



# Pacific Horticultural and Agricultural Market Access Program (PHAMA)

## Report to the Fiji Market Access Working Group (FMAWG)

Assessment of Potential Ginger Export Issues to Australia

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Prepared for  
AusAID

255 London Circuit  
Canberra  
ACT 2601  
AUSTRALIA

42444103

**URS**

**KALANG**

Project Manager:

.....  
Sarah Nicolson

**URS Australia Pty Ltd**

**Level 4, 70 Light Square  
Adelaide SA 5000  
Australia**

Project Director:

.....  
Robert Ingram

**T: 61 8 8366 1000  
F: 61 8 8366 1001**

Author:

.....  
Gavin Edwards  
Short Term Personnel

Reviewer:

.....  
Rob Duthie  
Principal Market Access  
Specialist

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## Abbreviations

<b>Abbreviation</b>	<b>Description</b>
ACIAR	Australian Centre for International Agricultural Research
CFIA	Canadian Food Inspection Agency
FMAWG	Fiji Market Access Working Group
IHS	Import Health Standard
URS	URS Australia Pty Ltd
US	United States (of America)

## Executive Summary

Without access to Fiji's market access submission to Australia for fresh ginger, nor any announcement on Australia's progress in undertaking the import risk analysis for Fijian ginger, it is not practical to make suppositions as to potential phytosanitary issues that could arise. It is recommended that the Fiji Market Access Working Group (FMAWG) waits until Australia distributes the draft Import Risk Analysis for comment before investing significant resources into identifying potential phytosanitary issues that may arise.

## Ginger Production in Fiji

Ginger production has been historically concentrated in the higher rainfall Central Division of Fiji, however, in recent years plantings have been trialled in the dryer Western Division. Western Division plantings have the advantage of significantly reduced pest issues, however, it has been limited so far due to the need for irrigation.

Ginger is typically planted through Spring, with September planting recommended. Immature (green) ginger is harvested 5 months after planting while mature ginger is harvested around 10 months after planting.

Historically, Fiji exported significant volumes of fresh mature ginger to North America and New Zealand. These markets were subsequently lost to Asian ginger suppliers. The focus of ginger exports has since shifted towards immature and processed ginger.

The Japanese market has potential, however, the extent of exports to Japan at the current time is unclear.

### 1.1 Production Issues

A number of production issues were identified by the various parties spoken to in Fiji.

#### 1.1.1 Access to Planting Material

Access to sufficient quantities of healthy seed material was considered to be the major production limitation in Fiji by many parties. It was a common perception that growers have little foresight in terms of long-term production, preferring instead to sell the bulk of the crop at its immature stage to get immediate returns. It is difficult to circumvent this issue as it is relative to a subsistence farming mindset. It may be necessary to set up independent seed material production to ensure a continuous supply.

#### 1.1.2 Access to Water

Rainfall in the Central Division is not generally an issue in terms of ongoing water availability for ginger crops. On the contrary, excessive rainfall is often experienced and will negatively impact on production through compounding pathogen issues in the crop.

The lower rainfall experienced in the Western Division is favourable in terms of greatly reduced pathogen loads in the crop during production. However, rainfall levels are not typically sufficient to sustain production and irrigation is necessary. Irrigation infrastructure is generally too expensive for small and medium landholders.

#### 1.1.3 Loss of Expertise

There has been an ongoing trend for young people to leave rural areas and seek training and employment opportunities in the major cities, with few, if any, returning to the rural areas to take over the family farm. Expertise in ginger production is consequently diminishing as growers are retiring.

#### **1.1.4 Pathogens**

The major limitation to production (excluding the issue of seed material availability) is pathogens. These issues received considerable attention in the recently completed Australian Centre for International Agricultural Research (ACIAR) Project PC/2004/049 *Improving farming systems for managing soil-borne pathogens of ginger in Fiji and Australia*, which is summarised in Section 3 below.

#### **1.1.5 Pests**

Parties spoken with in Fiji generally felt that there are no pest issues of a high enough significance to impact on production, although it was noted that scale insects have in the past been an issue in terms of interceptions requiring quarantine interventions. The “Ginger Growing Guide” recommends dipping of rhizomes in a Diazinon solution (60 mL Diazinon : 15 L water) prior to planting to control scale insects.

