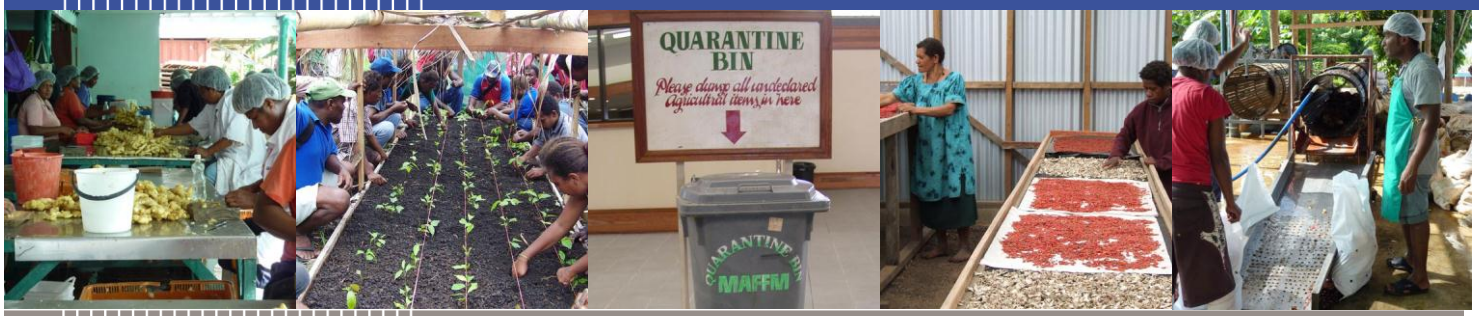

Pacific Horticultural and Agricultural Market Access Program (PHAMA)

Report to the Tonga Market Access Working Group (TMAWG)

Feasibility of Winter Window Export Conditions for Watermelons to New Zealand

14 MAY 2011

Prepared for

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Table of Contents

Appendices

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Abbreviations

Abbreviation	Description
AQIS	Australian Quarantine and Inspection Service
BQA	Bilateral Quarantine Arrangement
CEO	Chief Executive Officer
GXN	Growers Export Network
HQ	Headquarters
HTFA	High Temperature Forced Air (quarantine treatment)
MAFFF	Ministry of Agriculture, Forestry, Food and Fisheries
MB	Methyl Bromide
NHS	Non-Host Status (quarantine treatment)
NZMAF	New Zealand Ministry of Agriculture and Forestry
PHAMA	Pacific Horticultural and Agricultural Market Access Program
SPC	Secretariat of the South Pacific Community
TMAWG	Tonga Market Access Working Group
URS	URS Australia Pty Ltd

Executive Summary

Preliminary market access priorities were identified by the Tongan Market Access Working Group in March 2011 and included in the Pacific Horticultural and Agricultural Market Access Program (PHAMA) 3-Month Strategic Plan for April to June 2011. This report covers one of the three priorities included for Tonga – a feasibility study to determine the suitability of a treatment known as 'winter window' for export of watermelons to New Zealand.

Based on this feasibility study, it is recommended that access to New Zealand under winter window arrangements be pursued with a focus on watermelons until other commodities of interest have access to this market. A range of specific recommendations are made to the Tonga Market Access Working Group for desk and field based activities during June 2011 and 2011/12.

Background

The purpose of this report is to outline the feasibility of the use of winter window as an alternative for the risk mitigation of Tonga's fruit flies of economic importance that affect certain commodities at certain times of the year. As requested by the Tonga Market Access Working Group, specific consideration is given to access for watermelon to New Zealand. Further background is given in the Activity Schedule (see Appendix 1).

The report is structured into:

- Recommendations for the Tongan Market Access Working Group
- An overview of the current Australia-New Zealand winter window arrangements
- Discussion on the fruit flies in Tonga and the potential commodities for access into New Zealand under winter window arrangements
- Future trials and analyses that may be needed.

Initial discussions on the feasibility of access under winter window arrangements were held with New Zealand Ministry of Agriculture and Forestry (NZMAF) in Wellington on 27 April 2011. Consultations were held with commercial and government representatives (see Appendix C) in Tonga from 28 April to 2 May 2011. Initial consultations with relevant scientists were conducted via email during May 2011.

