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Eleventh Session of the Plant Protection Committee
for the South East Asia and Pacific Region
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QUARANTINE REGULATIONS AND INTERNATIONAL TRANSFER OF
COCONUT SEEDNUTS AND POLLEN ^{1/}

The following draft recommendations for regulating the importation and movement of coconut germplasm were originally prepared for the consideration of the Executive Committee of the International Council on Lethal Yellowing (ICLY). Membership of that committee is drawn from plant pathologists and agricultural scientists working with national organizations in Colombia, France, Ghana, Jamaica, the United Kingdom, and the United States of America, as well as at FAO headquarters in Rome.

The Committee members and other concerned individuals were asked, by the Chairman of ICLY, to get in touch directly with the Plant Protection Service of FAO if they had comments on the draft regulations or if they wished to make any changes in the text. It is intended that any such comments or changes be brought to the attention of the 11th Session of the Plant Protection Committee for the South East Asia and Pacific Region following the presentation of the draft regulations. Further information on coconut germplasm introduction and on pest and disease hazards can be found elsewhere (Harries, 1974; 1977).

1/ H.C. Harries, Convenor, FAO ad-hoc Coconut Breeders' Consultative Committee.

THE DRAFT REGULATIONSCOCONUT (Cocos nucifera)1. Coconut propagating material

- (a) Seednuts with the calyx removed and without any visible sprout at the time of despatch (especially if the husk is partly removed) may be fumigated with methyl bromide ($16 \text{ g/m}^3/2 \text{ h}$) or hydrogen cyanide ($3.3 \text{ g/m}^3/1 \text{ h}$) (Whitehead and Thompson, 1966). Seednuts have no dormant period and any that are already germinating may be damaged if the fumigant contains chloropicrin or if fumigation is repeated on arrival when young sprouts may have emerged through the husk. Dipping in an insecticidal/nematicidal/fungicidal solution may be acceptable under some conditions, if agreed to by the local plant protection services of the receiving country.
- (b) Pollen cannot be treated but samples can be examined (before despatch and on arrival) for insects and mites (by light microscopy) and for fungi and bacteria (by plating on agar media).
- (c) Embryos can be cultured in vitro and a routine procedure is needed for practical germplasm exchange purposes.

2. Quantities

The smallest realistic quantity of coconut seed for a single consignment is 100 (IBFGR Consultation, 1978). Where larger quantities are involved, these must receive special dispensation on an ad-hoc basis between the organizations concerned. Minimum pollen quantities have not been determined.

3. Collection for despatch

Transfer of coconut propagating material should be made only by official services, under permit, and should be accompanied by a certificate from the appropriate authority in the country of origin stating:

- (i) that the material was collected in disease-free areas from palms showing no signs of notifiable pests or diseases (see section 5); and
- (ii) that the material has been treated in the prescribed manner, giving details (see section 1).

4. Post-entry quarantine

Importation should be permitted only on the authority, and under the supervision, of local plant protection services. On arrival, seednuts should be treated as prescribed (see section 1), inspected and any rejects destroyed. Sound nuts should be set to germinate in individual polybags and grown in isolation from other commercial palm species until ready for field planting. Nursery pests, diseases and weeds should be controlled by regular inspection and routine spraying. Diseased seedlings, together with containers, should be destroyed and the soil sterilised, as should any seednuts that remain ungerminated. Inspection after field planting, until plants are 18 months old covers the known incubation period of MLO diseases.

5. Notifiable pests and diseases ^{1/}

(a) The large size of the coconut palm and its perennial habit makes control of pests and diseases difficult, and elimination virtually impossible. Given this situation it must be admitted that, in time, all pests and diseases will tend to spread. Attempts, therefore, to list certain countries from which germplasm must not be collected can never be certain of being complete. Anyone using such a list receives no protection by so doing. The tendency to place blanket restrictions across regions is invidious and can be positively detrimental. Until, and unless, the spread of pests and diseases can be monitored ALL coconut growing countries must be suspected of harbouring unknown diseases (and disease vectors) and must be treated with caution until proved otherwise.

(b) The onus is upon the importing agency to find out, in advance, from the appropriate plant protection authorities in the source country, or from FAO or other institution (see Appendix I), whether any of the following etiologic agents are known in the specific localities from which material is to be collected.

- (i) Cadang cadang viroid
- (ii) Lethal hole rot fungus (Marasmiellus cocophilus)
- (iii) Mycoplasma-like organisms (MLO) specifically associated with lethal yellowing disease, Kaincope disease, Cape St. Paul wilt and Kribi disease.
- (iv) Phytomonas protozoan
- (v) Red ring nematode (Rhadinaphelenchus cocophilus)
- (vi) Rickettsia-like organisms (RLO) specifically associated with diseases in East Africa.
- (vii) Any others, as discovered (see Appendix II).

