



ISSN 1608-6554

National Agricultural Research Institute

NARI Nius

Volume 5

Number 4

October - December 2002

Regional Development Forum ..	2
Taro Beetle	2
Environment Minister Visits NARI Headquarters	2
NARI to have New Headquarters	3
First National Agricultural Plant Genetic Resources Stakeholders Workshop	4
Morobe Show 2002	4
PNG/NARI Participation in the First Steering Committee Meeting of the Banana Asia - Pacific Network	5
Tissue Culture Laboratory Reactivated	5
Farewell to DG and FC	6
Acting DG Attends APAARI Meeting	6
Fruit Fly Project Review	6
Research Planning Workshop ...	7
Lady Caro Kidu Visits NARI	7
We Can Feed the World. Here's How	8
NARI Publications	11

NARI's Contribution to Export Driven Agricultural Growth for Papua New Guinea Economic Recovery

The Somare-Marat Government has decided to focus its efforts on export driven economic growth for immediate economic recovery. It has placed heavy emphasis on increased and expanded agricultural exports to help speedy economic recovery and sustainable development of the nation. Besides traditional agricultural exports, increasing attention should be given to alternative and diversified crops and enterprises. In this context, new technologies and information provision by NARI are seen as key and catalytic contributions in the efforts towards generating export driven economic growth.

For the past five years, NARI has been working on a number of agricultural export commodities to enable a larger number of farmers, especially smallholders, to increase their farm productivity and cash incomes so as to bring broad-based and sustainable development to the rural areas of Papua New Guinea.

Such commodities include vanilla, pyrethrum, peanuts, pepper, turmeric, nutmeg, cardamom, chilli, cashew nut, galip nut, mangoes, sago, taro and balsa. These commodities have high potential for export markets: for example vanilla to the niche markets of the United States and Europe; mangoes to markets in Singapore, Hong Kong and Japan; taro to New Zealand and Australia.

Vanilla has excellent production and quality potential in the lowlands of PNG because of favourable growing conditions. Also, there is a fairly high unsatisfied world demand of 2,000 tonnes annually. Currently, however, the vanilla industry in PNG is faced with a number of constraints including low quality of beans, pests and diseases, shortage of quality planting material and poor agronomic practices. NARI has been addressing these issues through applied research on management of pests and diseases, development of best production practices appropriate to various environments, information sharing and training of extension providers and farmers, and provision of quality planting material. These efforts are expected to benefit around 100,000 smallholder farmers who are growing vanilla in PNG today, with approximately 1,000 hectares under cultivation. In 2002, PNG exported some 45 tonnes of vanilla, valued at K 9 million. This is a quantum leap compared to only 16 tonnes in 2000. If this trend continues, PNG can establish itself as a major vanilla exporter and can capture at least a 10 percent share (200 tonnes) of the world market by 2006, valued at K 40 million per annum.

NARI's research work on pyrethrum in the high-altitude highlands is another example. Although pyrethrum has been grown

for the export market for many years, the industry did not fully establish and grow in PNG. The pyrethrin content of flowers has dropped because of poor quality of planting material used by farmers. At present the pyrethrin content is only around one percent in dried flowers. NARI is working on improving this content through breeding and selection to at least two percent (a 100 percent increase). Improved crop management practices have the potential to increase pyrethrum yield by 20 percent. These efforts are expected to benefit some 150,000 people in the high-altitude highlands, producing 800 tonnes of pyrethrum and giving an export earning of K 6 million per annum. That will position PNG just behind Kenya as the world's second biggest producer of pyrethrum.

Thus, the Institute's contribution through science based technologies and information is facilitating the increased export of various alternative and diversified crops. These efforts are to help contribute to higher foreign exchange earnings, create employment in rural areas, generate cash incomes and ensure a more balanced income distribution. The Institute sees this work as crucial in contributing to the agricultural growth and sustainable development of the country.

National Agricultural Research Institute
P.O. Box 4415
LAE 411
Morobe Province
Papua New Guinea

Phone: (675) 472 1751/2
Fax: (675) 472 2242
Email: nari@datec.net.pg
Website: www.nari.org.pg

Regional Development Forum

A Northern Region Development Forum was held at the University of Technology in Lae on the 11 -12 November 2002 by the Consultative Implementation and Monitoring Council (CIMC) to consider development options for PNG.

Managing Director for Neptune Fishery in PNG, Sir Henry Chow, gave a presentation on Fishery Resource Growth and Development Priorities. He said that in the South Pacific Ocean, Papua New Guinea has the third largest Economic Fishing Zone that covers an area of some 3.2 million square kilometers.

Within that large ocean area, PNG has huge fishery resources available for commercial and subsistence exploitation for the benefit of the nation as a whole and for the rural coastal villagers. "We need to look at how these fishery resources are being used, developed and exploited, and by whom. We need to look at the benefits which Papua New Guinea and our citizens are deriving and can derive from the development of these rich fishery resources".

Sir Henry said he would like to concentrate on the commercial development and exploitation of the tuna fish resources and the subsistence sector of the marine resource.

Papua New Guinea's domestic tuna longline fishery started in 1995 and after a bumpy and rough ride for three years the industry took off and developed at a rapid rate.

The growth of the fishing industry was made possible through changes in government policies which saw preferential rights and protection to PNG companies operating in the highly competitive rich tuna fishing ground covering an area of 3.2 million square kilometers including the archipelagic waters and the territorial seas.

Sir Henry said that Neptune Fishery would like to employ a thousand men who are now loitering in towns and rural villages causing social problems for the community. We need to look at our training institutions to see if they are giving the right kind of training and qualifications for employment opportunities that are now available, he said.

"We have a case where a very important and scarce fishery resource is being exploited and developed by foreign interests, which are also willing to employ our people if we have them. We need to use this opportunity of "Technology Transfer"', said Sir Henry.

