

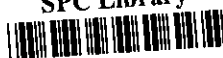


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PLANT PROTECTION NEWS

Compiled by
SPC Plant Protection Officer
Bob Macfarlane

NEW PLANT PROTECTION PROJECT

The new UNDP/SPC Plant Protection Project RAS/86/037 begins very soon. This project is the continuation of many years of UNDP assistance to plant protection to the Region. Previous projects included the Rhino Beetle Project, the Pest and Disease Survey and recently the Plant Protection and Root Crops Project. This time the South Pacific Commission will be the executing authority, which will ensure the continuing development of the SPC Plant Protection Service. UNDP will fund the first three years and SPC has agreed to allocate funds for at least a further two years. The project will be based at the SPC Plant Protection office in Suva.

The project objectives, drafted at a Plant Protection Workshop in Apia last year, are:

1. To strengthen and expand the SPC Plant Protection Service to enable it to:
 - (a) determine, co-ordinate and conduct training,
 - (b) develop information exchange,
 - (c) assist with biocontrol programmes,
 - (d) set plant quarantine standards,
 - (e) safely transfer disease-tested planting material,
 - (f) harmonise pesticide regulations, and
 - (g) promote regional collaboration in plant protection.
2. To enhance national plant protection capabilities in the areas of:
 - (a) crop protection research,
 - (b) pest management,
 - (c) plant quarantine,
 - (d) planning for pest emergencies.

As you can see, the project aims to do a great deal, and to achieve these goals the project provides for the appointment of three new officers in addition to the existing Plant Protection Officer. The new posts are Biocontrol Officer, Plant Health Officer, and Information Officer/Librarian. Funds are also available for travel, training courses, consultancies and some equipment. As you can imagine, there will be plenty of work for these officers, but we would like to develop a work programme which reflects your views and problems, so please write and tell us about them.

Our address is on page 13; our telephone numbers are 38 47 21 and 38 33 00 and our telex number is FJ 2385 SOPACOM.

BACTERIAL BLIGHT OF CASSAVA IN GUAM AND POHNPEI

An outbreak of bacterial blight of cassava caused by Xanthomonas campestris pv. manihotis was confirmed in Guam and Pohnpei in early December last year. It is the first record of this disease in our Region. Previously it has been recorded from Africa, South America, S.E. Asia, Indonesia, Philippines and Taiwan. In Africa and South America it is considered to be a major disease and consequently its arrival in our Region was treated very seriously. Early in January Dr Grahame Jackson and I travelled to Guam and Pohnpei to assess the situation and to assist with a possible eradication programme.

We found that the disease was widespread on Pohnpei but was not causing serious damage. On Guam we found the disease only at one site, but there, too, the disease did not appear to be serious. The new Plant Pathologist on Guam, Dr George Wall, will make a survey of the disease.

Dr Jackson suggests that one reason why the disease is not damaging on these islands is the relatively small day/night temperature fluctuations. Elsewhere there is evidence that the severity of this disease is enhanced by wide day/night temperature fluctuations during the rainy season. If this is the case then it is not possible to predict what the effect of the disease will be if it gets to other countries where cassava is a major food crop and weather patterns are different. Therefore all Pacific countries are recommended to ensure that all importations of cassava germplasm are done in the safest possible manner. Field Document 6, "Guidelines for the transfer of root crop germplasm" by Grahame Jackson, Bob Ikin and Ivor Firman, UNDP/FAO-SPC Project on Strengthening Plant Protection in the South Pacific RAS/83/001, gives details of recommended procedures for cassava. I can supply copies of this document on request.

IRRADIATION TO CONTROL FRUIT FLIES

Since the withdrawal of ethylene dibromide as a quarantine treatment for fruit flies many countries have been looking for alternatives. Presently, vapour heat and double hot water dip treatments are the most commonly used alternatives. Now, USDA APHIS is proposing another treatment for pawpaws/papaya - a low dose of gamma irradiation from a radioactive source.