NZMAF confirmed willingness to consider a comprehensive proposal from Tonga for the winter window pathway. They also emphasised the complex nature of this approach and the need for both solid technical information and confidence that it could be implemented.

Recommendations

Based on this feasibility study, it is recommended to the Tonga Market Access Working Group (TMAWG) that:

- Access to New Zealand under winter window arrangements be pursued; focussing on watermelons until other commodities of interest (e.g. zucchini) have access.

Technical information on fruit flies and production

- To determine the possible winter window period, computer modelling (e.g. CLIMEX) be done on the potential of Tonga's three fruit flies of economic concern to establish in New Zealand; by a suitably experienced scientist familiar with the information requirements of NZMAF.
- Existing information available within Ministry of Agriculture, Forestry, Food and Fisheries (MAFFF) and the Secretariat of the South Pacific Community (SPC) on seasonal fruit fly populations in Tonga and infestation levels in watermelon be collated; then consider what additional trapping and surveillance (e.g. fruit cutting) may be required as part of an information package for New Zealand.
- Calendars be prepared for current and possible production seasons for watermelon and other fruit fly host commodities; and overlaid with available information on climatic conditions, fruit fly populations, results of the CLIMEX modelling and existing supply into the New Zealand market.

Information about current and previous watermelon crops

- To indicate the effectiveness of current in-field controls for fruit flies and other pests, fruit cutting and fruit fly trapping (if time allows) be done of the 2011 watermelon crop; method and resources required to be developed with relevant fruit fly experts.
- To determine current infestation and other quality issues, information be collected from the field, exporter, MAFFF, NZMAF and importer inspections for the 2011 watermelon crop plus any available information from previous seasons.
- The current production and export systems for watermelon be documented (may be under another TMAWG priority activity).
- Likely additional activities and responsibilities that could be required for growers, exporters and government under a winter window pathway be identified based on the protocols for the export of commodities from Queensland to other Australian states and New Zealand.

Field visit

- A visit be considered for a delegation of commercial and government representatives to observe implementation of winter window pathways (or other systems approaches); location and scope depending on the identified possible components of a winter window pathway from Tonga.

Australia-New Zealand Winter Window Arrangements

3.1 Concept of "Winter Window"

The term "winter window" refers to the export of fruit fly host commodities at times of the year where fruit fly infestation levels are very low and the environment of the importing area is not conducive to the establishment of the fruit fly/ies. Infestation levels may be low due to seasonal abundance of the fruit fly (itself affected by temperature, rainfall and host availability), host status of the commodity and/or specific control activities. The environment of the importing area may not be conducive due to the climate being too cool +/- lack of available host fruit.

Winter window is an example of a "systems approach". This concept is recognised internationally and described in the International Standard for Phytosanitary Measures No. 14 *The use of integrated measures in a systems approach for pest risk management*. It is defined as the integration of different risk management measures, at least two of which act independently, and which cumulatively achieve the appropriate level of protection against regulated pests.

3.2 Summary of Access

Australia has had access into New Zealand under "winter window" arrangements for cucumber, rockmelon, honeydew melon, watermelon, scallopini and zucchini since 2001. Access is based on a systems approach of: export window of 1 May to 1 September (previously 30 September), mandatory in-field controls, and phytosanitary inspections and certification. It cannot be used for commodities that are hosts of fruit flies other than *Bactrocera cucumis* (cucumber fruit fly).

Rockmelons, scallopini, honeydew melons, zucchini and cucumbers can be exported under winter window arrangements from areas in Australia that are recognised by New Zealand as free from Mediterranean fruit fly. Watermelon can be exported under winter window arrangements from all areas in Australia as cucumber fruit fly is the only fruit fly of concern.

The access is based on reducing the likelihood of cucumber fruit fly entering and establishing in New Zealand. The likelihood of cucumber fruit fly entering New Zealand is affected by factors such as seasonal abundance of the fruit fly, host status, efficacy of controls and phytosanitary systems. The likelihood of cucumber fruit fly establishing in New Zealand is affected by factors such as climatic conditions and availability of hosts.

