

BLUNT-NOSED LEAFHOPPER IN MA CRANBERRY

Limottetix vaccinii (Van Duzee)
(Hemiptera: Cicadellidae)

Martha M. Sylvia and Anne L. Averill
University of Massachusetts-Amherst
Cranberry Station, East Wareham, MA
May 2023

This is a draft edition of the blunt-nosed leafhopper fact sheet. We are not familiar with this insect in conventional MA cranberry and will create new editions as we learn more.

So far, we have not seen blunt-nosed leafhopper outbreaks in MA on beds where a program of broad-spectrum insecticides is followed in the spring.



Adult blunt-nosed leafhopper. The adult stage of the leafhopper is readily picked up in the sweep net all through July if an infestation exists. These insects are very small: above image shows comparison of the full-grown insect (adult) alongside a penny. (Images: Charlie Armstrong, UMaine)

We have not seen blunt-nosed leafhoppers on typically managed MA bogs. We have begun an extensive survey to determine its current status.

In MA cranberry, we have seen modest populations on two low-input beds and one organic bed. We have seen high population on abandoned and wild bogs. Large populations are common on New Jersey beds. They have appeared on Maine and Wisconsin beds for a number of years.

Blunt-nosed leafhopper is critically important because it is the vector of cranberry false blossom

disease. *However*, we have only seen false blossom on one bed several years ago. We see false blossom regularly on wild bogs out on Cape Cod. There is no treatment for false blossom disease and diseased uprights do not produce berries.

BIOLOGY

In natural settings, blunt-nosed leafhopper is abundant on leatherleaf, dwarf huckleberry and fetterbush, and is less abundant on sheep laurel [according to HJ Franklin (1950)]. In New Jersey, according to CS Beckwith and SB Hutton (1929), in the vicinity of bogs, blunt-nosed leafhopper appears to prefer cranberry. Several other leafhopper species may be picked up in sweeps, so care must be taken to carry out correct identification.

Beckwith, CS and SB Hutton. 1929. Cranberry false blossom and the blunt-nosed leafhopper. Bull 491. NJ Agricul. Exp. Sta. New Brunswick, NJ

Franklin, H.J. 1950. Cranberry Insects in Massachusetts. Bulletin No. 445 parts II-VII. MA Agricul. Exp. Sta. East Wareham, MA

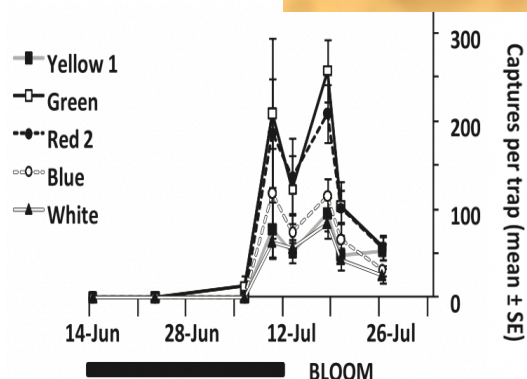


*Blunt-nosed leafhopper **nymph** on left. It has developing wing buds and cannot fly. **Adult** leafhoppers are seen in July, on right. It now has functional wings. (Images: E. de Lange, Rutgers)*

There is one generation of blunt-nosed leafhopper per year. In late summer, females insert eggs lengthwise under the bark of the cranberry stem. The egg stage overwinters. Egg hatch begins in early spring. In 2023, we found 1st instar nymphs (just hatched) during the 2nd week of May. The insect goes through five instars (an instar is a developmental stage between molts). At first, the nymphs are whitish and 1/20th of an inch long. Intermediate instars are pale yellow or dark yellow and final instars are darker, and are greenish-grey, or yellow. The nymphs take about a month to complete development to winged adults.

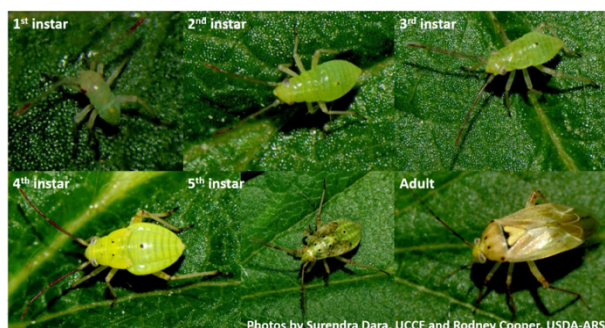


Above: tiny nymphs can be seen starting in May. On right: adult leafhoppers, about 1/8th inch long



Adult blunt-nosed leafhopper captures on different colored sticky traps on New Jersey beds. The black bar shows duration of bloom. Adults begin to emerge at bloom through July. (Graph taken from Rodriguez *et al.* 2012. Crop Protection 40:132.)