For this treatment an expensive treatment plant will be required to administer 15 kilorads to each pawpaw. This is the amount USDA has determined is enough to ensure that any fruit flies emerging from the fruit cannot fly and therefore find food and a mate. NOTE it does not necessarily kill the larvae or the eggs; 21 kilorads is required to do that.

Not only will this new technique be more expensive than other treatments, it is also certain to attract a lot of opposition from environmental and pure food groups. A fierce debate has already begun in Queensland (Australia) over the proposed use of this technique to control Queensland Fruit Fly. However, it does offer the choice of another treatment but not, unfortunately, one which many Pacific countries will be able to, or perhaps wish to, afford.

NEW APHIS PPQ OFFICER IN CANBERRA

The new Area Director for Oceania, USDA APHIS International Programmes, is Mr James F. Kearney who is based at the American Embassy, Moonah Place, Canberra, ACT 2600, Australia.

Jim Kearney is an entomologist with 37 years of federal experience. His last posting was as Area Director of APHIS PPQ for the North and South Carolinas and Director of the boll weevil eradication programme which successfully eradicated the boll weevil from Virginia, North Carolina and South Carolina. His last foreign posting was as Agriculture Adviser to the European Command (Military). In Canberra, as well as the APHIS PPQ work, Jim will also be Agriculture Adviser to the Pacific Command (Military). I know many countries are concerned about the quarantine problems associated with military movements and I am sure Jim will be happy to assist and advise the Region and the military with these problems.

We welcome Jim to the Region and look forward to collaborating with him.

SPIRALLING WHITE FLY ARRIVES IN SAMOA?

Ioane Aloalii writes from Nu'u Crop Development Station that a new white fly has recently been found on green peppers in Western Samoa. Specimens have been sent for positive identification. Ioane will keep us informed of the result. White flies have been found in Western Samoa in the past, but these are the first producing the distinctive spiral pattern on the underside of leaves. Extension staff have been informed and research work is underway to find control methods.

The Spiralling White Fly was successfully controlled in Guam in 1981 with the importation of a predatory ladybird Nephaspis amnicola and a parasitic wasp Encarsia haitiensis. The UNDP Plant Protection Project RAS/83/001 paid for a supply of these insects from Guam and I handcarried them to Fiji in January this year. The surviving adults from this consignment were released onto a caged colony of white fly at Koronivia Research Station. After a few days the cage was opened near areas of heavy white fly attack and the wasps released. Results of this release will be reported on in the next newsletter. As soon as healthy colonies are established in Fiji we shall begin to transfer the parasite to other infested countries.

This white fly has now been recorded from Hawaii, Guam, Pohnpei, Palau, the Marianas, Nauru, Western and American Samoa, Tonga, Cook Islands and Fiji.

FRUIT PIERCING MOTH REACHES HAWAII

Don Sands of CSIRO Brisbane and Donald Nafus of the University of Guam both report that the Fruit Piercing Moth Othreis fullonia has been reported for the first time from Hawaii. Don reports that it was first recorded on Oahu in January 1985, on Kauai in April 1985 and then in Molokai and Maui in September 1986. Don examined specimens while in Hawaii late last year and is

certain that they are similar to the form found in Micronesia and not from the Samoas. There is no information on how it arrived in Hawaii, but it probably came in by aircraft, particularly as disinsection is no longer performed on US sectors. Indeed, Beardsly of the University of Hawaii has reported that up to two dozen foreign insect species are introduced each year with the movement of aircraft and agricultural produce into the state.

Effective biocontrol of this pest may shortly be at hand as Don Sands and Dr Muniappan both report that they hope to start research projects on the pest soon. Also, it is certain that the Hawaiians will be looking at this pest as it is bound to affect their large fruit industry.

ANOTHER BIOCONTROL SUCCESS IN GUAM

Tom Seibert and Dr Muniappan of the College of Agriculture and Life Sciences at the University of Guam report the successful use of the moth Pareuchaetes pseudoinsulana to control the serious weed Chromolaena odorata.

Chromolaena, a native of the Caribbean and tropical America, is a serious weed of pasture and now inhabits Guam, the Mariana Islands, the Western Caroline Islands and possibly also Pohnpei. It has completely taken over unimproved pasture on Rota and Tinian.