A review of Australia's winter window access was conducted by NZMAF following the detection of live fruit fly eggs in a single rockmelon in September 2006. The review considered the likelihood of survival and establishment of cucumber fruit fly entering New Zealand during the, then, approved winter window period of 1 May to 30 September. The approved period was shortened after it was concluded that cucumber fruit fly could complete its life cycle in the warmest areas of New Zealand near the end of the window.

The current winter window arrangements for Australian exports have evolved from the initial development of the systems approach concept in the 1990's, field and laboratory trials, consistent exports and compliance, and ongoing refinement of the overarching Bilateral Quarantine Arrangement (BQA).

3.3 Generic Export Requirements

Exports from Australia under winter window arrangements need to comply with a wide range of generic requirements under the Australia-New Zealand BQA. This includes registrations, audits, documentation and record keeping, security and segregation of consignments, and phytosanitary inspections and certification. Requirements apply across the export pathway – including growers, crop monitors, pack houses, treatment centres, exporters and government.

3.4 Field Control Activities

The field control activities are specified under Appendix 11 (Winter Window) of the Australia-New Zealand BQA. Activities include:

- Grower registration to maintain field controls which minimise the risk of fruit fly infestation during production
- Application of recommended field controls a minimum of 4 weeks prior to commencement of harvest (e.g. dimethoate (Rogor EC 30) cover sprays applied to the point of run-off at a maximum interval of 10 days)
- Crop monitoring for pests and diseases (either the grower or registered crop monitor)
- Implementation of field hygiene requirements that demonstrate appropriate management and recording for regulated pests
- Documentation and record keeping (e.g. field monitoring and spray diary records; grower declaration form for each consignment)
- Site audits by Australian Quarantine and Inspection Service (AQIS) (early in the season and then monthly throughout the growing/harvesting season.

Tongan Fruit Flies and Host Commodities

4.1 Fruit Flies of Economic Importance in Tonga

Of the six species of fruit fly present in Tonga, three require specific controls for the export of different host commodities to New Zealand: *Bactrocera facialis, Bactrocera kirki* and *Bactrocera xanthodes*.

4.2 Seasonal Abundance

Seasonal abundance is influenced by temperature, rainfall and host fruit availability. Based on information collected in the 1990's, fruit fly populations in Tonga are known to peak between September and December with lowest populations during the cooler season between May and August[1]. The October–December period also coincides with the fruiting of many native hosts.

Populations of *Bactrocera facialis, B. passiflorae, B. xanthodes* and *B. melanotus* were surveyed in Tonga, Fiji and the Cook Islands during 1992–95 and comparisons made between orchard and forest locations[2]. Surveys were also conducted of *B. xanthodes* in Fiji[3].

Bactrocera facialis

- (Tonga): highest numbers in orchard location were between October and March and the lowest numbers in the winter months of June and August; populations in the forest location were lower than the orchard with peak populations between March and May. Peaks were correlated with fruiting time of hosts, and some variations between years due to drought, higher mango production and nearby bait spraying trials.

Bactrocera xanthodes

- (Fiji): not found in the forest location (confirming that it is not a forest dwelling species); populations occurred throughout the year in the orchard location with peaks during December to January (correlated with peak fruiting time for its primary host, breadfruit); highest populations from January–June and confirmed the relationship between host availability and fruit fly abundance.
- (Cook Islands): higher populations found in the coastal (orchard) habitats compared to forest (no details found on differences between seasons).

Specific information on seasonal populations of *B. xanthodes* in Tonga was not located during the preparation of this report. Anecdotally, populations of fruit flies in Tonga are highest in summer (requiring weekly sprays under commercial conditions) and lowest in winter (only requiring spraying every 1–2 months).

Recent comprehensive surveillance information (trapping or fruit cutting) is not available but would clearly benefit the development of a winter window pathway. Based on available information the lowest fruit fly pressure would most likely be from June–August. In the short-term, useful information

[1] Heimoana, V., Leweniqila, L., Tau, D., Tunupopo, F., Nemeye, P., Kassim, A., Quashie-Williams, C., Allwood, A. and Leblanc, L. (1997b) Non-host Status as a Quarantine Treatment Option for Fruit Flies. pp 225-31. In: Allwood, A.J. and Drew, R.A.I. 1997. Management of Fruit Flies in the Pacific. ACIAR Proceedings No. 76.

