



Transformative Agriculture and Enterprise Development Program

# TADEP+ Update

September + October 2020

## Key program activities

### ACIAR news: New farming practices boost PNG kaukua production

Kaukua (sweetpotato) farmers in Papua New Guinea (PNG) are benefiting from new irrigation systems that are helping to increase production and improve livelihoods.

Climate change is seeing many rural communities in highlands of PNG face increasing dry periods and less consistent rainfall. The worsening conditions frequently impact crop yields and in extreme cases have threatened local food security.

The new systems will provide farmers with a more dependable source of water that will bolster production and help shift rural communities from subsistence farming to more commercial-based production.

**Click here** to read the article.

### ACIAR PNG Country Office visits galip factory

ACIAR PNG Country Manager, Doreen Iga, and Communications Officer, Aaron English, visited the NARI Research Station at Kerevat on Tuesday 6 October. Both were given a tour of the galip factory by NARI Kerevat Research and Development Coordinator, Ofara Petilani, and Galip Nut Factory Manager, Dulcie Hannet. Despite COVID-19, work on the project has been ongoing. Dulcie was able to provide a brief about factory and processes involved from when the galip nut is brought into the factory, its preparation through to final packaging.

Scientist, Godfrey Hannet, discussed some of the work currently underway on Galip tree improvements. Current research into the galip weevil is well underway. Entomologist, Jacob Yombai, showed us samples of the weevil,

its biology and effects on the galip tree. The ACIAR Country Office staff were given a tour of one of the older galip trees that still exist. They were able to see firsthand a galip weevil and how it bores into trees.

The ACIAR team was also fortunate to see local farmers, including women and children, selling their galip nuts at the factory for cash.



## Family Farm Teams Masterclass

Planning is underway to host a Family Farm Teams (FFT) Masterclass in centralised hub locations early in the new year for TADEP projects. If COVID-19 travel restrictions permit, TADEP project team members will travel to a hub

## COVID-19 impacts

The three remaining TADEP projects have continued to provide updates to ACIAR and DFAT on a monthly basis about the impact of COVID-19 on project activities and whether there are any budgetary or timeline variations to be considered. The TADEP team has been working closely with the ACIAR PNG Country Office to provide additional details relating to COVID-19 impacts and responsiveness.

## ACIAR blog: Two threats highlighted in the shadow of COVID-19

Despite attention on COVID-19, pre-existing biosecurity threats remain important and, in the case of African swine fever (ASF) and fall armyworm (FAW), are emerging as significant problems for farmers and food systems in the Pacific region. ACIAR is responding by ramping up and targeting its support in high-risk areas. For ASF, the focus is on increasing the surveillance and response capacity of the Papua New Guinea (PNG) Government. While for FAW, ACIAR is targeting fundamental research to determine how best to tackle the pest.

**Click here** to read the article and learn how ACIAR plans to play a strategic role in filling knowledge and resource gaps by leveraging existing relationships and projects.

## Key project activities



### Bougainville Cocoa

While the 2020 Chocolate Festival was cancelled, DPI Field Days are being scheduled in Namato, Tinputz, for North Region on the 30 October. Prior to the field days, a series of trainings were conducted on fresh produce seedling nursery, field plant and production, organic compost production and Family Farm Teams training.

The chocolate laboratory has received around 16 visitors. Visitors were organised as farmer group representatives submitting samples for testing. The laboratory is used for educational purposes providing opportunities for seeing and learning how chocolate is made. Political leaders and candidates have shown support for downstream processing and value-adding cocoa beans for economic development in Bougainville.

Cocoa Board officer, Joe Yabom, visited all Village Extension Workers (VEWs) with assistance from the hub coordinators in all regions. During the visit he supplied poly bags, budwood garden labels (tags) and

[Click here](#) for the full Bougainville Cocoa project update

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## PNG Cocoa

All surveys of Cocoa Model Farmer Trainers (CMFTs) have been completed and the forms sent to Curtin University for analysis.

The project team visited CMFT sites on Karkar Island and delivered 145 cocoa clones from mainland nurseries at Rempi, Bilbil and Wadang to complete a budwood garden at Burag Village. This is a new site is being established under Delma's leadership. She is the office manager and project officer at REDS Madang.

Josie Saul-Maora conducted a Family Farms Team training session from 22nd August to 1st September at Paliama Village, assisted by Timothy Sam, Joel Hori, Douglas Kawasi and Jonthan Poema. There were 84 attendees, including CMFTs and their spouses, and many other interested farmers.

[Click here](#) for the full PNG Cocoa project update



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## Sweetpotato

Demand for clean kaukau vines has slowly been picking up as the pandemic travel restrictions ease and a sale of PGK4,500 has recently been completed along with smaller sales.

The economic impact of clean kaukau sales has been highlighted recently by three of the farmers managing project supported screenhouses being able to purchase vehicles to assist in running their businesses. The vehicles were a 25 seater Toyota bus, a 10 seat Land Cruiser and a single cab Nissan. The purchases were made possible from profits made by selling clean kaukau.

