



Transformative Agriculture and Enterprise Development Program

TADEP+ Update

March + April 2019

Key program activities

TADEP+ Annual Meeting

With less than two months until the Annual Meeting in Goroka, all projects are reminded to confirm with Sheerah their respective project attendees so that the necessary flight and accommodation bookings can be made. A draft agenda has been circulated to the Project Leaders with a variety of guest presenters being considered for inclusion. The project leaders will be meeting with the High Commissioner the day before the Annual Meeting to brief our DFAT partners about the progress of the program and respective projects.

Family Farm Teams Masterclass

During discussions at the TADEP+ Steering Committee meeting in February, all projects indicated an interest in embedding the Family Farm Teams approach more strategically into their projects. A Family Farm Teams four-day Masterclass targeting key groups of 4-6 people (Hub Coordinators, Project Coordinators, etc) from each project is currently being explored and discussions have commenced with potential key partners. An initial Masterclass would be held with a follow up Masterclass 6 months later to create 'community of practice' within projects and across PNG.

Collaborative Research Grants

Following discussions at the TADEP+ Steering Committee meeting, a Collaborative Research Grant has been submitted to ACIAR and DFAT for review and approval. The concept submitted is entitled "*Initiating vegetable cultivation to improve nutrition in Bougainville*" and seeks to improve vegetable production and nutrition for cocoa farmers through targeted education and training.

Closed User Groups

TADEP+ Steering Committee meeting.

Key dates

Mark these dates in your diary and calendar:

- TADEP+ Annual Meeting: Tuesday 18 and Wednesday 19 June
- Optional field tour: Thursday 20 June
- ACIAR Project Reports due: Monday 15 July
- TADEP+ Annual Report due: Thursday 15 August
- Pacific Week of Agriculture: Monday 30 September to Friday 4 October

Key project activities



Bougainville Cocoa

The Taste and Tell event was held on 20 March. The event was very successful bringing together Bougainville cocoa producers and Australia's leading chocolate makers. The event was an opportunity to connect the chocolate makers with the producers and showcase Bougainville as a producer of world-class cocoa beans. There is already talk of the next Taste and Tell. Click on the various news sources which featured Taste and Tell: [ACIAR Facebook](#), [ACIAR website](#) and [ABC Radio Australia](#).

Members from the University of Sydney are preparing to visit Bougainville in May to commence a pilot project for initiating vegetable cultivation to improve nutrition in Bougainville.

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

PNG Cocoa

John Konam attended an IPM Symposium in Bali organised by Mars Inc. on 9 - 11 April and presented a paper summarising the cocoa developments and pest/disease situation in Karimui and elsewhere in the highlands.

John Joseph continued to visit CMFT sites where mature budwood gardens are now able to provide plentiful budwood to farmers in New

John Meth continued distribution of clones to complete budwood gardens at 27 sites in the governor's ESP Smart Cocoa Project, in addition to CMFT sites in East Sepik.

Whilst there are ongoing challenges with joint-funding agreements for Madang province, numerous and promising site visits have been undertaken.



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



Sweetpotato

14 PNG farmers will be visiting Queensland for a week from 19 to 25 May to visit Australian growers and learn about sweetpotato production and marketing. FPDA and NARI project staff will join the group on the trip.

NARI project officer Raywin Ovah completed a draft research report on sweet potato price dynamics at Gordons market in Port Moresby.

Arrangements are being made for the importation of sweetpotato weevil pheromone lures to PNG.

Several of the screenhouse farmers have completed the first cycle of clean seed production and have prepared the planting beds for new cuttings from the NARI Aiyura Research Station.

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

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 initially had five component projects, of which two have concluded. The program now comprises of the following:

- **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).



Whilst two of the initial five TADEP projects have concluded, they have evolved into an ACIAR Small Research Activity (SRA) and another ACIAR project, respectively, 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 SRA

The Small Research Activity (SRA) is currently being developed and details will be circulated once finalised.



