would cause the prices of grapes, raisins, and wine to go up.

How it affects California specialty crops:

Many of the affected crops are California specialty crops. Specialty crops are fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture). Many of the fruits, nuts, and vegetables eaten in the United States are grown right here in California. Although grapes are the European grapevine moth's favorite food, it could also destroy other California fruits including cherry, currant, kiwi, olive, nectarine, peach, persimmon, and pomegranates, as well as plants such as rosemary.

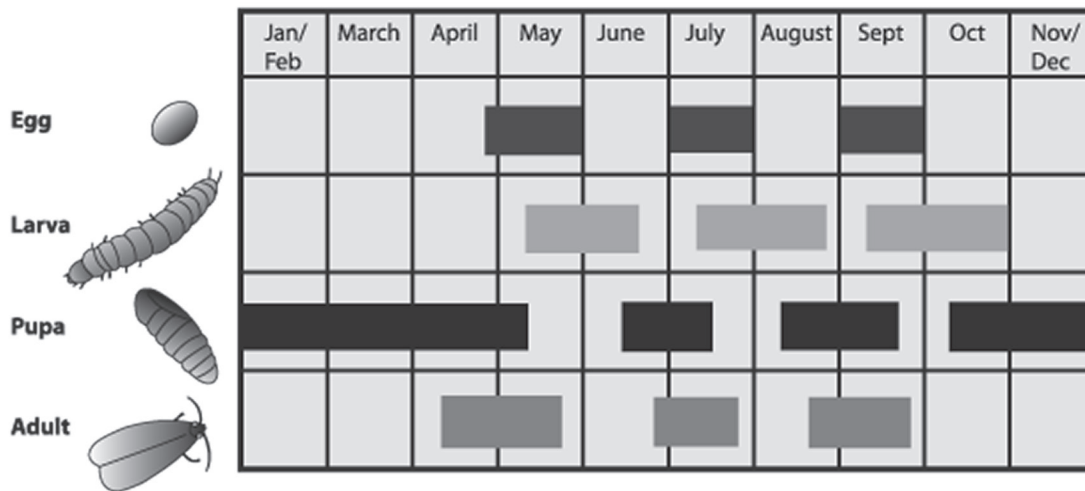
How you can help: Keep an eye out for EGVM if you have grapevines in your yard. If you prune your grapevines, make sure to properly dispose of cuttings in your green waste container or burn them if you have a burn permit. Contact your county agriculture commissioner if you think you have found a European grapevine moth.

For additional information:

California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814
Pest Hotline: (800) 491-1899
www.cdfa.ca.gov/plant/egvm

European Grapevine Moth Activity Sheet

Life Cycle of European Grapevine Moth



Bayer CropScience, Italy

Fantastic Facts

1. What is the EGVM?
2. What California crop could the EGVM destroy?
3. What are some other plants EGVM has been known to feed on?
4. What color are the wings of EGVM?
5. How can you help prevent the spread of EGVM?

1) The European grapevine moth causes major damage to flowers and berries of grapevines 2) Wine, grapes, and raisins 3) Cherry, currant, kiwi, olive, nectarine, peach, persimmon, pomegranates, and rosemary 4) Tan-cream in color, with grey-blue, brown and black blotches

Lesson Ideas

- Use the diagram above to describe the life cycle of an EGVM.
- Create informational posters about the EGVM and why it's a problem.
- In groups write skits about how the EGVM could affect a vineyard. Characters can include farmers, vineyard workers, visitors, pests, etc. Perform skits to other classes.

Lesson Plan: Buggy Travel Guide

Introduction: This activity will help students understand optimal conditions for the EGVM. Students will create moth travel brochures for a California destination where they could flourish.

Materials: travel brochures, computer, and internet access

Procedure:

1. Begin with a class discussion on invasive species and their impact on California agriculture and the environment. Highlight information about the EGVM.
2. Have students research the EGVM's ideas destination.
3. Acting as tour guides, students use their travel brochures to present how the EGVM could travel to a California region, and why they chose their location.
4. Students can include simple steps people could take to prevent the spread of the EGVM to these new areas of California.

Things to include in brochure:

- Background including why the EGVM could live there
- Location, including a map
- Climate and overall weather conditions
- Mode of transportation EGVM could use to get to new location
- Pictures/graphics
- Hazards of the EGVM and the impact it will have on the area