#### **1.1.6 Application of the Pre-planting Hot Water Dip Treatment**

The Ginger Growing Guide recommends a pre-planting hot water dip treatment for seed material to control nematodes and Erwinia rot. From discussions with various parties it appears that the equipment currently available to do the hot water treatment is quite crude, and it can be difficult to achieve the treatment specification of 52°C for 10 minutes to any degree of accuracy.

It was apparent from discussions with various parties that the level of use of the recommended hot water treatment was variable, with some growers not believing it was necessary.

## Recent Research in Fijian Ginger Production

A recent ACIAR project, lead by Dr Mike Smith of the Queensland Government Department of Employment, Economic Development and Innovation, investigated soil-borne pathogen issues relative to ginger production in Fiji and Australia with the aim of developing farming systems to improve ginger yield and quality. The project, PC/2004/049 *Improving farming systems for managing soil-borne pathogens of ginger in Fiji and Australia* was completed, and the final report submitted, in March of this year.

### 2.1 Project Objectives

The project aimed to improve ginger profitability in both Fiji and Australia by achieving the following objectives:

- Develop practical systems for production of clean planting material.
- Develop soil management systems to improve soil health and reduce losses from soil-borne diseases.
- Implement improved ginger production systems.

The achievements of the project were an increase in the production of high quality ginger in both countries through the development of farming systems that improve soil health, sustain productivity and increase profitability.

### 2.2 Project Conclusions

The project highlighted the importance of *Pythium* soft rot in ginger production in Fiji and concluded that although improved management systems can be implemented the hot, wet, Fijian environment will always result in *Pythium* being a threat to ginger production. It was previously thought that poorly drained soils were the major cause of the disease, however, the project identified heavy losses also occurring in crops on steep and well-drained slopes and concluded that the high rainfall in Fiji which sees soil continually saturated is the major cause.

It was found that chemical control options for *Pythium* soft rot were largely ineffective, and would likely be too expensive or impractical for the majority of small land holders to implement. However, a number of non-chemical strategies were demonstrated as being useful in controlling the disease and are recommended for consideration.

The project also found that the burrowing nematode *Radopholus similis* was capable of causing severe losses in ginger crops. This nematode was found on planting material, volunteer ginger in other crops and weeds, and resulted in total crop failure in some seed production blocks.



## 2.3 Project Recommendations

The project identified a number of strategies that will assist in controlling Pythium soft rot and nematodes, each of which should be practical to implement by small land holders. A key recommendation relates to continued efforts to produce clean planting material to ensure that pathogens are not being introduced on seed material. Other key recommendations are summarised below:

- Deepening furrows between beds and increasing the number of cross-row drainage channels to control water-logging and limit surface water movement.
- Use of suitable rotation crops and lengthening the period between susceptible ginger crops to limit the build up of pathogen loads in the soil.
- Development of disease suppressive soils through building up microbial communities that suppress Pythium soft rot in ginger. The amendment of soils through the addition of poultry manure and sawdust, as well as achieving minimal disturbance of soils, were both found to be conducive to suppressing the disease.

## Existing Markets for Fijian Ginger

Historically, New Zealand and North America (the US and Canada) were the major markets for Fijian ginger. These markets severely declined in the face of competition from the major ginger producers Thailand and China respectively. Japan is a market with upcoming potential for increased trade.

### 3.1 United States of America

US import requirements for fresh ginger root imports are globally consistent. That is, the same requirements apply to any ginger-producing country that wishes to export fresh ginger roots to the US. Ginger roots can typically be imported through any port in the US. The conditions are provided in the US Code of Federal Regulations 7CFR319.56-3, and can be summarised as follows:

- All imported ginger roots must be free from plant litter/debris and prohibited parts of the plant.
- All ginger must be imported under an import permit issued by the Animal and Plant Health Inspection Service, and must meet the conditions specified in the permit.
- All imports are subject to inspection on arrival and may be subject to treatment as required by an inspector.

While there is no requirement for a pre-export treatment detailed in 7CFR319.56-3 consignments exported by sea freight are generally treated by methyl bromide fumigation prior to export to manage contaminating pests.