Galip Nut

The End of project review took place at Kerevat on 8th and 9th April 2019. Reviewers visited 2 businesswomen, Devine Management Services (Dorothy Luana) and Carolyn Misiel and heard how value adding to Galip has improved their livelihoods

New Equipment including portable crackers, and roller separators and modifications to the processing line has arrived at NARI

Sales of galip nut products in Port Moresby have been excellent with product frequently out of stock.

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

In addition to the five TADEP+ projects, the following update has been included from the ACIAR SMCN/2014/048 Cocoa Soil project, as there are many research and outcome synergies.

Cocoa Soil

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The team will be starting new soil trials in the Kuna grasslands of East Sepik. We want to see if we can overcome the very compact nature of these soils, which seems to be making them physically hostile to cocoa production, challenging many of our cocoa smallholders.

Two UNRE students successfully completed project placements within the project, working on Pigeon Pea and tea bag experiments.

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

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Recent project activities/outputs:

- Paddock clearance for pasture improvement in Konga.
- Goat stockman (John Bosco) employed in Konga as casual.
- Procurement of important supplies for goat husbandry/management and hygiene, including a scale for growth/weight monitoring.
- Bracing of the goat house posts to strengthen the building.
- Five goat kids have been born, which still need to be tagged.
- Distribution of three goat pairs from Pearson's farm to VEW/farmers in North Bougainville (Baneo, Sigh1 and DPI Kubu)
- Urgently need training in goat management.
- New goat farmer (Micheal Pagara) in Buin supplied by M. Pearson.
- Collection and use of goat manure in composting by DPI and surrounding farmers in Konga and Goat farmers, further training needed for compost production and vegetable production.
- Various Cocoa training were conducted in March and April in North Bougainville, including:
 - Bud grafting (Tohasti VA)
 - Integrated Pest and Disease Management (Tohsti VA, Banio VA, Teobuin VA, Novah VA)
 - Tipping and formation pruning (Tohsti VA, Banio VA, Kunua VA, Novah VA)
- DPI has partner with NBC Bougainville to broadcast bi-weekly (Thursday and Tuesday) updates via radio on the *Didiman* program. The updates include agriculture news, activity updates and information. Two updates have already been broadcast:
 - A synopsis of the Taste and Tell event by Steven Saveke
 - Bougainville Cocoa project activities progress
- Family Farm Teams trainings were conducted by our team after receiving the training last year in North (Haku women's group, Kunua district) and South Lule (constituency). There has been a lot of interest now in the whole of Haku constituency (North - Buka island) such that their ABG Member and Minister for Economic Development and community government leaders who invited our team to given a brief overview of the FFT's concepts before roll out in the constituency.
- Visit to some VEW bud garden by Joe Yabom (PNG Cocoa Board) shows that some plants in the bud wood are ready to be harvested for bud grafting of those clones for the farmers.
- In April, PNG Cocoa Board soils team got soil samples from North and central selected VEW plots for analysis to verify nutrient status in the cocoa fields.



Figure 1: Joe Yabom visiting bud gardens.



Figure 2: Collecting soil samples.