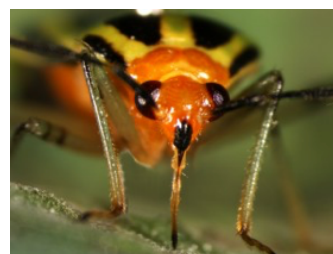
The adults appear throughout July in New Jersey, with greater numbers captured on colored sticky traps in mid-July (see figure above).



Review of the life history of a bug like blunt-nosed leafhopper. This is not blunt-nosed leafhopper. It is a related species in the same family of insects and in a similar manner completes development. The insect does not change in structural form but the wing buds enlarge. They pass through five nymphal stages (called instars) to the adult stage. Functional wings appear in the adult.

FEEDING

All feeding stages of the leafhopper have mouthparts that are a tubular, jointed beak. The beak is inserted into the plant stem, leaves or buds in order to access the plant juices, which are sucked up.



This is not blunt-nosed leafhopper, but is a relative. The image shows the piercing-sucking mouthparts typical of the leafhopper group.

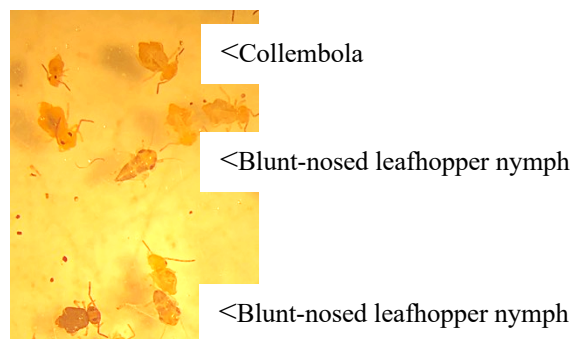
VINE INJURY

Direct feeding injury to the vine has not been observed. Transmission of the false blossom pathogen is the problem with these leafhoppers.

MANAGEMENT

Acetamiprid (Assail), diazinon, and carbaryl (Sevin) are effective insecticide choices, according to reports from NJ.

Pre-bloom (mid-May to June) sweeping to detect the nymphal stage of the leafhopper is advisable, but it is exceedingly difficult. They are very small and are hard to pick out when Collembola are abundant. We have only been successful in detecting them by putting the sweep net contents into gallon zip-lock bags and then examining them with a microscope with a fiber-optic light.

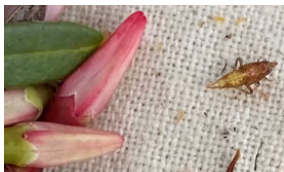


Magnified image of a sweep net collection from a low-input bed in MA in the second week of May. Collembola were very abundant but a microscopic inspection showed a few blunt-nosed leafhopper nymphs.

Immigration of leafhoppers from nearby abandoned or low-input beds could put a neighboring bed at risk, which should be carefully monitored. New hybrid plantings should also be carefully monitored.



Sweep net contents (July 3 collection) shows pile of leaves and other debris. The red circles show blunt-nosed leafhopper adults leaving the pile. Image: Charlie Armstrong, UMaine



This is not blunt-nosed leafhopper. It is sharp-nosed leafhopper (*Scaphytopius magdalenensis*) and it is often found in cranberry sweep collections. It does not vector false blossom disease. Nymph is shown at left (note small size) and adult on right. Left image: Lindsay Wells-Hansen . Right image: Ken Childs (in Bug Guide).

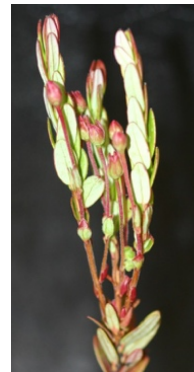
BLUNT-NOSED LEAFHOPPERS SPREAD FALSE BLOSSOM DISEASE. THERE IS NO TREATMENT ONCE THE VINES ARE INFECTED.

False blossom is a disease caused by a phytoplasma, which is bacteria-like, and which resides in the upright's phloem. When the blunt-nosed leafhopper feeds on false blossom-infected plants, they acquire the phytoplasma and can transmit it to healthy vines when they next feed.

The very distinctive symptom of cranberry false blossom is the malformation of the cranberry flower. When the diseased flower opens, the flower stands erect and the petals look more daisy-like than the healthy down-facing flowers. The flower is often off-color and may be deeper pink or red.



False blossom disease affects the cranberry blossoms. Abnormal berries or no berries are produced by infected flowers



The diseased plant may exhibit 'witches broom' development where the uprights are close together. The broom may stick up above the healthy vine



Infected foliage turns red in the early fall, sticks up above the canopy level, and the contrast between the healthy (green) and diseased foliage is visible from a distance. There is no fruit. (Image: Lindsay Wells-Hansen)