He said that PNG is giving foreign interests rights to develop and make use of its fishery resources, but it should at the same time require them to employ it's people and to give them the opportunity to learn and develop the skills and expertise in this kind of fishing, so that some day in the future PNG will have the knowledge and management skills to participate in the commercial development and exploitation of these tuna resources.

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Taro Beetle



Taro beetles were ranked among the top two insect pests in PNG during the First PNG Plant Protection Workshop that was held in February 2002. The importance of the beetles to the livelihood of many farmers in PNG can be measured by the amount of damage the pest causes as well as the number of crops the beetles attack and feed on. The incidence and severity of damage caused by taro beetles is shown to be increasing by field surveys and reports from farmers and field extension staff that were collected.

In PNG the number of economic plants the beetles damage is about 15. Reports from areas such as Witu Island in West New Britain Province and Nomad in Western Province show that, with increased population and agricultural activities, unless the beetles are managed they will continue to become a menace to taro and many of the alternate economic host plants.

The ACIAR Regional Taro Beetle Project is important to enable many PNG farmers to obtain food security and cash income. A Taro Beetle management technical meeting was held on Saturday 2 March 2002 with participants from other Pacific nations such as Fiji, Samoa and the Solomon Island. The objectives of the workshop were to: confirm Taro Beetle work program for Papua New Guinea and Fiji for 2002; discuss proposed research studies to be conducted in PNG and Fiji; and discuss areas for future linkages.

Principle Entomologist with NARI, Roy Masamdu, said that the initial work will be carried out in 2002 in Papua New Guinea while evaluation of possible chemical control measures will be carried out and continued in Fiji. Results from activities in both countries will be shared among the Pacific Island Countries and Territories.

Environment Minister Visit NARI

The National Agricultural Research Institute was visited recently by prominent persons concerned with development in agriculture for the economic benefit and social well being of the rural people in Papua New Guinea.

Among them was Environment and Conservation Minister Sasa Zibe, who visited the head office in October this year. He said that he is working on a five-year development plan for the Huon Electorate in Morobe province and believes that NARI can provide the right kind of technical information and assistance to help rural farmers around the country. Mr Zibe said that Papua New Guinea is a land naturally blessed with a lot of natural resources and is rich in biodiversity. He said that PNG has a lot to learn about using the natural resources it has to develop this country. In his short visit he added that rural farmers should be provided with the right kind of information and awareness by agricultural institutions around PNG. Mr Zibe said that he would look forward to working closely with NARI to develop the rural sector in PNG.

NARI to Have New Headquarters

NARI will now have its very own Head Office complex built at Bubia research station in Lae that will enable scientists and technical officers to be closer to the farmers for assisting them on their farms.

The groundbreaking ceremony of the new head office, which took place on 16 October 2002, coincided with the World Food Day marking a critical milestone in NARI's development.

This was made possible through the European Union (EU) which is funding the new two-storey head office complex through its poverty alleviation project. The total cost of the new head office is K2 million.



Head of the EU Delegation Anthony Crasner (centre) on a guided tour around research sites at Bubia Research Station, escorted by NARI Council Chairman Sir Alkan Tololo (right) and Research Programme Leader of the station Sim Sar (left)

awarded to Boinamo Enterprises Limited in Lae. The signing of the contract took place on 7 October 2002 at the NARI head office between the acting Director General for NARI, Dr R.D Ghodake, and Director for Boinamo Enterprises Limited Mr Mario Cobuccio. The building will cover approximately 400 square metres of the old basketball court at the research station.

Peter Milder of Peter Milder Architects said that it would take up to 6 months to complete the building. Mr Milder said that it has taken two years to come up with a good building plan and design for the head office.

The new head office would house the publications unit, the socio-economics unit, the finance section, the human resources section, a board room, the Director General and Deputy Director General and have appropriate office space for other head office staff.

Head of the EU delegation, Anthony Crasner, said during the groundbreaking ceremony that EU was happy to assist because it had confidence that PNG can alleviate the course of poverty. He acknowledged that PNG had a long way to go in alleviating poverty and added that he hoped this assistance

would serve the people as a first step in that direction. Mr Crasner said EU as a partner would continue to work closely with PNG government and help wherever possible.

Chairman of the NARI council, Sir Alkan Tololo, thanked EU for their generous and timely funding support for the new head office building. Sir Alkan said that he is sure the support will go a long way to help establish and develop this young institute. "I take this opportunity to express our grateful thanks to our development partner and a key government department, the Department of National Planning and Rural Development, for their steering, planning and support for this project."

Guests present at the groundbreaking ceremony included Morobe Governor Luther Wenge, Deputy Secretary Department of National Planning and Rural Development Joseph Lelang and Vice Chancellor of the University of Technology, Dr Misty Baloiloi.



Balsa Field Day

Balsa is a remarkably fast growing tree and it is one of the major alternative cash crops that is grown in East New Britain Province (ENBP). It can be harvested and sold between three to five years from planting. Because of its fast growing habit and little input required to produce the crop, more and more people in ENB are going into balsa production apart from cocoa, copra and vanilla.

A balsa field day was organised by the International Tropical Timber Organisation (ITTO) in ENB on Tuesday 1 October 2002. It was attended by balsa growers, NARI staff from Keravat, staff from University of Vudal and also other interested potential growers. More than 100 people attended this field day which is most likely be the last for the ITTO Balsa Project which has been extended only until the end of this year.