[2] Leweniqila, L., Heimoana, V., Purea, M., Munro, L., Allwood, A.J., Ralulu, L. and Tora Vueti, E. (1997). Seasonal Abundances of *Bactrocera facialis* (Coquillett), *B. passiflorae* (Froggatt*), B. xanthodes* (Broun) and *B. melanotus* (Coquillett) in Orchard and Forest Habitats. pp 121-4. In: Allwood, A.J. and Drew, R.A.I. 1997. Management of Fruit Flies in the Pacific. ACIAR Proceedings No. 76.

[3] Tora Vueti, E., Ralulu, L., Walker, G.P., Allwood, A.J., Leweniqila L. and Balawakula, A. (1997) Host Availability — Its Impact on Seasonal Abundance of Fruit Flies. pp 105-110. In: Allwood, A.J. and Drew, R.A.I. 1997. Management of Fruit Flies in the Pacific. ACIAR Proceedings No. 76.

could be collected by doing targeted fruit fly trapping and fruit cutting of the current season water melon crop. In the medium-term, activities on other pest (including fruit flies) and disease monitoring and control options should be considered as part of improvements to the watermelon export pathway. More recent information may have been collected from other projects and ad hoc surveillance work done in Tonga but not published.

4.3 Potential for Establishment in New Zealand

Modelling of the potential for Tonga's three fruit flies of economic concern to establish in New Zealand is not available. Detailed modelling (e.g. using the CLIMEX system) is required to accurately determine the possible winter window for host commodities from Tonga. For example, this analysis has been done for cucumber fruit fly and formed a crucial part of NZMAF's review of the winter window pathway from Australia. It is not possible to accurately predict what month(s) a possible winter window period could be without new modelling work being done. The availability of the required information for the modelling is not yet known.

4.4 Candidate Commodities for Winter Window Arrangements

Tonga currently has access into New Zealand for twelve commodities that are fruit fly hosts (see Appendix 2). Candidate commodities for winter window arrangements are those currently requiring methyl bromide fumigation (watermelon) or heat treatment (breadfruit, chilli, papaya, tomato, mango, avocado and eggplant). Feasibility can be screened based on the timing of production season(s) relative to a possible winter window period, infestation levels and/or non-host status data, and availability of controls to form part of a systems approach.

Industry representatives have indicated interest in having access into New Zealand under winter window arrangements for all of the commodities that Australia has access for. Tonga currently has access into New Zealand for one (watermelon) of the six commodities that Australia has access into New Zealand under winter window arrangements (cucumber, rockmelon, honeydew melon, watermelon, scallopini and zucchini). Hence, access under winter window arrangements for the remaining commodities would first depend on New Zealand assessing a comprehensive market access request and finalising new (or perhaps, for zucchini, extended) Import Health Standards. Given the time and resources required, and other priorities of the TMAWG, it is not considered feasible to progress with seeking access for the remaining five commodities at the moment.

4.5 Seasonal Production

Limited information is published on the seasonal production for horticultural commodities in Tonga but initial information was collected in discussion with industry and government representatives. Collating and validating more comprehensive information on the seasonal production that currently occurs for domestic and export production, and what additional times may be possible for would be useful when considering how to expand export opportunities.

Environmental conditions are known to vary across Tonga and information is available from the bureau of meteorology. This may be useful to consider when collating more detailed seasonal information, for example between Tongatapu and Vava'u.

Anecdotally, supply for the domestic market peaks at the beginning and end of each year. It is lowest in April/May, has begun increasing again by September and is the highest during October/November

(and December depending on rain). This production season does not align with the possible timing of a winter window in New Zealand. Supply for export markets is markedly different and depends on when opportunities arise such as gaps in supply from other countries or significant community events. For example, if aiming for mid-year exports of watermelons to New Zealand, planting needs to begin by March. Based on weather conditions, it may not be feasible to reliably export in May, possible in June (but low) and July, and reliable in August–September. Exports may be possible in April–May but higher risk due to variation in rainfall and the cyclone season.