Taste and Tell

- The Taste and Tell event was held on 20 March in Melbourne. The event showcased chocolate products made from the cocoa beans produced by the winners of the 2018 Bougainville Chocolate Festival, Steven and Elizabeth Saveke. The event was hosted by Debb Makin from [Ratio Cocoa Roasters](#).
- The prize for the Grand Winner of the 2018 Bougainville Chocolate Festival came in two parts.
 - The first part, the project purchased beans from the winner – Steven and Elizabeth Saveke. Seven chocolate makers from across Australia received 20kg each of the Saveke's beans. Note: chocolate makers not chocolatiers. The chocolate makers attending the event included [Gabriel Chocolate](#), [Federation Artisan Chocolate](#), [Spencer Cocoa](#), [17 Rocks Chocolate](#), [Atypic Chocolate](#) and [Ratio Cocoa Roasters](#). They could do whatever they wanted to with the beans: make it a dark, make it a light, make a milk, use whatever percentage they wanted, pan different products. The seven chocolate makers turned the Saveke's cocoa into 20 different styles of chocolates (including gelato). Some of the makers experimented with different roasts, some tried different conching times, others different ingredients. A group of local school students from Strathcona Girls Grammar, also took part in the day's activities by making a series of chocolate-based nibbles using the chocolate made from the Saveke's beans.
 - The second part of the prize was that the project flew Steven and Elizabeth to Melbourne to be present at Taste and Tell to talk to the chocolate makers. Andrew Campbell, the ACIAR CEO, and Sasha Courville, an ACIAR Commissioner, were present. This enabled the end users of ACIAR's involvement – the chocolate makers – to interact with the decision makers on, basically, cocoa in Bougainville and ACIAR's contribution to the future through research.
- The incentive for the chocolate makers to attend was that it gave them a chance to talk to each other about the tricks and traps of the industry. The chocolate makers want another Taste and Tell next year.
- The Taste and Tell event received a lot of media coverage, including a feature article in the recent [ACIAR Partners magazine](#). The magazine was also distributed to every attendee at the very successful Seeds for Change Conference in Canberra this month. Links to other media releases can be found below.



Figure 3: Debb Makin from Ratio Cocoa Roasters explaining chocolate making.



Figure 4: The team with the chocolate makers.



Figure 5: Students from Strathcona Girls Grammar at Taste and Tell.



Figure 6: James Butubu and Maurice Curtis from Federation Artisan Chocolate.



Figure 6 (above left): Photobooks.

Figure 7 (above right): Discussing equipment.

Figure 8 (right): Steven and Elizabeth Saveke, Elmah Maxwell with Merrilyn Walton's grandson

Follow-up from the Taste and Tell

- 15 personalised photobooks were developed for Team Bougainville, the seven chocolate makers and assorted funders and organisers. The photobooks link production on Steven and Elizabeth's farm, to what the project is doing to advance Bougainville cocoa grower's livelihoods, to the 2018 Bougainville Chocolate Festival, to Taste and Tell. They act as a baseline for ongoing discussions with chocolate makers to improve the next Taste and Tell.
- Two Cocoa Market Newsletter have been compiled.
- We are working with Bougainville Partners to see how we can improve our joint assistance to Bougainville cocoa growers in the next phase of the Bougainville Partners agreement.
- Discussions have continued with the national Department of Agriculture and Livestock on the vexed issue of licensing.
- The project has initiated a third-party inspection system for Bougainville cocoa beans being exported to chocolate makers in Australia in order to provide an objective baseline in the event of there being a dispute arising over product deterioration due to a shipping mishap.
- We have acquired some additional testing equipment for the Chocolate Laboratory so we can better identify the various attributes of grower's cocoa. The equipment has been specifically programmed to handle a number of products other than cocoa.

Bougainville Chocolate Festival

- A date and venue have been selected and a Media statement released for the 2019 Bougainville Chocolate Festival. The festival will be held in Arawa on the 7 and 8 August. Preparation is underway with the first steering committee meetings and technical working group meetings conducted. The theme for this year is *"World class beans for world class chocolate, creating opportunities for our farmers, for our future"*.

