



FIJI'S TECHNICAL SUBMISSION ON THE COMMENCEMENT OF A REVIEW OF IMPORT CONDITIONS FOR FRESH GINGER FROM FIJI

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1 SUMMARY

Fiji has exported 4.6 tons of fresh ginger strictly adhering to the import conditions laid down by Department of Agriculture (DA), Australia. For the next season Fiji has gone steps further, additional requirements have been implemented thus improving the fresh ginger export pathway.

Since the approval of the fresh ginger export pathway, Fiji has carried out two internal audits, conducted targeted training sessions for ginger farmers interested in exporting fresh ginger to Australia, conducted ginger training for Biosecurity Authority of Fiji (BAF) & Ministry of Agriculture (MOA) staff. Also, fumigation training has been conducted and has been accredited by the Australian Fumigation Accredited Scheme (AFAS) for fumigation providers.

These internal improvements indicate Fiji's strong interest to export fresh ginger to Australia. The high quality unique flavour and low fiber content ensures that Fiji ginger has a niche in the Australian market.

Fiji has a strong commitment to ensuring that we continue to meet the Phytosanitary measures to address the pests of concern in this fresh ginger pathway. Thus a collaborative and holistic approach by all stakeholders has been adopted and is the way forward for Fiji ginger.

Fiji has adhered to the import conditions laid down by DA Australia, and is thankful that this technical review will address the terms of reference and issues raised in this submission.

2 INTRODUCTION

Whilst the volume of fresh ginger exported from Fiji is relatively small by global standards, its importance to the Fijian economy and the well-being of its people cannot be over emphasized. Fiji's ginger production is currently around 3000mt per annum; most of it is exported in processed form with a value of \$6.5-7.5million.

BAF as the National Plant Protection Organization (NPPO) and the Fiji MOA hereby present their joint technical submission to the Australian Department of Agriculture Biosecurity Advice 2014/14 Commencement of a review of import conditions for fresh ginger from Fiji.

The joint submission has been prepared based on inputs from relevant technical and operational staff across both agencies, and consultations with commercial stakeholders in Fiji. Both agencies welcome the opportunity to engage in this important review and are available to respond to further technical queries arising during the review as required.

3 TERMS OF REFERENCE

Evaluate the efficacy of the measures applied to manage the biosecurity risks associated with fresh ginger from Fiji by:

3.1 Analysis and evaluation of pest interceptions from on-arrival inspections, including evaluation of the compliance of on-arrival fumigation.

BAF in consultation with AFAS-approved treatment providers in Fiji considers that the fumigation of consignments in Fiji, prior to export will manage the identified risk of the quarantine pest of concern, *R. similis*. For example, due to the historical acceptance of the required treatment schedule, the recognized capability of the treatment provides, and the period of time for the effect of the fumigant to be fully realized. Whilst not wishing to limit options available to commercial parties, BAF suggests that DA may consider removing the option of on arrival fumigation from the future import permit conditions and having a mandatory ginger fumigation prior to export.

3.2 Evaluating information from audits in the exporting country:

In preparation for the two audits by DA, two internal audits were carried out by an independent auditor. The ginger export pathway documents from grower registration form, grower record books, pack-house registration, exporter registration, product segregation, inspection, treatment and phytosanitary certification were examined. The audited components complied fully as per the Operational procedures and needed documentations for a trace forward or trace back should there be a non-compliance issue detected within the ginger pathway.

The BAF compliance team carried out an internal audit of the ginger pathway in relation to the following documents:

1. Exporter ginger from Fiji to Australia – Work Plan (Third issue).
2. Exporter ginger to Australia – Operational Procedures (Fifth issue).
3. Fumigation of fresh ginger with Methyl Bromide – Operational Procedures (Fourth issue).

The audit also revealed the stakeholders to be in compliance with their record keeping and operational procedures.

3.3 Gathering, recording and evaluating any information on additional processes in Fiji to ensure compliance with the import requirements and

Targeted training sessions have been provided by the MOA's Extension Division and BAF for ginger farmers that are interested in planting for exports to the Australian market. Information disseminated included the agronomical practices, pest & disease management, gross margins of production, Standard Operating Procedures (SOP) for ginger exports and additional requirement of taking soil samples for testing nematode presence before planting.

Over 300 farmers have been trained in the Central Division and three more sessions are planned for the 1st quarter. The allocation within the national budget for MOA's ginger programme has been significantly increased to reflect the importance of this pathway and resource needs for its successful implementation.

Routine training sessions carried out for BAF and MOA staffs include details on the specific SOP requirements and their implementation for the ginger export pathway.

BAF has continued to work with the three registered ginger exporters in ensuring that they meet the compliance requirements stipulated in the import permits. The two potentially new exporters based in the Western Division are currently being made aware of the requirements and are upgrading their operations.

BAF has also continued to work with the AFAS accredited treatment providers to ensure that their capacity to deliver fumigation services is maintained and available for the ginger export pathway.

BAF continues to strengthen official documentation for the ginger export pathway. For example, the introduction of the Additional Declaration form captures the details of pack house, treatment provider, grower registration, number of packages and other relevant details.

All registered farms have their soil tested for nematode prevalence prior to planting of ginger. The soil samples are randomly taken from each farm by MOA Research Division for nematode extraction and identification. Management practices such as crop rotation are also being used to assist in suppressing nematode populations as it is known that *R. similis* does not survive for long periods in the absence of hosts (Viaene, Coyne, Kerry, Perry, & Moens, 2006).