The caterpillar of Pareuchaetes eats all the leaves, buds and new growth and chews exposed tissue on the root crown to ground level. Over 95 per cent plant mortality was recorded at the original release site one year after establishment and in that time the insect had also colonised approximately one third of the island of Guam.

Currently, introductions of Pareuchaetes from Guam to the Northern Mariana Islands are in progress; it is established on Rota and spreading rapidly.

Needless to say, before any introductions were made a full series of tests were carried out to ensure the insect would not attack any useful plants, even in the absence of its preferred food.

TREATMENT OF VEGETABLE SEEDS

In a preliminary report on his disease survey of Federated States of Micronesia Dr Grahame Jackson of the UNDP/FAO Plant Protection and Root Crop Project raised some serious issues concerning the quarantine treatment of vegetable seeds. These were:

1. Although seeds are sold as being from a particular country, they may not in fact have been produced there.
2. As a general rule, all imported seeds should be treated with fungicides such as Captan or Thiram.
3. We are not aware of any seed company which automatically treats seed being placed in small packets.

4. Hot water treatment is the only satisfactory treatment for cabbage seeds to eliminate black rot caused by Xanthomonas campestris pv. campestris. Alternaria seedling blight and other bacterial pathogens are also controlled by this treatment.
5. Seed imported in small packages is unlikely to be heat treated as most companies will only do this treatment on request.

The following recommendations were made for FSM. However, they may not be appropriate for other countries because in FSM few vegetable seed-borne diseases are found and most seed is imported by the Departments of Agriculture who then distribute seedlings to farmers:

1. Import seed only from the most reputable dealers.
2. All seed, except tomato, should be treated with fungicide (e.g., Captan or Thiram at 0.25 - 0.5 g per 100 g of seed is adequate) regardless of any other treatments given.
3. Tomato seed should be acid extracted to avoid tobacco mosaic virus in particular.
4. All cabbage seed should be given a hot water treatment followed by dusting with a fungicide.

PEANUT STRIPE VIRUS

An old but relevant item of news is that the USA is becoming concerned about the spread of peanut stripe virus. To date, they have banned the importation of peanut seeds from China, Taiwan and Philippines as this virus has now been found in all these countries. All quarantine officers are advised to review their country requirements for the importation of peanut seed. (See SPC Quarantine Advisory Leaflet No.7.)

FREE SEED OFFERED

The Canadians have an aid programme which offers free supplies of seed to agriculturally based organisations in developing countries. I have no information on the types and quality of the seed, but organisations who would like to try it should contact:

Canadian Foundation for World Development
2441, Bayview
Willowdale
Ontario M21 1A5
Canada.

But before you do this please read the section in this newsletter concerning treatment of vegetable seeds and the relevant SPC plant quarantine advisory leaflets.

STORAGE PESTS - CHICKEN FEED

The following insects have been identified from imported chicken feed in Kiribati. The identifications were made by DSIR, Auckland, New Zealand.

<u>Common name</u>	<u>Scientific name</u>	<u>Family</u>
Merchant Grain Beetle	<u>Oryzaephilus mercator</u> (Fauv)	Silvanidae
Copra Beetle	<u>Necrobia rufipies</u> (de Geer)	Cleridae
Cadelle Beetle	<u>Tenebriodes mauritanicus</u> (L.)	Trogossitidae
Drugstore Beetle	<u>Stegobium paniceum</u> (L.)	Anabiidae
Rust-red Flour Beetle	<u>Tribolium castaneum</u> (Herbst)	Tenebrionidae

All these pests can and do infest other storage products such as copra, rice and flour, and once in a store are very difficult to remove. There is no reason why they should be allowed entry into any country as all these products can readily be fumigated at departure or on arrival. (For rates see FAO International plant quarantine treatment manual 1983.)

COPRA STORAGE - TUVALU

During October last year, I was asked to visit Tuvalu to advise on a problem with storage pests of copra.

Last year, because of the low price, production of copra was slow, and consequently it took a long time to build up enough stocks to justify shipping it overseas. Some copra, therefore, had to be stored for long periods during which insect infestations became severe.