4.6 Infestation Levels

Infestation levels can vary depending on the stage of maturity at which the fruit becomes susceptible. Capsicums and some chilli varieties in Tonga are known to become susceptible soon after fruit set so it is necessary to use protein bait sprays from fruit set. Based on the likely intense in-field control that would be required to adequately control fruit flies (specifically *Bactrocera facialis*) on capsicums and chillies they are not considered viable candidates for winter window.

Non-host status testing has been conducted in Tonga but despite considerable effort, it has never been possible to establish colonies of *B. kirki* in Tonga. Host status testing for this fruit fly in Tonga is hence essentially impossible. Some information for *B. facialis* and *B. xanthodes* is available and it is considered worthwhile to confirm (with MAFFF and SPC) what published and unpublished information is available and if it would contribute to a technical submission for NZMAF.

For example, trials[4] have established that 'Candy Red' and 'Sugar Baby' watermelon and cucumber were non-hosts to *B. facialis* and *B. xanthodes*. Zucchini was found to be non-host for *B. facialis* and, at the time, testing for *B. xanthodes* was being completed. However, zucchinis have been found to be a host of *B. xanthodes* when tested in Fiji and *B. kirki* in Samoa.

4.7 Available In-field Controls

MAFFF publishes leaflets on recommended spray programs for watermelons and other crops and growers also rely on their experience. Based on discussions with one grower, in-field controls are based on timed (e.g. 10–14 day intervals) application of sprays after planting. More detailed follow-up is required to document the standard production practices to gauge what mandatory (e.g. for watermelon exports) and optional activities currently occur. This relates to the another priority activity identified by the TMAWG in March 2011 – *Analysis of the watermelon export pathway to New Zealand*.

4.8 Volumes and Compliance of Exports to New Zealand

In discussions with commercial and government representatives, anecdotal information was available on the history of trade in watermelons to New Zealand including volumes and compliance issues. More detailed information such as exporter grading, MAFFF and NZMAF inspection records, compliance with NZMAF audit and documentation requirements, out-turn rates etc would provide useful guidance on how the current fumigation pathway is operating.

[4] Heimoana, V., Leweniqila, L., Tau, D., Tunupopo, F., Nemeye, P., Kassim, A., Quashie-Williams, C., Allwood, A. and Leblanc, L. (1997b) Non-host Status as a Quarantine Treatment Option for Fruit Flies. pp 225-31. In: Allwood, A.J. and Drew, R.A.I. 1997. Management of Fruit Flies in the Pacific. ACIAR Proceedings No. 76.

Further Trials and Analyses

A range of desk and field based activities are recommended. The purpose of these activities is to further test the feasibility of the winter window pathway, begin developing a comprehensive information package for NZMAF and expand the knowledge of commercial and government representatives on what this type of export pathway involves.

5.1 Desk Based Analysis

CLIMEX modelling on the potential of Tonga's three fruit flies of economic concern to establish in New Zealand.

- Firm costs are being sought (e.g. 2 weeks of an experienced scientist) and will also depend on the availability of suitable data.

Collate existing information within MAFFF and SPC on seasonal fruit fly populations in Tonga and infestation levels in watermelon.

- Requires coordination (e.g. 2 weeks total) and cooperation from MAFFF and SPC staff (current and ideally those involved in the previous activities).

Prepare calendars for current and possible production seasons for watermelon and other fruit fly host commodities, climatic information, fruit fly populations, results of the CLIMEX modelling and existing supply into the New Zealand market. (e.g. 2 weeks).

Collect information from the field, exporter, MAFFF, NZMAF and importer inspections for the 2011 watermelon crop plus any available information from previous seasons.

- Require coordination (e.g. 2 weeks) and cooperation from industry and government parties.

Document current production and export systems for watermelon and the likely additional activities and responsibilities that could be required for growers, exporters and government under a winter window pathway. The likely additional activities would be identified based on the protocols for the export of commodities from Queensland to other Australian states and New Zealand.

- Requires coordination (e.g. 4 weeks) and cooperation from industry and government parties.

5.2 Field and Laboratory Trials

Fruit cutting and fruit fly trapping (if time allows) be done of the 2011 watermelon crop.

- Method and resources required to be developed with relevant fruit fly experts.

5.3 Field Visit

Based on a delegation of four visiting Queensland for five days (A$12,500).

