2022-2023 Nova Scotia Invasives & other pests

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July 2022

As part of the Canadian Grape and Wine Cluster, we continue to monitor the distribution and impact of emergent and invasive insect pests in commercial grape in Nova Scotia.

Since starting our survey efforts in 2016, we have seen a slow spread of Japanese beetle from west to east on the south shore of the Province. In 2018, we observed beetles in western parts of NS, along the Fundy coast. Two weeks ago, we observed our first two beetles in the Kentville area, one in wine-grape and one on cultivated roses. Like other relatives in the scarab beetle family (i.e. June bugs), the larvae prefer to feed on the roots of turf and grasses. The adults typically feed on the leaves of grapevines but are known for attacking other developing soft fruits (i.e. raspberries, blackberries). We have only seen damage to grape leaves at this time NS vineyards. If you notice damage (descriptions of what to look for are provided below) and/or see any other insects of concern, please feel free to contact me.

JAPANESE BEETLE (*Popillia japonica*)

What to look for:

- Adult beetles average 15 mm in length
- Metallic green head and thorax with coppery brown back
- There are small white tufts along the sides and at the back
- The antennae are clubbed at the end
- Where you find one, there are often more (they tend to cluster)
- When disturbed, they will drop to the ground.

Damage

- Adults will feed on the upper surfaces of leaves in the top portion of the canopy
- Extent of damage will vary but can be severe in some vines and varieties
- In NS, we typically start seeing the adults feeding by mid-late July

FIELD NOTES …

PHYLLOXERA (*Daktulosphaira vitifoliae*)

Observations in 2022:

- Soil emerging trapping and leaf gall assessments are ongoing
- Galls and root-feeding forms (found in the soil) have been seen in commercial blocks.
- Leaf-galls are typically observed in hybrids but, although not common, can be seen in some vinifera (even when grafted to rootstock).
- We are seeing increased number of leaf galls in L'Acadie that we have not seen in previous years of sampling, even though we have observed soil-emerging individuals.
- Populations will move between adjacent blocks (although you may not see them since they can stay in the soil and do not always cause leaf galls in some varieties).

Management:

- Use phylloxera-tolerant rootstocks for *V. vinifera*
- Make sure that the roots of transplants are phylloxera-free when planting new blocks or replanting
- If a vine (or small group of vines) is in serious decline or has died, then inspect 'neighbour vines' for signs of phylloxera (i.e. leaf galls, symptoms similar to that seen in potassium deficiencies, slow or stunted growth). Focus on neighbour vines because phylloxera will move away from vines once they are severely impacted.
- July – Continue visual inspections for galls on leaves. If galls present, cut open the gall to look for 'crawlers' (an magnifying lens is helpful).
- When cultivating or using mechanical means to weed, plan your route through the vineyard and visit blocks with phylloxera last to avoid possible spread.
- Spray options exist for conventional systems. Insecticides are most effective on active stages (not eggs) that are also feeding.
- Create wildflower reservoirs for beneficial species (predators and parasitoids). Research in this area is ongoing.

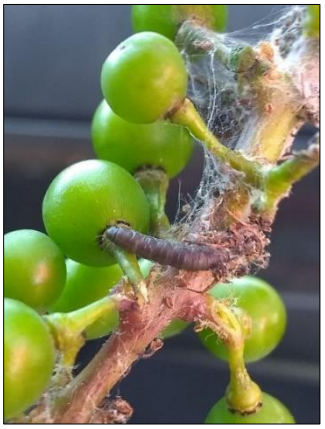


GRAPE BERRY MOTH (*Paralobesia viteana* CLEMENS)

We continue to monitor and will be trapping for grape berry moth again this year. Do not hesitate to contact our lab if you observe any 'suspects'.

What to look for:

- Infestations can vary greatly from year to year and are often very uneven in a vineyard (if established, then scout in vineyard areas closet to woody borders).
- Look for maturing larvae (caterpillars) in developing clusters. Mature larvae can reach 10mm in length larvae are a dark purple colour



Damage:

- Webbing may be seen in cluster
- Often a reddish spot surrounds the point of larval entry. The discoloration can extend over half of the surface of an otherwise green berry.
- Larvae feed inside the fruit
    - Risk when fruit is 6-8mm dia.

Photo credits: NS Growers for top images of 'suspected' GBM larvae, webbing and Jacques Lasnier (Co-Lab R&D, Granby, QC) for feeding damage image.

References:

Lasnier, J., McFadden-Smith, W., Moreau, D., Bouchard, P., and Vincent, C. Guide to the key arthropods of vineyards of Eastern Canada. Agriculture and Agri-Food Canada, 2019. http://publications.gc.ca/pub?id=9.868732&sl=0

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