Planning has been completed and ethics approval granted for two key surveys. The first is examining consumer purchasing patterns in different urban markets and the second is examining the changes that have occurred in commercial kaukau production in the highlands over the duration of the project.

[Click here](#) for the full Sweetpotato project update

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The Transformative Agriculture and Enterprise Development Program (TADEP) is a multidisciplinary research program that aims to improve the livelihoods of rural men and women in Papua New Guinea. The program

- **Bougainville Cocoa** - HORT/2014/094 Developing the Cocoa value chain in Bougainville
- **PNG Cocoa** - HORT/2014/096 Enterprise-driven transformation of family Cocoa production in East Sepik, Madang, New Ireland and Chimbu Provinces of Papua New Guinea
- **Sweetpotato** - HORT/2014/097 Supporting commercial Sweetpotato production and marketing in the Papua New Guinea highlands

TADEP is co-funded by the Australian Centre for International Agricultural Research (ACIAR) and the Department of Foreign Affairs and Trade (DFAT).



Australian Government  
Australian Centre for  
International Agricultural Research



Whilst two of the initial five TADEP projects have concluded, they have evolved into three new ACIAR projects and both have keenly agreed to continue to contribute to TADEP. The following updates demonstrate this continued collaboration across research disciplines, sharing useful and relevant insights.

## Family Farm Teams

With COVID-19 travel restrictions still in force, new online delivery models are being trialled for the Family Farm Teams (FFT) training with the Live and Learn staff in Solomon Islands. The FFT training has historically required qualified FFT trainers to deliver intensive, face-to-face multi-day workshops but the wider utilisation of online platforms since COVID-19 lockdowns have opened up online opportunities. It is anticipated that a trial will also be undertaken in PNG soon.



## Galip Nut

Work on the canarium nut project is moving forward in PNG with a strong team at NARI continuing to carry out experiments and process nuts at the factory with the fruiting season now underway. We have adapted to the impacts of COVID-19 and with travel restrictions in place, the team in Australia are conducting weekly meetings via zoom with our partners in PNG. Whole team meetings also occur monthly via zoom to help maintain cohesion within the group and communicate project progressions.

We also have a new publication to add to the list as a result of the canarium nut project in PNG:

Han Y, Liu Z, Khoshelham K, Hosseini Bai S (2020) *Quality estimation of nuts using deep learning classification of hyperspectral imagery*. Computers and Electronics in Agriculture, in press

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## Bougainville Cocoa

HORT/2014/094

## Key information/dates

- Ishmael Toroama has been elected as President of Bougainville.
- Geraldine Paul has been appointed Minister for DPIMR.

## Upcoming or recent activities

- Mobile app development company NGNY Ngakkan Nyaagu has been engaged to support the development of a custom mobile application for smallholder farmers in Bougainville. Content for the application is being compiled by the project team. The idea is that the phone app will provide information on how to diagnose and manage issues around cocoa management, food crops, soils, livestock, water and sanitation, human nutrition, maternal and child health. As well as provide modules on Family Farm Teams, Cocoa Board Cocoa Curriculum, daily cocoa bean prices and links to relevant sites such as the Cocoa Board Cocoa Extension Manual and Pestnet.
- Discussions have been held with ACIAR to request a no-cost project extension for 12 months, due to the referendum, elections and COVID-19 delays and a project variation has been submitted.
- While the 2020 Chocolate Festival was cancelled, DPI Field Days are being scheduled in Namato, Tinputz, for North Region on the 30 October. Prior to the field days, a series of trainings were conducted on fresh produce seedling nursery, field plant and production, organic compost production and Family Farm Teams training. Displays during field days will include cocoa clone seedling grafting, visit to cocoa rehabilitation demo plot, Cocoa Board awareness on quality and fresh produce (fruit/vegetables).
- The Whitelum Group has been commissioned to review the TADEP program and component projects. A number of team members have been interviewed.
- The chocolate laboratory has received around 16 visitors. Visitors were organised as farmer group representatives submitting samples for testing. The laboratory is used for educational purposes providing opportunities for seeing and learning how chocolate is made. Political leaders and candidates have shown support for downstream processing and value-adding cocoa beans for economic development in Bougainville. Special gift bags with chocolates were also presented on behalf of the Minister for Primary Industries to the New Zealand High Commissioner, Australian High Commissioner and UN Country Manager in October while on their mission in Bougainville.
- Cocoa Board officer, Joe Yabom, visited all Village Extension Workers (VEWs) with assistance from the hub coordinators in all regions. During the visit he supplied poly bags, budwood garden labels (tags) and chicken fencing wire for poultry production and sales as well as for chicken manure production for composting.