For further information refer to 7CFR319.56-3 which can be viewed at [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title07/7cfr319\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title07/7cfr319_main_02.tpl)

### 3.2 Canada

Canada's import requirements for fresh ginger root imports from Fiji are similar to that for the US, and can be found in the Canadian Food Inspection Agency's (CFIA) Automated Imports Reference System at [http://airs-sari.inspection.gc.ca/Airs\\_External/Decisions.aspx?lang=1](http://airs-sari.inspection.gc.ca/Airs_External/Decisions.aspx?lang=1). These requirements should be read in conjunction with CFIA Directive D-94-26 *Plant Protection Import Requirements for Edible Roots for Consumption or Processing*, which can be found at <http://www.inspection.gc.ca/english/plaveg/protect/dir/d-94-26e.shtml>

The conditions are summarised below:

- All imported ginger roots must be clean and free of soil and pests; packaging must be new.
- All ginger must be imported under an import permit issued by the Canadian Food Inspection Agency, and must meet the conditions specified in the permit.
- All imports are subject to inspection on arrival and may be subject to treatment as required by an inspector.

### 3.3 New Zealand

New Zealand's import requirements for fresh ginger roots are provided on a Country:Commodity basis; not all countries have access into New Zealand for this commodity. New Zealand's Import Health Standard (IHS) for ginger from Fiji is a 'roll over', meaning that it has been in existence for some time and predates the new IHS schedule arrangement used by New Zealand.

The following import conditions apply to ginger from Fiji and are generic for imports of all fruits and vegetables into New Zealand:

- Phytosanitary certification must accompany all consignments.
- Consignments must be free of live insects, disease symptoms, soil, trash and other debris, and seed contaminants.
- Consignments must be packed in clean packaging material.

For further information refer to Biosecurity New Zealand Standard 152.02 which can be downloaded from the following URL: [www.biosecurity.govt.nz/files/ih/152-02.pdf](http://www.biosecurity.govt.nz/files/ih/152-02.pdf)

### 3.4 Japan

The extent of ginger trade with Japan was difficult to ascertain through discussions with various parties in Fiji. It was also difficult to gain a thorough understanding of Japan's import requirements for Fijian ginger. It is clear, however, that *Radopholus similis* (burrowing nematode) is of quarantine concern to Japan, and exports of ginger from Fiji to Japan can at present only be conducted following Japanese inspection of the ginger in Fiji during its growing period. This has limited Fiji's ginger exports to Japan and Fiji has taken steps to seek Japan's acceptance of pest free areas or pest free places of production for *R. similis* to remove the growing season inspection requirement.

Excluding the growing season inspection requirement, and without any other major quarantine concerns being apparent, Japan's import requirements for ginger from Fiji are typically similar to that of New Zealand.

## Potential Issues for Access into Australia

Unfortunately Fiji's market access submission to Australia, and associated ginger pest list, was not available for consideration during the course of this review. Australia has yet to issue a draft Import Risk Analysis for Fijian ginger so an assessment of Australia's progress with the analysis was also unable to be undertaken. It is not practical to pre-empt Australia's progress in their analysis by developing a new pest list for the purpose of this review.

A query of the Secretariat of the Pacific Community's Pacific Islands Pest List Database provided 108 entries for pests associated with ginger in Fiji. However, many entries are duplicates based on multiple literature references, many are not classified to specific level, and there is not an indication of which part of the ginger plant the pest is associated with. While this query would provide a useful starting point for a pest list it would require an investment of significant resources to attempt to duplicate the work that Australia is already undertaking.

At this point in time, and without access to Fiji's market access submission or an understanding of Australia's progress to date with the risk analysis for Fijian ginger, it is recommended that the Fiji Market Access Working Group (FMAWG) wait until Australia has distributed the draft Import Risk Analysis for comment to invest resources into identifying where potential phytosanitary issues may arise.

## Limitations

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## Appendix A

### Appendix A Acknowledgements

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Mr Simeli Tuitoga	Grower, Waitolu Village
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Mr Wah Sing	Director, Marco Polo Holdings Ltd
Mr Ilimeleki Kaiyanuyanu	Economic Planning and Statistics Division
Mr Arthur Mar	Director, Produce Processing Ltd
Mr Graeme Thorpe	Managing Director, Balthan (Western) Ltd

---



**URS**

URS Australia Pty Ltd  
Level 4, 70 Light Square  
Adelaide SA 5000  
Australia

T: 61 8 8366 1000

F: 61 8 8366 1001

[www.ap.urscorp.com](http://www.ap.urscorp.com)