Idaho grapevine virus and virus vector survey

The Situation
It’s a little known fact that Idaho has a long history in the wine grape industry. It’s thought that cuttings were planted in Idaho as early as 1864, though national prohibition, which lasted from 1919-1933, essentially eliminated that wine grape industry in Idaho. The industry returned to Idaho in 1970, but it wasn’t until recently that growth has greatly expanded. Currently, Idaho is home to approximately 60 vineyards, accounting for about 1,600 acres of wine grapes and 43 wineries, which were reported in 2008 to contribute $73 million to Idaho’s economy.

Grape vineyards are established using planting stock “cuttings” taken from older vines and much of the planting stock currently available for vineyard managers is purchased from out of state. While planting stock is required by Idaho State Department of Agriculture (ISDA) to come into the state free of virus and virus-like diseases; and managers are encouraged to purchase planting stock that has been tested and labeled as virus-free, neither of these always happens. Unfortunately, unintentional introduction of crop pests, which negatively affect crop quality and/or reduce crop yields, can often be the result.

Our Response
University of Idaho Extension collaborated with researchers from UI and ISDA to assess the status of virus and virus vectors in the Idaho grape growing areas of the Clearwater River Valley in Northern Idaho and Snake River Valley in Southern Idaho. Working with ISDA survey entomologists, insect traps were strategically placed in vineyards to monitor for the presence or absence of two mealybug species associated with grape production, Vine Mealybug (VMB, *Planococcus ficus*) and Grape Mealybug (GMB, *Pseudococcus maritimus*) both known vectors of viruses causing Grape Leafroll Disease (GLD). Visual symptoms associated with GLD were observed and recorded.

To confirm visual observations, leaf samples were collected randomly during 2009 and 2010 to assess the presence or absence of GLD in currently established vineyards throughout the Northern and Southern growing areas. These collected samples were subjected to laboratory tests for 18 different viruses and viroids, including viruses causing GLD.

Program Outcomes
More than 30 vineyards were sampled in 10 Idaho counties for GMB, VMB, and GLD during the 2009 and 2010 survey seasons.

As expected, ISDA insect survey traps reported that GMB males, a native species, were present in both northern and southern growing areas. However, female specimens and greater population numbers
were reported in the southern region. Additionally, no incidence of VMB was reported in either 2009 or 2010 for any survey site.

In 2009, over 2,000 individual tests were run for a variety of grapevine viruses, with additional samples being tested in 2010. The 2009 survey demonstrated that approximately 6% of total samples tested positive for viruses causing GLD, with the majority of positives from vineyards in southern growing region and a limited number of positive samples from vineyards in the northern region.

In 2009, two grower meetings were held throughout the state to bring awareness of virus diseases, describe visual symptoms, give practical recommendations to manage and control virus spread, and share survey results and outcomes. Meetings were attended by a total of 20 grape growers.

The Future
This survey will continue for the 2011 survey season with support through a USDA-ARS grant. Additional work continues on Integrated Pest Management (IPM) practices to limit inter-state introduction and intra-state spread of GLD. UI and UI Extension will continue to collaborate on grapevine virus detection and maintenance of clean nursery stocks.

Cooperators and Co-Sponsors
• Alexander Karasev, Ph.D., Plant Virologist, University of Idaho/Plant, Soil, and Entomological Sciences
• Idaho State Department of Agriculture, Division of Plant Industries

References