

Banana Bunchy Top Virus and Nematode Management on Banana

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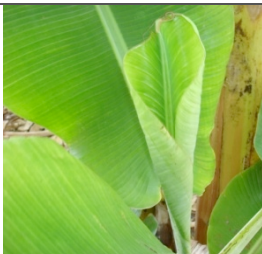

Banana bunchy top virus (BBTV) causes one of the most economically important diseases of bananas in the Pacific islands. Infected plants do not bear fruit, and fruits of later infected plants are unmarketable. The virus spreads to suckers via the rhizome and eventually to the entire banana mat. Planting banana from non-symptomatic suckers is the main cause of the spread of BBTV. In addition, plant-parasitic nematodes of banana are also spread through transplanting of field suckers. The use of uninfected planting material is essential to establishing a disease-free crop. A banana tissue culture facility was established at the University of Hawaii at Mānoa, College of Tropical Agriculture and Human Resources, Seed Lab. The objective of this program is to make available a variety of disease-free tissue culture banana for banana growers in Hawaii.

This article provides you information on how to obtain disease-free tissue culture banana from UH Seed Lab, and various other methods to reduce the spread of BBTV and banana nematodes.

1. Remove BBTV infected plants

The disease-free tissue culture banana plants are still susceptible to BBTV and nematodes. It is important to destroy any infected plants in the planting area to prevent these pathogens from spreading to the disease-free seedlings. Early detection, followed by prompt destruction of the diseased plants is the key to a successful BBTV mitigation program. Once a plant in a mat is detected with BBTV symptoms, the whole banana mat should be considered infected and destroyed.

Early detection of BBTV: It is important to detect symptomatic plants early.

	
<p>Early Symptoms</p> <ul style="list-style-type: none"> • Chlorotic young leaf • Mottling leaf margin 	<p>Late Symptoms</p> <ul style="list-style-type: none"> • Bunchy growth • Stunted plant

Bananacide: Injecting a small volume of bananacide such as glyphosate (e.g. RoundUp®) into the trunk of a BBTV or nematode infected plant could destroy the infected plants, and avoid the spread of these diseases. Timely destruction of BBTV infected plants will help keep the neighboring plants healthy.



Inject glyphosate into the pseudo-stem of banana at 1 foot above ground (2 ml per diameter inch of banana trunk).

Vector of BBTV: BBTV is transmitted by banana aphids, *Pentalonia nigronervosa*. Banana aphids normally are wingless, but their progenies could form wings when the condition is crowded or when the plant host is under stress.



Killing vectors of BBTV is one way of managing BBTV. Insecticides are available for banana aphid management. However, it is not necessary to spray all the banana plants in a field that has banana aphids.

2. Prevent the spread of BBTV and its vector

Banana plants may remain virulent with BBTV 6 weeks after a bananacide injection, therefore spraying bananacide injected plant with an insecticide might further reduce the spread of BBTV. Farmers should focus on spraying between the trunk and leaf petioles, and younger keiki.






This strategy of injecting and spraying only the infected plants may eliminate the need for preemptive insecticidal sprays throughout the entire orchard and avoids unwarranted destruction of healthy plants.

3. Plant disease-free seedlings

After the BBTV and/or nematode infected plants are destroyed from a bananacide injection (up to 6 weeks), disease-free tissue culture banana plants may later be planted within the same hole. To order tissue culture banana plants from the University of Hawaii at Mānoa Seed Lab, please contact Eden Perez (808-956-4107) or Desmond Ogata (808-956-7890).

4. Plant nematode antagonistic cover crop

Plant-parasitic nematodes might still be harboring in the soil and can eventually locate newly planted banana plants. One should let the newly planted banana to establish for a few months, then plant some French marigold (*Tagetes patula*) around the base of the plant. French marigold has great efficacy in suppressing spiral and root-knot nematodes, the most widespread nematodes on banana in Hawaii.

		
<p>Spiral nematode (<i>Helicotylenchus multicinctus</i>)</p>	<p>Root-knot nematode (<i>Meloidogyne</i> spp.)</p>	<p>French marigold as living mulch under some established banana plants.</p>

For more information of banana varieties available at the UH Banana Tissue Culture Program, please visit: [Banana Cultivars Available from the University of Hawaii Seed Program.](#)

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