Collaborative Research Grant

- The team submitted a research proposal for the TADEP Collaborative Research Grant to run a pilot project for *Initiating vegetable cultivation to improve nutrition in Bougainville*. The pilot will be implemented in May 2019 in partnership with ABG Department of Primary Industries and Marine Resources (DPIMR), ABG Department of Health (DoH), Bougainville Women's Federation (BWF), and the University of Natural Resources and Environment (UNRE). Advanced financial support for this initiative was provided by HORT/2014/094; money will be refunded to that project once the funds are available from the CRG.
- The 10 villages (South, Central and North Bougainville) identified from the livelihood survey results (HORT/2014/094) as having the poorest nutrition outcomes among children under 5 years of age have been selected for the study sample. A baseline survey will be administered documenting current food choices and diets. The program will employ 18 facilitators to deliver a nutrition and vegetable gardening program as well as provide monthly support, mentoring and data collection using CommCare (tablets).
- At the end of 12 months we will re-survey the villages about their food choices and diets to see if a change occurred. In this project we will provide households with education and skills in nutrition, healthy eating and vegetable gardening.
- The research will demonstrate the merits of this intervention which, if successful, can be replicated in other villages – in PNG and other farming communities in low resource countries.

MARS Regional Cocoa IPM meeting

- Professor David Guest attended the MARS Regional Cocoa IPM meeting in Bali this month. The project received good feedback from meeting attendees, including [Swisscontact](#), who will be visiting Sydney to discuss social networking and AIC. Professor Merrilyn Walton will present the Bougainville work at the Sydney meeting with Swisscontact. Tamaya Peressini from ACIAR was also attending the meeting to scope new Cocoa projects in the Asia/Pacific.
- We have submitted a concept note following on from our AIC project last year. Collaborators on this project include MARS, UQ (in-field molecular diagnostics of plant, animal and human pathogens), JCU (MARS is thinking of basing their Asia-Pacific research there), cesar (Cocoa pod borer) and CSIRO (gene silencing). We would like this to be a regional project, possibility to engage with PNG-CB.

Media releases for Taste and Tell

External channels:

- Australia
 - [ABC Radio: Pacific Mornings](#)
 - [PNG Language service](#)
 - ABC Radio Australia [on Facebook](#) (503 views)
 - ABC Radio Australia [on Twitter](#)
- PNG
 - [EMTV](#)
 - [Loop PNG](#)

Internal ACIAR channels

- [News story](#) "Award-winning Bougainville cocoa farmers to showcase chocolate in Melbourne" (94 views)
- [Partners Magazine](#), page 18 "Flavour of success"
- [Twitter](#): "The Taste and Tell event in Brunswick is underway" (1,506 reach)
- [Twitter](#): "Do you like chocolate?" (649 reach)
- [Twitter](#): "Award-winning cocoa producers from PNG" (1,520 reach), ranked [30th best Government tweet](#) of the day.
- [Facebook](#): "Meet the farmers growing Bougainville's best cocoa" (328 reach)
- [Facebook](#): "The Taste and Tell event at Ratio Cocoa Roasters in Brunswick is underway" (16,017 reach)
- [Facebook](#): "Do you like chocolate?" (1,390 reach)
- [Facebook](#): "Award-winning cocoa producers from PNG" (10,129 reach)
- [Instagram](#): "Award-winning cocoa producers from PNG" (538 reach)
- [LinkedIn](#): "Award-winning cocoa producers from PNG"

Podcast

- David Guest was interviewed alongside [Chocolate Artisan](#) as part of a [Royal Botanic Garden Sydney podcast](#) entitled "No plants, no chocolate" in the lead up to Easter. The podcast discussed how plant diseases are threatening the supply of chocolate and what it takes for the cocoa bean to chocolate bar process.

Highlands

- John Konam attended an IPM Symposium in Bali organised by Mars Inc. on 9 - 11 April and presented a paper summarising the cocoa developments and pest/disease situation in Karimui and elsewhere in the highlands.
- John continued to organise support for the cocoa work in the highlands in anticipation of the arrival of funds promised by the Minister for National Planning and Development.
- John, Phil and Trevor have been preparing a paper to be delivered at a meeting in Brisbane being organised by Oil Search Foundation to consider assisting agriculture, including cocoa, development in highlands areas affected by Oil Search Ltd operations.

