



Pacific Pest Info

Pest & Quarantine Information
SPC Plant Protection Service

No. 42

ISSN: 1728-5291

23 September 2003

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1. Tonga Weed Pests Survey

Tongan farmers at a PRA session conducted late 2002 highlighted weed pests as major problems on their farms. PPS Weed Extension Officer Mr. Warea Orapa travelled to Tonga in July as a follow up on this PRA outcome. General weed surveys on Tongatapu, Ha'apai and Vava'u were also accomplished. This was also a good opportunity to provide hands-on skills training to national staff on weed collection, preservation techniques and invasive species identification.

A briefing on the objectives of the visit to MAFF officials and technical staff was carried out at headquarters in Nukualofa. The issue of pesticide use by farmers came up in the discussion. Mr. Orapa also met

researchers at Vaini Research Station where the possibility of collaborative efforts to screen and rear bio control agents for weed control in Tonga was discussed.

At Lapaha, in the Eastern District, a farmer who attended the PRA session complained of two weeds on his squash farm: *Commelina benghalensis* (Commelina) and *Cyperus rotundus* (nutsedge), both of which are serious problems in Tonga. Gramoxone® (paraquat) is used extensively to control the weeds until full ground cover by the crop. The farmer uses cardboard boxes to cover the young seedlings prior to spraying. Farmers commented that applying herbicides was more convenient than hiring expensive labour or field ploughing.

July is the growing month for squash. On Vava'u, where vegetables, watermelons, kava and vanilla are the main crops grown a farmer plot visited also experienced weed problems with commelina and nutsedge. The farmer weeds the commelina by hand.

Thunbergia laurifolia, previously not reported in Tonga, was found growing in a small forest reserve at Tokomololo, opposite the MAFF office on Central Tongatapu. This species is an aggressive climber and can choke other plants. It is largely an environmental weed although it can be problematic among perennial tree crops such as bananas, coconuts, and agroforestry. Its attractiveness as an ornamental could result in further spread. MAFF and possibly the Department of Environment in Tonga should eradicate this species to prevent further spread to other islands.

The Weed Extensionist had discussions with Mr. Finau Pole, Head of Extension and Research, and raised the issue of prioritising and finding solutions to weed problems facing squash farmers. The two weed species *Commelina benghalensis* and *Cyperus rotundus* were identified as top priority weed pests at the time of the visit. The challenge now is to design appropriate pest (including weed) management strategies through appropriate on-farm and research station trials and technology transfer through appropriate extension and information dissemination.

Another weed found to be widespread were Paddy's Lucerne (*Sida rhombifolia*) and in some areas the broomstick *Sida acuta*, especially under coconuts and grazing areas. The host-specific biological control agent, *Calligrapha pantherina*, a leaf feeding beetle already released in PNG (2000) and Fiji (2002) should be considered for introduction and release in Tonga. Clean colonies are available at Koronivia Research Station in Fiji. The Weed Extensionist has forwarded information on host-specificity of this biocontrol agent to Tonga for consideration.

2. Developing diagnostics standard for HLB disease

Richard Davis – PPS Virologist

Huanglongbing (ex-citrus greening) or HLB disease is caused by a bacterium with several unusual features making it difficult to study. It is one of the worst problems for citrus producers in SE Asia.

HLB became a very immediate quarantine issue for all Pacific Islands when it and its vector, the citrus psyllid, appeared for the first time in northwest PNG last year.

A two-day workshop in early August in Kuala Lumpur, Malaysia, examined a draft diagnostics standard for HLB disease. Representatives from Malaysia, Thailand, Indonesia, China, Viet Nam and Australia held discussions to improve on diagnostics standard.

Interaction in this way with HLB researchers from several countries was an invaluable experience as so much of the knowledge about this disease is to be found either in the 'grey literature' or just inside people's heads. Much of this discussion will be of direct benefit to proposed HLB diagnostic in the USP Institute for Applied Science molecular biology virus diagnostics laboratory that PPS is now involved in.

