Plant Health Clinics

A training manual for plant health doctors in Pacific island countries

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Dedication

We dedicate this second edition of the manual to Osanti Luda, from Takwa village, north Malaita, Solomon Islands. He was a remarkable man, growing watermelon, and a variety of root crops on soils depleted by overuse in an area of high population. As an organic farmer, his answer was to incorporate a legume fallow into the system. He was generous to show us his farm and explain how he grew taro with yam intercrops following *Pueraria* fallows. Figures 3.44-3.46 in the soil Chapter 3 illustrate his technique. We are thankful to have known him, and for being part of the team trialling PHCs.

Foreword

This Foreword to the Second Edition of the Plant Health Clinics (PHC) manual is an opportunity for heads of agriculture and national universities of countries involved in PHCs to take stock of the program. We are pleased to do this, to look back on the last three years since the First Edition, to assess progress, and to contemplate the future.

Looking back, we recall that the launch of the manual in January 2020 coincided with the arrival of the COVID-19 pandemic. However, national agricultural agencies, universities, regional organisations and implementing agencies kept the project on track, notwithstanding the major economic and social upheavals caused by the virus. The manual was put to use: national trainer teams were trained to train extension staff who, in turn, provided farmers with the information they needed to grow healthy crops. We can all be very proud of this outstanding achievement.

At the same time, the project welcomed new members. The University of Goroka, Papua New Guinea, and the Department of Agriculture and Rural Development, Vanuatu, joined to work alongside the agricultural agencies of the original countries (Fiji, Samoa, Solomon Islands and Tonga). This was significant progress, signalling to development assistance agencies that PHCs were gaining traction in the Pacific. We understand that this expansion is likely to continue, with indication that several other countries wish to take up PHCs in the near future.

Going forward, major challenges remain as national agricultural agencies scale up PHCs from their pilot phases, and universities embed PHCs in their curricula. More immediately there are requirements to: further train extension staff, improving diagnostic and managerial capabilities, especially in those newly recruited to the service; to build confidence in extension departments to lead PHC programs, drawing support from research and biosecurity, civil society and the private sector; and to monitor the impact of PHCs in the farming community.

As for universities, we have already seen their excellent response to their role in the development of PHCs. They have opened their courses to include PHCs, not only to take on the role of training recruits and carry out research into pests and diseases, but also by offering policy directions on plant protection. We expect consolidation of these aspects in the years to come. We also anticipate that a consortium of universities, led by those where PHCs have been established, will provide guidance and support to those wishing to offer PHC courses for the first time.

Finally, we note that this Second Edition has a chapter on soils and a rewritten introductory chapter telling the story of PHCs as they developed across the world, including in the Pacific region. For soils, and in keeping with the other chapters, there is an introduction to the subject with a wealth of technical information, as well as exercises and quizzes to reinforce theory. We are pleased to see both these additions.

We commend the commitment of all those involved in the production of this Second Edition and look forward to seeing our staff using it to benefit our farmers.

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Abbreviations

ACIAR	Australian Centre for International Agricultural Research
AM	Arbuscular mycorrhizae
ATP	Adenosine triphosphate
Bt	*Bacillus thuringiensis*
CRP	Cardiopulmonary resuscitation
DBM	Diamondback moth
DNA	Deoxyribonucleic acid
FAW	Fall armyworm
FNU	Fiji National University, Fiji
ICM	Integrated Crop Management
IPDM	Integrated Pest and Disease Management
IPM	Integrated Pest Management
KGA	Kastom Gaden Association
MAF	Ministry of Agriculture & Fisheries, Samoa
MAFF	Ministry of Agriculture, Food & Forests, Tonga
MAL	Ministry of Agriculture & Lands, Solomon Islands
MoA	Mode of action (of pesticides)
MoAW	Ministry of Agriculture & Waterways, Fiji
NARI	National Agriculture Research Institute
NGO	Non-Government Organisations
PHC	Plant health clinic
PHS	Plant health system
PICs	Pacific island countries
PNG	Papua New Guinea
PPE	Personal Protective Equipment
PPM	Parts per million
RNA	Ribonucleic acid
SINU	Solomon Islands National University, Solomon Islands
SPC	Pacific Community
SROS	Scientific Research Organisation of Samoa
UoG	University of Goroka, Papua New Guinea
USDA	United States Department of Agriculture
WHO	World Health Organization

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
- Powders are often measured using bottle tops (lids):
  - Coca-Cola top = 2.5 g
  - beer top = 2 g

Weight

- g: gram
- kg: kilogram

Length/area

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

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Content