New Ireland

- John Joseph continued to visit CMFT sites where mature budwood gardens are now able to provide plentiful budwood to farmers. Links between the ACIAR and NIPG projects are continuing. Plans for linking to Kavieng and Namatanai District projects were progressed. John continues to conduct budding training, which we now regard as the most important element of our project following the establishment of mature budwood gardens at most CMFT sites.

East Sepik

- John Meth continued distribution of clones to complete budwood gardens at 27 sites in the governor's ESP Smart Cocoa Project, in addition to CMFT sites. On 18 March, Trevor travelled to Wewak and met with John Meth, Chris Toli and the newly appointed CB Research Extension and Development Section (REDS) Manager, Timothy Sam. Chris Toli was notified to transfer to Angoram and oversee the project sites there. Trevor also visited the Polيامa Passam group, with CMFT Jonathan Poema. Clones in the budwood garden are now bearing pods and are ready to supply budwood for the nursery that has 7 budders (3 very experienced). About 2,500 seedlings are ready for budding, and 11 farmers have received 1,200 poly bags each to set up their own satellite nurseries.
- On 19 March, Trevor and the team visited Linda's revitalised CMFT site at Maguer, where the budwood garden has now been established but needs some infilling. On 20 March Trevor visited Bararat and demonstrated the use of cling-wrap to make small rolls of budding tape. The budwood garden is mature and ready for distributing bud sticks to members and the other 23 satellite communities linked to the group. The nursery has 5,000 root stocks ready for budding. Use of bamboo strips to contain bags is well done. About 50 members of the group know how to bud graft. On the way back to Wewak the team called into Niumindogum, visited the goat project and discussed issues with Edmund and members of the group, and visited the budwood garden which can now provide plentiful bud sticks. Limai Lan from UNRE arrived and due to transport problems could not conduct the full goat training program but the team managed to hold one-on-one training with Norman, Leah's brother, for half a day.
- Trevor spent the morning of 21 March in the REDS office discussing the program and problems of coordination, and later met with Richard Manjo, Research Officer Provincial Administration, in charge of the Governor's cocoa program. In the afternoon Trevor, John Meth, Douglas Kawasi, Timothy Sam, and budders from Hawain gave a presentation to the whole Brandi High School of about 1200 students and teachers, including demonstrations of cocoa budding and the reasons for budding. Further interaction with the school agricultural teacher and students is planned, and the school is very appreciative of the assistance given to the development of their cocoa farm as an education facility.
- On 22 March, the team drove to Yekimbole, met members of the group, including CMFTs Chris and Nola Sasingian, and Thompson Fufungian and discussed progress on the tractor at Yekimbole, which now has an electrical problem. A new starter motor was purchased in late April. They also discussed hiring a grader from the company working on the roads to deep-rip a trial area of grassland. The group is buying wet beans to process in their fermentary and solar drier to meet Paradise Food's order of 60 bags of dry beans a month. They also visited group member Bill Wema who has a well manage cocoa block and is an engineer who has wired his house for solar power. Trevor plans to buy solar parts and have Bill install them in the cocoa driers at Yekimbole. Later, clones were delivered to Douglas Kawasi's nursery site in West Yangoru where he intends to buy his own materials to build a solar direr.

- Unfortunately, on 26 March, following his eviction from his house at the Hawain Training Facility and lack of support from authorities, John Meth resigned as our project coordinator in East Sepik and we lost one of our best extension staff. His role as Coordinator of the ACIAR Project in East Sepik will be assumed by Timothy Sam.

West Sepik

- On 19 March Trevor drove part-way from Wewak to visit Wilson Miroi at Aitape but was turned back by the flooding Damap River. He has since communicated with Wilson to organise a field day at his budwood garden, nursery and solar/kiln fermentary site at Poru.

