

Black rot of kumara

- a position paper



Crown Record
Management

A report prepared for the
**New Zealand Vegetable &
Potato Growers' Federation, Inc.**

P G Broadhurst
April 1995

Confidential

Copy 11 of 16

Circulation of this report is restricted. Consult the author and the Institute's Scientific Editor about obtaining further copies. This report may not be copied in part or full.

*New Zealand Institute for Crop & Food Research Limited
Private Bag 4704, Christchurch, New Zealand*



CropSeed Confidential Report No. 178

Black rot of kumara

- a position paper

P G Broadhurst

CONTENTS

	Page
1 EXECUTIVE SUMMARY	1
2 INTRODUCTION	3
2.1 Developing a protocol to export kumara to Australia	3
2.2 Recommendation	3
3 SWEET POTATO WEEVIL AND EXPORTS OF KUMARA TO JAPAN	4
3.1 Japanese position	4
3.2 Sweet potato weevil and New Zealand	4
3.3 Recommendations	4
4 SPROUTING INHIBITORS AND EXPORT OF KUMARA TO AUSTRALIA	6
4.1 Australian position	6
4.2 New Zealand information	6
4.3 Recommendation	7

1 EXECUTIVE SUMMARY

- For kumara to be exported to Japan, the Japanese authorities need to be convinced that the kumara weevil, *Cylas formicarius*, is not present in New Zealand. The weevil has never been found in New Zealand and MAF Regulatory Authority should write to the appropriate Japanese authority to inform them of this fact. If the Japanese require survey data, traps baited with the appropriate pheromone should be used in kumara growing areas for one season. If, as expected, no kumara weevil are found, exports to Japan should be possible so long as their other phytosanitary requirements are met.
- Kumara exported to Australia must be demonstrated to be free of black rot and be non-propagable.
- Black rot, caused by the fungus *Ceratocystis fimbriata*, has historically been one of the most significant diseases of sweet potato. The disease has been recorded on kumara in New Zealand, but there are no confirmed reports of black rot on sweet potato in Australia. As the disease is chiefly transmitted on infected plants or storage roots, the importation of kumara in its fresh state from New Zealand, has been regarded as posing a risk to Australia, even if the storage roots were rendered non-propagable. If Australia was to import kumara from New Zealand, it would seem likely that the Australian Quarantine and Inspection Service (AQIS) would require a pest-free endorsement to be recorded on a phytosanitary certificate before export of any kumara consignment. Black rot of sweet potato can be successfully controlled by the implementation of an integrated control program. The (MAF) certified use of the integrated disease control program may be enough to satisfy AQIS that kumara consignments from New Zealand were "comprised of a pest-free product". If not, a PCR (polymerase chain reaction)-based diagnostic test for detecting the presence of the black rot pathogen on kumara may have to be developed and used in conjunction with the integrated disease control program to verify the pest-free endorsement.
- Crop & Food Research trials showed that hypochlorite solutions are unsuitable for inhibiting sprouting of kumara. Trials with three products used for inhibiting sprouting in potatoes are in progress. These products may not inhibit sprouting indefinitely and it will be necessary for MAF Regulatory Authority to clarify in writing with the Australian Authorities what level of

sprouting inhibition is required, based on a process of risk analysis rather than zero risk.

- It will be necessary to develop a risk analysis procedure to demonstrate what is an acceptable level of the black rot pathogen and propagable kumara in a consignment. This has not been done for soil-borne diseases and funds to develop the process may be available from MAF Policy. New Zealand Vegetable & Potato Growers' Federation is recommended to seek funding from MAF Policy to develop risk analysis and phytosanitary protocols for soil-borne diseases.

2 INTRODUCTION

From discussions with Vegfed and MAF Regulatory Authority, it is understood that exports of fresh kumara to Japan and Australia are prohibited or can only be made under very stringent phytosanitary conditions. The critical issues are the belief by the Japanese that the sweet potato weevil, *Cylas formicarius*, is present in New Zealand, and the Australian requirement that kumara are demonstrated to be free of black rot and are non-propagable. This document contains three reports, one on each topic. The reports are summarised in the Executive Summary.

2.1 Developing a protocol to export kumara to Australia

It will be very difficult for Australian authorities to determine by inspection whether a consignment of kumara is both free of the black rot pathogen and non-propagable. A fully documented and audited process will be required.

