

REPORT OF THE TECHNICAL WORKING GROUP
FOR THE
EUROPEAN GRAPEVINE MOTH PROGRAM
August 8, 2016

The Technical Working Group (TWG) for the European grapevine moth (*Lobesia botrana* [EGVM]) program in California met by teleconference on August 8, 2016. TWG members attending: M. Cooper, C. Ioriatti, D. Lance (TWG Chair), A. Lucchi, G. Simmons, R. Steinhauer, R. Cardé and L. Varela. Two members (B. Bagnoli and V. Mastro) were not in attendance (Appendix I). Summaries of trap deployment and trapping quality control information were provided ahead of the call by the PPQ office in California and the California Department of Food and Agriculture (CDFA). In addition, on 2 August 2016, CDFA sent a letter to Helene Wright, APHIS-PPQ State Plant Health Director for California, which requested deregulation of all the remaining area of California currently regulated for EGVM.

Overview

In previous reports, the TWG has provided recommendations on survey, control, and regulatory measures for the EGVM program. Those guidelines have largely been followed, and no moths have been caught within the remaining regulated area since 2013. This satisfies the TWG's previous recommendations regarding conditions for removing areas from regulation; specifically, six full generations with no captures despite intensive (delimitation-level) survey. Accordingly, the TWG is making two broad recommendations:

1. Deregulate the remaining area of Napa and Sonoma counties that are currently regulated for EGVM. Once that is done, there will be no areas within the United States regulated for EGVM. This recommendation is contingent on demonstrating that no EGVM were present in traps within the regulated area as of the end of the projected period of the second flight of EGVM in the regulated area.
2. Maintain vigilance against the possibility of additional EGVM populations through high-density detection trapping in previously regulated areas of Sonoma and Napa counties, along with additional detection trapping efforts throughout grape-growing regions of California. This high-density trapping should remain in place for the following three seasons, and then phased over time into a cost-balanced detection system that monitors for a variety of exotic pests of grape. Quality of the trapping program should be emphasized throughout the post-eradication and detection efforts. Guidelines for post-eradication monitoring and response have been outlined by a working group of APHIS-PPQ, CDFA, UC Extension, grape production pest control advisors and Napa and Sonoma County personnel staff in the report "European Grapevine Moth Post-Eradication Response Guidelines."

Background

At its 2010 meeting, the TWG agreed that eradication of EGVM from California was technically feasible, given persistence of the following conditions:

1. The population is not (and does not become) substantially more widespread than it is known to be at present,

2. The grape industry remains behind the effort, and
3. Control methods that are available at the present time remain available for use by the program.

Since the discovery of EGVM in California, numbers of males captured in the core infested area have been reduced from over 100,000 moths in 2010, to 146 in 2011, 77 in 2012, 40 in 2013, one in 2014, and none since 2014. The 2014 find was in Sonoma County but outside of the area under regulation. No moths have been caught in California outside of Napa and Sonoma Counties since 2011. Control efforts have consisted of an effective combination of insecticides and mating disruption treatments. Organic options have been used where applicable, and residential areas have been treated with Bt and/or fruit stripping as appropriate. These treatments have largely followed TWG recommendations and remain available and efficacious.

At this time, all previously infested areas of California beyond Napa County have been deregulated, with the exception of a portion of Sonoma County that is within 3 miles of earlier captures in Napa County. The TWG commends the efforts of the growers and recognizes that they have collectively borne the brunt of treatment costs and, along with growers of other affected crops, the burden of regulatory measures. Program officials at the federal, state, and county levels have continued their very good job of coordinating program activities and executing an effective survey program.

Mating disruption treatments ended in 2014, and the trapping grids of 2015 and 2016 should thus have been fully functional and capable of detecting any residual populations. In addition, no chemical treatments were applied in 2016, which would have allowed any residual populations to grow and therefore would have facilitated their detection.

Specific recommendations

1. De-regulate all areas of California that currently remain under regulation for EGVM.

The primary bases for this recommendation are the survey system that was in place in the program area and the results of that survey. The TWG has made recommendations on survey methods and levels throughout the EGVM program. Most critically, within vineyards, the TWG specified that, in the Napa/Sonoma core, areas could be deregulated after two full flights with no captures followed by high-intensity trapping for an additional three (if traps were set at 250 per square mile) or four (100 traps per square mile) full flights.

A “full flight” is a period of time when all members of the population pass through the adult stage. EGVM populations in Napa and Sonoma counties exhibited three flights annually, but only the first two were full flights because a portion of second generation pupae entered diapause rather than emerging as part of the third flight. The program chose to use the lower trapping rate for four full flights, thus requiring six full flights (essentially 3 years) with no detections as the criterion for deregulation.

A complimentary recommendation was that no mating disruption treatments could be used where and when high-intensity trapping was in place. Rationale for these criteria are detailed in earlier TWG reports. Additional criteria were defined for trapping in non-agricultural areas that potentially harbored EGVM host material. A protocol for visual survey for immature stages was also provided for use in areas under mating disruption.