When the copra arrived in Fiji it was so badly infested that local quarantine authorities insisted that the whole ship be fumigated before the copra was unloaded. Ship fumigation is very expensive and because of the low price for the copra this exercise cost a large proportion of the consignment's value.

Tuvalu is fortunate to have equipment and chemicals for tent fumigation and spraying. I was able to recommend a programme of spraying and fumigation which should reduce the problem to manageable levels.

As with most storage pest problems it is far better to try to prevent the infestation from occurring rather than trying to control it later, especially in a large warehouse after the copra has been bulked with other produce. Therefore, a programme of fumigation of the copra before bulking in the Funafuti store was recommended, along with routine spraying of the store and fumigation of the empty copra bags before they are returned to the islands. Treatment of the hold of the copra-carrying vessels was also recommended.

FIJI DISEASE INVADES WEST AFRICA

Black leaf streak disease of bananas (Mycosphaerella fijiensis) was first recorded from East Africa in 1974, it was reported from Gabon in 1980, and since then it has spread to Congo and Cameroon. I mention this news for two reasons:

1. It indicates the speed with which plant diseases can spread. M. fijiensis was first described from Fiji in 1963 and since then

has spread to many Pacific Islands, Asia, Latin America and now Africa;

2. In Gabon, it is probable that the disease had been present in village plantings for some time and was not detected until large commercial plantations were established (Wilson and Buddenhagen. IITA Research Briefs, Sept. 1986).

This introduction closely mirrors the introduction of coffee rust into Papua New Guinea mentioned in the last Plant Protection Newsletter. There, the disease had apparently been present but undetected in the more resistant lowland robusta coffee for many years before spreading to the susceptible arabica varieties in the highlands. Both these cases emphasise the importance of well-trained field staff who are able to recognise and report unusual pests and diseases.

PESTICIDE SUBSIDIES

Many Pacific Island countries subsidise the sale of pesticides, some by just allowing duty free imports and others by direct cash subsidies to the import price. However, a recent report suggests that countries should reconsider this policy as it not only costs the country a great deal in cash and lost revenue but distorts pest control decision making. Farmers are encouraged to use more and more pesticides as a cheap and easy way to control pests. But because they are unnaturally cheap they actually use them when they are not necessary, which can lead to serious safety and environmental hazards.

Of the nine countries the report studied only one had analysed the effects of its subsidies and that country, Pakistan, had subsequently stopped them. This had made the farmers more careful in their choice of pesticides. Only effective and less expensive chemicals were used and wastage had been considerably reduced.

The monies diverted from subsidies or created from new revenue could be used to promote safer and better methods of pest control.

The report is called Paying the price: Pesticide subsidies in developing countries. Published by World Resources Institute, Box 620, Holmes, PA 19043-0620, USA. Price US\$ 7.50.

NATURAL CONTROL OF NEMATODES

Saleem Ahmed of the East-West Center's project on Botanical Pest Control has recently sent a progress report of their work for 1985-86. The most interesting news is an observation he made during a visit to India. Ninety per cent of all cardomom farmers in Kerala State incorporate 200-500 g of neem cake into the soil around each cardomom plant to control nematodes and as a fertiliser. Neem is an oil extracted from the Neem tree (Azadirachta indica). Unfortunately, Dr Ahmed was unable to measure the level of control achieved and has not yet received an identification for the nematode.

In the same report Dr Ahmed requests information on current usage of plants to control pests. If you have any information please contact Saleem Ahmed direct with a copy to me so that I can inform other countries.

Dr Ahmed's address is:

Dr Saleem Ahmed
East-West Center
Resource Systems Institute
1777 East-West Road
Honolulu
Hawaii 96848.

CRABS MARCH ON SOLOMON ISLANDS

A recent request from Solomon Islands asked about the control of hermit crabs.

As reported in the last newsletter, the severe tropical cyclone Namu has had the effect of causing an upsurge in the populations of many animals not normally associated with crops. Now comes news from the remote coral island of Sikaiana that crops there have been damaged by a plague of hermit crabs. Help was sought to find a way to control this pest without having a harmful effect on the island's pigs which forage in the same area.