Madang

- Aitul Weoh reported that the ACIAR/PNGCB project is the only cocoa development activity being undertaken by the Cocoa Board in the province and all casuals including the office secretary are currently being paid by ACIAR only, despite an agreement that the CB contribute half of their salary. The CB Field Services Section is conducting some extension work which is not coordinated with the work of the REDS group there. All cocoa budders and other field assistant are hired as needed for project activities. Both project vehicles require major services, but project funds are insufficient to service both vehicles. The open back Landcruiser was repaired with assistance from Madang DAL office.
- A meeting was held with personnel from Micro-enterprise Ltd on organising of financial literacy and business management courses for our project farmers.
- The main constraints in Madang continue to be lack of Cocoa Board budget for vehicle maintenance and fuel, lack of support for officers' family and office accommodation, lack of Cocoa Board support to pay salaries for field staff and a secretary, and the loss of the Murnass CCI nursery. There was no allocation of budget for the REDS staff from the Cocoa Board this quarter, and there is a lack of guidance about the allocation of duties between the Field Services and REDS sections of the Board, resulting in confusion and duplication.
- At the start of the project in 2016 one of the best cocoa nurseries operated by PNG Cocoa Coconut Institute at Murnass was able to supply all clones for BWGs in the project. Following the split of CCI into KIK and CBPNG in 2018, the cocoa nursery operation was stopped as the station was handed over to KIK. Relocation and establishment of a new nursery is not progressing well although a site has already been identified at Ato, near Tapo. Work has not started due to lack of funds and lack of communications from KIK and CB head offices. The REDS office continues to maintain very healthy links with the Provincial and Districts DAL offices in Madang, and they have been very supportive.
- Eighteen project sites (Dumpu, Korona, Danaru, Nuku, Yakumbu/Maono, Kumisanger, Bom, Balama, Tamane, Mabonob, Rempi, Karkum, Gohe/Gumaru, Amiten, Sualu, Iku, and Aiom) were visited this quarter by project staff, CB officers and the assigned district DAL officers. A total of 62 field visits were made and 322 farmers (100 women) were contacted and advised on cocoa activities.
- Some nurseries (Erima, Bunu, Kaviak, Klumlang, Iku, Apengan, Tamane) have ceased operation after the distribution of their first batch of clones in 2018, while Korona, Balama, Mabonob, Rempi, Karkum, Amiten, Sualu, Gohe/Gumaru, Kumisanger, Galeg, Jitibu and Aiom have continued to distribute 2nd and 3rd batches to farmers. Some farmers are raising their own mini nurseries.
- Seven budwood gardens have been completed (Mabonob, Rempi, Tamane, Balama, Korona, Galeg, Kumisanger) and 4 have started harvesting bud sticks (Mabonob, Rempi, Tamane, Balama). Ten other gardens need infilling/field budding of stake plantings to be completed (Danaru, Nuku, Erima, Karkum, Kaviak, Klumlang, Amiten, Iku, Apengan). Six new gardens are to be established before end of 2019 (Aiom, Jitibu, Dumpu, Bom, Gumaru, Bunu).
- Farmers are normally trained on budding/grafting skills in their group nurseries. Budding was carried out at 8 project nurseries this quarter (Bom, Kumisanger, Nuku, Dumpu, Mabonob, Aimeten, Sualu and Aiom) – six budders were engaged to conduct budding and training and 85 farmers (25 women) participated in training.
- So far planting of farmer's blocks has been slow due to problems with maintaining central nurseries. At this stage most farmers have only planted half of the project requirements (300 clones/farmer). The farmers have been encouraged to plant seedling root stocks at stake in the blocks and field bud them later. Also, to fast-track plantings farmers are each supplied with 200 poly bags to raise their own rootstocks in blocks and bud.
- Extension sites at Dumpu, Bom, Maono and Bang (Raikos) involve groups formed out of farmer interest following their observations of ACIAR cocoa activities. These will be assisted and maintained if CB/ACIAR have funds to assist. Two sites have work already progressing with the project assistance (Bom and Dumpu).