**Figures 1 and 2 (above):** Presentation of budwood garden labels, chicken fence wire and integrated pest and disease management (IPDM) booklets to VEWs, Peter Kinana and Mathew Siko, in Buin, South Bougainville.

- Budwood garden inspection was initiated by James Butubu and Cocoa board officer, Venerian Hannet, in some VEW sites in South and Central for verification before certification and registration (licensing) for commercial use. Advice was given to make the necessary corrections such as removal of off-type clones, infilling of missing trees or complete planting of missing clone varieties. Most of the budwood gardens are now bearing pods and have matured enough for harvesting.



**Figures 3 and 4 (above):** Checking Village Extensions Worker (VEW), George Tonai's, budwood garden.

**Figure 5 (right):** Presentation of IPDM booklet to Naiura Cooperative executive, Buin in South Bougainville, as well as women's group representative.

- Cocoa nursery construction and management in Malassang 3, North. These are extended farmers who have come forward for information. 30 participant farmers attended, and they were given 1,000 poly bags.
- Cocoa rehabilitation work done in Hahalis, North and in Tohatsie north as demonstration for farmers to observe.
- We are distributing information booklets for IPDM and Vegetable production manual (in Tok Pisin) to VEWs and farmers as well.



### **Village Resource Centre progress**

- The monitoring work of visiting the Village Resource Centres (VCRs) in the south and central Bougainville ended on the last week of September 2020.
- The VRC coordinator, Borgia Sinato, conducted one-to-one interviews with the Village Extension Workers (VEWs) in each of the ward assemblies where the ACIAR project is to find out about progress made and to support and mentor the VEWs who then help other interested farmers in the community.
- Since work started in south Bougainville the project team has conducted a total of 68 trainings. In central, it's a total of 61. Trainings have included cocoa management, crop diversification, vegetable farming, disease management and making organic fertiliser.

- The VEWs also have their network of farmers apart from the selected 25 farmers who work under the supervision of the VEW. They have been some decreases in farmer membership due to the selected the 25 farmers pursuing other interests. In the south, there are total of 349 farmers and 172 in central. This includes both the males and females.
- ACIAR's training has also helped the VEWs transfer their skills and knowledge to other farmers such as bud grafting, pruning, compost making, nursery management and vegetable farming. VEWs in south conducted a total of 165 trainings, 182 were conducted in central.
- The VRC Coordinator is planning to do a monitoring visit in the north in November to see the observe progress on activities. At the same time do a call back to south and north to finish incomplete work.
- The VEW for Kovanis, Jeffery, with the community has been working to build their resource centre building which is 80% complete and still needs a few bags of cement and walling to complete. The building will probably be finished before the end of the year 2020.
- Edward Gaoram, one of the committed VEWs for Hahon Nembaka, has already registered his group of farmers with Investment Promotion Authority and is planning to get a loan from the National Development Bank (NDB) in Buka through the SMEs scheme.
- Chris Kamanau, VEW for Mosina, south Bougainville also registered his group of farmers with IPA and have now been funded and supported by the Community Support Facility (DFAT) to expand their cocoa activities.

**Collaborative Research Grant progress summary: *Examining ways to improve nutrition and food security in 'at risk' villages in Bougainville***

- Family Farm Teams training was conducted by accredited trainer, Josephine Saul Maora, with assistance from DPI staff, Bradley Tiva and Julie Revere, between 20 September to 13 October 2020. The training was conducted in two Village Assemblies (VA) in Central Bougainville and four VAs in South Bougainville.
- Evaluations completed after the training (Table 1) showed that the majority of participants were happy with the training they received. Most participants in the villages were women; however, it was explained during the training that they should share the knowledge with their families and networks (Table 1).
- Villages showed evidence of implementing their knowledge and skills acquired during the vegetable gardening and nutrition information sessions to grow new food crops such as cabbage.
- Some villagers asked why this project was not gifting any cocoa plants or other materials like other projects. It seems some groups have become accustomed to receiving handouts.
- More vegetable seeds have been ordered to distribute to the villages however there have been delays and they have not arrived yet.
- Monthly monitoring of villages is ongoing.

**Table 1:** Family Farm Teams training participant numbers and evaluation results.

Location	Men			Women		
	Happy	Confused	Unhappy	Happy	Confused	Unhappy
Barani	6	1	0	19	0	0
Kikimogu Day 1	15	1	1	24	0	0
Kikimogu Day 2	16	0	0	19	0	0
Koogu Day 1	2	0	0	11	0	0
Koogu Day 2	2	0	0	14	0	0
Mamaro Day 1	4	0	1	11	0	1
Mamaro Day 2	9	0	1	6	0	0
Mendai Day 1	7	4	0	17	0	0
Mendai Day 2	10	0	0	15	0	0
Kasawarao Day 1	2	0	0	9	0	0
Kasawaro Day 2	1	0	0	8	1	0

**Research tools, articles, resources**

- Paper titled '*Women cocoa farmers in Bougainville: an account of their challenges, constraints and opportunities*' currently under review in Journal One Health.
- Another paper on technology adoption, productivity gains and poverty alleviation with smallholder cocoa farmers in Bougainville has been written and due to be submitted in the coming weeks.
- Four cocoa newsletters were prepared and distributed during the Sept - Oct period.