It will also be impossible to ensure that there is zero risk that black rot and propagable kumara will not be introduced into Australia. A minimum risk for each eventuality will have to be set and expressed, as, for example, the number of black rot-contaminated kumara per million kumara roots. A risk analysis would need to be developed to show what steps must be undertaken to meet that level of risk. Crop & Food Research believes this has not been developed previously for soil-borne diseases in New Zealand, and that MAF Policy may have funds to develop such a risk analysis and phytosanitary protocol for soil borne diseases.

2.2 Recommendation

That New Zealand Vegetable & Potato Growers' Federation approach MAF to see what financial help may be available to develop both the risk analysis and phytosanitary protocol for soil borne diseases.

3 SWEET POTATO WEEVIL AND EXPORTS OF KUMARA TO JAPAN

(N.A. Martin)

3.1 Japanese position

Japan prohibits import of sweet potato (kumara) from all countries in which the sweet potato weevil, *Cylas formicarius*, is present. From discussions with Peter Johnson, MAF Regulatory Authority, it appears that the Japanese have assumed that all countries with a long history of growing kumara have the sweet potato weevil present. It appears that, if the sweet potato weevil is not in a listed country, the Japanese plant quarantine authorities expect a formal request from the equivalent New Zealand authority to remove New Zealand from the list of countries with the pest. This request has never been made.

3.2 Sweet potato weevil and New Zealand

Sweet potato weevil has never been found in New Zealand (John Dugdale, Landcare Research pers. comm. and Richard Baker, MAF Quality Management pers. comm.). As there has not been an official survey of the pests of kumara in this country, there is a tiny element of doubt as to the status of the weevil. The lack of a formal survey means that a declaration stating that sweet potato weevil is absent from New Zealand would need to be carefully worded.

If a formal survey for sweet potato weevil is required, it should incorporate the use of traps baited with sweet potato weevil sex pheromone. The pheromone is available overseas, where it is used to monitor weevil activity. Baited traps could be placed in all major kumara-growing areas for a full growing season or just at the time when the adults are likely to be attracted to the traps if they were present.

3.3 Recommendations

- That MAF Regulatory Authority write to the Japanese plant quarantine authority or other appropriate organisation to inform them that sweet potato weevil has not been recorded from New Zealand.
- That MAF Regulatory Authority clarify for Vegfed the phytosanitary requirements for export of fresh kumara to Japan.

- If a formal survey is required to confirm the absence of the sweet potato weevil from New Zealand, it is recommended that traps baited with a pheromone attractant for the weevil be used.

4 SPROUTING INHIBITORS AND EXPORT OF KUMARA TO AUSTRALIA

(N.A. Martin; S.L. Lewthwaite)

4.1 Australian position

Australia has very strict phytosanitary regulations, especially relating to vegetatively propagable plant material such as sweet potato (kumara), potatoes, plant cuttings, and bulbs. Small quantities of propagable plant material are allowed to be imported into quarantine. Flowers and vegetables such as kumara must be rendered non-propagable before importation is allowed. This is presumably to prevent the introduction of certain diseases not present in Australia. Some people believe, however, that the regulations are partly to protect the Australian plant nursery industry. Whatever the reason, the roots must be made non-propagable by some means acceptable to the Australians, for successful export of kumara from New Zealand to Australia.

4.2 New Zealand information

Hypochlorite solutions have been tested but concentrations that suppress sprouting also damage roots and cause rotting.

Three sprouting inhibitors registered for use on potatoes are being tested at Pukekohe Research Centre. Data from these preliminary tests will be available later this winter. The three sprouting inhibitors are:

- Maleic hydrazide - applied to the foliage shortly before harvest. The treatment prevents sprouting in onions and potatoes.
- Propham - applied as a dust after harvest and sorting. The treated tubers or roots need to be kept in sacks or enclosed bins because the chemical has a strong vapour action. The effect lasts up to three months.
- Tecnazene, a potato sprout suppressant. Available as a 10% granule which is applied when tubers or roots are put in storage. It can be used on seed potatoes which implies that its effect on preventing sprouting is only temporary.

None of these sprouting inhibitors is likely to prevent sprouting for the full potential life of kumara roots. It is therefore essential to know what minimum period of sprout inhibition the Australian authorities require for produce destined for use as food. If sprout inhibition is only temporary, even though it may last for several months, it may be necessary to argue a case based on minimum risk rather than zero risk. It may also be necessary to follow an audited procedure to demonstrate that each consignment of kumara received the appropriate dose of sprouting inhibitor.

4.3 Recommendation

That MAF Regulatory Authority clarify in writing with the Australian Authorities what level of sprouting inhibition is required, based on a process of risk analysis rather than zero risk.