ACIAR HORT/2016/185: Responding to emerging pest and disease threats to horticulture in the Pacific islands

PLANT HEALTH CLINICS

A training manual for Plant Health Doctors in Pacific island countries

Plant Health Clinics: A training manual for Plant Health Doctors in Pacific Island Countries

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Dedication

We dedicate this manual to the memory of Unaisi Turaganivalu from Fiji who tragically lost her life from malaria during its production. Una was a keen member of the SPC team and a strong advocate and champion of plant health clinics. She was instrumental in their design, as well as in the writing of this manual, and was keenly looking forward to using it as a member of the regional team of trainers. Una was taken from us far too soon. We miss her enthusiasm, hard work and cheerfulness and we grieve at her untimely passing.

Foreword

Plant health clinics were progressively incorporated into the extension strategies of ministries of agriculture during the sub-regional Integrated Pest Management (IPM) project: *Strengthening integrated crop management research in the Pacific Islands in support of sustainable intensification of high-value crop production.* With support from SPC, ACIAR and University of Queensland, the Solomon Islands hosted a pilot clinic programme during the project, and based on the evaluation of this programme, Fiji, Samoa and Tonga also began activities.

The concept of plant health clinics has proven to be appealing. Extension staff, backed by research personnel, are trained as plant health doctors, and meet regularly with farmers to diagnose their pest and disease problems and give timely advice. Importantly, the solutions promoted are based on IPM, stressing the use of cultural control practices, and encouraging and protecting natural enemies, rather than a reliance solely on pesticides. That the clinics are held at places where both men and women farmers usually come together, such as markets, farmer organisations and agricultural shows, is a departure from normal practice as extension staff are effectively put into contact with many people at one time. We know from anecdotal evidence that farmers like this approach!

However, we realised that if the programme was to achieve sustainable change in our respective countries, a shared approach is necessary, with each country assisting where there is a need. This was discussed at the first meeting of the second phase of the sub-regional IPM project *Responding to emerging pest and disease threats to horticulture in the Pacific islands* held at Sigatoka Research Station, Fiji in April 2018.

Representatives from Fiji, Samoa, Solomon Islands and Tonga agreed that the way ahead was to strengthen collaboration and partnership by creating a pool of experienced regional trainers, members of which would be on-hand to assist national trainers in training extension staff. To promote consistency in the training approach, it was agreed that a training Manual was required.

The contents of this manual were agreed at a formulation and writer workshop in Fiji (August 2018) and then tested with regional and national trainers in Samoa (October 2018), Tonga (November 2018), and the Solomon Islands (May 2019). We are pleased that this manual has come to fruition. It contains a wealth of technical information, in addition to many exercises and quizzes designed to build knowledge, skills and confidence in describing, diagnosing and managing crop pests and diseases.

Congratulations to the authors and all those who reviewed and tested this manual - we are proud to note that it has been written by Pacific islanders for Pacific islanders. We wish our trainers every success in putting this Manual to good use to meet the needs of our farmers.

Permanent Secretary for Agriculture, Fiji

Chief Executive Officer for Agriculture, Samoa

Permanent Secretary for Agriculture, Solomon Islands

Chief Executive Officer for Agriculture, Tonga

April 2021

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Abbreviations

ACIAR	Australian Centre for International Agricultural Research
Bt	*Bacillus thuringiensis*
DBM	Diamondback moth
ICM	Integrated Crop Management
IPM	Integrated Pest Management
IPDM	Integrated Pest and Disease Management
MoA	Mode of action (of pesticides)
NGO	Non-Government Organisations
PHC	Plant health clinic
PHS	Plant health system
PNG	Papua New Guinea
SPC	Pacific Community

Units of measurement

Volume

- L: litre
- ml: millilitre
- Liquids are often measured using bottle tops (lids):
    - Coca-Cola top = 5 ml
    - beer top = 4 ml

Weight

- g: gram
- kg: kilogram

Length/area

- m: metre
- m^2: square metre
- Ha: hectare (1 Ha = 10,000 m^2)

Acknowledgements

This manual was produced with support from ACIAR HORT/2016/185: *Responding to emerging pest and disease threats to horticulture in the Pacific islands.* We thank the many farmers in Fiji, Samoa, Solomon Islands and Tonga who have contributed to the testing and of this manual. We acknowledge the work and inspiration of CABI Plantwise in developing plant health clinics worldwide.