The movement of planting material has been controlled to avoid transfer of nematodes from one farm to another. In addition all ginger seed material is treated with hot water prior to planting. The ginger seed material is dipped in hot water (51 °C) for ten minutes to kill any nematodes that may be carried on the seed material (Turaganivalu, Stirling, & Smith, 2013).

The drying of rhizomes on mesh for 14 days ensures that rhizomes are now less exposed to re-infestation by nematodes compared to when left in contact with soil.

Recent surveys by MOA Research Division for *R. similis* in once-infected ginger farms have shown zero counts (Turaganivalu, pers.com) as a result of the implementation of recommended pest management strategies.

3.4 Evaluating any other relevant additional scientific information that is available.

BAF and MOA still consider that there is lack of scientific evidence to support the above statement that the Fijian variant is highly pathogenic on ginger while banana is poor host. It is well established that population development of *Radopholus* and other nematodes is host dependent (Duncan, Moens, & Perry, 2006). *R. similis* was first described from diseased banana roots *Musa* sp in Fiji 1891 by Cobb (Volcy, 2011). Being a migratory endoparasitic nematode, this nematode with time and due to declines in the commercial banana industry, may have adapted to ginger as a host. *R. similis* was first associated with ginger in Fiji during the early 1970s, when stunted, chlorotic, low yielding crops were found to be infested with the nematode (Turaganivalu et al., 2013). *R. similis* is still prevalent on Banana *Musa* sp. in Fiji.

3.5 Consider and make recommendations on further actions to confirm the quarantine status of *R. similis*, including additional scientific information relating to this including on the efficacy of methyl bromide as a phytosanitary measure

R. similis should not be considered to be a quarantine pest based on it being widely distributed in Australia. The inclusion in the IRA that a new, yet to be described, intraspecific variant of burrowing nematode, (*R. similis*), is likely present in Fiji was not considered by BAF and MOA to be scientifically justified at the time and this is still considered to be the case.

BAF and MOA are initiating new investigations of the effect of methyl bromide on nematode mortality with time. An initial experiment is being planned to look at the prevalence of live nematodes on commercial grade fresh ginger before treating with methyl bromide and at several times intervals to assess the prevalence and viability of nematodes on the ginger. It is anticipated that this research will collate useful information on the time required for the full effect of the methyl bromide to be realized on this particular export pathway.

4 WORKS IN PROGRESS

As noted above, planning is underway for trials on the effect of methyl bromide on viability of nematodes on ginger over time. Commercially produced and graded ginger rhizomes will be used to ensure the results are relevant to the export pathway of interest. The intention is to extract nematodes from the rhizomes using the maceration and filtration technique.

Nematodes will be identified by MOA staff (and potentially independent experts) using morphological and morphometric techniques. Counts will be done of the live nematodes.

5 EXPORT VOLUMES

GINGER EXPORTS TO AUSTRALIA 2014

DATE	EXPORTER	WEIGHT (kg)	SEA/AIR FREIGHT	IMPORTER	PHYTO NUMBER
9/11/2014	Sai Yee Food Industries LTD	494.12	Air Freight	Manaia Pacific PTY LTD	312601
15/9/2014	Turners & Growers Fiji LTD	795.05	Air Freight	Delica Domestic Pty Ltd	312605
15/10/2014	Turners & Growers Fiji LTD	1030.4	Air Freight	Delica Domestic Pty Ltd	312606
16/11/2014	Turners & Growers Fiji LTD	2300	Air Freight	Delica Domestic Pty Ltd	312607
	TOTAL	4619.57			

By global production standards, Fiji produces a very small volume of ginger. The first season has seen only a little over 4tonnes of fresh ginger exported. This low volume poses a relatively very low risk to the importation of quarantine pests.

6 WAY FORWARD

BAF and MOA welcome the opportunity to respond to any further specific questions that DA may have on the how the ginger export pathway has been implemented during this first season of trade. Given the absence of information to justify the need for mandatory specific risk management measures for *R. similis*, BAF and MOA look forward to DA finalising the

current review of the import conditions for ginger from Fiji and these requirements being removed prior to commencement of the 2015 export season.

In the interim, the government and commercial stakeholders in Fiji will continue preparations for the 2015 export season based on the existing import requirements. BAF and MOA have identified a range of technical experts that could be drawn on to contribute to this technical review and names will be submitted to DA in due course.

Fiji also request the possibility to completely remove fumigation treatment from the Import Conditions on this fresh ginger pathway after analyzing the quarantine pest of concern interception data of the next season.

7 REFERENCES

- Duncan, L., Moens, M., & Perry, R. (2006). Migratory endoparasitic nematodes. *Plant nematology*, 123-152.
- Turaganivalu, U., Stirling, G., & Smith, M. (2013). Burrowing nematode (*Radopholus similis*): a severe pathogen of ginger in Fiji. *Australasian Plant Pathology*, 42(4), 431-436.
- Viaene, N., Coyne, D., Kerry, B., Perry, R., & Moens, M. (2006). Biological and cultural management. *Plant nematology*, 346-369.
- Volcy, C. (2011). Past and present of the nematode *Radopholus similis* (Cobb) Thorne with emphasis on *Musa*: a review. *Agronomía Colombiana*, 29(3), 433-440.