- Trevor visited Madang from 10 to 15 March, and with project coordinators Aitul Weoh and Bofeng Mebali, visited several CMFT sites, including the Balama group, where member Leslie Dadak has cut timber for a solar drier and Trevor advised on construction. The test planting of pigeon pea is now setting seed for further distribution and testing as cocoa shade and food. Clones in the budwood garden are growing well and are producing bud sticks. The team drove to Alexishafen and made a booking for the facilities to conduct a Family Teams training in 24 June with Josie Saul and team.
- On 12 March the team met group members including CMFT Ismael Kalie at Amiten in Bogia District. 2,500 root stocks in the nursery are ready for budding. 25 members know how to bud graft and are using a hack saw budding knife supplied by the project and small kitchen knives. They have budding tape from the project, and a video showing how to make rolls of budding tape using taro stalks and cling wrap was shown. Group members have each received 300 seedlings so far. The concept of field planting at stake and field budding, and safe use of herbicide were discussed. The team then visited the Suaru group where members were finishing off a meeting house; the group's budwood garden and the clonal block and site for a solar dryer being set up by farmer Michael were visited. The site is prone to water logging and drainage is being dug.
- On 13 March the team visited the Rempi women's site on north coast, met with CMFT Agatha, and discussed the upcoming visit from ACIAR manager, Irene Kernot, and field day to be held with group members and other interested farmers. Back in Madang Trevor met with Middle Ramu DAL officer, Mogia Loss. The budding team have just returned from Aiome in his district, where 2,900 seedlings were budded with material from Madang. Reaching Aiome needs 10 hours by speed boat down the Ramu River.
- On 14 March Trevor met with Godfried Save, DAL Provincial Manager, discussed the program, and thanked him for his support. The team then drove to Korona near Usino, met with CMFT Steven Tipoti and his wife Jennifer, and inspected the goat colony of 4 females and 3 males which are very tame and part of the family. Steven has been taming them with salt, which they lick off his hand. Cocoa Board officer Stanley Wendau, who is not connected to the REDS office, was conducting a budding training not far from Steven's block and we visited the training. Stanley is from Jiwaka in the Highlands, and has previously planted 10,000 cocoa seed at Angalip DAL station near Minj in the Waghi valley. It would be good to involve him further in the highland's program.
- On 15 March the team drove to Manbenob and visited gardens of member John Bog, planted with clones from the nursery. Each of the 25 members has received 64 clones from the group nursery. On the following day the team met the Tamane group and inspected the budwood garden, which has a problem with water runoff from the road and needs some drainage. They met the Vudal student, David Lahu, who has been doing a survey of the group members as part of his practical studies. They also visited Lemek Kiane, a group member with a bush materials nursery near Four mile, Wagug village, who claims to have up to 46 new members wanting clones.
- From 25 to 29 March, Limai Lan of the University of Natural Resources and Environment visited Madang to conducting training in goat husbandry for Korona/Usino farmers. The team first met with Aitul, Bofeng and Godfried Savi in Madang. Due to lack of logistical support from UNRE, training was restricted to the morning of 29 March. Training included goat nutrition and health, age determination, tethering, external parasite control, washing, hoof trimming, faecal analysis, body condition scoring, and feeding and feed preparation. Five farmers and families (including three women) participated along with the CMFT Steven Topoti and his family. The goat colony now consists of 4 females, one male and two kids. The goats are very friendly and have become part of the Topoti family. The establishment of a goat trial at Korona is creating good interest from farmers. Bofeng prepared excellent reports on the visit and had to use his own travel allowance to purchase fuel for travel from Madang to the site.

East New Britain headquarters

- Trevor updated his 1980 paper on an alternative, more farmer-supportive policy for cocoa development, and sent it to the PNG Government committee reviewing agriculture policy.

Collaboration

- Collaboration has continued with the ACIAR Soil Fertility Project, especially to enable ripping and ploughing of a test plot of grassland at Yekimbole and interviewing farmers about their knowledge of soil fertility.

