Final Plain Language Research Summary - AgriScience Grape & Wine Cluster 2018-2023

Activity: *Mitigation of infestations of multi-coloured Asian lady beetle (MALB)*

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Multicoloured Asian lady beetle (MALB) is a serious pest in wine and juice grapes in North America as beetles enter vineyards in the autumn and are harvested along with the grapes. When disturbed or crushed during grape processing, MALB release methoxypyrazines that taint the juice. If a single MALB is observed in a vineyard at harvest, most wineries require that it be treated with insecticides. Methods for controlling MALB in vineyards are largely limited to the use of insecticides. The goal of this research project is to evaluate alternative methods for removing MALB from vineyards and harvested material. Before harvest, behavior-modifying chemicals, such as repellents, can be used to discourage MALB from aggregating in vineyards. Alternatively, removal of MALB during harvest and sorting is a possibility and technologies exist that promise to do so, but these have not been thoroughly evaluated for MALB or their impact on methoxypyrazines.

Alternative compounds for managing MALB were initially evaluated under controlled laboratory conditions. Many of the products tested successfully reduced berry feeding activity by MALB when evaluated within 2 hours of treatment. Based on results from short-term repellency trials, the most repellent products were tested for long-term repellency (3 days) in the laboratory. Many of these products continued to reduce berry feeding activity by MALB with varying degrees of effectiveness. These results meet the intended outcome of research objective 1.

An optical sorter was evaluated for efficacy in removing MALB from commercially harvested fruit artificially infested with MALB. The system reduced the number of MALB in “clean” fruit compared to the initial sample before sorting. These results contributed to the outcome of research objective 2.

The final objective of this project was to develop a best management practices for MALB in Ontario vineyards document.