This was completely outside my experience so I asked the fisheries people at SPC Noumea and the Department of Primary Industries in Fiji for their ideas. The suggestions ranged from paraquat to bleach, from warfarin to ammonium sulphate, and from permethrin to rotenone. Apparently ammonium sulphate is used to kill prawns in Fiji, as is bleach and paraquat. Rotenone is of course available locally in various fish killing plants, Derris and Barringtonia being the main ones.

This advice has been sent to Solomon Islands and we await the result with interest.

PEST CONTROL IN TROPICAL ONIONS

The latest manual in the Pest control series, published originally as PANS manuals and now published by the Tropical Development and Research Intitute, UK, has just been released. It is "Pest control in tropical onions" at Pounds Sterling 5.00 per copy including postage, ISBN 0 85135 143 3.

The manual contains chapters on the control of weeds, diseases, nematodes, insects and mites and on storage. It is well up to the usual high standard of this series and contains a wealth of information and many useful references for further reading. I am sure this book will be in great demand in the increasing number of Pacific countries where onions are grown.

The book is available free to governments and educational establishments entitled to British aid. Others, I am afraid, will have to pay!

DCRS INFORMATION SHEETS

The Dodo Creek Research Station library has begun issuing a series of information sheets called appropriately DCRS Information Sheets. The sheets were first issued last year and have now reached number 15. Sheet numbers 1 - 5 are on horticultural topics, number 6 concerns the library itself, and sheet 7 is about soils. Sheets 8 and 9 concern pesticide registration in Solomon Islands, and sheets 10 - 15 give details of nematode damage to a range of crops and how to minimise it without the use of pesticides. The latter are one-to-two page documents which give simple clear details about nematodes and are applicable to a range of Pacific countries. Copies of these sheets are available from the Librarian, DCRS, Ministry of Agriculture and Lands, P.O. Box G13, Honiara, Solomon Islands.

INTERESTING ABSTRACTS

Smith, E.S.C. A review of relationships between shade type and cocoa pest and disease problems in Papua New Guinea. Papua New Guinea Journal of Agriculture, Forestry and Fisheries (1985) 33 (3/4) 79-88 (En, 54 ref., 2 tab.) CSIRO, Div. Tropical Crops Pastures, Kimberley Res. Sta., Kununurra, W.A. 6743, Australia.

The major pests and diseases in Papua New Guinea cocoa are outlined and their relationships to the main shade trees are reviewed. Evidence shows that many of the present problems have arisen from the use of Leucaena leucocephala as a shade tree. In contrast, the widespread practice of planting cocoa under coconut palms has considerable economic and managerial advantages and the cocoa generally suffers less from pests and diseases than sole planted cocoa. It concludes that recommendations incorporating the planting of high-yielding, disease-resistant cocoa under high-yielding, hybrid coconut palms at least 3-4 years old should be formulated and actively promoted in Papua New Guinea.

PUBLICATIONS

Since the last Plant Protection Newsletter the UNDP/FAO-SPC Plant Protection Project has issued three more field documents and three reports.

McKenzie, E.H.C. and Jackson, G.V.H. The fungi, bacteria and pathogenic algae of Solomon Islands..Suva, Fiji, 1986. FAO, RAS/83/001, Field Document 11. 282 pp., 1 map.

Abstract

Fungi, bacteria and pathogenic algae of Solomon Islands are documented. To help the user, the records are presented in a number of different ways. Host plants are arranged alphabetically by genus, and for each host the pathogens are listed in the order fungi, bacteria and algae. The types of symptoms are indicated. Plant families, and genera and also common names of host plants (in English or in one of the languages of

Solomon Islands) with botanical equivalent, are provided. Fungi found on miscellaneous substrates (wood, litter, ground, soil, dung, fungi, insects, termite nests, spiders and man) are recorded. Finally, the records of fungi, bacteria and algae are listed in separate sections, arranged alphabetically according to genus and then by species. For each record an annotated account is given which includes the author, place and date of publication. The earliest Solomon Islands reference to each record is given, and where available, representative voucher specimens held in herbaria or culture collections are listed. For the pathogens in the listings, descriptions of the diseases are given with notes on distribution, other hosts recorded elsewhere in the world, transmission and control.

