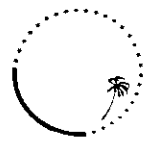


JUN 1988

SOUTH PACIFIC COMMISSION

Quarantine Advisory Leaflet 14
1988



CARROT

Latin name:

Daucus carota

Family:

Apiaceae

Closely related plants:

Apium graveolens var. *dulce* — Celery

Pastinaca sativa — Parsnip

Petroselinum crispum — Parsley

Trade commodity:

Root

Propagating material:

Seed

Loan no. 8409 (B)

Quarantine Risks

The major trade is the importation of fresh carrots into the SPC region from nearby countries. Some countries in the region grow carrots, but only in sufficient quantities for local consumption.

Fresh roots

There are some insect pests of the leaves of carrots, several of which are also pests of other crops, such as:

Adoretus sinicus (Chinese rose beetle), *Aulacorthum solani* (potato aphid), *Cavariella aegopodii* (carrot aphid), *Liriomyza sativae* (serpentine leafminer), *L. trifolii* (chrysanthemum leafminer), *Litotroderes obliquus* (vegetable weevil), *Thrips tabaci* (onion thrips), and the caterpillars of many moth species.

It is very unlikely that any of these pests will be present on carrots of export quality and treatment is only recommended if

they are found on inspection.

Some other important pests attack the roots of carrots and several of them are not present in the region or have restricted distribution within it, such as:

Costelytra zealandica (grass grub), *Irenimus compressus* (compressed weevil), *Psila rosae* (carrot fly), *Smynthuroides betae* (bean root aphid).

These pests are unlikely to be present in carrots of export quality. However, they would be difficult to detect by visual examination and countries might best decide to require mandatory fumigation of consignments from countries where these pests occur.

Several fungal and nematode pathogens attack the leaves and roots of carrot, such as:

Alternaria dauci (leaf blight), *Athelia rolfsii* (basal rot), *Cercospora carotae* (leaf blight), *Erwinia carotovora* (soft rot), *Sclerotinia sclerotiorum* (sclerotinia rot), *Meloidogyne* spp. (root-knot nematodes), *Paratylenchus* spp. (pin nematodes), *Pratylenchus coffeae* (lesion nematode), *Radopholus similis* (burrowing nematode), *Rotylenchulus reniformis* (reniform nematode).

Some of the pathogens could be spread to new areas in roots, on leaves, or in consignments contaminated with soil.

Virus diseases are unlikely to be of quar-

antine importance when carrots are imported without leaves.

Propagating material

There are several important seed-borne pathogens of carrots, such as:

Alternaria dauci (leaf blight), *A. radicina* (seedling blight) and *Cercospora carotae* (leaf blight). Treatment of seed may be necessary when imports are made from countries where these pathogens occur. None of the virus diseases reported on carrot, and related plants, are thought to be seed-borne.

Quarantine Action and Treatments

Mandatory commodity treatments should be carried out in the exporting country. These should be stated on a phytosanitary certificate, which should accompany the consignment and clearly state its origin.

Fresh roots

A sample of the consignment should be inspected on arrival to ensure that it is free from leaves, leaf stalks, blemished roots and soil. If rots are present, or if there is white fungal growth which may be *Sclerotinia sclerotiorum*, the entire consignment should be examined, the diseased carrots destroyed and the remainder released. If this is impractical, destroy or reconsign shipment. Leaves present on the roots should be snapped off and burnt. Consignments should not contain trash.

If soil is present, all the roots should be cleaned by washing them under pressure. The soil collected should be treated with formalin (1 part 40 per cent formaldehyde to 39 parts water) or disposed of in

the sea. If this cannot be done satisfactorily, the consignment should be re-exported or burnt.

Where consignments require mandatory fumigation, or inspection reveals the presence of other insects, fumigate with methyl bromide at normal atmospheric pressure as follows:

g/m ³	time (hours)	temperature (°C)
48	3	11-15
40	3	16-20
32	3	21-25
24	3	26-30
16	3	31 and above

Propagating material

Commercially packaged seed, from reputable sources, is of minimal quarantine risk, although occasional checks should be made to ensure the maintenance of acceptable standards. Preferably seed should be dusted with a fungicide, and

thiram is recommended. Further treatments may be necessary if certification cannot be obtained that consignments are free of seed-borne pathogens. In this

case, a hot water treatment (52°C for 15 min) or a thiram soak (24 hours at 30°C in a 0.2 per cent suspension) should be considered.

This leaflet was prepared and published by the SPC Plant Protection Service, Private Mail Bag, Suva, Fiji.

This leaflet gives general guidance only; quarantine action is subject to the legislation and regulations of individual countries of the SPC region.

Leaflets in this series include:

- | | |
|---------------|----------------|
| (1) Banana | (8) Tomato |
| (2) Beans | (9) Taro |
| (3) Cabbage | (10) Capsicum |
| (4) Citrus | (11) Pawpaw |
| (5) Cucurbits | (12) Pineapple |
| (6) Orchids | (13) Kava |
| (7) Peanuts | (14) Carrot |

© Copyright South Pacific Commission, 1988

The South Pacific Commission authorises the reproduction of this material, whole or in part, in any form, provided appropriate acknowledgement is given.

Original text: English.

South Pacific Commission Cataloguing-in-Publication Data

Carrot.

(Quarantine advisory leaflet / South Pacific Commission ; 14)

1. *Daucus carota* 2. Carrots—Diseases and pests 3. Plant quarantine—Oceania I. South Pacific Commission. Plant Protection Service II. Series

635.13'993
ISBN 982-203-071-1

AACR2