- 14 PNG farmers will be visiting Queensland for a week from 19 to 25 May to visit Australian growers and learn about sweetpotato production and marketing. FPDA and NARI project staff will join the group on the trip.
- NARI project officer Raywin Ovah completed a draft research report on sweetpotato price dynamics at Gordons Market in Port Moresby. The report covered interviews conducted with market seller and suppliers by NARI and FPDA staff. Weekly price fluctuations linked to timing of arrival of incoming shipments of sweetpotato, and activities of speculative traders in the marketplace, were identified during the survey. Further work to examine factors affecting pricing in the market are being planned.
- Arrangements are being made for the importation of sweetpotato weevil pheromone lures to PNG. The lures were used successfully by the Sweetpotato Pest and Disease team, and farmers have requested supply of them as part of an integrated weevil control strategy. Collaboration with the Pest and Disease team will continue with trials planned on monitoring of virus vectors around the commercial clean seed screenhouses established in the project.
- Several of the screenhouse farmers have completed the first cycle of clean seed production and have prepared the planting beds for new cuttings from the NARI Aiyura Research Station.

Family Farm Teams

Small Research Activity

- The Small Research Activity (SRA) is currently being developed and details will be circulated once finalised.

Galip Nut

End of project review

- The End of project review took place at Kerevat on 8 and 9 April 2019. Reviewers visited Devine Management Services (Dorothy Luana) and Carolyn Misiel and heard how value adding to Galip has improved their livelihoods. They also met with the project team, toured the galip factory, and visited CPL supermarkets in Port Moresby to discuss product sales. Sales have been good and the product has been out of stock about 50% of the time since the launch.
- The review team and ACIAR helped to map out the way forward for the factory and the industry with private sector partners.

New Equipment

- The new equipment finally arrived at NARI after a marathon effort from NARI staff to track it down and clear customs. The new equipment was ordered to improve some areas in the processing line and help with product flow.
 - **Portable crackers;** Two new portable crackers have been purchased. The crackers have been tested on 240 volts. The crackers are not adjustable which may reduce their effectiveness as dedicated crackers for small nuts. Their full potential is yet and mode of operation is yet to be determined.
 - **NIP Sizer;** As there was no fresh NIP (nut in pulp) available it was not possible to test the sizer with NIP. However, we were able to trial some simple modifications to enable it to size NIS (nut in shell). These preliminary trials look promising and will greatly reduce the time it takes to grade the NIS. Grading the NIS will increase the efficiency of the mechanical cracker and should also improve the kernel recovery rates.
 - **Roller separator;** The new roller separator for separating cracked and non-cracks before the water bath looks like it should improve this step, however it requires some electrical work and modifications to enable it to fit into the existing processing line. Brett has adjusted the old separator which has improved the through put and once the NIS has been sized, we will review this step as sizing should reduce the small nuts going to waste as well as the % of non-cracks.
 - **Water bath;** The new water bath appears to have some advantages over the old water bath, however it is not a simple job to replace the old water bath. The new water bath operates with conveyor belts to remove the kernel and shell to waste rather than the current auger system. Being

smaller it will remove less water, however there are other design faults with the new bath that need consideration before using it to replace the current system. Some modifications to the existing line will need to be made to accommodate the new bath.

- **Processing line operation;** Brett and the Equanut team have gained good experience in operating the processing line. They have vastly increased processing rates and improved the whole kernel recovery. The team of workers work well as a unit and clearly demonstrate the efficacy of mechanically processing canarium nuts.



Figure 9: Galip project team and the review team.



Figure 10: Carolyn Misiel demonstrates the oven which she uses to make galip bread.

Photo credit: Prof. Helen Wallace



Figure 11: Dorothy Luana talking about her galip nut value adding.

Photo credit: Prof. Helen Wallace.