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## Linking farmers to markets

The emergence of globalisation, competitive marketing, biotechnology and new information and communication technologies has presented exciting opportunities and new challenges in addressing the problems of farming communities and agro-industries. This is especially important in the areas of linking farmers to markets (LFM). Such linkages

marketing system is characterised by a large number of small producers or sellers and also a large number of buyers in local markets, with weak links to bigger markets and wholesalers. There is also a weak integration (both horizontal and vertical) between various types and levels of markets. This has been imparting a high level of inefficiency and ineffectiveness in marketing processes, resulting in huge

differences in prices paid by consumers and those received by producers. Secondly, as demand and supply are not effectively linked, farmers and consumers do not receive market responses which can be utilised for their production and consumption decisions.



*AusAID Minister Counsellor Margaret Thomas inspecting a fresh produce display during the Mt Hagen Market opening. See story on page 5*

The problem of poor market linkages is further confounded by factors such as poor transport infrastructure, poor communications, poor produce quality, perishability, bulkiness and scale diseconomies, all resulting in poor and unremunerative prices

received by the producers. Therefore a paradigm shift through to an innovative production and marketing system is essential.

are necessary not only to create marketing efficiencies and getting benefits to producers and consumers but also to help provide the right signals for efficient use of resources.

The term "market" referred to here is not limited to physical facilities and market-place linkages. It goes beyond these to look into policies, technical support, value chain analysis, regional and international integration, agri-food systems, rural development and overall inclusiveness of smallholder semi-subsistence farming communities in developing countries.

Farmers in Papua New Guinea are mainly semi-subsistence smallholders, cultivating small land areas for their own consumption needs as well as for cash incomes from market places. The existing

Linking farmers to markets becomes an integral part of such an innovative marketing system and will need to address the following areas.

1. Improvements in marketing infrastructure, support facilities, and various marketing mechanisms so as to reduce marketing costs, reduce market margins and improve marketing efficiency at all levels.
2. Attention is required to increasing production efficiency at the farm level through improved agricultural technologies, practices and systems

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The National Agricultural Research Institute (NARI) was established by an Act (NARI Act 1996) of the National Parliament of Papua New Guinea (PNG) as a publicly-funded statutory research organisation for conducting applied and development-oriented research on food crops, emerging food and cash crops, livestock and resource management issues.

Besides applied and adaptive research, NARI is responsible for providing authoritative technical, analytical and diagnostic services and up-to-date information to the entire agriculture sector in PNG.

## NARI Vision



"Prosperous PNG Agricultural Communities"

## NARI Mission

"To promote innovative agricultural development in Papua New Guinea through scientific research, knowledge creation and information exchange"



so that cost of production is reduced and quality (including nutritive values) and output productivity are improved.

3. Concerted efforts are needed to understand and link all areas of marketing and transactions right through from production to consumption, covering both backward and forward linkages. This is to help provide better integration both horizontally and vertically so as to improve overall marketing efficiency.
4. Research studies on demand and supply responses, as reflected in prices offered and quantities exchanged, are necessary in understanding and improving effectiveness and efficiencies of markets and marketing.
5. Downstream (post-harvest) processing and value adding will not only help improve marketing efficiency but also help increase income levels of primary producers in rural areas.
6. Also important will be the areas of food quality, food safety, bio-safety and bio-security that will require special consideration by producers, processors, traders and consumers. Quarantine issues will have to be appropriately addressed to enter and capture lucrative and niche markets.
7. In order to bring in scale-economies, there is need to encourage farmers to form associations and co-operatives to deal more competitively and have better bargaining power in marketing.

8. Trade reforms will have to be undertaken in light of the liberalisation of trade and the emerging trends to supermarket chains. These are eminent challenges that PNG farmers will have to face in the dynamic, competitive global market environment.
9. Appropriate policies necessary to guide and encourage positive developments in the above areas will be of paramount importance and need to be addressed at all levels of governance.

To conclude, success in Linking Farmers to Markets would depend on enhanced capacity at the national level for technological advances; new cost effective and resource saving processes that add value to products; farmers' capability enhancement including value chain analysis and improved market access; and entrepreneurial development of farmers. Engagement and partnership with the private sector is going to be the key for creating strong linkages and building the necessary trust and relationships along the supply chain.

**By Jesse Anjen and  
Raghunath Ghodake**

## Homemade fish feed for PNG farmers

Feed Manufacturing Workshop was held at the Coffee Research Institute in Aiyura, Eastern Highlands Province from 6-8 December, 2006.

Funded by Australian aid through ACIAR, the workshop was conducted by the New South Wales Department of Primary Industries and the National Fisheries Authority (NFA). The workshop followed a survey that had been carried out in Fiji and Papua New Guinea to identify locally available fish feed ingredients.

In PNG such ingredients include fish meal from fish canneries, meat and bone meal from poultry producers, copra meal, rice bran, sweet potato and cassava. These ingredients along with small amounts of vitamin and mineral premixes can be mixed and even made into pellets using simple machines like a meat mincer.

Interest in fish farming has been on the rise in the Highlands region. However, fish feed can be expensive and farmers will

require training in order to be able to make homemade feed from their own resources and agro-industrial by-products.

Workshop participants were from NFA, Morobe Fisheries Authority, provincial administration officers from Central, Western Province, Eastern and Western Highlands, the Eastern Highlands Fish Farmers Association, Ok Tedi Development Foundation, Maria Kwin Centre, Lutheran Development Services, Child Fund (PNG), Project Support Services, University of Technology and the National Agricultural Research Institute.

These organisations have on-going and planned fish farming projects and activities so the knowledge gained at this workshop will go a long way in providing training and skills for PNG fish farmers.

The workshop was praised as being timely, very informative and helpful in bringing key stakeholders together.

## NARI boss is new Chairman of APAARI

The head of the National Agricultural Research Institute (NARI), Dr Raghunath Ghodake, is the new Chairman of the Asia-Pacific Association of Agricultural Research Institutions (APAARI).

APAARI is a regional organisation that promotes agricultural research for development in the Asia-Pacific region through inter-regional and inter-institutional cooperation and collaboration.

At its 9<sup>th</sup> General Assembly in New Delhi, India, from 6-7 November 2006, Dr Ghodake was elected alongside a new set of officers to the APAARI executive for the period 2007-2008.

NARI is one of the 20 regional and international member organisations registered with APAARI and Dr Ghodake's appointment is a great accomplishment for NARI, PNG and the Pacific. NARI has actively participated in this regional network



Dr Raghunath Ghodake

to share and learn from the many initiatives since its establishment nine years ago.

Dr Ghodake was a member of the executive committee between 1999 and 2000, and has been a long time member of the APAARI Editorial Committee. Between 1993 and 1994, the Late Balthasar

Wayi was the Vice-Chairman of this regional body when agricultural research functions were under the Department of Agriculture and Livestock.

APAARI has played a key role in promoting and facilitating agricultural research for development through partnerships among organisations in a bid to contribute to sustainable improvements in the productivity of agricultural systems and enhance food security and well-being of communities in the region.

## Aiyura hosts 34<sup>th</sup> NARI Council meeting

The Main Highlands Programme in Aiyura was a hive of activity when it hosted the 34<sup>th</sup> Council Meeting. The meeting in Aiyura was a milestone as it was the first time the Programme played host to the Council members.