The present list includes almost 500 fungi (mostly pathogens) on 278 host plants, 16 bacteria, 2 plant pathogenic algae and all other fungi (about 250 species) recorded from Solomon Islands.

Guarino, L. and Jackson, G.V.H. Describing and documenting root crops in the South Pacific. Suva, Fiji, 1986. FAO, RAS/83/001, Field Document 12. 141 pp., 46 tables, 1 appendix.

Abstract

Collections of cassava, taro, sweet potato and yam in nine Project countries have been characterised using modified versions of the descriptors published by the International Board for Plant Genetic Resources. The data have been computerised. In this field document the information contained in the database is presented in two ways. For some country collections of cassava, taro and sweet potato selected descriptors are used to show how accessions may be compared, both within the same collection and between those in different countries. Country catalogues containing all the descriptors that have been recorded are also given and for each country, root crop activities are noted, and the results of evaluation programmes summarised.

Van Wijmeersch, P. Root crops production in Tonga. Suva, Fiji, 1986. FAO, RAS/83/001, Field Document 13. 80 pp. 45 tables., 1 appendix.

Abstract

The Government of Tonga, assisted by the United Nations Development Programme and the Food and Agriculture Organization of the United Nations, began work on root crop research at the Experimental Station, Vaini, Tongatapu in July 1981. A principal aim of the work was to identify new production technologies to reduce labour inputs. Those crops of interest were taro Tonga (Colocasia esculenta), talo Futuna (Xanthosoma sagittifolium), Kumala (Ipomoea batatas), European potato (Solanum tuberosum), cassava (Manihot esculenta) and yam (Dioscorea alata). Summaries of the results of this research until July 1984 are presented. In addition, notes are given in the statistics of root crop production, production practices, pests and diseases and previous research. Recommendations for further research are made.

Rush, D.D. Recommendations for improving the effectiveness of agriculture quarantine inspection programmes in the Republic of Belau, the Federated States of Micronesia, the Republic of the Marshall Islands. Suva, Fiji, 1986. FAO-SPC, RAS/83/001.

Prior, C. A survey for natural enemies of the taro beetle (*Papuana* spp.) and *Scapanes australis* in Papua New Guinea. Suva, Fiji, 1986. FAO-SPC, RAS/83/001, 19 pp.

UNDP/FAO/GTZ/IRETA Regional crop protection workshop (Apia, Western Samoa, 8-12 September, 1986). Suva, Fiji, 1987. FAO-SPC, RAS/83/001, 257 pp.

NEWS FOR THE NEXT ISSUE OF THE SPC PLANT PROTECTION NEWSLETTER

To:

Bob Macfarlane
Plant Protection Officer
South Pacific Commission
Private Mail Bag
Suva
FIJI.