Based on the information delivered to the TWG, survey recommendations were followed to the degree possible, and no moths were caught in the regulated area after 2013. High-intensity trapping protocols were followed throughout the area in 2015 and 2016, and no mating disruption treatments were applied during those years. It should also be noted that significant portions of the remaining regulated area would have been eligible for deregulation based on TWG criteria after the second flight of the 2015 season; those areas have been four years (eight full flights) without a detection of EGVM.

The TWG also recommended increasing the ongoing quality control assessments for the detection survey. These included ensuring that negative traps were inspected a second time prior to discard, supplementary training and oversight of trapping personnel, “seeding” traps with laboratory-reared moths to test screening effectiveness, and analyzing lures to spot-check attractant content. These recommendations have been implemented, though the TWG is aware that some shortcomings in the detection system were uncovered in the process. While these shortcomings have been addressed, they were viewed by all TWG members as causes for some concern.

Considering all of this information, the TWG is recommending deregulation with the following contingencies:

1. A finding that no moths were captured in the regulated area during the entire period of the projected second flight of 2016. This requires the program to conduct a complete trap-check cycle throughout the entire regulated area *after* August 2, 2016 (i.e., at or after the projected end of the second flight in the regulated area). Any suspect moths would be identified and results reported through normal channels. The recommendation to deregulate will be in effect as soon as this check is complete, assuming no EGVM are found in the traps. Alternately, capture of one or more moths would trigger the program protocols that are in place as part of the eradication program. As traps are checked on a 2-week cycle, the TWG believes that it should be reasonable to expect this trap check to be completed by August 17, 2016.
2. Existing trapping systems should be left in place and serviced on schedule for the duration of the field season as they would have been if deregulation did not occur (to the TWG’s understanding, this was the existing plan, and we support it).

The rapid and apparently complete reduction of the EGVM population was a product of a combined effort of the growers in the region along with highly effective coordination of treatment efforts, led primarily by County personnel who were using recommendations on materials and timing that came largely from UC Extension specialists. This was a very large project and no doubt had its twists and trying moments. However, overall, it was an outstanding effort that achieved the desired effect within a time frame that was shorter than expected (at least by the TWG). The insecticide treatments were applied for at least four (full) generations in most areas that were half a kilometer or less from a capture, and mating disruption was applied for at least the first two flights following the start of the treatments. The combination of these strategies appeared to knock the population down substantially and then effectively block reproduction of the residual insects.

2. Maintain vigilance against the possibility of additional EGVM populations in California. The EGVM eradication program has been an efficacious program that achieved its primary goal within reasonable time frame. However, if an effective detection trapping system

had been in place prior to the arrival of EGVM in California, the resulting program almost certainly would have been far less expensive, inconvenienced far fewer growers, been completed in a shorter time frame, and had a higher initial likelihood of success (this program turned out to be successful, but that was by no means guaranteed at the outset given the size of the population). Guidelines for ongoing survey, as well as for responding if EGVM is detected again, have been assembled by a working group of APHIS-PPQ, CDFA, UC Extension, grape production pest control advisors and Napa and Sonoma County personnel in the document “European Grapevine Moth Post-Eradication Response Guidelines (June 2016).” The TWG was asked to comment on a draft of those guidelines and, having read them, generally believes that they cover this topic sufficiently that there is no need to go into detail here. Broadly, then, our recommendation to maintain vigilance would include:

- a. Initially maintaining a high level of detection trapping in recently de-regulated EGVM program areas for a period of at least three years, in accordance with the post-eradication plan. For vineyards, the plan specifies at least 25 traps per square mile, with higher densities where deemed appropriate.
- b. Phasing the high-level trapping into a less intensive but long-term detection survey effort for EGVM as well as other key exotic pests of grapes. The pathway by which EGVM arrived in California is not known and thus likely still exists. In addition, the EGVM situation in South America is not improving.
- c. Developing appropriate protocols for (b) may require a cost-benefit analysis that incorporates such factors as cost of survey, expected size of pest populations at detection (given different survey efforts), costs of eradicating pest population vs. population size, likelihood of successful eradication vs. population size, expected frequency of re-introduction, and social, environmental, and perceptual considerations. Data on survey effectiveness (such as distance-capture functions where traps are used) may need to be developed as part of this.
- d. More broadly, a variety of exotic pests pose a risk to the grape industry in California and throughout the U.S. The TWG believes that it would be prudent to prioritize those pests according to risk and monitor for them accordingly. Analyses similar to those discussed in (c) could be developed on a national scale for optimizing the grape commodity surveys that are conducted through the Cooperative Agricultural Pest Survey (CAPS) program.
- e. Continuing and emphasizing quality assurance efforts throughout the post-eradication and detection programs state-wide. Trapping Quality Assurance measures are outlined in the Post-Eradication Response Guidelines and CDFA’s “Insect Trapping Guide” (13th Ed., 2013. https://www.cdfa.ca.gov/plant/pdep/Insect_Trapping_Guide/index.html). These measures include, among other things, ongoing training and monitoring of trappers over the trapping season, checking traps on schedule (long trapping intervals can make identification of moths difficult or impossible), replacing traps and lures on schedule or when traps become dirty (ensures trap efficiency), and re-examining traps prior to discard. The TWG also notes that seeding traps with laboratory-reared EGVM has proven to be a useful tool for assessing performance of trappers. Quantity of traps checked should not take precedence over the quality of trap-checking activities.

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