## Lessons learnt

- There were some scheduling issues with the Family Farm Teams training. Discussions will be held with the Bougainville team as to how we can improve communications with the village leaders and households.
- Grant Vinning has been in regular communication with the Australian chocolate makers, who are doing ok during the COVID-19 period despite a decrease in grindings compared to the same period in 2019. The key to their success is diversity, both product diversity and outlet diversity. These are lessons which have been passed onto the team in Bougainville.

## East New Britain

- All surveys of Cocoa Model Farmer Trainers (CMFTs) have been completed and the forms sent to Curtin University for analysis. A recording sheet for assessing the 18 latest CCI clones in the budwood gardens at many project sites in all provinces was prepared and distributed to CMFTs. Contact was maintained with REDS research staff at Tavilo, especially to prepare a paper on solar drying. Trevor continued working on the solar drier at Utmae with Otto Koimba. Electronic copies of the 20 short PowerPoint presentations on all aspects of cocoa technology prepared by Trevor for farmers were given to many agencies, including New Ireland Cocoa Board, Cocoa Board Research Extension and Development Services (REDS) staff at Tavilo, Department of Agriculture and Lands (DAL) staff, MP for Namatanai, WNBP Cocoa Board, Tavilo REDS and DAL Extension staff in Madang, East Sepik and New Ireland.
- Collaborating villages at Open Bay and Vatu in West New Britain Province were visited for Independence Day celebrations and to hold a meeting with several Cocoa Board and DAL Staff from Kimbe to discuss the possibility of expanding the present footprint of the ACIAR Cocoa Project to include parts of West New Britain, if a new project proposal is successful. Included in the meeting were Moses Burin, Regional Manager Cocoa Board, Jerry Tarutia, Food Crops DAL Kimbe, Peter Gambu, Research and Marketing DAL Kimbe, Augustine Malavau, DAL, Renus Simpson, KIK, and Hugo Kuboro Cocoa Board Kimbe. Seventy Pacific Islands Cocoa Books were given out at the meeting.
- A meeting was held with Doreen Iga (ACIAR Country Manager) and Aaron English from ACIAR on 3 October; they used the project vehicle to visit REDS Tavilo and UNRE Vudal after Trevor departed for Madang.
- Peter Epaina has been revisiting the various Trinitario-based progeny and clone trials established at Tavilo with the late Yoel Efron. There are some good Trinitario types in the germplasm collection and these can be used to develop Trinitario-based planting material that may be more suitable for village farmers.

## Highlands

- A brother of Peter Epaina has done a study of areas suitable for cocoa cultivation in Southern Highlands and Ela Provinces as part of his Masters thesis at the University of Technology. This will be available to guide future cocoa development in those provinces.
- During the third quarter of 2020 John Thomas Vano, the assistant coordinator in the highlands, has been stationed in Goroka, EHP, because of civil unrest in Karimui. SG2 hybrid seedlings have been established at sites in Unggai, Lufa and Daulo Districts of EHP to observe their performance. These may allow selection of adapted types from among the great diversity of SG2 seedlings, as has been seen at Karimui.
- A new permanent nursery site for coffee, cocoa and fruit trees has been selected at the back of Bena Bena Provincial High School in the upper part of Korofegu. On 29 September, led by Mr Bubia Muhuzo, Provincial Director of DPI, John and the DPI staff witnessed the land being made available by the landowners. The area will be cleared by the owners this year and fencing and nursery construction will be done next year. The Director promised the owners that this is going to be an active agricultural development project and feeder roads are going to be upgraded and sealed and electricity provided.
- Representatives of the Cocoa Board visited Goroka and Kundiawa from 21 to 25 September to make preliminary arrangements for holding a Cocoa Festival in the highlands in June 2021, without contacting John Konam or his ACIAR team who have led cocoa development in the highlands. They visited a new 10 x 40m cocoa nursery (capacity 31,000 plants) at Bilati and plan to establish a budwood garden at Forapi. Of the total of 31,000 seeds planted less than 600 germinated due to poor preparation at Tavilo. The remainder died through lack of water. Of another 5,000 seeds supplied, only 5 survived, again due to lack of seed preparation. John Thomas visited Notofana on 15 September to survey the site for an SG2 hybrid seed garden. Cocoa development in Eastern Highlands Province is being constrained by the slow release of DPI

funds, delayed payment of casual workers, lack of tools to demonstrate good cocoa management, and location of the nursery at Bilati remote from a water source. The Cocoa Board has promised funds to assist the program but nothing has been delivered and the only support and advice is coming from the ACIAR project.

