



Integrated disease management strategies for the productive, profitable and sustainable production of high quality papaya fruit in the southern Philippines and Australia

Aim

The aim of this project is to increase the profitable and sustainable production of papaya by reducing the impact of bacterial crown rot disease in Philippines and dieback in Australia.

Objectives

- To characterize the *Erwinia* sp. associated with BCR and conduct disease epidemiological studies
- To develop and evaluate sustainable disease management strategies for BCR
- To develop and evaluate sustainable disease management strategies for Dieback
- To devise and disseminate a package of technology (IDM strategies) for papaya

Achievements

- The causal organism associated with BCR in the Philippines has been identified.
- The inoculation technique for BCR of papaya is standardized and efficiently used in laboratory and field studies.
- The glasshouse screening technique is developed and applied for the evaluation of papaya germplasm for tolerance/resistance to BCR of papaya.
- The laboratory skills are developed and have been used in the recovery of the dieback causing 'phytoplasma' from infected papaya plant and for the screening of weed hosts.

PROJECT CODE HORT/2012/113

Project Budget: \$655,000

Duration: 4 years

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Commercial papaya propagation unit in
Mindanao

Challenges/Opportunities

- Develop BCR tolerant varieties that have quality and yield characteristics acceptable for commercialisation
- The project team encountered an early setback with screen house and trial sites destroyed during a typhoon



Project team members at the UPLB Plant Breeding Institute

Future Plans and Activities

- Assess the morphology, biochemical variations, pathogenicity, aggressiveness, genetic diversity and distribution of BCR isolates
- Develop species specific markers to use in BCR detection
- Study the epidemiology of BCR and the importance of alternative hosts, survival in soil, seed transmission, and potential insect vectors
- Screen papaya germplasm for tolerance and resistance to BCR
- Study alternate hosts of Dieback
- Develop disease management strategies and a process of disseminating information to farmers



Bacterial Crown Rot decimation in Mindanao



Dieback in Queensland

Additional info

This project has developed strong working relationships with both large commercial papaya organisations and also smallholder papaya grower associations. Joint training workshops and information sharing across all these groups is increasing the possibility of developing an effective management strategy for BCR.