The aim of the field day was to give participants an inside view of the balsa silviculture work conducted by the project staff to provide growers and the industry at large with useful information on growing, managing and harvesting balsa on a commercial scale. The field day covered nursery operations, techniques and production, seed procurement and documentation, plantation establishment and particularly the management and harvesting systems, tree improvement, seed production and genetic resource conservation. Field trips were taken to the Vunapalading Forestry area, University of Vudal, NARI Keravat, Keravat Forestry and Naparpar area to visit some of the work that the project staff have been doing in collaboration with various groups and institutions. Participants also had the opportunity of visiting one of the balsa processing plants at Keravat. All the participants were happy with the outcome of the field day as the project staff provided very useful and vital information on balsa production. All questions and queries that the growers or farmers had were answered well by the project staff. Indeed it was one of the best and well-organised field days.



First National Agricultural Plant Genetic Resources Stakeholders Workshop

A National Agricultural Plant Genetic Resources (PGR) workshop was held at the Melanesian Hotel, Lae, from 5 - 6 November 2002. The Workshop was organised by the National Agricultural Research Institute (NARI) in collaboration with the PGR component of the Agriculture Programme of the Secretariat of the Pacific Community (SPC). Specialists and technical personnel from various stakeholders in the country involved in agricultural PGR diversity were brought together to discuss important issues relating to conservation, management and sustainable utilisation of these genetic resources. The stakeholders who participated at the workshop included; DAL, DEC, CCRI, CRI, Ramu Sugar, FRI, PROSEA, Unitech, NGO (Conservation Melanesia) and representatives from the three Regional Projects TaroGen, SPYN and COGENT, as well as NARI technical staff.

The workshop was made possible through financial assistance from SPC.

This workshop came about as a result of a recommendation from the first Pacific Agricultural Plant Genetic Resources Network (PAPGREN) meeting held in Suva, Fiji, last year. The Regional Agricultural PGR Network now known as PAPGREN was established on a recommendation from the NARI/ACIAR workshop on Regional PGR Conservation, Management and Use, held in Lae in 1999. The 1999 workshop was organised by NARI to share with other Pacific Island Countries (PICs), the findings and outcomes of an ACIAR Project, ANRE 9428, on the economics of maintaining PNG's rich food crop genetic diversity in the context of world agriculture. The representatives from PICs at the workshop resolved that a Regional Strategy Paper on PGR conservation, management and use be developed with the vision of setting up a regional PGR network.

A small working group was formed, comprising of technical personnel from Fiji, PNG and SPC. The group developed a Framework Paper on PGR conservation, management and use in the Pacific and presented it to SPC management and various other technical committees in the region, including the Permanent Heads of Agriculture and Livestock Production Services (PHALPS) in the Pacific. The Framework Paper contributed to the establishment of PAPGREN. The Regional network would only be effective if national PGR coordination is effective and actively functioning. This workshop was organised firstly to coordinate efforts by various stakeholders in the country on PGR activities, so that PNG as a country can contribute effectively to the regional network.

One of the main outcomes of this workshop is to set up a national agricultural PGR coordinating body for PNG. The workshop had successfully set-up (in principle) a coordinating committee as well as identifying what agricultural PGR needs to be conserved, by whom, how and where. The workshop resolved that the stakeholder coordinating committee is to be known as the National Technical Committee on Plant Genetic Resources for Food and Agriculture (NTC/PGRFA). The Committee will operate under the leadership of a Chairperson (NARI) and a Deputy Chairperson (COGENT - CCRI)

and for recognition and financial support purposes, the Committee will work with and/or through the PINBio (PNGBioNET) Programme Three (3) - Agro-Biodiversity Conservation, Management and Use.

The NTC/PGRFA will be a 'focal point' in the country for technical Agricultural PGR matters, especially for PAPGREN and the region.

Morobe Show 2002

The 42nd Morobe Agricultural Show was held from 19 - 20 October 2002 at the Lae Show Ground. More than 100,000 people passed through the gates during the two days.

NARI as usual took part in this event. NARI was represented by the Wet-Lowlands Mainland Programme (Bubia), Rice and Grain Programme (Bubia), Livestock Programme (Labu) and the Drought and Frost Response Project (Aiyura).

Many show goers visited the NARI stalls and officers were on hand to explain the various displays and attend to queries.

Prime Minister, Sir Michael Somare, and his delegation visited the NARI stall during the last day of the show. Senior NARI officials, including acting Director-General Dr R. Ghodake, were on hand to receive the Prime Minister and his delegation. The PM was very impressed with the NARI activities on display.



Distribution of planting material such as suckers for hybrid taro was one of the activities undertaken by NARI at the show. The hybrid taro planting material ran out within the first few hours, reflecting the high demand and interest. Above is Rex Kawage (left) and a staffer distributing taro planting material and attending to queries at the main NARI stall.

The Rope and Washer Pump displayed by the Drought and Frost Response Project of NARI Aiyura was one of the main attraction at the NARI stalls. Mr Timothy Geob did a wonderful job of demonstrating the rope and washer pump almost non-stop. Many people were interested in this low cost irrigation system which is a technology adopted from India.

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PNG/NARI Participation in the First Steering Committee Meeting of the Banana Asia - Pacific Network

The first Steering Committee Meeting of the Banana Asia - Pacific Network (BAPNET) was held from 6 - 12 October 2002 at PCARRD, Los Banos, Laguna, Philippines. BAPNET is established under the auspices of the International Network for the Improvement of Banana and Plantain (INIBAP) and is comprised of banana experts and representatives from the countries in the Asia - Pacific region. The countries represented in the Network include Australia, Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Philippines, Sri Lanka, Secretariat of the Pacific Community (SPC), Thailand, Vietnam, Taiwan Banana Research Institute (TBRC) and Papua New Guinea (PNG). The Asia-Pacific Office of INIBAP located at the International Rice Research Institute (IRRI) in the Philippines and is the Secretariat for the Network.

The NARI Principal Scientist on Plant Genetic Resources is PNG's representative on BAPNET. A country paper entitled "Status of Banana Research, Development, Production and Consumption in Papua New Guinea" was presented at the meeting by the representative.