- On 26 October, Trevor travelled to Goroka and Kundiawa, and then on 28 to Gumine with John Konam, Aaron English (Communications Officer, AHC, Pt Moresby) and Mrs Bomagai Wei (wife of the former MP for Karimui, now called 'Bomagai Kakao') who is leading a cocoa planting project there. On the following day they drove about 5 hrs from Drima Catholic Station to Bomagai's Olgain Base Camp, passing through the land of seven major tribes (Kawaeku, Nebeku, Deku, Ainaku, Bomai, Gauleku and Nin Kaneku), each of which have 4 to 5 clans planting up to 1,000 F2 cocoa each. At Olgain, Bomagai's budwood garden is ready to supply bud wood to the clans. The original budwood was brought across the Waghi River from the CMFTs in Karimui. On the 30 and 31 October, John and Trevor drove to Jiwaka to meet Jessy Kamb and then on to Mt Hagen from where Trevor flew back to Kokopo.

## Madang

- From 8 to 12 September, Bofeng Mebali, Delma Miriung and Francis Kavig from the Madang REDS team visited CMFT sites on Karkar Island and delivered 145 cocoa clones from mainland nurseries at Rempì, Bilbil and Wadang to complete a budwood garden (10 trees x 18 clones) at Burag Village. This is a new site is being established under Delma's leadership. She is the office manager and project officer at REDS Madang, and has continued working despite receiving only minimal salary from the Cocoa Board. Establishing the CMFT site in her home village is a reward for her excellent work with the REDS/ACIAR team. The same consideration is being given to Ronnie Sibert, an outstanding driver/mechanic who has given invaluable service to the team, also will minimal pay. A new group, led by Ronnie, is being established in his home village, Mangar 2. Both Delma and Ronnie were severely disadvantaged when CCI was split and KIK took over the Stewart Research Centre at Murnass and many cocoa staff were laid off and then not re-employed by the Cocoa Board. They have both stuck with the REDS/ACIAR project in Madang and provided outstanding service.



**Figure 6:** Loading clones on the boat bound for Burag Village on Karkar Island.



**Figure 7:** Bofeng and Delma Ready for departure on the boat from north cost Madang to Karkar Island.

- The team visited a mature budwood garden (10 clones) and nursery at Yukyuk Village and demonstrated pruning and chupon budding to the new group being established under the leadership of Mr Robin Nangoi and the pastor Pupaik Babob. Delma and Bofeng distributed pocket bibles at the local Abisan primary and Anul secondary school, which provided a truck to carry cocoa clones. Demonstrations and hands-on training in cocoa pruning and management were given to a group of 10 men and 10 women. Later the team met Mr David Magu in Balang Village where they saw a 6 x 8 m solar drier constructed with local funds (ACIAR supplied only a roll of plastic), and hybrid cocoa growing well under the shade of coconuts. They identified and tagged five clones for use as budwood. A farmers meeting was held to explain the project. The cocoa block is intercropped with coconut as a main shade tree while bread fruit, tulip, betel nut, banana and pawpaw are inter-cropped and provide shade. Taro kongkong (Chinese taro) was also noted as intercrops in the plantation and Galip and Talis were also present.

**Figure 8 (right):** Yukyuk group in their nursery.

- The team then walked an hour from Balang to the CMFT group at Keviak led by Levis and Lydia Lapp. Levis is now working as a KIK field officer for Karkar Island. They visited the budwood garden with Lydia. While the complete budwood garden is doing well, the group has only 2 of its original 24 members still active – clones are doing well on Mr Malol Bakanao's block despite poor garden maintenance, and Mr Kepsi Lapp's clone block was doing well, and he is already harvesting from the clones planted under the ACIAR Program. At night some leaders including the Ward LLG member discussed the ACIAR Project which they said they liked. A possible new project was discussed. Balang would be an ideal site for the Waskia side of Karkar Island, with Mr David Magur as a leader.



**Figure 9 (above):** Mrs Lewis Lap in her BWG at Keviak Village.

**Figures 10 and 11 (above):** Mr David Magur and family standing near their solar drier at Balang.

- The Kurumlang CMFT site of Mr Philli Ulan, which still has its 24 original members active, was not visited on this trip. Of the five original CMFT sites in the Sumkar District, 3 on the mainland and 2 on Karkar Island (Keviak and Kurumlang), four are still running.
- From 4 to 10 October Trevor visited Madang Province. The team drove to Suaru, Bogia District and met with the active CMFT group and the local MP Mr Robert Naguri, who has been supporting the CMFT groups at Suaru and Amiten and plans to set up budwood gardens in five parishes in Makarup and Yawar Districts. At Suaru the first solar drier has been completed and a second one with a bamboo slat drying bed is being built. Cocoa has been drying successfully in 3.5 days and a sample has been submitted to REDS for testing. The CMFT at Suaru, Michael Kevei, is now assisting 73 satellite groups with a total of about 1300 farmers. The project has provided him with a bicycle, and he has been distributing Pacific Islands Cocoa Books to farmers. On the return trip, the teams called in at the Amiten group and met Ismail's wife. The Amiten groups is working with 18 satellite groups.
- On 6 October, Trevor and the Madang team visited the CMFT at Wafen, Mr Set Mal, and his group that was set up with the help of Omurup Kokurai, one of the original CMFTs at Tamane Village. Omurup is now assisting 12 satellite groups. The Wafen group has 20 members both male and female. Set and his wife attended the Kairak financial literacy training and this encouraged him to form his self-funded group and build two solar driers. Omurup has conducted training in field budding. They also visited the Hobe group in Amele area (CMFT Sition Gogori and wife Seti; Sition has been partly paralysed by



