

Lethal Yellowing of Coconut

'Candidatus Phytoplasma palmae'

INTRODUCTION

Lethal yellowing of coconut (LY) is a devastating disease that affects palms, including coconuts. It is caused by a phytoplasma, specialised bacteria that are transmitted between plants by insect vectors. The phytoplasma that causes lethal yellowing is called *Candidatus Phytoplasma palmae*, and it is spread by the planthopper, *Haplaxiscus crudus*.

Lethal yellowing can destroy a population of susceptible palms. In the 1970s, an estimated 10 million 'Jamaica Talls' were destroyed.

The most practical long-term solution to controlling lethal yellowing is the use of resistant cultivars. Coconut cultivars, such as the 'Malayan Dwarf' or hybrid 'Maypan' (Malayan Dwarf x Panama Tall), have exhibited acceptable levels of resistance in most areas.

DESCRIPTION

Lethal yellowing gets its name from the yellowing and drooping of palm fronds. The disease characteristically has the following progression:

1. Premature dropping of mature and immature fruits in a process called 'shelling'. Most of the fallen nuts will have a brown or black water-soaked area immediately under the calyx (Fig. 1).

2. Flower stalks (inflorescences) begin to blacken. Most male flowers on the blackened inflorescences will die and no fruit will set (Fig. 2).



Figure 1. Premature dropping of nuts due to the lethal yellowing disease. Photo by Kishma Primus-Ormond. Plant Protection, Antigua and Barbuda



Figure 2. Coconut palm showing blackened inflorescence. Photo by Kishma Primus-Ormond. Plant Protection, Antigua and Barbuda



Figure 3 : LY affected palm with dead brown fronds hanging down. Photo by Kishma Primus-Ormond. Plant Protection, Antigua and Barbuda

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DESCRIPTION Cont.

3. Palm fronds start to yellow (or, in the case of some species, turn greyish-brown), beginning with the older, lower fronds and advancing upward through the crown. Fronds that have yellowed will die, turn brown and hang down (Fig. 3).

4. The spear leaf collapses and the bud dies. By the time that this happens, the tree is already dead (Fig. 4).

5. The entire crown falls from the tree leaving a 'telephone pole' stalk (Fig. 5).



Figure 4 : Spear leaves collapse and die; entire crown falls from the trees leaving a 'telephone' pole. Photo by Kishma Primus-Ormond. Plant Protection, Antigua and Barbuda



Figure 5. The entire crown falls from the tree leaving a telephone pole. Photo by Juliet Goldsmith, Caribbean Agricultural Health and Food Safety Agency

REGULATORY STATUS

Coconut lethal yellowing is a quarantine pest for Dominica. It is also listed among the top ten priority pest for the Caribbean Region.

Current location of the pathogen includes:

Caribbean: Antigua and Barbuda, Bahamas, Belize, Cayman Islands, Cuba, Dominican Republic, Haiti, Jamaica, Netherlands Antilles, St. Kitts and Nevis

Central America: Honduras, Guatemala,

North America: Mexico - Yucatan Peninsula; USA – Florida, Texas

SPREAD AND POTENTIAL PATHWAYS

Natural spread results from the movement of the vector *H. crudus*. Infected vegetative plant material, including ornamental species, could carry the pathogen in international trade. *H. crudus* itself could possibly be moved in international trade as nymphs in soil accompanying palms.

REFERENCE(S)

Priority Pest Threats To The Region Lethal Yellowing Of ... (n.d.). Retrieved from http://www.cphdforum.org/wp-content/uploads/2015/06/LETHAL-YELLOW_BROCHURE.pdf