The idea of forming a Network was first discussed at the September 2001 meeting held in Sri Lanka and attended by representatives from 11 countries and institutions in the Asia-Pacific region. The main focus of the meeting was on banana and plantain research and development in the region. Representatives from the Asia-Pacific Association of Agricultural Research Institutes (APAARI) and INIBAP also attended this meeting. Some important observations were made at the meeting which lead to the establishment of BAPNET. One of these important observations was that banana and plantain are extremely important food crops in the Asia-Pacific region. There is another important observation that this region is the centre for genetic diversity of banana and plantain and that calls for the region to set-up a network system (approach) to address research and development issues concerning these crops.

The BAPNET Steering Committee meeting was organised for the countries in the region to assess the current situation in banana and plantain research, development, production and consumption in the region. The Steering Committee also discussed the proposed BAPNET Programmes prepared by the Secretariat and the INIBAP Coordinator for the Asia-Pacific Office. The proposed programmes include: Sustainable crop management systems; Information exchange and management; Genetic diversity management, development and utilisation; Human resources development; Supply chain management systems and Extension. The Steering Committee discussed the individual programmes and resolved that the countries through their research establishments adopt these programmes. Countries in the Network are encouraged to collaborate among themselves in any of these programmes. The Network's role is to facilitate effective collaboration among BAPNET member countries and to assist in soliciting resources for the implementation of these programmes. The overall goal of the Network is to contribute to poverty alleviation, food security for the people of the region and the world and sustainable natural resources management.

Tissue Culture Laboratory Reactivated

A memorandum of agreement between Coffee Industry Corporation Limited - Coffee Research Institute and National Agricultural Research Institute on the use of the CIC-CRI tissue culture laboratory was signed on Tuesday at the NARI head office in Lae.

The CIC-CRI tissue culture laboratory at Aiyura has not been fully facilitated since 1998 but will now be refurbished by funds from the European Union (EU). The MOA will enable NARI and CIC-CRI to:

- Use and share the facility for micro-propagation and tissue culture work needed in their respective conservation, multiplication and research activities.
- Supply tissue cultured planting material for development purposes to farmers and private sector, government and non-government agencies.
- Use and manage the laboratory at optimum capacity so that the laboratory operations are technically sound, cost efficient and sustainable.

The micropropagation (tissue culture) laboratory will have three main components:

- Conservation and multiplication for CIC-CRI research.
- Conservation and multiplication for NARI research.
- Supply of tissue culture material for development purposes to government or non-government agencies, the private sector, farmers and stakeholders.

Present during the signing of the MOA was Acting Director General for NARI Dr Raghunath Ghodake, NARI Director Research Dr Naihwo Ahai, Chief Scientist for NARI Dr Geoff Wiles, CIC-CRI Chief Executive Officer Ricky Mitio and Head of CRI Scientific Liaison Department Jacob Taru.

Mr. Taru said during the agreement that the laboratory has not been used over the years due to lack of funding, personnel, technical skills and management but will be now through the capability building project funded by EU. All technical, managerial and skilled staff involved in the laboratory would be trained under special training programmes funded by EU.

Dr Raghunath Ghodake said that, through this agreement, NARI recognises that for some experimental work the services of a tissue culture laboratory are necessary. NARI needs to make available large quantities of planting material to farmers and other clients, often on a cost recovery basis.



This is the last issue of NARI Nius for the year 2002. Thank you all for your contributions to the newsletter this year. We look forward to your contributions in the new year

Merry Christmas and happy and joyful festive season - Editor.

Farewell to FC and DG

A farewell dinner for NARI's Financial Controller, Hla Myint, and former Director General, Valentine Kambori, was held at the Melanesian Hotel in Lae on 31 October 2002.

NARI staff and close associates of Mr Kambori and Hla Myint were there to show their appreciation and share some of their experiences of working closely with the two men. Susan Why, NARI's Human Resource Assistant, gave a speech on behalf of the support staff and said those who have worked under the leadership of Mr Kambori and Mr Myint were privileged to learn so much from the former Director General and the outgoing Financial Controller.

The institute is sure to miss two significant figures that have contributed so much to NARI's development through their tireless efforts, dedication, commitment and vision for the institute. Both Mr Kambori and Myint joined NARI during its early inception in 1997.

They have seen NARI grow through its early stages and have supported it with their wise council and advice.

Mr Kambori, the former Director General, is now the Secretary for National Planning and Rural Development.

The outgoing Financial Controller, Mr Myint, is returning to Myanmar. His assistant, Daniel Kaputin, replaces him as NARI's Financial Controller after understudying him.

Acting Director-General Attends APAARI Meeting

Dr Raghunath Ghodake, Acting Director-General of NARI, attended the Seventh Executive Committee Meeting of the Asia-Pacific Association of Agricultural Research Institutions (APAARI) and Expert Consultation on Strengthening of Research Partnerships, Networks and Consortia from 2 – 4 December 2002 at ICLARM Headquarters in Penang, Malaysia. He presented a paper on "**RESEARCH NETWORKS FOR IDENTIFIED AGRICULTURAL RESEARCH PRIORITIES IN THE PACIFIC SUB-REGION**", which was based on a critical assessment of current and planned research networks and analysis of research gaps undertaken jointly by Dr Ghodake and Prof. Alan Quartermain.

This paper will prove to be a very useful reference document for the researchers, funding agencies and development institutions in the Pacific region.

Man of the Year 2002 Award

Dr Raghunath Ghodake, Acting Director-General, has been given a "**Man of the Year 2002**" Award (see certificate below) by the American Bibliographical Institute, USA, for his outstanding accomplishments to date and the noble example he has set for his peers and the entire community, especially in the area of scientific leadership, research policy and management, and institutional development.