NAME: _____

SIGNED: _____

TITLE (if applicable): _____

DATE: _____

ADDRESS: _____

AGRICULTURE

ISSUED IN THIS SERIES

- | | |
|---|--------------------------------------|
| 1. Annual Conference of OIE held in Paris, 13th-18th May 1968. Report of South Pacific Commission observer. September 1968. | Livestock Production and Health |
| 4. 'A' Level: Australia's notification on bovine pleuropneumonia regulations. March 1968. | Plant and Animal Quarantine |
| 5. Study tour to Noumea, Brisbane, Territory of Papua and New Guinea and British Solomon Islands Protectorate. March 1969. | Tropical Crops |
| 6. 'A' Level: Agricultural education — Bulletin No. 1. April 1969. | Agricultural Education and Extension |
| 9. 'A' Level: Agricultural education — Bulletin No. 2. May 1969. | Agricultural Education and Extension |
| 10. 'A' Level: Agricultural education — Bulletin No. 3. November 1969. | Agricultural Education and Extension |
| 11. Agricultural extension workshop — Western Samoa. November 1969. | Agricultural Education and Extension |
| 12. Asian-Pacific Weed Science Society. December 1969. | Tropical Crops |
| 13. The status and potential of the chilli industry in the Solomon Islands. December 1969. | Tropical Crops |
| 22. Breadfruit diseases in the South Pacific. June 1970. | Tropical Crops |
| 23. Second world consultation on forest tree breeding. June 1970. | Forestry |
| 24. Agricultural research in the South Pacific. July 1970. | Tropical Crops |
| 25. Crown-of-thorns starfish. July 1970. | Livestock Production and Health |
| 26. Counter-attack — Crown-of-thorns starfish. September 1970. | Fisheries |
| 28. Asian Coconut Community. January 1971. | Fisheries |
| 29. OIE/FAO Regional Conference on Epizootics in Asia, the Far East and Oceania. January 1971. | Tropical Crops |
| 30. Plant pest control. January 1971. | Livestock Production and Health |
| 31. The effect of cultural method and size of planting material on the yield of <i>Colocasia esculenta</i> . February 1971. | Tropical Crops |
| 33. Weed control. August 1971. | Plant and Animal Quarantine |
| 34. Taro. August 1971. | Tropical Crops |
| 35. Transmission of virus samples. August 1971. | Agricultural Research |
| 37. Training programmes for out-of-school rural youth. March 1972. | Plant and Animal Quarantine |
| 43. The Fifth FAO Regional Conference on Animal Production and Health in the Far East. December 1972. | Agricultural Education and Extension |
| 47. Useful references for animal production and agricultural extension workers of the South Pacific Commission territories. March 1973. | Livestock Production and Health |
| 50. South Pacific agricultural extension survey — 1967. April 1973. | Animal Production |
| 52. Fruit cultivation. June 1973. | Agricultural Education and Extension |
| 54. Shellfish poisoning in the South Pacific. February 1974. | Tropical Crops |
| 55. Special project — Vegetable production in the South Pacific. January 1974. | Fisheries |
| 56. Comments on experiments recently undertaken in some Pacific Islands on certain varieties of vegetables. March 1974. | Tropical Crops |
| 58. Some aspects of pasture research and development. April 1974. | Tropical Crops |
| 62. Potential of animal feed production in Western Samoa. November 1974. | Livestock Production |
| 63. Names of food plants in Niue Island (South Pacific). November 1974. | Livestock Production and Health |
| | Tropical Crops |

64. Some effects of temperature on pasture germination and growth. April 1975.	Livestock Production and Health
65. The marketing of fresh vegetables. May 1975.	Vegetable Production
66. Special project on vegetable production — Results of 1974 variety trials. June 1975.	Tropical Crops
67. Principal 1974 vegetable growing results for the Pirae Agricultural Research Station, Tahiti (French Polynesia). June 1975.	Tropical Crops
68. Evaluation of broiler (meat chicken) performance. September 1975.	Livestock Production and Health
71. Preliminary information on the intestinal parasites of livestock in Tongatapu, Tonga. March 1976.	Livestock Production and Health
72. Expérimentation fourragère en Polynésie française. Mars 1976. (Will not be issued in English)	Livestock Production
73. Vegetable trials in 'Motu' environment, Huahine (French Polynesia). March 1976.	Tropical Crops
76. Results of 1975-76 soya bean trials in certain South Pacific territories. October 1976.	Tropical Crops
80. Special project for the development of vegetable production in the South Pacific. April 1978.	Vegetable Production
82. Red ring disease and palm weevil — threats to the coconut palm. July 1979.	Plant Protection
83. Coconut disease caused by <i>Marasmiellus cocophilus</i> in Solomon Islands. October 1979.	Plant Protection
84. Plant Protection News. January 1980.	Plant Protection
85. Using the predatory ant, <i>Oecophylla smaragdina</i> , to control insect pests of coconuts and cocoa. June 1980.	Plant Protection
86. Plant Protection News. August 1980	Plant Protection
87. Trials for village solar driers in the South Pacific. August 1980.	Agriculture
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89. Plant Protection News. January 1982.	Plant Protection
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102. Health information. May 1987.	Health