^{1/} Other palm species may also be covered by this section.

- (c) Whenever new outbreaks occur, national or regional plant protection services and coconut research and development organizations should notify the World Reporting Service on Plant Diseases and Pests (which was established by the International Plant Protection Convention of 1951). Since notification cannot be made obligatory, a coconut quarantine panel composed of plant introduction and quarantine officers, coconut genetic resources personnel and phytopathologists working on the pathogens in question should be convened frequently to keep the situation under constant review and to make appropriate recommendations.

REFERENCES

- HARRIES, H.C. 1974 Coconut In Handbook of plant introduction in tropical crops. Ed. J. Leon. FAO Agricultural Series No. 93.
- HARRIES, H.C. 1977 Coconut In Plant health and quarantine in international transfer of genetic resources. Eds. W.B. Hewitt & L. Chiarappa. CRC Press, Cleveland.
- IBPGR 1978 Consultation on Coconut Genetic Resources. AGPE:IBPCR/78/4.
- WHITEHEAD, R.A. & THOMPSON, B.F. 1966 Introduction and exchange of coconut planting material. Nature 209, 634-5.

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APPENDIX I

Regional Plant Protection Organizations(a) FAO Statutory Bodies

Caribbean Plant Protection Commission, Santo Domingo,
Dominican Republic;

South East Asia and Pacific Region Plant Protection
Committee, Bangkok, Thailand;

Near East Plant Protection Commission, Cairo, Egypt.

(b) Other

Organismo Internacional Regional Sanidad Agropecuaria,
San Salvador, El Salvador;

European & Mediterranean Plant Protection Committee,
Paris, France;

Inter-African Phytosanitary Council, Yaounde, Cameroon;

Organismo Boliviano Sanidad Agricola;

Comite Internacional Protection Agropecuaria.

APPENDIX II

Alphabetical list of countries indicating known presence and location
of notifiable pests and diseases of coconut

To be compiled and updated by the World Reporting Service
on Plant Diseases and Pests.

Diseases & pests known to be transmitted in or on coconut seed or pollen	None known
Virus, viroid, MLO & RLO associated diseases in which Koch's postulates have been satisfied	None known
Fungal, bacterial, nematodal or other infections/infestations that cannot be controlled by routine quarantine measures	None known
Coconut growing countries in which coconut palms <u>never</u> die from unknown causes	None known
Areas from which MLO have been confirmed by electron microscopy and tetracycline therapy	Florida Jamaica Togo
Areas from which MLO have been confirmed by electron microscopy	Cameroons Cuba Ghana
Areas where MLO etiology is presumed	Bahamas Cayman Islands Dominican Republic Haiti
Areas where MLO identification is disputed	Dahomey N. Sumatra Nigeria (Awka) Tanzania
Areas from which RLO have been confirmed by electron microscopy	Tanzania

Areas for which viroid etiology has been proposed

Catanduanes & Luzon (Quezon province)
Marinduque
Samar

Areas in which virus etiology has suspected (see also viroid section)

Guam
India (Kerala)

where fungal diseases have been omitted from nursery beds (specifically Marasmiellus cocophilus)

Parts of East Africa

as with red ring nematode (specific localities)

Barbados, Belize, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guyana, Grenada, Honduras, Mexico, Nicaragua, Panama, St. Vincent, Surinam, Tobago, Trinidad, Venezuela.

as with Phytophthora protozoan (Surinam Wilt or Hart rot)

Colombia (oil palm)
Peru (oil palm)
Surinam (coconut/coffee)
Trinidad (coconut)

where fungal diseases have been transmitted from nursery beds (areas with diseases of unknown etiology (variously described as blast, dry bud rot or assorted wilts, etc.) (in specific localities))

Parts of East Africa
Banika (Solomon Islands)
Espiritu Santo (New Hebrides)
Ivory Coast
Mozambique
Kuala Bernam (W. Malaysia)
Sarawak
Sri Lanka (southern province)

Areas with insect pests (with the exception of Eriophyes mite)

See: LEVER, R.J.A.W. 1969 Pests of the coconut palm. FAO Agric. Studies 77.

Areas with leaf blight mites

Previously thought to occur only in parts of the New World or West Africa. Mites doing similar but less extensive damage have been found in many countries including Indonesia, New Hebrides, Philippines and Thailand

see Table

errors and omissions excepted, this list is as complete as possible but it does not pretend to be comprehensive since in many growing areas sporadic disease outbreaks go unnoticed. litan diseases, such as Rigidoporus lignosus or Thielaviopsis a are not mentioned nor are more specific coconut diseases which are usually localized or controllable by hygiene e.g. thorax bud rot, Pestalotiopsis, Helminthosporium or Dreschlera ots, Botryodiplodia, Diplodia & Anthostomella frond break stocvstis stem bleeding.