ACIAR Fruit Fly Project Review

An end-of-term review has been done of the ACIAR Fruit Fly Project. A meeting was held to determine preferable components for the second phase in accordance with ACIAR and NARI research and management standards and principles to ensure an effective project. The ACIAR Fruit Fly project meeting was held on 25 - 27 November 2002 at the NARI head office in Lae.

The initial ACIAR Fruit Fly Project began in the late 1990's with the following objectives: (i) definition of fruit fly pest species in PNG, (ii) risk assessment studies, (iii) development of environmentally sensitive preharvest field control strategies, (iv) development of quarantine procedures and (v) training workshops. A lot of information was collected from this initial project phase.

During the second phase, the project aims to have more clear and focused priorities so that the huge amount of general information can be assessed to provide a focused picture of the research being done. There are areas that were not adequately covered, such as host surveying (particular hosts and fly species) and abundance of major fruit fly species, that will be covered and emphasis will also be given to areas such as: trapping (information on fruit fly species in the Sepik, Western and Bougainville Provinces), damage assessment, field control (preharvest techniques) and extension (collaboration with stakeholders and government agencies) to name a few activities for the next project phase.

Damage assessment is an essential activity for assessment of fruit fly damage on particular crops of economic importance to the subsistence and semi-subsistence farmer. This will provide information on how much damage can be done by fruit flies and what control methods can be used to control infestation to help improve quality and marketability. Coffee for example is a crop of high economic value to many farmers in PNG and it is host of a particular pest fruit fly species present in the country. Damage assessment research will indicate the possible impact of infestation on coffee and will also be able to determine the most preferable control techniques for these farmers.



Research Planning Workshop

The National Agricultural Research Institute held a workshop on Research Area Assessment as the second phase of the NARI Research Priority Setting Exercise in Lae at the Melanesian Hotel from 29 October to 1 November 2002. The objectives of the workshop were to;

- Complete the process of Training for ARO (Area of Research Opportunity) leaders that was held earlier in Lae on 13 -14 May 2002.
- Evaluate the RA (Research Area) information sheets that each ARO group has developed and rank the Research Areas in terms of:
 - Potential benefits
 - Adoption likelihood
 - Scientific potential and
 - Research capacity
- Begin the process of using the data collected to prepare a new strategic plan for NARI.

Potential Benefits looks at the maximum additional benefits that will be gained from successful research. These benefits are a direct result of the research outcomes.

The benefits may be economic, environmental or social, or may relate to an enhancement of NARI's research capacity.

Participants at the workshop were asked to judge and rank research areas according to potential benefits considering the following factors: The extent of economic impact; social impact; environmental impact and the enhancement of NARI capacity.

Research capacity refers to NARI's ability to assemble an effective research team to deliver research outputs. It assesses the likelihood of NARI being able to put together an effective team.

Research carried out is required to address the need for research within the RA (research area). For example, poultry meat and eggs at the household level nationally, but especially away from main roads and urban centres, for improved diets, food security and income would require strategies that would:

- Assess cost and sustainability of feeding broilers with no or reduced use of commercial feeds;
- Undertake studies of improvement in management of other household poultry including free range chickens and Muscovy ducks; and
- Undertake studies of the problem of producing or obtaining replacement chicks of broilers, dual purpose chickens and layer ducks.

||||||| Lady Carol Kidu's visit |||||

Minister for Social Welfare and Community Development, Lady Carol Kidu, visited NARI head quarters in Lae on 25 November 2002. Her visit there was to see what NARI is doing in terms of agricultural research and development in PNG.

Lady Kidu showed particular interest in what role the National Agricultural Research Institute (NARI) plays in developing rural areas and the voices of women in the food chain throughout the country. She said that her Department of Social Welfare and Community Development is very keen on enabling and empowering the community, social groups, youths, women and children by providing them with simple information on agriculture that they can use back in their villages.

Lady Kidu said that what her department is trying to do is to bring information on agriculture to people in the rural areas that have no access to that kind of information, are not educated and are located in the most remote places in the country. NARI Director Research, Dr Naihuwo Ahai, said during Lady Kidu's visit that the institute under its mandate is working very closely with the community in terms of rural development.

An example he gave was the Daigin Resource Centre in Finschaffen Yabim Mape Local Level Government in which NARI will help to provide the Resource Centre with technical staff and information for the people of Yabim Mape.

Dr Ahai said that the institute strongly supports the voices of women in the food chain and are working closely with community leaders and youth groups that have asked NARI for its technical assistance.

Officer Visits South Australia

Janet Pandi, junior scientist of the NARI Livestock Programme, visited the South Australian Research and Development Institute (SARDI) from 1 - 22 November 2002.

Her three-week visit was on invitation from the ACIAR project leader Dr Phil Glatz, to visit and work in SARDI's pig and poultry research facilities.

SARDI is the Commissioned Organization for the Poultry Feeding Systems in Papua New Guinea project and the visit there was funded by the project.

She received hands-on training from the Poultry Nutrition Team on the procedures and concepts associated with measuring the apparent metabolisable energy (AME) values of poultry feeds.

Ms Pandi said that the training was a useful and her hosts were very helpful and supportive to make her visit a success. Janet will be involved in the ACIAR funded Poultry Feeding Systems Project in PNG.

Staff Comings and Goings

Valentine Kambori, Director-General of NARI, left NARI in September 2002 to take up his appointment as Secretary of the the National Planning and Rural Development Department.

Mr Hla Myint left NARI in early November 2002. Mr Myint was the NARI Financial Controller. Many of us will remember him for a long time for his strong but fair stance on issues regarding finance. Farewell Mr Myint.

Warea Orapa resigned in August to take up a job with SPC based in Suva, Fiji.

David Putulan has been transferred to NARI Aiyura under the Oribius Weevil Project.