**Figure 12:** Presentation of bicycle and cocoa books to the Suaru CMFT group.

a stroke but Seti is carrying on the work). Seti has adapted a coffee drier design she saw in her home in Finschhafen, with an L-shaped, bush pole structure, and a bamboo slat drying bed (see photo with Seti). The drier has been registered by Cocoa Board Field Services (Wesley Kilang). They have produced 7 batches of good quality dry bean that were sold to Globe P/L for a premium price. The family is very happy with the result. People from an inland satellite group at Sua, led by Inpak Sapolu, have seen the drier and are very interested in building their own.



**Figure 13:** Mrs Seti Gogori with her solar drying bed at Hobe Village, adapted from a coffee drier.

- On 7 October, the team travelled to Karkar Island and visited the new CMFT group (20 farmers) at Mangar 2 Village led by Ronnie Siebert, the driver for the Madang team who has been a mainstay of the project work. His budwood garden has been established by field budding. The new CMFT site at Yukyuk Village (Robin and Susan Nangoi) has over 6000 seedlings awaiting budding, established from seed supplied by Paul Goodyear from Biabi Plantation. They visited Delma Miriung's village (Burag) where a new budwood garden and nursery were established in early September.



**Figure 14:** Delma Miriung with her family cocoa group in Burag Village.

- The team also visited a new CMFT couple David and Shirley Magu at Keviak; they have taken over from the previous CMFTs Levis and Lydia Lapp after Levis took up employment with KIK. The budwood garden is already bearing and they have constructed a solar drier and built to groups up to 12 members. They attended financial literacy training given by Kairak. The team was accompanied on all visits around the island by Mr Philli Ulan, the CMFT from the Kurumlang group. Philli and his wife work closely with Paul Goodyear and family at Kulkul Plantation, assisting cocoa farmers around the island. Back at Madang Lodge, Trevor met Paul who is keen to collaborate with any ACIAR Project in future to assist groups with improved planting material and training. The company would be a good base to establish a Karkar Cocoa Association.



**Figure 15:** Philli Ulan and his family with their solar drier in Kurumlang Village, Karkar Island.

- On return from Karkar Island the team visited the Karkum site (CMFT Paul and Jennifer Magai) and saw the bush materials nursery with 4000 seedlings waiting to be budded, 260 already budded. Training has been conducted and Isaak Gabud is the new nursery manager. Trevor met Tomoli Wowomi, the DAL extension officer from Rai Coast, who is planning a field day for the Kumisangar CMFT site. Kumisangar has 25 active members, has trained 13 budders, and is assisting 6 satellite groups.
- On 9th October the team traveled to the the Nuku CMFT site led by Amos Ligai in Usino-Bundi District. The group has 24 members, 5 trained budders, and members trained in field budding, pruning and IPDM. It is assisting 20 satellite groups each with at least 10 members.
- In Madang town, a meeting was held with Godfried Save, Aitul Weoh and Bofeng Mebali to discuss progress of CMFT groups and how to work with Cocoa Board Field Services who are developing nurseries in Sumkar, using K1 million kina made available, and operating independently of REDS extension staff. In total in Madang Province, 3 solar driers (Balama, Mabonob and Suaru) are fully functional, two more (Balang and Wafein) have been constructed, and 3 (Rempi, Aihab and Nuku) commenced construction in October. Various models of solar drying beds were constructed at Hobe, Suaru and Wafein. Three more satellite groups (Yukyuk, Bemron and Murik) started up in this period and altogether there are 104 satellite groups with over 2,300 members. 277 farmers blocks are being maintained at 11 project sites. Twenty six budwood gardens have been established, of which 10 await certification and 14 are supplying bud sticks. Over 1000 bud sticks were distributed over this reporting period.
- A lack of funding support for the program by all six District Development Authorities, the Madang Provincial Government and the Cocoa Board head office has meant that the REDS/ACIAR Program has not been able to achieve its full potential, although enough success stories have emerged to indicate that the project strategy has much potential to greatly improve village cocoa production.