Led by Research Programme Leader (RPL) Dr Akinapally Ramakrishna, the staff of NARI Aiyura made welcome the Council Members comprising Chairman Dr John Kola, David Loh, Francis Daink, Joseph Tomerop, Maria Linibi, Dr Samson Akoitai, Professor Lance Hill and Dr Raghunath Ghodake, and NARI Management staff from Headquarters who made the road trip up from Lae on Sunday, 10 December, 2006.

After a briefing by Dr Ramakrishna and John Bailey, Principal Scientist, the team was given a tour of the research projects being undertaken at NARI Aiyura. Scientists in charge of various projects were on hand to explain their work and provide insights into preliminary evaluations or findings. Projects visited were Tissue Culture, Sweet Potato Trial, Legume Project, Vegetable Projects, Rice and Grain Project, Maize Evaluation Project and Peanut Project and a demonstration of the rope and washer pump to water crops.

The Council was impressed with the work being carried out at Aiyura and especially the young scientists taking charge of projects.

After the welcome dinner, Dr Kola, as chair of the Council expressed his gratitude and pleasure on behalf of the Council to witness young scientists whom he referred to as "young breed" taking on the challenges in research fields in a sector which 85 percent of Papua New Guinea's population depend on for their livelihood.

The 34<sup>th</sup> Council Meeting was held on Monday, 11 December to deliberate on the operations of NARI over the last six months of this year and endorse or propose actions to be taken.

## NARI chip in more for staff superfund savings

On the occasion of celebrating the festive season with staff of the Headquarters, Wet Lowland Mainland Programme and the Livestock Programme on 21 December, 2006, NARI Director General Dr Raghunath Ghodake announced almost a 100 percent increase in the Institute's contribution to NASFUND for staff superannuation savings.

Dr Ghodake said 2006 has been another successful year for NARI through the initiation of a number of projects, progress and conclusion of some projects and productive negotiations of some new projects.

Also there were some promising research results in the areas of taro beetle control, galip nut domestication, additional early maturing sweet potato varieties, rice varieties and many more. These achievements he said were a testament to the dedication and commitment of staff at all levels and locations.

Dr Ghodake said the Institute is much better placed to work to bring prosperity to agricultural communities and achieve broad-based socio economic development in PNG.

NARI is looking forward to a good year in 2007 with experienced people in key research areas as well as funding support through the new AusAID project to be implemented in 2007 and beyond.

"We will work together to celebrate 2007 as the 10<sup>th</sup> Anniversary of the Institute. In appreciation of your good efforts, the Institute has decided to increase its contribution to the superfund from 7.7 to 15 percent, effective as of 1<sup>st</sup> January 2007," he said.

"May I urge you all to do your best in 2007 and beyond and excel in your contribution to the mission and objectives of NARI."

## Maria Linibi receives international award in farming

Maria Linibi, NARI Council Member representing Papua New Guinea women farmers and smallholders from the Momase region has been recognised internationally as an outstanding role model for women farmers in PNG.



*Maria Linibi, NARI Council Member representing PNG women farmers and smallholders from the Momase region*

From Mutzing in the Markham Valley of Morobe Province, Mrs Linibi, (51), was bestowed with the award by Switzerland-based Women's World Summit Foundation for her role in agricultural innovation and rural development.

This year's award, titled "Women's Creativity in Rural Life", was given to 14 laureates from around the world. Mrs Linibi was among five from the Asia and Oceania category. Other

awardees under this category were from China (two) and India and Indonesia (one each).

Mrs Linibi was nominated by PNG's National Agricultural Research Institute (NARI) and the Queensland Department of Primary Industry (QDPI), Australia.

A proud Mrs Linibi said women's silent whispers have been heard around the globe. "To be recognised in the world is a privilege to me, PNG women farmers and the farming community at large," she said.

A highly competent farmer and business woman, Mrs Linibi and her husband together command vast experience in farming and imparting their knowledge to others. They are well recognised within the PNG farming and agriculture circles for their work in the sector.

Mrs Linibi worked as a public servant with the Western Highlands Provincial Government for many years

before quitting in 1990 to take up farming. From her humble beginning, she now tirelessly uses her experience to stimulate and encourage women farmers in a range of skills and techniques in farming throughout the country.

Some of the agricultural research and development organisations that Mrs Linibi works with as a farmer, farmer representative, trainer and farmer extension worker include NARI, Fresh Produce Development Agency, Cocoa and Coconut Institute, Department of Agriculture and Livestock, Ramu Sugar Limited and the Republic of China on Taiwan.

## Kenyan expert to lead new agriculture support project

A former programme leader with the International Food Policy Research Institute (IFPRI) has been engaged to lead an AusAID funded project in PNG, targeting the agriculture sector.

Dr Adiel Mbabu, 51, from Kenya, took up his new job in November 2006 as a specialist with the new Agricultural Research and Development Support Facility (ARDSF), which will be implemented in 2007 and beyond. The project has three components; 1) direct grant support to the National Agricultural Research Institute (NARI), 2) support to institutional development of the National Agricultural Research System, and 3) Agricultural Innovations Grant Scheme (AIGS). Dr Mbabu will be primarily involved with component 1 as a link between AusAID and NARI but will also contribute to component 2 in an advisory capacity. He will also work closely with Australian contractors for the AIGS component.

Dr Mbabu brings with him a wealth of experience in programme and project development, management and evaluation. Before coming to PNG, he was Programme Leader of IFPRI's Organisation and Management of Agricultural Research in which he was involved in developing programmes and projects aimed at supporting and strengthening initiatives of



*Dr Adiel Mbabu, during a recent visit to NARI Head Office*

national and regional research and development (R&D) organisations in a number of countries in Africa. He was also involved in facilitating and establishing programmes in agricultural innovation, research management and policy learning, institutional reforms in agricultural R&D and other impact oriented systems for R&D institutions and organisations.

Dr Mbabu's other areas of expertise include socio-economics, programme development for post-graduate training, gender based research approaches and sociological studies in diverse agricultural and rural development areas with maximum exposure to working in multi-disciplinary research teams.

## Fire drill at NARI Kerevat

Putting fire fighting equipment in place is very important for all business houses and individuals as there is no knowing when a fire will start.

This was the call from the Fire Inspector, Edward Tommy, of the Fire and Hazard Safety Section of the Fire Service in Kokopo when conducting a fire drill for all NARI Kerevat staff and families on 23 October, 2006.

When inspecting the buildings in the station, Mr Tommy said the main office building would take 15 minutes to be completely destroyed by fire because it is one of the oldest buildings in the province despite the many facelifts to improve its image.

As part of the fire drill, a drum filled with 40 litres of water mixed with five litres of petrol and diesel was set alight and 30 participants took turns to put out the fire using a fire extinguisher.

## **P** Rationalising taro collections

Papua New Guinea is one of 10 countries in the Oceania region whose taro germplasm is pooled into the regional core collection for taro germplasm.

According to *Plant Genetic Resources News from the Pacific* electronic newsletter, a regional (Oceania) core collection for taro germplasm has been developed based on phenotypic and molecular characterisation.

In total, 2199 accessions of taro germplasm have been collected by TaroGen (Taro Genetic Resources: Conservation and Utilisation) from 10 countries including Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia, Fiji, Palau, Niue, Tonga, Cook Islands and Samoa.

The objective was to select 10 percent from each country to contribute to a regional core. The larger collections from Papua New Guinea, Vanuatu and New Caledonia were analysed based on

phenotypic characters, and a diverse subset representing 20 percent of these collections was fingerprinted.

A diverse 20 percent sub-sample was also taken from the Solomon Islands. All accessions from the other six countries were fingerprinted.

In total, 515 accessions were genotyped (23.4% overall) using taro specific simple sequence repeat (SSR) markers.

DNA fingerprint data showed that great allelic diversity existed in Papua New Guinea and the Solomon Islands. Interestingly, rare alleles were identified in taros from the Solomon Islands province of Choiseul which were not observed in any of the other collections.

Overall, 211 accessions were recommended for inclusion in the final regional core collection based on the phenotypic and molecular characterisation.

## **Fruit Fly project**

### **T** starts in Kerevat

The Papua New Guinea Fruit Fly Project on damage impact assessment has started in Rabaul, East New Britain Province. The survey will be carried out from December 2006 to February 2007.

The survey will involve asking farmers about their knowledge of the banana fruit fly species (*Bactrocera musae*) and the damage it can cause banana fruits, as well as their knowledge on control of damage by insect attack.

John Bokosou of the Wet Lowlands Islands Programme plans to conduct the survey in Kokopo, Rabaul, and Kerevat. Entomology student Kenny Ambrose from the University of Vudal on industrial practice has already assisted to conduct the first survey in Matupit and Gelegele Resettlement area.

The other part of this project is to sample ripe or unripe green mature fruit from various locations and rear them in the laboratory.

## **T** NARI Tambul delivers at Mt Hagen Market Exposition

The four-day Expo (December 6-9, 2006) at the new Mount Hagen Market prior to its opening was a strategic avenue for farmers and rural communities to learn about a range of research and development initiatives undertaken by the National Agricultural Research Institute (NARI) to address food security issues.

NARI's Tambul-based High Altitude Highlands Programme (HAHP) displayed posters and publications depicting its activities. These included potato late blight management, development of emerging crops such as wheat and pyrethrum, livestock development and screening of sweet potato varieties for early maturity. There were also demonstrations of appropriate technologies such as wheat milling using simple machinery for alternative food and livestock feed.

More than 10,000 people who passed through the NARI stall learnt from NARI's work, which included

other improved food crop varieties such as hybrid taros, drought tolerant cassava varieties and the famous African yam supplied by NARI Bubia for the occasion.

Scientists from NARI Tambul were on hand to respond to farmer queries and provide explanation of better farming practices using new and improved techniques. Emphasis was also placed on food recovery efforts using early maturing varieties of common food crops during food shortage.

A number of early maturing sweet potato varieties evaluated for high altitudes, which can give high yielding and good quality crops within six months were showcased. Sweet potato in this region usually takes 9-12 months to mature and is sensitive to frost.

The display of the reintroduced Andean tuber crop was another attraction. Many were surprised to see this frost resistant crop assessed to reduce the risk of frost. During

periods of frosts (and drought), this crop can be consumed by humans, but can be a good feed for pigs at normal times.

Research on managing the potato late blight epidemic is another major focus of HAHP. A head-on approach in field research is being undertaken by NARI to manage this disease through screening of potato varieties tolerant to the disease, and evaluation of fungicides and cultural control methods. At the Expo, potato farmers were eager to see and learn about some of the 36 introduced varieties displayed.

A range of information on NARI's work was shared and given away, including research and development initiatives at the Bubia, Labu and Aiyura programmes. These included rice and grain, spices, livestock breeding and feed formulation, vegetable production, pest and disease control, drought coping strategies, food processing and post harvest, and plant genetic resources.

## NGI gaols receive rice production training from NARI

Large amount of rice is imported every year into the country from Australia and Asia due to its high demand by Papua New Guinea consumers. It is recorded that 153,071 tonnes of rice valued at K340 million is imported annually. It is also evident that the price of imported rice is increasing as high as K3 – K7 per kilogram in rural areas and farmers are left with no option but to buy imported rice.

Learning and rehabilitating institutes such as the Correctional Institution Services (CIS) are major consumers of rice because it is less expensive and can feed a multitude of people compared to the traditional food crops.

Rice, however, has been grown as a subsistence food crop in PNG for more than 100 years in various locations throughout the country. Research and trials conducted by the National Agricultural Research Institute (NARI) has documented evidence that rice can be grown in PNG. However, for most farmers it is a new crop to grow and there are various aspects that need to be taken into consideration when thinking of going into rice cultivation. Plant characteristics, growth habits, cultivation practices, pest and disease problems, and post harvest practices are, in most areas, unknown to the local farmers.

The CIS through its Prison Industries Improvement Programme contained in the Institutional Corporate Implementation Plan has embarked on rice cultivation to reduce its dependence on imported rice. A major component in

this drive is to train detainees in Upland Rice Cultivation.

NARI was approached to conduct the training in three centres in the New Guinea Islands Region, at Lakeimata in



*Participants of the three-day rice production training at Lakeimata Prison*

West New Britain, Kerevat in East New Britain and Kavieng in the New Ireland Province from 23rd October to 2nd November 2006.

Rice Agronomist from the NARI Wet Lowlands Mainland Programme, Stanis Malangen, was recommended to facilitate Upland Rice Production and Milling training for CIS detainees with assistance from CIS officers.

At Lakeimata, the three day training commenced with upland rice cultivation after the induction of 33 participants. On the second day, participants went through instruction on post harvest and milling. As part of imparting practical skills and relevant theory instructions, participants cultivated a 2 hectare land area with upland rice on the third day to complete their skills training in rice cultivation.

Mr Malangen then proceeded on to Kerevat. Because of travel hiccups, the training course was not conducted but he was able to hand over training materials and rice seeds to the Superintendent Mathew Bine. Mr Malangen was also given a tour of the Kerevat farm and observed the progress of rice production.

The last stop was Kavieng where 33 course participants, including five CIS officers, underwent training in basic rice cultivation methods and rice milling practices. This involved types of milling and the difference between single and double pass mills. Another aspect of the training involved demonstration in irrigated field preparation.

Mr Malangen was also given a tour of the Gaut field where rice was planted under upland conditions.

Through observation, Mr Malangen said all the three CIS centres in the NGI region have sufficient land area that can be used to produce rice. He said Kerevat and Kavieng are well into rice production with two mills each whereas Lakeimata has none. All centres have well trained personal to promote the crop coupled with the availability of equipment and trained detainees. The institutions will save costs by producing their own rice for consumption.

## NARI Aiyura participates in Goroka Show

The NARI Highlands Programme went out this year to display its research activities and samples of technologies at the recent Goroka Show, which was held from the 16-17 September.

On display were posters depicting the various research activities and skill training such as for the Plant Derived Pesticides.

Many farmers were interested in the livestock information especially on feeding pigs, care of baby chickens, drenching sheep and goats and Australian chickens.

Farmers also bought information materials from the Toktok Series, the Information Bulletins and the Extension Booklets. A total of K295.90 was raised of which, K178.50 was raised from publications whilst K117.40 was raised from the sale of yam, corn seeds and round cabbages.

From the show, there were some issues raised like:

1. Access to planting materials and seeds.

2. Training in the areas of livestock and feed formulation and nursery management practices.
3. Information on: cut flowers, apple growing, vanilla, rice pests, best or economical management of pests and diseases, sweet potato weevil management and oribus weevil management.

Appropriate technologies that were released by NARI will be demonstrated at future shows where it is appropriate and relevant.

## The state-of-the-art Mt Hagen Market

Farmers and producers from the Highlands provinces will benefit from a new state-of-the-art market facility opened on 9 December 2006 in Mt Hagen City.

The market complex covers a total floor area of nearly 4,000 square metres and was built over the old site, right in the heart of the city. The building is a magnificent piece of modern-day architecture and features important services such as public telephone booths; electronic banking (automatic teller machines); First Aid clinic; toilets and pressurised water system; as well as agricultural extension booths with security and police personnel available on site. All structures were erected with steel portal frames and concrete with bond corrugated steel roofing and fencing.

According to the AusAID team and project stakeholders, the all-new Mt Hagen Market is by far the biggest and the best market in PNG and perhaps the South Pacific.

## Morobe Agricultural Show

The 46<sup>th</sup> Morobe Provincial Agricultural Show was again organised by the Show Society from November 4-5, 2006.

A number of agricultural research and development organisations showcased their initiatives on agricultural and rural development in PNG. These included Cocoa Coconut Institute, Department of Agriculture and Livestock, National Agricultural Research Institute, Coffee Industry Corporation and Alele Fresh Produce. Agribusinesses such as Trukai Industries and Ramu Sugar Limited again took the centre stage - also as part-sponsors of the two-day event.

Exhibitors ensured farmers and showgoers got value for their money by providing them with information and technologies on a range of issues on food crop and livestock production, post harvest and downstream processing of food and other goods from locally available

resources using simple techniques, and many more.

Adding flavour to these were the demonstration plots with live plants near stalls of some of these agricultural organisations at the showground.

NARI again took to the stage with its many technologies and information for farmers and the showgoers. The Lae based Wet Lowlands Programme at Bubia, Labu Livestock and Highlands Programmes, with the technical section from Head Office participated in the tiring but fun filled two-day event.



*Kumaino Wioiga (right) of NARI Publications Unit working tirelessly during the Morobe Show*

## Farmers learn from Angoram Mini Agricultural Show

People must stand up and move forward to meet the demand of food supply in the domestic market. President of Angoram Local Level Government Council in East Sepik Province, Justine Nambu, said there is so much land sitting idle which the people should use to produce more food.

Mr Nambu was speaking to over 1,000 farmers during the Angoram Mini Agricultural Show from 28-29 November 2006. He said land which the people own is right there at their doorsteps and they should start getting their hands into the soil to reap the fruits of their hard work.

The two-day show was held to promote agricultural technologies to farmers and stakeholders in the Angoram district and the province. A number of organisations participated with displays and demonstrations of improved food crops and technologies. These included the

National Agricultural Research Institute (NARI), Cocoa Coconut Institute, East Sepik Provincial Department of Agriculture and

production and farming practices at this first ever agricultural show.

Pascal Pandau of NARI's Wet Lowlands Mainland Programme was on hand to demonstrate some of the improved food



*Pascal Pandau (left) of NARI demonstrating a technology to farmers in Angoram, East Sepik province*

Livestock, womens groups and other NGOs and farmers.

Farmers learnt from a range of new and innovative ways of crop

crop varieties NARI has released for farming in the lowland conditions. They included crop varieties such as taro, rice and cassava. Information on a range of crops, livestock and technologies were sold and distributed during the show. Other activities on crop improvement, vanilla curing, food processing, genetic resources conservation and maintenance, and pest and disease management were also showcased.

The successful staging has prompted the show committee to host the event annually.

## NARI join schools in Lae to commemorate

### World Food Day

The National Agricultural Research Institute (NARI) Wet Lowland Mainland Programme (WLMP) participated at the annual World Food Day (WFD) commemoration on October 16, with various schools in Lae.

The event was organised by the Department of Agriculture and Livestock (DAL).

NARI, the Development of Sustainable Agriculture in the Pacific (DSAP) and Fresh Produce Development Agency (FPDA), were invited to promote the theme, "Invest in Agriculture for Food Security". This included dissemination of information packages to schools, and technology through displays and demonstrations.

This year's WFD commemoration which was staged at the Markham Road Primary School attracted 22 other schools throughout the city of Lae. The main emphasis was on driving home the message of agriculture and its significance in addressing food security to school children, who would then act as agents of technology transfer at household levels. The teacher in charge of the host school said that the event was an opportunity

for students, especially those born and raised in the city, to be appreciative of the role agriculture plays in any society.

He also pointed out that demonstration plots in schools teach hands-on experience to students as well as help them to realise other benefits such as earning cash through marketing (Commerce) and various methods of preparing farm produce for consumption (Home Economics).

NARI's taro releases (NT1, 2, 3 and 4) and rice (NR1, 9, 15 and 16) were showcased through the demonstrations. Taro beetle control methods were also put on display and attracted many of the visitors. Minisett technologies were demonstrated as a means to multiply planting materials for taro and yam.

Through such displays and demonstrations, NARI continues to showcase its role as a premiere research institution promoting innovative agricultural development through scientific research, knowledge creation and disseminating necessary information.

## DWU trains on video

### editing

Training on video editing and scripting was conducted for NARI officers. The Communication Arts Department of the Divine Word University (DWU), Madang, made this possible from 6-9 November 2006 at the NARI Head Office in Lae, Morobe Province. Five officers from the Information and Publications Unit attended the four-day training, which was exciting and fun-filled as all were new to video and television production.

The sessions were both in theory and practical. While the main issues covered were in editing using appropriate tools and features, the trainees had practical sessions from shooting through to final product in DVDs and CD-ROMs. Other major areas covered included scripting, camera handling, shooting and post production sound.

The attendants were appreciative of the skills they learnt as these will help them in fully utilising their resources and produce relevant information materials for appropriate clients.

## Aiyura pledges support to village vegetable venture

The NARI Highlands Programme in Aiyura, Eastern Highlands province, was invited by the people of Mokona-Teveo village in the Kamano No. 2 area to witness the official opening and the launch of the Kesue Fresh Fruits and Vegetable Suppliers (KFFVS) contracted to supply the Ramu Nickel Mine. The invitation was also to engage NARI's assistance in the development of KFFVS

Mokona-Teveo village is located at an altitude of about 1,800 metres and is 5 kilometres from the main road outside Okapa in the Kainantu District.

The NARI team comprised of Otto Ngere - Crop Protection, Kai Lali - Nursery and vegetable growing, Issac Taraken - Natural Resource Management and Amento Ira. The team left Aiyura at 8:30 am on 10 August 2006 and was the first of the guests to arrive at the village

despite the remoteness and poor road conditions.

Mr Taraken addressed the villagers on behalf of NARI pledging the Institute's support to contribute meaningfully towards the growth and development of KFFVS through research and technical advice in areas such as suitable vegetable varieties, crop protection, soil fertility and general environmental care issues and where possible supply of planting materials.

He called for more agricultural activities in the rural settings and encouraged partnership with NARI, Fresh Produce Development Agency (FPDA), Department of Agriculture and Livestock (DAL) and NGOs. Mr Taraken said this will bring about economic empowerment as money

will be brought right onto their door steps through KFFVS. He also acknowledged Ramu Nickel Mining Company for offering such an initiative for rural farmers to improve their livelihoods by producing and supplying of fresh produce.

Nursery Manager Mr Lali emphasised nursery management practices and urged the people to call in at any NARI office and seek advice on quality vegetable production.

The FPDA representatives urged the people to start growing vegetables as there will be a Vegetable Depot to be built soon in Kainantu to assist farmers in storing and transporting their produce to retail outlets and provincial markets.

## Karkar vanilla to go directly overseas

Vanilla from Karkar Island, Madang province, will now be exported directly to overseas markets. This follows the launching of a vanilla training and processing facility in Kebasob village on 7 October, 2006.

The facility, known as "Madagro Spice Exporters (MSE)" will buy vanilla beans from growers and smallholder farmers and treat them before exporting overseas.

Project leader Lilaun Bafui said despite the current fluctuations in the price of vanilla, MSE will take promoting and processing high quality cured beans as high priority on the Island and export them directly to buyers on the world market. Mr Bafui said the project had already made a trial in exporting and the result looked promising, adding that vanilla in Madang has a better advantage in terms of vanillin content (2.79 percent), which is far above the world rating of 1.6 percent.

Karkar Local Level Government (LLG) Council President, Lincoln Ireng, said the facility is the first of its kind on the Island and would greatly benefit the growers in bringing markets to their doorsteps. He said MSE, a community

initiative undertaken by local vanilla farmers, will buy both cured and green beans from farmers and process them at the facility before exporting.



*Karkar vanilla farmers admiring some of the cured vanilla beans processed by Madagro Spice Exporters*

Therefore, he urged the growers to support the project and be serious in producing quality produce that will be attractive and competitive to earn better returns.

The National Agricultural Research Institute (NARI) showed its support by presenting a set of improved information on vanilla technology to the community centre. Not just that, new and appropriate knowledge and information on a range of other

alternative crops, food and cash crops, livestock and resource management issues were made available.

Mr Bafui said the project is looking at setting up internet and telephone facilities to access and source information from outside and communicate with key stakeholders.

Madang Provincial Adviser for Agriculture and Livestock, Ganei Agodop, launched the facility. Those officiating at the event included representatives from NARI, Commerce and Treasury Divisions of Madang, Karkar

LLG, Provincial Women's Association, Churches, community leaders and farmers.

Vanilla has emerged on the Island as an alternative cash crop after copra and cocoa. About 500 people who witnessed the occasion showed their willingness to take the crop a step further. Farmers have also indicated the need for further training and advice on quality production of vanilla.

## NARI represents PNG in regional biosafety workshop

The National Agricultural Research Institute (NARI) participated in the workshop on "Biosafety Regulations for Transgenic Crops and the Need for Harmonising them in the Asia-Pacific Region" organised by the Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) from 31 July -2 August, 2006 in India.

The objectives of the workshop were to:

- Share information about biosafety frameworks in the Asia-Pacific region.
- Identify and prioritise areas for harmonisation.
- Identify elements of regulations that need priority focus for harmonisation, and
- Develop operational modalities for regional cooperation.

Dr Akinapally Ramakrishna, Research Programme Leader of the NARI Highlands Program based in Aiyura, Eastern Highlands province, attended the workshop and presented the country paper on "Biosafety regulations and guidelines in PNG" outlining (i) national policy on R&D, commercialisation, import, labeling, liability of GM crops, food and feed, (ii) status of research, commercialisation and trade in GM crops, (iii) biosafety and biotechnology regulations, (iv) legislation related to export and import of GMOs and GMO products in PNG, (v) process of approval of GM crops and mechanism for risk assessment and management, (vi) international obligations, and (vii) capacity in biosafety and biotechnology.

Among the recommendations, the workshop expressed a general consensus that countries should

move towards identifying issues that need harmonisation at the regional level while recognising that every country would have their own regulations and stand on the subject, and that there is a need for capacity building (training, sharing of expertise, partnerships), the efforts for which would significantly contribute towards harmonising the procedures and protocols as recommended above.

PNG's Department of Environment and Conservation (DEC) is the national focal point for Convention on Biological Diversity (CBD) matters. It has been actively involved in the development of the Draft National Biosafety Framework so that a system can be put in place to address the safe handling, transfer and use of living modified organisms (LMOs) resulting from modern biotechnology. This Draft Biosafety Framework is waiting the National Executive Council's (NEC) endorsement and approval.

## NARI Aiyura celebrates Christmas

Coming together as a community and celebrating Christmas can mean a lot to so many people. At the Aiyura Programme, staff and their families came together for a day and did just that.

The 14<sup>th</sup> of December saw over 200 staff and their families converging at the NARI Aiyura office quadrangle for an end of year Christmas party. As a custom each year, staff contributed towards the celebration with the NARI Aiyura management chipping in the bigger portion.



The Christmas party saw children enjoying themselves with games organised by the wife of one of the expatriate staff, Wendy Bailey, while Christmas carols were sung to bring variety to the party.

Following on from there, speeches were given by staff. In presenting his speech, Kua Guman, the Programme Resource Manager expressed appreciation of the active involvement of Dr John Bailey

saying also that the Aiyura programme is privileged to have such a diverse group of people who in one way or another are able to celebrate together happily.

The Christmas party was also an opportunity to say goodbye to one of the programme staff, Johnny Wemin, who is on transfer to the High Altitude Highlands Programme in Tambul, Western Highlands Province. The programme bade farewell to Mr Wemin and family with presents given by the programme and individuals.

The day ended with a sumptuous meal prepared by the staff and their families.

## NARI Sponsors Dux of Bubia Primary

NARI was proud to sponsor the Dux of grade eight, the top agriculture student in grade eight and the Dux of grade seven during the 9<sup>th</sup> Bubia Primary School graduation.

Of the three prizes, the dux of grade seven was sponsored by NARI Livestock Programme (Labu) and the other two prizes came from NARI Head Office.

The Head Master of Bubia Primary School thanked NARI for its generosity in sponsoring the students because it was not easy to seek sponsorship to buy prizes for students nowadays.



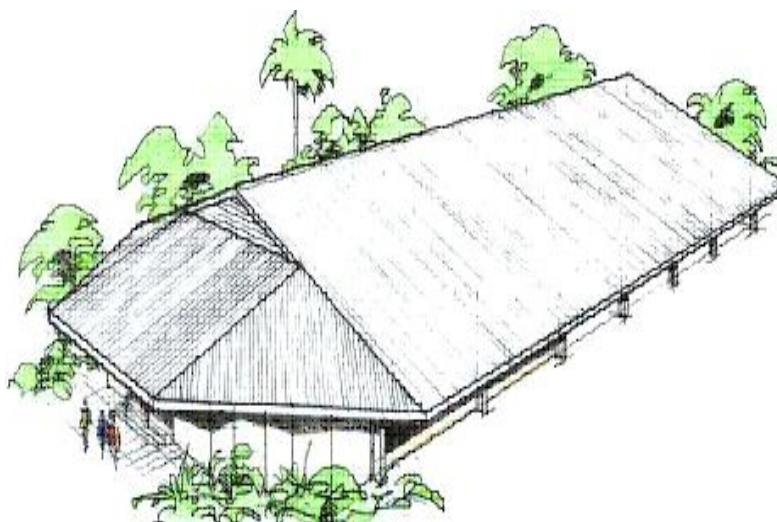
Tony Villa (top Gr.8 Agriculture Student), Omooyo Bill (Dux of Gr.8) and the Dux of Gr.7

## Foundation laid for Alan Quartermain Multi Purpose Hall

After the groundbreaking ceremony on 5<sup>th</sup> May 2006, the design of the Alan Quartermain Multi Purpose Hall was completed and seven builders in Lae were invited to submit tenders to construct it.

The building design features an auditorium to seat more than 500 people and a conference room to seat 200 people. The conference facility is equipped with kitchen, lobby area and toilet facilities and should serve the purpose of the building well.

Out of the seven builders that submitted their tenders, JBJ Enterprise was selected and awarded the Building Contract. The building agreement was then signed on the 20<sup>th</sup> October 2006 and JBJ took possession of the site and started construction on 30<sup>th</sup> October 2006. The Alan Quartermain Hall will be constructed in three stages. The first stage, covered by this report, is basically the construction of the main structure



which is made of steel columns, rafters and some blockwork at the stage area. This stage one will take 11 weeks starting on 30/10/06 and should be completed on 15/01/07. The cost of this stage is K499,000 and the funds which were donated by the Morobe Provincial Government will be utilised.

The second stage of construction consists of the entire concrete floor, block walls and the roof cladding. It is planned that on completion of the second stage, the building can be utilised for the Open Day on 5<sup>th</sup> May 2007. The third stage will cover all the remaining works required to complete the building.

## Disease outbreak halts Australorp project

The Wet Lowlands Islands Programme's Australorp Chicken distribution project has been halted after the Newcastle disease hit the shores of East New Britain Province in November.

The disaster prone province has so far this year experienced heavy losses in the agriculture sector with the eruption of the Mt Tavurvur Volcano, Cocoa Pod Borer and now the Newcastle disease.

The Australorp project at Kerevat has four running incubators that hatch about 30 chicks a day. Interest for these birds is great with farmers from the Islands region and other parts of Papua New Guinea sending their order for the day old chicks.

Jeffery Lawrence who looks after the Australorp distribution said he receives a lot of orders in a week, much more than he can be able to supply. "Currently there many people inside the province and outside requesting for the Australorp Chickens but we cannot meet their demands," he said.

With the current threat posed by the Newcastle disease in the Rabaul district area, all distribution and transporting of any live birds or chicken is temporarily prohibited.

Australorp farmers in the country will have to wait until clearance is given by the National Agriculture Quarantine and Inspection Authority (NAQIA) that the Newcastle Disease has been contained.



Jeffery Lawrence inspecting a Australorp Chicken suspected of Newcastle Disease

## Fish farmers undergo hands-on aquaculture training

A successful three-day training workshop was conducted at Potsy Village in the Wampar Local Level Government (LLG) of the Huon District, Morobe Province, in August. It was organised by the National Department of Agriculture and Livestock (NDAL) Aquaculture Development Officer based at Erap, Johnney Soranzie.

The training workshop is one of a series of workshops being conducted throughout the country funded by Australian Centre for International Agricultural Research (ACIAR).

Over 208 fulltime participants attended the workshop including farmers, DAL and fisheries extension officers from all districts of Morobe province as well as ADB/SSCF service providers, research scientists from NARI, and teachers from higher learning institutions such as University of Technology and other institutions within the province. The farmers made up the majority of the fulltime participants. The training was organised and conducted with the help of Douglas Kawa, Coordinator of the Potsy Fish Farmers Association, and the Association's President Timothy Bikit.

The training has provided opportunities for Potsy farmers to move a step forward to improve their fish farming operations. Many mistakes were pointed out, discussed and corrected over the three days. With a focus on practical demonstrations with minimum theory, the workshop provided opportunities for illiterate and lowly educated farmers to understand the basics of fish farming and learn through observation and hands-on training.

The aim of the farm-based training was to transfer basic fish farming information using existing pond facilities at the village level to assist farmers understand the basics of fish farming operations with their own fishponds as the training ground. Also training at the village level provided the opportunity for the participants to critically evaluate their fish farming practices, identify their problems and improve their farming practices.

The main topics covered during the training workshop included pond design, water intake and outlet structures, water for aquaculture, species for inland pond aquaculture, management of tilapia grow-out ponds, feed formulation, legumes used for tilapia feeds and economics of fish farming.

## TV shows liven up NARI Kerevat Station

With the difficulties in owning TV and being informed about news and information locally and abroad, NARI Kerevat decided to enable people to have access to the wonders of television.

This was through the construction of a communal television viewing area complete with a TV set.

The TV viewing area or shed was constructed by the Carpentry Section of the Correction Institution Services through the use of manpower resources from the Kerevat Gaol. This initiative was made possible through a Memorandum of Understanding (MOU) signed by the former Agriculture and Livestock Minister and CIS Minister in the previous Morauta Government.

An overhead storage case was built to store the TV screen when it is not

in use. Concrete flooring and lighting were also installed to give the shed a theatre-like atmosphere.

Since this service has been operational, the 6pm EMTV News is bringing most of the elderly field workers and their families to the TV shed to catch the latest news and happenings around the country. Most of these people are just too eager to watch and hear about developments taking place in their areas and home provinces which they have left behind so many years ago.

Widely watched programmes are the Australian Rugby League competition matches especially the State of Origin and the final series as well as the local CHM Music shows.

The TV viewing building is 35 metres long and 6.5 metres wide built with locally sawn timber from the nearby forest.

## Ensuring food security on PNG Atolls

The National Agricultural Research Institute (NARI), guided by its mission to contribute to the agricultural development and realisation of national goals through applied research and technical services and identification, adaptation and transfer of agricultural technologies and information, has wonderful news for farmers on the atolls.



Mande Pako holding an African yam weighing 8.5 kg grown on Mioko Atoll

Agronomists based at the NARI Wet Lowlands Islands Programme in East New Britain Province have worked over the years experimenting with drought tolerant sweet potatoes, cassava, aibika and the African yam to grow on the atolls. And the results have been very encouraging.

Agronomist Louis Kurika who heads the Atolls research and development project has

been working with the people of the atolls in Manus, New Ireland, East New Britain and Bougainville Provinces. The main on-site research location is on Mioko Atoll in East New Britain.

“Many of the people on the atolls are facing hunger because of no access to arable land for food cultivation. As part of the PNG Government’s Medium

Term Development Strategy on food security and poverty reduction, NARI is working towards providing high quality planting materials that can grow well on the atolls and also educating the people on efficient sustainable production of their local food,” Mr Kurika said.

Mioko Atoll is one of 13 atolls that make up the Duke of York Islands. With the population of over 10,000, food security, land use and population control are a concern.

As a base site for atolls food crop evaluation, eight varieties of cassava, four varieties of aibika, and a few varieties of sweet potato were tested on coral garden plots to determine their yield potential. All these crops including the African yam bear good yield and now these crops are being distributed to the other atolls in the New Guinea Islands region to be tested.

## East New Britain farmers visit LAES

A group of farmers from New Britain Farmers Field School visited the Wet Lowlands Islands Programme in Kerevat recently to look at integrated Pest Management (IPM) concepts.

The trip was made possible by the Cocoa Coconut Institute of Papua New Guinea (CCIPNG) Farmers Field School and donor funded assistance for community training.

During the visit, farmers learnt the concept of IPM using sound environmental and pest control strategies. The farmers were told that to reduce the introduction of pests to gardens and plantations, farmers and block holders must manage their gardens and crops.

The insect population build up can increase if gardens are not managed and kept up with block sanitation. The concepts of integrated pest management are crop rotation, using recommend varieties, intercropping, mulching, composting and, most important, sanitation and clean environment that prevents insect or pest build up in the garden.

## Invasive weed *Chromolaena odorata* spreads fast on Misima Island

Siam weed (*Chromolaena odorata*), considered as a potentially serious threat to agriculture in Papua New Guinea is found to be present on Misima Island in the Milne Bay Province. In November, officers Michael Day (Queensland Department of Natural Resources, Mines and Water) and Ingu Bofeng (NARI) visited the island to access the situation of the spread of the weed and to release the weed’s natural enemies.

The officers found that the weed has increased substantially and has infested all areas on Misima Island. *Chromolaena* was first reported on the island at Siagra on the northeast coast of the island in 1997, covering a distance of 5 km, and in a 2000 survey it had spread to the southern coastal villages, Misima Mine site, quarry areas and clearings.



Councillor Jimmy Ganeganewah of Misima releasing *connexa* galls into *Chromolaena odorata* while District Rural Development officer, Weizman Kiram, keep watch. The weed is affecting food gardens, cocoa and coconut plantations, roadsides, the mine’s rehabilitation programme and replaced natural vegetation on the island.

The biological control agent of the chromolaena weed, the stem-galling fly *Cecidochares connexa*, introduced from the Phillipines in 2001, was released throughout the island to control the spread of the weed.

Monitoring of the previous release sites (releases were made in 2005) has shown that *C. connexa* has established and spread widely on the island, especially on the eastern part of the island and Bwagoia Township.

However, the presence of about five *C. connexa* galls on each chromolaena plant proves the agent is slowly building up its numbers and after a few years will greatly reduce chromolaena infestation on the island.

## Humans and agriculture as a human activity

By Alan Quartermain  
alan.quartermain@nari.org.pg

Since this will be my last Food for Thought in NARI Nius before I move on I might be forgiven for delivering a homily on what I think NARI should be doing and how it might be done. But I think I've probably done enough of that already. What I want to do is talk a little about us humans and agriculture as a human activity.

The great song writer and folk singer Joni Mitchell (before your time perhaps) has a song called "Big Yellow Taxi" which is about "loss". In it she laments the effects of "development" on the environment and ponders the effects of farming technology – *"Give me spots on my apples, but leave me the birds and the bees, please";* and *"They took all the trees and put them in a tree museum; and they charged the people a dollar and a half just to see 'em; don't it always seem to go that you don't know what you've got till its gone; they paved paradise and put up a parking lot"*.

Farming is often seen as a struggle between people and nature, as if people were not natural, a part of nature. And some forms of agriculture can be likened to paving paradise, not only modern commercial agriculture either. A Press Release from FAO dated 29<sup>th</sup> November 2006 points out that the rapid growth of livestock production is a major threat to the environment causing global warming as well as pollution of water ways, grassland degradation, loss of biodiversity and deforestation. Some 70 percent of former Amazon forests have been cleared for grazing, not to mention New Zealand in the early days of colonial settlement. And FAO is not offering too much in the way of solutions or remedies. People will continue to reproduce and demand more and more animal products.

We in NARI can't do much about rampant population growth nor put a cap on the increasing demands for the "good life", better nutrition and fancier foods. So we are reduced to finding and promoting "coping strategies". Would we be lacking in responsibility or care if we just let nature take its course and forget about trying to cope with, let alone stop, global warming? After all, in the past, the world has repeatedly changed, climates have changed, biodiversity has been lost and re-created, species have gone extinct and new ones evolved adapted to new conditions. So what is new? What has changed?

Speed of change is one thing, but compare this with the extinction of the dinosaurs, and the willful role of humans is another. We are the first species in history or pre-history to have some say or control over our destiny. There may in fact be no problem that we cannot solve if we put enough effort and

resources into finding solutions. Wars, famines, diseases, economic crashes, population growth, global warming and loss of biodiversity are all, at least theoretically, preventable problems. We could live in a totally controlled environment like depicted in much Science Fiction if we really wished it. If we put as much resources into solving agricultural, medical or environmental problems as we put into flying to the moon we might really be in a position to cope. How much better off are we really by being able to travel through space? Or is this only a matter of taking a shorter rather than a longer term view of things?

But to get our feet back on the ground we must agree that in dealing with the problems and opportunities of agriculture, its response to climate change or its effects on the environment, we are dealing with people. Every Agricultural Science, Technology and Innovation (ASTI) system is operated or controlled by people, farmers, scientists and the lot included. Farmers, especially innovative farmers, are precious and must be appreciated and encouraged. The Coffee Industry Corporation motto – *Lukautim kopi na kopi bai lukautim yu* – could equally well be – *Lukautim ol kopi fama na ol kopi fama bai lukautim yupela*.

And this applies perhaps even more so within organizations like NARI. NARI's scientists, technicians, field workers, stockmen and others **are** NARI and NARI would be nothing without them. Our people's motivations, needs, emotions and reactions may never be completely understood, especially by those like me from another culture. So my parting plea to you all is look after each other, motivate and encourage each other, set high standards in research but, above all, enjoy yourselves in science, technology and agriculture. I will be watching.

### Editors Note:

*We regret to inform our readers that this is Dr Quartermain's last contribution to the Food for Thought Column in this newsletter. The editorial team of NARI Nius wish to express their deepest gratitude for Dr Quartermain's timely and thought provoking articles in many of its past issues and wish him the very best in his future endeavours.*



Have your say in this forum. We will publish your letters on agricultural research and development issues or any aspect of NARI Nius or NARI. Email your letters to [narihq@nari.org.pg](mailto:narihq@nari.org.pg) or fax them to 475 1450, attention Publications Section.



## Omot presents market study at DevNet Conference

Economist Norah Omot's study on Improving the Marketing Systems for Highlands-based Fresh Produce in Papua New Guinea, funded by ACIAR, was projected onto the world stage at the DevNet Conference in New Zealand.

The conference began on the 30<sup>th</sup> of November and ended on the 02<sup>nd</sup> of December 2006. It was hosted by the *Research Cluster on Poverty, Inequality and Development*, University of Otago, Dunedin, New Zealand. A pre-conference workshop was held on 29 November.

The theme of the 2006 conference was "Southern Perspectives on Development: Dialogue or Division?" The conference attracted more than 160 papers on a diverse range of topics related

to development. Papers were presented under thematic panels in parallel sessions with as many as four to six panel themes running per session and an average of three presentations per panel theme.

Invited to present a paper under the panel theme Indigenous Peoples and Development, Mrs Omot's presentation was titled "Improving Coordination Between Indigenous Growers and Non-Indigenous Buyers of Fresh Produce in PNG".

The paper looked at the purchasing habits of major buyers of fresh produce in the formal market (supermarkets, hotels and catering companies); assessment by buyers on the performance of their fresh produce suppliers (overseas suppliers/importers, commercial wholesalers, highlands grower marketers and coastal grower

marketers); perceptions of managers and their customers (based on an earlier study) on local versus imported fresh produce on the basis of price and quality; and suggestions by managers for improvement of the fresh produce marketing system.

DevNet will publish Mrs Omot's paper as part of the Proceedings of the 2006 Conference in February 2007.



*A variety of fresh produce at the Mt Hagen market*



## NARI Publications

To fulfill NARI's mandate and meet the needs of farmers and stakeholders for information on agricultural research and development, NARI produces a wide range of publications. These include information bulletins, extension booklets and simple leaflets called TokToks. If you would like a copy of any of these publications or a catalogue, contact our information centres at the various programmes. Their contacts are on the back of this newsletter. Visit our website at [www.nari.org.pg](http://www.nari.org.pg) and get a copy of our publications catalogue.

### Some of our titles

#### Extension Booklet Series

- How to Produce Home Made Pesticide - **K2.00**
- Sampela Toktok Bilong Lukautim Maskovi Pato - **K3.00**
- Wetiwa Gras - **K3.00**

#### Technical Bulletin Series

- Conservation of Domestic Animal Genetic Resources in PNG - **K4.00**
- Strategies for Agricultural and Rural Development in PNG - **K6.00**
- Pig Nutrition Research in the 1970s and early 1980s - **K7.00**
- Plant Genetic Resources Strategy for PNG. - **K7.00**

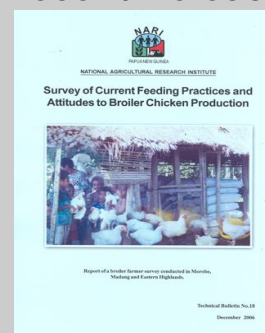
#### Information Bulletin Series

- Vanilla. - **K25.00**
- Durian. - **K5.00**
- Rambutan. - **K6.00**
- Pepino - A New Fruit Crop for the Highlands of PNG - **K6.00**
- Growing Apples in PNG - **K6.00**

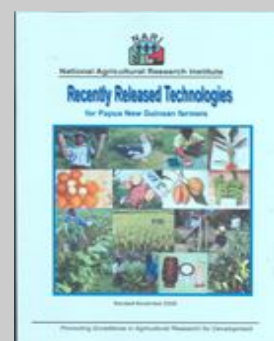
#### Workshop Proceedings Series

- Proceedings of the Pig Production Research and Development Workshop - **K7.00**
- Proceedings of the Cassava Workshop - **K15.00**
- Proceedings of the National Rabbit Workshop - **K7.00**

## Recent Releases



Survey of Current Feeding Practices and Attitudes to Broiler Chicken Production. Technical Bulletin No. 18 December 2006. **Price K6.00**



Recently Released Technologies for Papua New Guinea's Farmers (Revised November 2006)

## Banana Pest (Banana fly) Control - Tips

**B**anana is the second most important staple food crop after sweet potato in Papua New Guinea. It is eaten cooked or ripe and is always readily available from roadside and urban markets.

Banana is susceptible to attacks by insects resulting in poor fruit quality and quantity. Banana fruit fly (*Bactrocera Musae*) is a pest that attacks fruit a few weeks before it is harvested. The symptom of banana being attacked by fruit fly is shown as developed tracks or holes in the banana fruit with maggots or white soft caterpillars.

Here is a tip to control infestation and protect your bananas:

- **Method 1.**

Two weeks before maturity, bag the banana fruit with a polythene bag as shown



banana fruit with a polythene bag as shown

- **Method 2.**

Wrap the fruit with a banana leaf, such as being practiced in Central, Morobe and the Highlands provinces.



- **Method 3.**

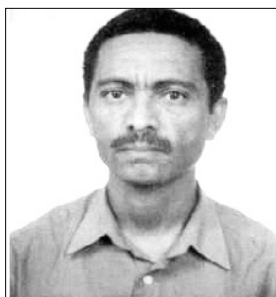
Keep the block clean and do not leave unwanted fruit in the garden that will provide a food source for banana Fruit Fly adults to breed and infest the good bananas.



These basic steps should ensure you enjoy your ripe, pest-free banana, either from the proceeds of its sale or for household consumption.

## New RPL for NARI Livestock Programme

The Livestock Programme now has a new Research Programme Leader (RPL). He is Dr. Workneh Ayalew, who started work on 29 November 2006. He replaces Dr. Pikah Kohun, who headed the programme for the last 3 years. The new RPL will oversee the livestock research activities at Labu and Tambul, as well as the inland aquaculture activities.



*Dr. Workneh*

Dr. Workneh is from Ethiopia, and has been working as a research scientist and project manager at the International Livestock Research Institute (ILRI) in Addis Ababa for the last five years.

His previous work included characterisation of livestock genetic resources, development of breeding programmes, development of research information resources and management of community-based breeding

programmes. He has field experiences in other African countries, but mainly in Ethiopia, Benin and Kenya, and worked on goats, sheep, cattle and chickens.

Dr Workneh has a PhD degree in tropical animal production from the Georg-August University of Goettingen in Germany. His BSc (animal sciences, Honours) and MSc (animal breeding) degrees are from the Alemaya University of Agriculture in Ethiopia.

He also has work experience in the management of rural development projects focusing on livestock, and teaching and academic supervision of undergraduate as well as graduate students in Ethiopia. Ten MSc and two PhD students carried out their thesis research under his supervision and successfully defended their theses.

Dr Workneh is married and has an 11-year-old son and a 4-year-old daughter.

## Recruitments

**Dr Ayalew Workneh** – New Research Programme Leader, Livestock Programme, Labu. Commence 29<sup>th</sup> November 2006

**Mr Wandamu Palau** – Research Associate, Livestock Programme, Labu. Commence 2<sup>nd</sup> October 2006

**Mr Jeffery Tanakae** – Technical Officer, Highlands Programme, Aiyura. Commence 26<sup>th</sup> September 2006

**Ms Anna Apa** – Research Associate, Highlands Programme, Aiyura. Commence 3<sup>rd</sup> October 2006

**Ms Felisa Ignatius** – Research Associate, Highlands Programme, Aiyura. Commence 30<sup>th</sup> October 2006

**Dr Guinevere Ortiz** – Principle Scientist, Post Harvest, Wet Lowlands Mainland Programme, Bubia

## Transfer

**Mr Benjamin Niangu** – Transferred from Aiyura to Laloki, effective 27<sup>th</sup> November 2006

## Resumption

**Mr Pus Wesis** – On Vacation employment at Laloki, effective 15<sup>th</sup> November 2006

## Departure

**Mr Alphonse Aitsi** – Special Project Officer, departed 20<sup>th</sup> November 2006

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