Limitations

URS Corporation Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of AusAID and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Contract dated 20 January 2011

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared during April and May 2011 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Appendix A

Appendix A Activity Schedule – Tonga Market Access Priorities following TMAWG Meeting 1

Activity 2 – Initiation of a feasibility study to determine the suitability of winter window export conditions for watermelons to New Zealand

Justification:

Tonga has an existing export pathway for watermelons to New Zealand. Mandatory fumigation with methyl bromide (MB) is a requirement for the treatment of economically important fruit flies associated with this export pathway. Australia has negotiated with New Zealand an alternative risk mitigation method for a number of fruit fly host commodities. This risk mitigation method is called 'winter window' and is based on scientific trials that concluded that certain host commodities remain free from fruit fly attack during winter months. This is due to the cold temperatures causing insect inactivity.

Tonga has requested that a feasibility study be conducted to determine if the concept of 'winter window' could equally be adopted for the risk mitigation of Tongan fruit fly host commodities, specifically watermelon, to New Zealand.

Immediate objectives

1. Conduct a feasibility study to determine if the concept of 'winter window' would constitute a feasible and cost effective alternative for the risk mitigation of Tonga's economically important fruit fly species that affect certain commodities at certain times of the year.
2. Provide a report to the PMO and TMAWG outlining issues to be considered including:
    a) A summary of the Australian/ New Zealand winter window arrangements;
    b) An outline of Tongan fruit flies and commodities that could be tested;
    c) An explanation of the logistics and approximate costs to conduct the trials; and
    d) An indication of NZMAF's response to the feasibility study (including timelines for consideration of a 'winter window' submission).

Background

Tonga currently has access to New Zealand for a range of fruit fly host commodities, including watermelons, as specified under NZMAF Biosecurity New Zealand Standard 152.02. Fumigation with methyl bromide or treatment with High Temperature Forced Air are the currently available risk mitigation measures for these commodities. These treatments are costly and in most instances reduce the shelf life of the commodity due to phytotoxic effects. Tongan industry and government are seeking cost effective alternatives for these treatments and are seeking to adopt measures accepted by NZMAF for Australian fruit fly host product, where possible.

To determine if the concept of a winter window would constitute a suitable alternative for Tonga, trials must be conducted. The trials would seek to replicate Tongan winter temperatures in controlled temperature cabinets to determine if fruit flies of economic concern would attack specific host commodities at these temperatures. These trials are likely to be expensive as they will require specialised equipment and expertise. Therefore, it is proposed to conduct a feasibility study on the cost versus benefit, before trials would commence.

Appendix A

Action plan

Under this activity, Short-term Advisors will be mobilised to:

1. Review the Australia/New Zealand winter window arrangements and underlying experimental data;
2. Collate existing data and literature on Tongan fruit flies of economic concern (including host lists and thermal tolerances);
3. Identify required equipment, expertise and approximate costs to conduct winter window trials; and
4. Consult with NZMAF to ascertain their thoughts on this proposal and timelines for implementation should the proposal be implemented.

Component relationship

This activity fits under Component 3: Research and Development. It will conduct a feasibility study on the development of a submission to NZMAF (including experimental data) to support winter window arrangements for the export of fruit fly host commodities to New Zealand.

Possible follow-on activities

Pending the outcome of investigations, trials may be conducted to generate data to support winter window as a risk mitigation strategy for Tongan fruit fly host commodities.

Appendix B Fruit Fly Hosts with Access from Tonga to New Zealand

Tonga currently has access into New Zealand for twelve commodities that are fruit fly hosts. Access is based on High Temperature Forced Air (HTFA) treatment, non-host status (NHS) or methyl bromide (MB) fumigation.