## East and West Sepik

- Josie Saul-Maora conducted a Family Farms Team training session from 22nd August to 1st September at Paliama Village, assisted by Timothy Sam, Joel Hori, Douglas Kawasi and Jonthan Poema. There were 84 attendees, including CMFTs and their spouses, and many other interested farmers. In commencing the training Jonathan Poema, the host CMFT from Paliama, talked about his Ramange Cocoa Development project which has 15 satellite groups around Paliama. He said that in the past their fathers planted SG2 seedling cocoa but received no further training. However, now, through Australian Centre for International Agriculture Research (ACIAR) funding, two trainings were run at Paliama, one, by Kairak, UNRE and now the Family Farm Team (FFT). The Ward 4 member, Anthon Kaios, mentioned the ESP Governor's vision that the province could become the leading cocoa producer.



**Figure 16:** Josie Saul-Maora leading a Family Farm Teams discussion in Paliama Village, East Sepik.

- From 11th to 14th September Timothy and his team made the 11 hour trip to Lumi and conducted budding training at the CMFT site in West Sepik being run in collaboration with the Tenkile Conservation Alliance.
- On 10th October Trevor flew to Wewak for discussions with Timothy Sam and on 12th October the team of Trevor, Timothy, Douglas Kowasi and Jonathan Poema drove to the Paguei landing on the Sepik River where they met the CMFT Bosco Yopi and travelled 3 hr by speed boat up the river to his village, Beklam, the remotest of all the CMFT sites in East Sepik. They were warmly welcomed by the whole village. Yopi is working with 112 farmers in the area which has a total population of 32,000 living a very isolated life, lacking government services. The budwood garden is ready to produce budsticks but needs infilling with 5 more clones. Nearly 3000 seedlings are ready for budding and four budders have been trained. In the late afternoon they travelled back down the river to the Ambunti Government Station where they overnighted.

**Figure 17 (right):** Hands-on budding training at Lumi Village, West Sepik, a collaboration with the Tenkile Conservation Alliance.



**Figure 18 (above left):** The REDS/ACIAR team, including Trevor Clark, Timothy Sam, Douglas Kawasi (foreground) and Jonathan Poema, traveling up the Sepik River passed Ambunti Station to Beklam, the most remote CMFT site in East Sepik Province.

- On the return journey the team visited Burue where another full budwood garden has been planted on land less prone to waterlogging and Gliricidia shade has been planted for yet another budwood garden. Sixty farmers have received 13 clones each from the nursery. Angela Magel Gossiba, DAL District Food Security Officer, has been overseeing the site. While budwood has been provided by the Blamda CMFT group, there is a dispute over the ownership of that garden and the distribution of money received for the sale of bud sticks. Currently the road into the Blamda site is unpassable by vehicles (a 3hr walk).
- The team drove to visit the group of Paul Aru at Bana, Dreikir LLG, in Maprik District. A meeting was held with members of the group, which has 25 members, with 10000 seedlings in the nursery. 818 had been budded with the help of project budders. A group called Epidini Cocoa Nursery Project has been registered. The chairman is Stanley Sengiri. The project will train budders in the village so that they can function independently. The team then visited CMFT James Huingian at Hambeli, Yangoru District. The Bud wood garden is 2 m high with 10 clones established. The group with 50 members broke up after it was perceived that John Meth showed favouritism in sites visited, but members are coming back as they see the nursery progressing. They then met with Larry Wembe, the CMFT at Mombuk, which has 34 active members and one satellite group, and a mature budwood garden ready to supply bud sticks. Xavier Savia, the CMFT at Nongai, has 25 members and is assisting two satellite groups. On the drive back into Wewak they stopped at Jonathan Poema's site in Paliama where his Ramange Cocoa Project, developed from his CMFT site, has 15 satellite groups and 310 farmers involved. So far 36 farmers have planted 1 hectare cocoa blocks from the nursery and bud wood garden. Two trainings have been held at the group training centre with Josie Saul-Maora conducting a Family Farm Team Training and Kairak, UNRE conducting small business management and book-keeping. Jonathan's family look after the 4 goats which are doing well.
- On 15th October Trevor and Timothy drove the 6 hours from Wewak to Aitape to meet with Mr Wilson Miroi and his staff at the Poro Cocoa Project, which is a very successful self-funded activity. They witnessed training of 26 budders, many from satellite groups, by Benjamin from REDS Tavilo. The nursery has a capacity of 40000 seedlings and will supply farmers from all satellite groups and sell clones to District programs and the FAO STREIT Program. Many groups have been recruited for the FAO Inception phase Project and about 420 groups now registered, including 22 groups in the Poro area, 200 in Lumi and up to 600 in Nuku, Madang Province. Trevor advised them to monitor the rows of clones for their resistance to

Black pod, CPB, VSD and canker so that the most suitable clone for the area can be identified. Poro has a hybrid solar drier and a one kg sample was collected to be assessed by cocoa quality section at Tavilo. Wilson has plans for construction of another solar drier. Production is likely to expand with new plantings coming into bearing and drier capacity needs to be increased. Plans for construction of a pipe roller machine were discussed with Wilson who is an engineer. The Poro project is an ideal site for future training and development of the Village Farmer Association concept.