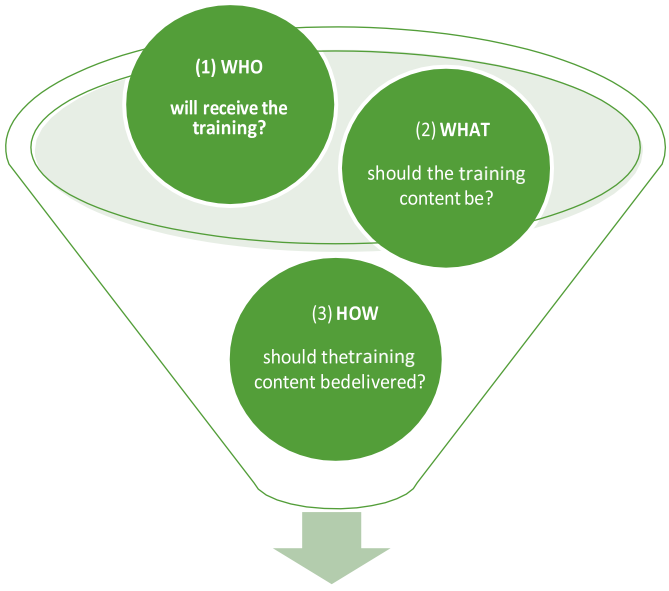
About this manual

This manual has been developed for trainers to assist in the training of agriculture extension staff in Pacific island countries to become plant health doctors. The doctors will be responsible for the development and running of plant health clinics (PHC).

The manual was conceived in April 2018 at the first meeting of Phase II of *Responding to emerging pest and disease threats to horticulture in the Pacific islands* implemented by the University of Queensland in partnership with the Governments of Fiji, Papua New Guinea, Samoa, Solomon Islands and Tonga, and the Pacific Community (SPC). Based on a successful trial in Solomon Islands during the first phase of the project, the partners at the meeting requested expansion of PHCs to other countries. Further, and in keeping with the concern to create sustainability, a regional approach was suggested whereby a team of trainers from the four countries would be available to train in-country trainers. This was an essential strategy of Phase II as, in most countries, agricultural training sections no longer existed. Thus, in some countries, regional trainers would have a double role as both regional and national trainers.

A training manual was deemed an essential component of the regional training, and it was considered important that the regional trainers should develop it. Too often, training manuals are developed for people by others, not by the people who actually use them. The content and structure of the manual was decided at a meeting the same year. Regional trainers from each country were appointed and met to develop the first draft of the manual. Working in small groups, the trainers drew on their expertise and knowledge of the needs of their extension staff and farmers, as well as a wide range of literature from other parts of the world.

The manual was designed with three elements in mind:



PHC training manual design

After initial editing, the regional trainers met again in Samoa 2018 to test the manual, and to begin the training of Samoan extension staff. Revisions and amendments were once again made. This was followed by workshops in Tonga and Solomon Islands, by the end of which, the revised manual was ready to be finalised and printed.

Layout of the manual

The manual consists of eight chapters and an appendix. It is written for trainers and aims to scaffold plant health doctor training from the plant health clinic concept (Chapter 1), pest and disease identification and diagnosis (Chapters 2 & 3) to management (Chapters 4 & 5) and the planning and running a plant health clinic (Chapter 6). Each of these chapters contains a list of materials that trainers will need, technical information, and a range of exercises and quizzes designed to facilitate learning.

Chapter 7 contains information for trainers on effective teaching strategies and practices. Chapter 8 contains the answers to the exercises and quizzes. The appendix contains forms and other resources for trainers.