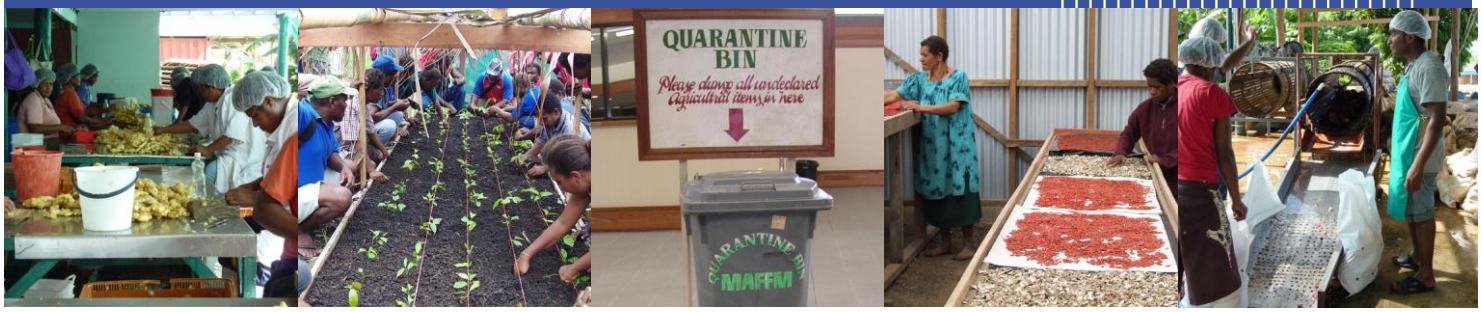
Scientific name	Common name	Treatment	*Bactrocera facialis*	*Bactrocera kirki*	*Bactrocera xanthodes*
Artocarpus altilis	Breadfruit	HTFA	X		X
Capsicum frutescens	Chilli	HTFA	X		
Carica papaya	Papaya	HTFA	X		X
Citrullus lanatus	Watermelon	MB	##	##	##
Cucurbita maxima	Squash	NHS			
Cucurbita moschata	Butternut	NHS			
Lycopersicon esculentum	Tomato	HTFA	X		X
Mangifera indica	Mango	HTFA	X	X	X
Musa spp.	Banana	NHS			
Musa paradisiaca	Plantain	NHS			
Persea americana	Avocado	HTFA	X	X	X
Solanum melongena	Eggplant	HTFA	X		X

##: To be confirmed with NZMAF.

Appendix C

Appendix C Consultations held April/May 2011

Date	Contact	Location
Wed 27 April	Shiroma Sathyapala, Team Manager (Fresh Produce), Import & Export Standards, Plant Imports & Exports Group Nacanieli Waqa, Senior Adviser (Pacific Market Access) Brendan McDonald, Senior Adviser	NZMAF, Wellington New Zealand
Thurs 28 April	Tsutomu Nakao II, PHAMA – National Market Access Coordinator	GroFED/ PHAMA Office, Tonga
	Viliami Tiseli – CEO, Growers Federation of Tonga Inc.	GroFED/ PHAMA Office, Tonga
	Tonga Market Access Working Group: Pousima Afeaki – Growers Export Network, Tinopai Farm Viliami Manu, Head of Research and Extension, Deputy Director MAFFF Tatafu Moeaki, Chief Executive Ministry of Labour, Commerce and Industries Viliami Tiseli, CEO, Growers Federation of Tonga Inc. Lamipeti Havea, Director, Growers Federation of Tonga Inc. Minoru Nishi – Growers Export Network, Nishi Trading Tsutomu Nakao II – TMAWG National Market Access Coordinator and Board Member, Growers Federation of Tonga Inc.	Chamber of Commerce, Conference Room, Tonga
	Viliami Manu – Head of Research and Extension, Deputy Director MAFFF	MAFFF HQ
	Sione Foliaki, Head Quarantine & Biosecurity, Deputy Director MAFFF	MAFFF HQ
	Siutoni Tupou, Agricultural Officer, Quarantine & Biosecurity, MAFFF	MAFFF HQ
Fri 29 April	Luseane Taufa, Senior Plant Pathologist, Research Division, MAFFF Tevita Tapaevalu Research Division, MAFFF	MAFFF Research Farm
	Representatives of Growers Federation of Tonga Inc. & Growers Export Network that are not TMAWG members: George Nakao, Growers Export Network (GXN) Saia Lasike, GXN To'imoana Takataka, Growers Federation of Tonga Inc.	Chamber of Commerce, Conference Room
Mon 2 May	Minoru Nishi – Growers Export Network, Nishi Trading	Nishi Trading, Tonga
	Falakiko Papa, watermelon grower	Lapaha, Tongatapu



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