

# Innovative Early Detection Pest and Disease Management System using IoTree® sensor in the Real-Time Digital Monitoring of South American Palm Weevil for Conserving Coastal Coconut Palms in Select CARIFORUM Countries.

## Introduction

Coconut is one of the main crops found growing along the Caribbean’s coastline and contributes to its aesthetic, socioeconomic and environmental value. Due to its ability to survive in marginal and fragile environments, coconut production serves as a source of income and employment for small holder farmers. Coconut plays an important role in coastal protection through soil stabilization, and protection against strong winds, storm surges, flooding and hurricanes. The tree also sequesters carbon and is important in climate change mitigation.

Aging tree population and high susceptibility to pests and diseases are major challenges for coconut production in coastal areas. Of major economic concern is the South American Palm Weevil (SAPW) – a direct pest of coconut and a carrier for the nematode which causes Red Ring Disease. Unfortunately, the SAPW is only detected when the infestation is advanced and symptoms such as tree mortality are visible. At this stage, mitigation actions are often uneconomical.

Based on climate scenario predictions, the Caribbean region is expected to warm through the end of the century. The SAPW is known to thrive under hotter, drier conditions and their impacts are expected to be exacerbated in the future due to climate change. If these predictions hold true, then tree loss will increase and the growth of the industry will be inhibited, resulting in a negative impact on the integrity of coastal community infrastructures and the livelihood of those living in such areas.

The project will introduce never before used technology in the Region – a sensor which facilitates early detection of the larval stage of the SAPW on coconut palms. Early detection allows for the timely treatment of infested trees and thus reduces tree removal rates. The deployment of this technology will monitor and inform timely mitigation and control strategies for the SAPW. As a result, tree mortality, and income loss to farmers will be reduced while some of the most vulnerable coastal communities will be protected against the impacts of climate change.

## Specific Objectives

- To conduct a socio-economic baseline assessment of the coastal agricultural communities.
- To implement a pest-weather digital monitoring system for the SAPW in coastal agricultural communities in selected countries.
- To engender stakeholder actions in the management and use of the pest-weather digital monitoring system.

## Locality

St. Lucia, St Vincent and The Grenadines and Trinidad and Tobago

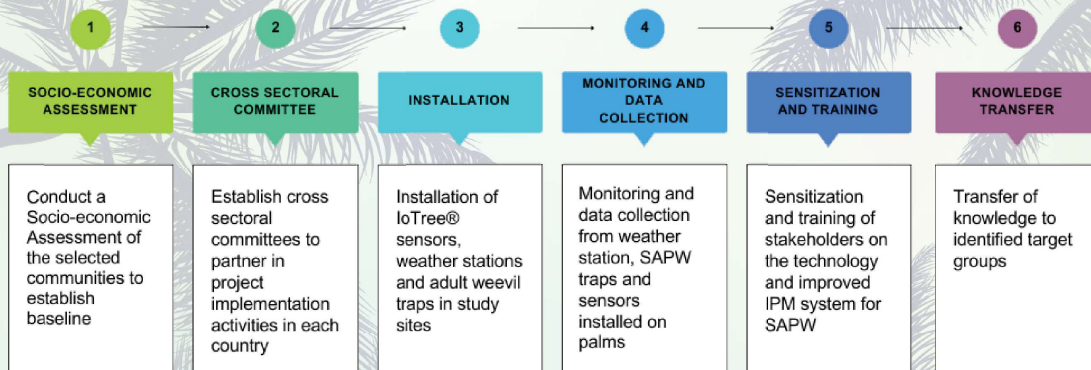
## Target Groups

- Coconut Farmers
- Research and Extension Officers
- Policy and Decision Makers
- Technocrats

## Beneficiaries

- Coconut Farmers and Estates
- Coastal Communities

## Methodology



## Expected Results

- Improved coconut production and productivity in coastal communities.
- Improved capacity of coastal and inland communities to mitigate against the impacts of climate change.
- Increased investments and use of digital and modelling technologies to improve resilience in coastal communities.