TROPICSAFE

TECHNICAL INNOVATION FACTSHEET

EVALUATION OF MANAGEMENT STRATEGIES FOR COCONUT LETHAL YELLOWING DISEASE IN JAMAICA
Impact of management practices on the spread of the disease in Jamaica

■ THE PROBLEM ADDRESSED

Sustainable lethal yellowing management for the coconut industry in Jamaica

Lethal yellowing is a devastating disease that affects coconut as well as 35 other palm species. It most commonly occurs in the Caribbean, Latin America and Africa and since 1961 has killed millions of palms. The relentless spread of this fatal disease throughout the coconut growing areas is having a serious impact on many vulnerable communities. Phytoplasmas enclosed in the 16SrIV group are associated with the disease. These obligated phytopathogenic mollicutes systemically colonize the phloem tissues inducing numerous biochemical and physiological changes leading to symptom development and ultimate death of coconut palms.
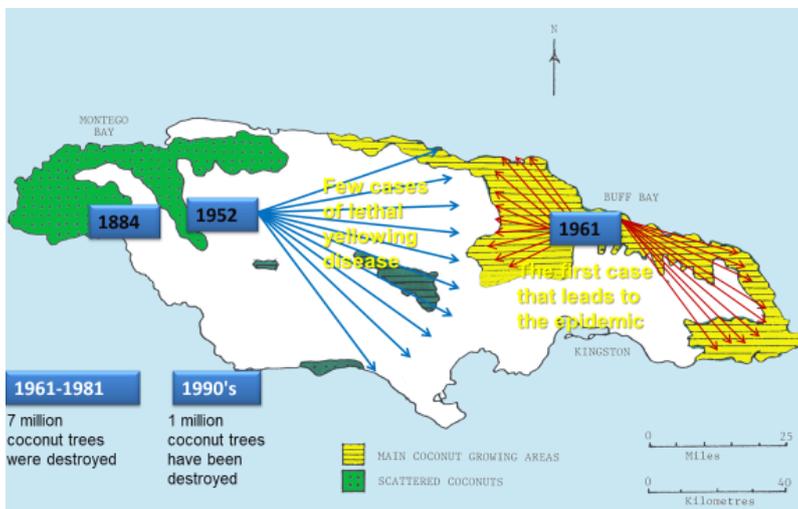
• Geographic locations of areas affected by lethal yellowing disease in Jamaica (left) and symptomatic coconut tree (right)

■ THE PRACTICE/INNOVATION PROPOSED BY TROPICSAFE

Management strategies needed for the control of lethal yellowing disease spread in Jamaica

One of the main aims of the TROPICSAFE project is to develop advanced pest integrated management strategies through the reduction of the environmental impact of plant protection strategies. Among these strategies, the use of cultural practices and spot chemical application in the overall management strategies to control the spread of the disease resulted to some extent effective. The project aims to evaluate the effect of these management strategies in the disease containment.

■ HOW IS TROPICSAFE IMPLEMENTING IT?

Validation of the management practices to reduce the spread of lethal yellowing disease

The disease was reduced significantly in some of the most affected areas in Jamaica. These areas were identified, and the management practices were applied systematically following the below protocol:

1. Surveillance of the lethal yellowing infected areas

2. Identification of the trees that are affected

3. Test the trees for lethal yellowing phytoplasma presence

4. Immediate removal of the infected/symptomatic trees

5. Spot spraying of insecticide (malathion) to control insect vectors such as Haplaxius crudus and Oecleus sp.

6. Immediate replanting of an healthy coconut seedling near the area where the infected trees are removed

7. Undertake weed control: cynodon grass, Saint Augustine grass, Guinea grass, *Emilia fosbergii* and *Stachytarpheta jamaicensis*

8. Manage plant health through the application of appropriate fertilization.

• Removal of lethal yellowing infected tree and collection of insects from the leaves of the removed trees

■ HOW IS IT WORKING?
Encouraging results

The analysis of the data collected shows a reduction in the number of trees becoming infected in the area where the management strategies are being implemented. The spread of the disease in these areas continues to trend downwards and give renewed hope to small holders in the rural coconut communities in Jamaica. The following graph shows the effect of the management practice, where the disease was reduced significantly over time.
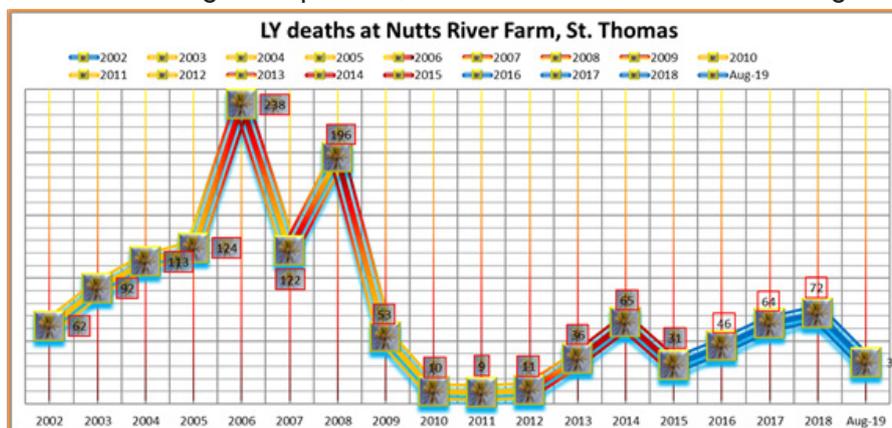
• Numbers of coconut palm deaths since 2002 at the Nutts River farm in Jamaica