Ben Niagu transferred to NARI Aiyura under the Oribius Weevil Project.

Tony Gunua transferred to NARI Aiyura to manage the Tissue Culture Laboratory.

Prof. Alan Quartermain joined NARI in September 2002. He will now be the Research Programme Leader for the Livestock Programme based at Labu and also coordinator of NARI Publications. He was previously the Livestock Research Advisor with the ACNARS Project.

Mr Maia Wamala joined NARI early December as the Senior Agronomist with the Rice and Grain Programme based at Bubia. Mr Wamala was with NDAL under various capacities, latest being with the P & ISS for the Southern Region based in Port Moresby. Welcome on board Maia.



We Can Feed the World. Here's How



Thirty-two years ago, I was chosen to receive the Nobel Peace Prize, representing the thousands of researchers who created the higher crop yields of the Green Revolution. The extra food created saved perhaps a billion people from starving in the 1960s.

Today, we are faced with another, equally enormous task. We must learn to produce nearly three times as much food for the more populous and more prosperous world of 2050, and from the farmland we are already using, in order to save the planet's wildlands. That's why I am one of the signers of a new declaration in support of protecting nature with high-yield farming and forestry (Co-signatories include former Sen. George McGovern and Per Pinstrup-Andersen, the winner of the 2001 World Food Prize.)

The high yields of the Green Revolution also had a dramatic conservation effect: saving millions of acres of wildlands all over the Third World from being cleared for more low-yield crops. If the world were still getting the low crop and livestock yields of 1950, at least half of today's 16 million square miles of global forest would already have been plowed down, and the rest would be scheduled for destruction in the next three decades. Mexico, where I have done much of my high-yield research, is nevertheless losing nearly 3 million acres of forest per year to the expansion of peasant farms. There are people telling us not to raise the yields. Some of them say that modern food is not as healthy as yesterday's, though science can find no lack of nutrients and, all over the world, the people eating modern crops are growing taller and living longer. There are some who still fear that more food encourages population growth, though food security has helped bring Third World fertility rates 80% of the way to stability. Some of the naysayers claim that modern, intensive farming is risking the world's biodiversity. However, they apparently think it's more important to save man-made biodiversity, such as antique farmers' varieties, than to save the rich web of unique species characteristic of a wild forest. We can save the farmers' old varieties through gene banks and small-scale gene farms, without locking up half of the planet's arable land as a low-yield gene museum.

I've spent the past 20 years trying to bring the Green Revolution to Africa --where the farmers use traditional seeds and the organic farming systems that some call "sustainable." But low-yield farming is only sustainable for people with high death rates, and thanks to better medical care, more babies are surviving. The International Food Policy Research Institute recently projected that Africa is a "building catastrophe." African farms are currently locked in a downward spiral, in which the traditional bush fallow periods are shortened from 15 or 20 years to as little as two or three -which means crop yields are declining, soil nutrients are depleted, and still more land must be planted every year to feed the people. Africa desperately needs the simple, effective high-yield farming systems that have made the First World's food supply safe and secure, and kept its wild species from extinction: chemical fertilizers, improved seeds bred for local conditions, and integrated pest management (with pesticides). Without those basics, Africa is likely to see tens of millions more undernourished children by 2020 --even after it clears a whole Texas worth of wildlife habitat for additional cropland.

Yet the funding for the Future Harvest agricultural research network that serves the whole Third World is only about \$300 million per year. If America were losing wildlands equal to the size of Texas, we'd believe it was an urgent problem. We'd demand an increase in agricultural research and a crash program to get new technology to farms. If millions of U.S. children were starving for the simple lack of good seeds and fertilizers, the government would fall. The declaration that others and I have signed does not endorse any particular technology or farming system. It simply notes that if the world is to avoid a Hobson's choice between starving children and extinct wildlife species, the first-order priority is higher yields on the land we already farm.

This article was written Norman Borlaug and appeared in the The Wall Street Journal (Monday, 13 May 2002). Mr Norman Borlaug is the winner of the 1970 Nobel Peace Prize and teaches high-yield farming systems under the sponsorship of the Sasakawa - 2000 Foundation and the Jimmy Carter Centre.



Backup of Your Files and Data

Why should I back up?

How long did it take you to amass your collection of emails, addresses, work papers, reports and data collection? If you lost all this, how long would it take you to replace it, if indeed you could? If your computer gets stolen or you are hit by a virus attack and lose all your valuable data, how could you ever retrieve it? It maybe is a shocking example, but imagine how many companies lost their entire collection of data (if nothing else) in the September 11 attacks because they didn't have backups of their files?

What do I back up?

You don't need to backup your whole hard drive. Most of the space is filled up by the operating system, system files, applications and media files. Once you have identified your core work data (documents, pictures, maps, data files, and hardware drivers) you should make a full backup of these. *Note:* you only have to do this occasionally. Once you have established a full backup, you can proceed with incremental backups, meaning a backup of only those files that have changed since any other backup. Additionally you should do differential backups, meaning a backup of those files that have changed since the last full backup. These should be performed at regular intervals.

What you need!

Backup software: MS Backup, Second Copy 2000, HP Simple Backup, My Own Backup. You can create a backup simply by manually copying data, but that's inefficient and likely to lead to errors and overlaps.

Backup media: You can backup to floppy, removable disks such as ZIP, CD-RW, tape, a network drive or an external hard drive. The backup software often determines which media for backups can be used.

How often should I back up?

How often you create a backup depends on three key factors: how crucial your data is to your business or sanity; how replaceable your data is and how often your data changes. You should at least do a quarterly backup and then weekly or even monthly differential backups.

It is a good idea to keep your backup media in a fireproof, waterproof container to keep it safe. If it's at all possible, store another backup off site just in case you have a real catastrophe.