A small steering committee will progress the drafting of the diagnostics standard. PPS Virologist is a member of this committee and this will provide an opportunity to continue to push for methodology that is realistic and affordable for the largest number of laboratories as possible.

The workshop was held under the auspices of ASEANET - the south east Asian loop of BioNET-INTERNATIONAL.

PPS Virologist participation was funded mostly by AusAID through the Australian Department of Agriculture, Fisheries and Forestry (AFFA).

The Kuala Lumpur workshop ran back to back with the 6th International Conference on Plant Protection in the Tropics (ICPPT) organised by the Malaysian Plant Protection Society and CAB International South East Asian regional centre.

PPS Virologist presented a paper in session 12 - Alien invasive species of agricultural concern - entitled Spread of huanglongbing from Asia to the South Pacific. This presented a great opportunity to raise awareness of the situation now facing PNG and other PICTs following the incursion of HLB and its insect vector. Extensive feedback on the proposed action plan now being implemented was received from some of the world's principle experts on this disease and insect.

3. Update on plant protection activities in Micronesia

Konrad Engleberger – Coordinator, Plant Protection in Micronesia (CPPM)

Biological control for the weed pest *Chromolaena odorata* is progressing well. The leaf-eating biocontrol - caterpillar *Pareuchaetes pseudoinsulata*, is now reared in Pohnpei and the larva sent to Chuuk for release. To date more than 10,000 larvae have been sent to Chuuk. Plans are underway to send larvae to Kosrae and Yap.

The second biocontrol agent for the *Chromolaena* weed, the gall fly *Cecidochara connexa*, is presently under quarantine in Pohnpei and undergoing host specificity testing for kava, yam, *Wollastonia biflora* and *Terminalia*. These crops were not tested in a previous host specificity testing carried out in Indonesia, Guam and Palau.

Papaya Mealybug Control - Palau was fortunate to have immediate control measures to this pest of papaya implemented by several agencies. *Paracoccus marginatus* was first reported in March 2003. In August 5, 2003 three different parasitoids were released. A team of experts including: Dr. Dale Meyerdirk, USDA Biological Control Specialist and his assistant Mr. Richard Warkentin, Dr. Muniappan, University of Guam and his assistant and the CPPM visited Palau to implement control measures.

Baseline studies (counting the number of papaya mealybugs) were completed in nine sites. Mealybugs were collected to determine the presence of local parasites. The collection of mealybugs will be done every month. Most of this work will be done by Dr. Takahashi and Mr. Sengebau from the Palau Ministry of Resources and Development. Dr. Muniappan and his assistant will be visiting Palau every three months to assist in counting mealybugs.

On August 5, 2003 several thousand species of exotic natural enemies from Puerto Rico Department of Agriculture were released at nine different sites. The introduced species included: *Anagyrus loecki*, *Acerophagus papyae* and *Pseudleptomastix meceacea*.

CPPM participated in a televised press conference alongside other agricultural specialists and took the opportunity to talk about PPS work in Micronesia.

CPPM also carried out ship inspections with his Palau counterparts. Palau Quarantine does not normally issue ship inspection reports each time ships visit Palau. CPPM advised that ship inspection reports should be issued for each visit.

CPPM also assisted in aircraft passenger inspections on two occasions. In both cases the flights came from Philippines packed with returning Philippine guest workers. This group represent as high-risk passengers because they usually bring food items including fresh fruits. In both flights quarantine-risk items were intercepted such as mangos and other fruits.

For passenger inspection there were insufficient quarantine inspectors (3) to clear the large number of passengers that require a 100 percent inspection. Fortunately, there were eight Customs Inspectors who also doubled as Quarantine Inspectors.

4. Monitoring rhinoceros beetle damage in Wallis

Fereti Atumurirawa – Taro Beetle Technician

The coconut palm in Wallis, like in any other Pacific island, is a versatile crop with many uses: food, drink, housing, handicraft, etc. Thus it is quite important that production levels remain constant to meet this high demand.

Directly affecting coconut production is the rhinoceros beetle, which damage the leaves of coconuts. In recent years a noticeable decline in coconut production is attributed to an increase in rhinoceros beetle damage. It is probable that beetle damage may have increased due to a lapse in the control measures that allowed resurgence of beetle populations.

It is to address this increase in rhinoceros beetle damage Wallis is receiving technical assistance from SPC Plant Protection Service. Similar assistance has been extended to Fiji and Samoa.

The technical assistance involves laying aggregate pheromone traps, ethyl-4-methyl octanoate, for the adult rhino beetle. The programme started late last year in the northern part of the island.

PPS worked closely with local agricultural staff to control the rhinoceros beetle through: field sanitation, laying pheromone, fungus/virus traps, timely servicing of traps and technical training of local field staff.

In this last trip the Taro Beetle Technician monitored beetle damage and increased the coverage of rhino traps to other parts of the island.

The pheromone seemed effective but varied from one location to another ranging from nil to 112 adult beetles captured. There was evidence to show the mobility of adult beetles. Some are not attracted to the traps at ground level, which reflects the lack of timely servicing of traps. Overall damage levels seems to be worsening and this could be due to the non-synchronization or parallel implementation of control measures island-wide. This has allowed beetles to come from other areas. However, with the current stock of pheromones and traps already in Wallis, once all are in place and serviced regularly, certainly the damage levels will be under control.

In general Wallis is fortunate to have very little insect pest damage to crops.

5. CD-ROM on invasive species out in 2004

An invasive alien species (IAS) is described as an alien species that becomes established in natural or semi-natural ecosystems or habitat, is an agent of change, and threatens native biological diversity (IUCN-World Conservation Union, 2004). Many people and communities are unaware of the potential impacts of invasive species and information about invasive species is often widely dispersed and difficult to access.

The Global Invasive Species Database is a management information and awareness-raising tool that focuses on invasive species that threaten biodiversity any where in the world. It covers all life forms from micro-organisms to animals and plants. It was developed by the Invasive Species Specialist Group (ISSG) as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP). We hope that making this information freely available will help facilitate more effective prevention and management activities.

Information is supplied or reviewed by expert contributors from around the world and includes:

- Taxonomy, common names, descriptions and images
- Distribution - where in the world the species occurs
- Pathways, vectors describe how it got there
- Impacts describe what effect it has there
- Prevention & management information describe how to deal with it
- Contact details of specialists for advice

Early in 2004 a formal evaluation will be carried out of the completeness and relevance of the information in the database for potential users in the Pacific, and any improvements necessary will be made before distributing a CD-ROM version of the Global Invasive Species Database throughout the Pacific region. If you would like to participate in the formal evaluation, please contact m.browne@auckland.ac.nz. In the meantime you can access the database at <http://www.issg.org/database> and free printed fact sheets about individual invasive species to the Pacific region are available on request.

6. PPS staff visit French Polynesia

Three PPS staff: Fruit Fly Coordinator, Biosecurity Officer and Information Officer, visited French Polynesia Service de Rural Development (SDR) in late August.

Fruit Fly Coordinator (Ema Tora Vueti) spent most of her time in the outer islands. Marquesas and Australes to assess the fruit fly eradication program and to initiate host fruit surveys in Raivave (Australes) and Hiva Oa and Tahuata (Marquesas). Rudolph Putoa (SDR Entomologist) and Dr. Roger Vargas (USDA-PBARC, Hawaii) accompanied Fruit Fly Coordinator to the outer islands.

The Biosecurity Officer (Sidney Suma) and Information Officer (Emil Adams) stayed in Pape'ete and held discussions with Chief Quarantine and Head of Plant Protection, Mr. Djeen Cheou and Leon Mu, Plant Pathologist.

Visits were made to the inter-island wharf where Quarantine Inspectors were making spot checks on agricultural commodities destined for all outer islands. Fruit fly host material, mainly citrus, were intercepted and prevented from shipping to the outer islands. Similar stringent quarantine control measures were observed for passengers and cargo on domestic air routes.

Visit to the International Airport re-emphasised to airport authorities the need to re-instate the Quarantine Amnesty Bin in the arrivals area. Airport authorities were convinced of the need to re-establish a prominent and permanent presence for Quarantine in the arrivals area. Airport Managers pointed out the need to establish a single term to identify Quarantine in the French language to travellers - much like Customs or Douanes in French is universally recognised. 'Quarantine' could still be use in French territories much like money exchange offices are now universally called 'Bureau de Change' which is French.

Quarantine posters will also need to go up in the arrivals area to educate international passengers on quarantine. Compared to other Pacific islands quarantine profile in French Polynesia needs much improvement. The effort is further compounded by the fact that all messages need to be in three languages: French, Japanese and Tahitian.

A fruitful meeting with SDR staff allowed PPS Staff to explain how SPC-PPS can assist French Polynesia quarantine service under the EU funded Plant Protection in the Pacific (PPP) project.

PPS and SDR will collaborative to improve quarantine awareness to the public. These will involve using TV, radio and newspapers to get the message to a mass audience. Specific placement of quarantine messages such at the backseat pocket of airline seats is being entertained. Taking the message to schools and the community level will involve the assistance of the Extension Service of SDR.

7. Pest List Database: New Caledonia and Samoa & a Regional Meeting

Dick Vernon

The Pest List Database (PLD) is an information system that stores data on pest occurrences within a country, and which has as a main purpose the production of an instantaneous 'List of Pests' for any agricultural commodity for which trade is planned. It can also record and report on pest interceptions at borders by quarantine staff.

In New Caledonia, staff from SIVAP (Service d'inspection Vétérinaire, Alimentaire et Phytosanitaire), IAC (Institut Agronomique néo-Calédonien and the SPC Plant Protection Service worked together in August to introduce the PLD to New Caledonia. Jérôme BETRANCOURT, Chef de service, SIVAP, opened the workshop, which was attended by both plant protection (Department protection des vegetaux) and quarantine (Department d'inspection aux frontieres) staff.

The results of previous pest surveys and publications were used to stock the system with New Caledonia pest occurrence records. The database starts with over 2,796 such records covering 1,076 pest species on 453 host plant species. IAC's Christian MILLE and others are now entering additional records. Rémy AMICE will coordinate pest occurrence data in the system and Patrick BENOIT will explore the system's use for quarantine interception records and reporting, and will manage the generation of pest lists for trade facilitation.

In Samoa quarantine and plant protections staff of the Ministry of Agriculture, Forests, Fisheries & Meteorology met at Nu-u Crop Development Centre in September for a 3-day workshop to revise PLD management skills using the latest upgrade of the system which has changed, especially on the quarantine side, since the prototype was first introduced in January 2002: Samoa is a special case as this was where the system was first tested. Asuao Kirifi Pouono, Assistant Director, Quarantine and Regulatory Division, and

So'alo Albert Peters, Assistant Director, Research & Extension, opened the workshop. Seumanutafa Asua M. Iakopo, CEO, Ministry of Agriculture, Forestry, Fisheries, & Meteorology, officially closed the event. In his closing speech he drew attention to the most important issue: using the system for better plant protection and trade for Samoa. John Burton represented the SQIP project at the closing ceremony. Pine Paenoa will manage the PLD for quarantine and Pest List purposes and Fa'alelei Tunupopo Laiti will deal with pest occurrence data from and for researchers and farmers.

The PLDs in these two countries should now, or shortly, contain occurrence records of most agricultural pests that have been recorded in these countries, and as such will be a useful tool for plant protection extension, research and quarantine staff.

Regional Meeting to Address Regional Sharing of PLD data

Nine countries now have experience of using the PLD. Delegates from most of these countries are to meet within the Pacific Plant Protection Organisation Executive Committee meeting on 1st October in Fiji to examine prospects of more efficient sharing of data in the interests of improved plant protection and trade facilitation.

Information about the PLD can be obtained from the PPS Website www.spc.int/pps or from Makelesi Kora Gonelevu at makelesig@spc.int

8. New Caledonia Disease Survey, 23rd August – 6th September

Jacqui Wright – PPS Plant Pathologist

New Caledonia has been well surveyed in the past by plant pathologists associated with ORSTOM, most recently Kohler and Pellegrin, and the disease list is comprehensive. However, it is important to keep the list current and this was the basis for the visit by PPS team of Jacqui Wright and Takaniko Ruabete. Assisting in the disease survey were Professor Chris Hayward (bacteriologist), Rémy Amice, Jean Qapitro, Joseph Marin, Laurent Desvals, Lionel Brinon.

New Caledonia is slightly different from most of the other PICTs in that farming is mostly commercial and very much European style as opposed to the mixed cropping or small-scale farming seen in most of the other countries. There are also a number of crops, such as potato and strawberries, that aren't seen frequently in the other countries.

Some new records will be made for New Caledonia, of particular interest/concern is the presence of a nematode killing guava in New Caledonia. Dr Patrick Queneherve highlighted the problem during the nematode workshop and Takaniko has sampled soil and roots of guava from a number of locations on the large island and also on Maré. This could act as a potential biological control for guavas, but could also be seen to be a quarantine pest for guava production areas in PICTs. This problem will need to be followed-up.

Some of the root/collar rot/dieback problems of crops in New Caledonia suspected to be caused by *Phytophthora* or *Pythium* have never been fully investigated. The oomycete-specific media allowed the isolation of a number of oomycetes that have been sent to CABI or Dr André Drenth in Queensland for identification. Some of these will be new records for New Caledonia.

9. PPS Notable Achievements

Mick Lloyd – Head SPC Plant Protection

It was difficult to choose between the many outstanding achievements in the SPC Plant Protection Service in 2003, but the PPS staff voted for the Butaritari (Kiribati) Community Breadfruit Programme and the South Pacific Games Quarantine Awareness Programme.

The Butaritari Breadfruit Participatory Programme in Kiribati was notable activity. This particular activity is unique in that the farmers' cultural practices developed in participation with PPS and Kiribati Agriculture staff for managing breadfruit trees are being scientifically evaluated. The objective is to statistically analyse the effectiveness of the cultural recommendations (pruning, mulching, and sanitation) to control the fruit rot disease on breadfruit trees. Farmer customs are being put through the rigours of a scientific inquiry using participatory farmer trials to evaluate the practices for restoring and to sustaining breadfruit supplies and restoring food security.

The combined awareness materials produced by PPS and Fiji Quarantine targeting athletes to the South Pacific Games in Suva took out the notable publications award. The objective of the programme as requested by the Pacific Plant Protection Organisation (PPPO), was to inform PICT athletes of the risks associated with the movement of quarantine items. The awareness materials were sent directly to country team managers for distribution to athletes. PPS encouraged national quarantine services to run short, intensive TV spots on quarantine just prior to athletes leaving their countries. No major pest interceptions were recorded from Fiji Quarantine during the Games. The quarantine awareness materials were launched at an evening function during the week of the FAO South Pacific Agricultural Ministers meeting.

10. Request for collaboration

A researcher, Dr Monica Hofte, and her team from the University of Ghent in Belgium are doing studies on Pythium rot of cocoyam (*Xanthosoma*). They have asked for cultures of Pythium from rots of *Xanthosoma* in the Pacific to include in their studies. If you have this problem in your country and would like to assist, please contact Dr. Jacqui Wright at JacquiW@spc.int to make arrangements to send you the necessary materials and instructions.

11. 15th Technical Consultation among Regional Plant Protection Organisations

29 September – 03 October 2003, Outrigger Hotel, Sigatoka, Fiji

Related workshops and Meetings

PPPO Executive Meeting: 1st October - Outrigger Hotel, Sigatoka

RPPO15 Market Access Workshop: 2nd October – Outrigger Hotel, Sigatoka

RPPO15 Field Trip: 3rd October – Sigatoka Valley to Nadi

HTFA Treatment Workshop: 29 Sept – 1 October, Skyldodge Hotel, Nadi

12. Completed PPS activities in PICTs

| PPS Staff | Dates | PICT Activity |
|--------------------------------------|--|---|
| Sada N Lal | 31 July 2-9 Aug | Fiji: IBM Meeting, Sigatoka FP & Cook Islands: biological control of cabbage pests |
| Warea Orapa | 19-30 July | Tonga: assess weed problems as identified in PRA exercise |
| Konrad Engleburger | 31 July – 8 Aug 26-31 July 27 Aug – 7 Sept | Palau: quarantine training, Papaya Mealybug Biocontrol Yap, FSM: quarantine training, Chromolaena biocontrol, fruit fly surveillance Marshall Islands: quarantine training, Chromolaena eradication |
| Dick Vernon & Makelesi Kora-Gonelevu | 4-9 August | Vanuatu: Introduction of the Pest List Database |
| Richard Davis | 6 Aug | Fiji: FCA visit zucchini student trials |
| Jacqui Wright | 8 Aug | Fiji: Field surveys to Nadi, Sigatoka and Suva Flower Growers |
| Bal Swamy | 9 Aug | Cook Islands: sent consignment of <i>Bracon</i> sp. for coconut flat moth control |
| Fereti Atu | 9 August | Fiji: Ovalau, harvesting taro trails for taro beetle management research; sampling specimens for pesticide residue analysis |
| Stephen Hazelman | 8-18 August 19-25 August | Kiribati: breadfruit project administration Nauru: PRA exercise |
| Mick Lloyd | 18-21 Aug | Nauru: Resume PPS consultations |
| Dick Vernon & Makelesi Kora- | 2-7 Sept | Samoa: Workshop to update the Samoan Pest List Database |

| | | |
|----------------|---------------------|--|
| Gonelevu | | |
| Richard Davis | 21 Aug | Fiji: PICT attachment trainees to Doboilevu, Namosi for kava research and KRS for virus inoculation experiments. |
| Warea Orapa | 17 Aug – 2 Sept | PNG: Training on weed biological control; <i>Parthenium</i> eradication follow-up |
| Sada N lal | 10 Sept | Fiji: Fiji Organic Association Meeting, Sigatoka |
| Steve Hazelman | Aug | Solomon Islands: rural e-mail stations |
| Salend Kumar | 30 Aug – 15 Sept | Wallis&Futuna: PLA workshop with Siua DSAP |
| Emil Adams | 24-27 Aug | French Polynesia: plant protection information consultation |
| Sidney Suma | 24-28 Aug | French Polynesia: quarantine operations consultation |
| Ema V Tora | 24 Aug – 2 Sept | French Polynesia: fruit fly management |
| Mick Lloyd | 16-18 Sept | Noumea: NZAid/SPC Consultations |

13. PPS Staff travel calendar

| Dates | Country | Staff | Activity |
|-----------------|-------------|----------------|----------------------------------|
| 6-26 September | Philippines | Steve Hazelman | Participatory Extension Training |
| 17-26 September | Tonga | Richard Davis | Foc delimiting survey |
| 29 Sept – 3 Oct | Samoa | Emil Adams | Taro Leaf Blight awareness video |
| 6-17 Oct | Tuvalu | Warea Orapa | Weed Survey |
| 20-23 Oct | Tonga | Sada N Lal | Harmonisation Pesticide Law |
| 24-26 Oct | Samoa | | Consultation : John Wilson |
| 18 Oct – 5 Nov | PNG | Richard Davis | HLB delimiting survey |
| 17-21 Nov | Fiji | Ema T/Emil A | Scientific Writing Workshop |
| 23-24 Nov | Fiji | Sada N Lal | TBM Meeting |
| | | | |

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Published by the Secretariat of the Pacific Community: Plant Protection Service, Private Mail Bag, Suva, Fiji Islands. Tel: (679) 3370-733; Fax: (679) 3370-021.

Prepared with support from ACIAR, AusAid, NZAID, European Union and UNDP.