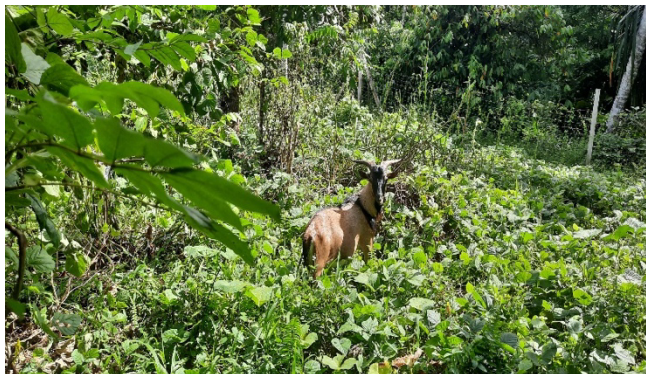
- On the return journey Trevor, Timothy and Wilson visited the District Chief Executive Officer, Mr Allan Kango in his office in Aitape. They briefed him on project activities, and he was keen to have the project continue to be involved in Aitape and West Sepik future cocoa programs. Timothy and Trevor left for Wewak at 1 pm and arrived in Wewak at 6 pm. On the journey they visited CMFT Francis Wan at Banak. His budwood garden is now mature and he has been helping other farmers with bud sticks and clones from his nursery, encouraging chupon budding, and teaching budding methods. He has good records of materials supplied to farmers in his group as well as good records of his cocoa production, data George Curry was pleased to copy. He has been assisting 13 other communities in his area, up to 3 hours walk away, has helped establish 3 other nurseries, and has been teaching student at nearby Dagua High School. He has identified a good old cocoa tree seemingly with pod borer resistance. Francis has proved to be an outstanding contributor to the project, with his good humour and enthusiasm.



**Figure 19:** CMFT Francis Wan from Banak with a pod from a tree he has identified as having some resistance to Cocoa Pod Borer.

- On 16 October, Trevor met with Mr Dean Woruba, Agricultural Secretary to the East Sepik Governor, Mr Alan Bird, and discussed the ACIAR program and progress being made. Unfortunately, the governor was away in Pt Moresby. Jonathan Poema, Trevor and Timothy discussed the ACIAR project on Laif FM Christian radio Wewak. Jonathan, who works for the station, is planning to write an article about the trip to Beklam. They also met with the FAO Project Manager, Dr Rabi Rasailly, and discussed the FAO/EU STREIT Program and problems encountered and mutual experiences. Trevor returned to Kokopo on 17 October.
- New Ireland
- In September visits were made to the Maritsoan CMFT site (Mr George Tabakua), Dampet site (Mr Chris Tapit) in Namatanai District, to Umbukul (Mr Gideon Kulempu) and Noipuas (Mr Robin Ulawai) sites on New Hanover, Kavieng District, and Laraibina site (David and Christine Waulis), Kavieng District to deliver shade cloth, NPK fertiliser and cocoa books. Pasture grass seed was delivered for planting for the goat project at Laraibina.

- In October, further samples of dry cocoa beans from the solar drier at Panamecho were collected for sending to REDS Tavilo for quality testing. Cocoa quality considerations were discussed with the farmers at Panamecho. More cocoa books were distributed to farmers and other interested parties. Fifteen thousand polybags were provided to the New Ireland Provincial Government to help cater for the planting of 26,000 SG2 seeds delivered from REDS Tavilo on 22nd October.



**Figure 20 (above):** A goat thriving in the enclosure at Laraibina Village, New Ireland.



**Figure 21 (above):** Goat manure collecting under the goat house at Laraibina, ready for distribution to the cocoa garden.

## Sweetpotato

HORT/2014/097

- Demand for clean kaukau vines has slowly been picking up as the pandemic travel restrictions ease and a sale of PGK4,500 has recently been completed along with smaller sales.
- The economic impact of clean kaukau sales has been highlighted recently by three of the farmers managing project supported screenhouses being able to purchase vehicles to assist in running their businesses. The vehicles were a 25 seater Toyota bus, a 10 seat Land Cruiser and a single cab Nissan. The purchases were made possible from profits made by selling clean kaukau.
- Planning has been completed and ethics approval granted for two key surveys. The first is examining consumer purchasing patterns in different urban markets and the second is examining the changes that have occurred in commercial kaukau production in the highlands over the duration of the project.
- Bennie Atigini has resigned from his project position to take up a permanent position with another organisation, providing long term security for his family. Bennie has been instrumental in supporting the roll out and adoption of the community development worker (CDW) program in the project, and while he will be missed, the work he has done has set up the Fresh Produce Development Agency (FPDA) team and participating communities to continue using the CDW training program.