Additional considerations

Depending on the software you use for backups, it might be useful to compress your data before you back it up (e.g. with WINZIP). This helps you to minimise the size of your backups and speeds up the backup process.

On-farm Duck Survey around Lae and Markham valley

An on-farm survey of duck farmers around Lae and Markham valley was undertaken by NARI Livestock staff on 12 - 13 March 2002. The survey was conducted with an aim to understand farmers' problems, how they keep ducks, type of ducks kept, why they keep ducks, number of ducks kept, feed type and source, and to see what can be done to improve duck farming.

The survey covered farmers or duck keepers as well as institutions such as Unitech Farm, DAL Erap and Wawin DPI station. Most farmers covered in this survey keep ducks for household consumption and may sell some for cash.

Most farmers raised the following issues:

- Commercial feed is expensive to obtain.
- Difficult to market their produce.
- High mortality rate (especially at young age).
- Stealing (human and dogs).
- Lack technical information.
- Lack extension support and duckling distribution.

The survey results were presented in the form of a seminar by Saun Ignatius. For further information and to obtain a full report, Saun can be contacted on telephone: 475 1066; Fax : 475 1248.



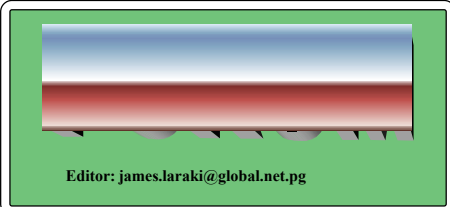
NATIONAL AGRICULTURAL RESEARCH INSTITUTE

Condolence Message

The Senior Management And Staff of the National Agricultural Research Institute extend their deepest sympathies to Mr Noria Mathew, Wife, Family and Relatives of their daughter late Pauline Noria who passed away in a tragic accident on Wednesday 13 November 2002 in Tambul.

May She Rest In Peace

Dr Raghunath Ghodake
Acting Director-General



We would like to hear from you. In this column, we will be publishing your letters (views, opinion, etc.) in regard to any issues that are published in NARI NIUS or other relevant agricultural research issues that you wish to express. We will publish your letters or email and fax messages requesting NARI publications and other information.



Question: How can you link Maprik in East Sepik Province with ducks?

Answer: The six popular breeds of ducks.

- Muscovy
- Aylesbury
- Pekin
- Rouen
- Indian Runner
- Khaki Campbell

Why Do Fireflies light Up?

Answer: Bioluminescence in the *Photinus pyralis* ...wait, lets do this in English. Did you ever hear the old song that starts "Glow little glow worm ...? Well, from bacteria to fish, all sorts of living things give off light to ensure their survival. It may be to confuse a predator, attract a potential meal, or simply to

function as a kind of natural flashlight when it's really dark.

The firefly, or lightning bug, ("*Photinus pyralis*" to our friends in the lab coats), produces its light by oxidising a chemical called "luciferin". The insect turns on the light to turn on a potential mate. It begins with the male flashing about every five seconds (yes, there are male flashers even among insects). A female

flashes back and then - hey, use your imagination.

Membership in the rose family (Rosaceae) is not limited to roses. It also includes almonds, apples, apricots, blackberries, cherries, nectarines, peaches, pears, plums, raspberries and strawberries ... I guess a rose by any other name might not smell as sweet.



Prime Minister, Sir Michael Somare (left) looking at a rice packet at the NARI stall at the 2002 Morobe Show. Looking on (right) is acting Director-General of NARI, Dr R.D. Ghodake.

Entomology Section Assist Students

The entomology section at NARI Keravat has been assisting second year students of the University of Vudal annually with Insect Identification . During the month of October 2002 about 50 students brought insect specimens to cross-check with the main collection at Keravat. This is their project assignment and part of the Plant Protection course that is taught to the students. Groups of two students each were asked to collect and identify 20 economic pests. The entomology staff assisted the students with identification and also provision of information on each specimen.

A Merry Christmas & Happy New Year



To You All:



Friends,
Colleagues,
Clients &
Collaborators.

From Manager, Staff and the ACNARS Project Team



NARI PUBLICATIONS

1. Proceedings of the NARI Poultry Workshop. NARI Proceedings Series, Proceedings No. 1, March 2000.
2. Prospects for Vanilla Development in Papua New Guinea. Proceedings of a Farmer/Researcher/Marketer Workshop. NARI Proceedings Series, Proceedings No. 2, September 2000.
3. Focus for Agricultural Research in Papua New Guinea. NARI Conference Paper Series, Conference Paper No. 1, December 2000.
4. How to Produce Homemade Pesticides. NARI Extension Series, Extension Booklet No.1, February 2001.
5. Descriptive List of Selected Sweet Potato Varieties for Lowland Conditions. NARI Extension Series, Extension Booklet No. 2, March 2001.
6. Description of Selected Sweet Potato Varieties for Lowland Conditions: Selection as of December 1998. NARI Technical Bulletin Series, Technical Bulletin No. 1, May 2001.
7. Efficient Propagation Techniques for Taro Multiplication. NARI Extension Booklet Series, Booklet No. 3, June 2001.
8. Towards an Integrated Cabbage Pest Management Strategy for the Wet Lowlands of Papua New Guinea. NARI Technical Bulletin Series, Technical Bulletin No. 2, July 2001.
9. Vanilla. NARI Information Bulletin Series, Information Bulletin No.1, August 2001.
10. Distribution and Management of Siam Weed in Papua New Guinea. NARI Conference Paper Series, Conference Paper No. 2, November 2001.
11. Current Status of Pesticide Use in PNG. NARI Conference Paper Series, Conference Paper No. 3, December 2001.
12. NARI Recommended Taro Hybrids. NARI Extension Series, Extension Booklet No. 4, December 2001.
13. Improved Taro Varieties with Resistance to Taro Leaf Blight for PNG Farmers. NARI Technical Bulletin Series, Technical Bulletin No. 3, February 2002.
14. Durian. NARI Information Bulletin Series, Information Bulletin No. 2, June 2002.
15. Conservation of Domestic Animal Genetic Resources in Papua New Guinea. NARI Technical Bulletin Series, Technical Bulletin No. 4, July 2002.
16. Potential for a Pepper Industry in Papua New Guinea. NARI Technical Bulletin No.5, October 2002.
17. Evaluation of Sweet Potato Varieties in Eight Pacific Island Countries and the Philippines: Results and Recommendations as of April 1993. NARI Technical Bulletin No. 6, November 2002.
18. Present Status of Sweet Potato Genetic Resources and Possibility of in situ Conservation in Papua New Guinea. Conference Paper No. 4, September 2002.

TOKTOK SERIES

1. Taro pests (English), BUB001, October 2001.
2. Binatang bilong taro, BUB002, January 2002.
3. Binatang bilong rais, BUB003, January 2002.
4. Wei bilong kamapim planti sid yam, BUB004, October 2001.
5. Sapot diwai bilong vanilla, BUB005, January 2002.
6. Binatang bilong vanilla, BUB006, January 2002.
7. Nutritional disorders of yam, BUB007, May 2002.
8. Livestock programme leaflet, LAB001, October 2001.
9. Rabbits (english), LAB002, October 2001.
10. Rebit (pidgin), LAB003, January 2002.
11. Australorp chickens, LAB004, October 2001.
12. Ostraloop kakaruk, LAB005, January 2002.
13. Muscovy ducks (english), LAB006, October 2001.
14. Maskovi pato (pidgin), LAB007, January 2002.
15. Morphology and growth of rice plant, RGP001, January 2002.
16. Banana bit information, LAK001(E), May 2002.
17. Toktok blong banana bit, LAK001(P), May 2002.
18. Taro miniset information, LAK002(E), May 2002.
19. Toktok blong taro mini-sett, LAK002(P), May 2002.
20. Yam mini-sett information, LAK003(E), May 2002.
21. Yam mini-sett toktok, LAK003(P), May 2002.
22. Side cleft grafting technique on mango, LAK004(E), July 2002.
23. Information on neem tree, LAK005(E), August 2002.
24. Toktok blong neem diwai, LAK005(P), August 2002.

Up and Coming

1. NARI Council Meeting. 16 December 2002.
2. Visit by ACIAR Director, Mr Core. 18 December 2002.
3. Christmas Day. 25 December 2002. Public Holiday.
4. Boxing Day. 26 December 2002. Public Holiday.
5. New Year's Day. 1 January 2003. Public Holiday.
6. Fruit Fly Heat Tolerance Workshop at Bubia. 27 January to 8 February 2003. For further information contact Sim Sar by email: simsar@global.net.pg
7. Second Writing Workshop will be held from the 24 - 28 February 2003, at NARI Aiyura. For further information contact Mini Singh by email: mini.singh@global.net.pg

NARI Programmes and Contact Addresses

NARI Head Office
P.O. Box 4415
LAE 411
Morobe Province
Papua New Guinea
Phone: (675) 472 1751
Fax: (675) 472 2242
Email: nari@datec.com.pg

NARI - Wet Lowlands
Mainland Programme
Bubia
P.O. Box 1639
LAE 411
Morobe Province
Papua New Guinea
Phone: (675) 475 1033
Fax: (675) 475 1034
Email: narlwl@datec.com.pg

NARI - Wet Lowlands
Islands Programme
Keravat
P.O. Box 204
KOKOPO
East New Britain
Papua New Guinea
Phone: (675) 983 9145
Fax: (675) 983 9129
Email: narilli@global.net.pg

NARI - Dry Lowlands Pro-
gramme
Laloki
P.O. Box 1828
PORT MORESBY
National Capital District
Papua New Guinea
Phone: (675) 328 1015
Fax: (675) 323 4733
Email: dlplaloki@global.net.pg

NARI High Altitude Highlands
Programme - Tambul
P.O. Box 120
MT HAGEN
Western Highlands Province
Papua New Guinea
Phone: (675) 542 3443
Fax: (675) 542 2779
Email: martin.gunther@global.net.pg

NARI Highlands
Programme - Aiyura
P.O. Box 384
KAINANTU
Eastern Highlands Province
Papua New Guinea
Phone: (675) 737 3500
Fax: (675) 737 3516
Email: narimh@global.net.pg

NARI - Livestock Research
Programme
Labu
P.O. Box 1639
LAE 411
Morobe Province
Papua New Guinea
Phone: (675) 475 1066
Fax: (675) 475 1248
Email: pikah@global.net.pg

NARI - Chemistry
Laboratory - Kilakila
P.O. Box 8277
BOROKO
National Capital District
Papua New Guinea
Phone: (675) 321 2690
Fax: (675) 320 2411
Email: narichem@dg.com.pg

National Agricultural Insect
Collection
P.O. Box 8277
BOROKO
National Capital District
Papua New Guinea
Phone: (675) 321 0218
Fax: (675) 320 2411
Email: narikila@global.net.pg



National Agricultural Research Institute, NARI Head Office, P.O. Box 4415, **LAE 411**, Morobe Province, Papua New Guinea, Phone: (675) 472 1751 Fax: (675) 472 2242 Email: nari@datec.net.pg

This Newsletter is published quarterly by the Information and Publications Unit of the National Agricultural Research Institute.

Editor: James Laraki
Direction: Alan R. Quartermain
Design/Layout: James Laraki
Distribution: Kumaino Wioga

Your contributions, views and opinions on the Newsletter can be sent to the editor using the above address. The media and other interested organisations or individuals may use parts or whole articles from *NARI Nius* with clear acknowledgement as to source.

To: