

Span

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Roots and Tuber Crops for Pacific Food Security



Participants of ISTRC Training, Lae PNG

Dr Keith Tomlins NRI University of Greenwich

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Editor in Chief : Mohammed Umar
Publication Officer : Taranaki Seiuli
Email : seiuli_t@samoa.usp.ac.fj

Root and tuber crop research is underfunded compared to other crops. To address this, the EU funded project, managed by the Natural Resources Institute of the University of Greenwich, UK. Entitled 'Science and Technology for Enhancing the Contribution of Tropical Root Crops to Development in ACP countries' funded by the ACP Science and Technology Programme of the 9th EDF regional training meeting was held at UNITECH, Lae from 23 February to 2 March 2012 to help early career scientists in root and tuber crops develop winning research proposals. The training involved experts from the EU, Pacific, Papua New Guinea and Australia. The 36 participants were from PNG and the Solomon Islands. The interactive training gave expert advice in project proposal development, research methods and intellectual property rights. Included was a field visit to Lae Open Market and Potsy Village to illustrate ways that new research topics could be developed. The visit involving farmers and traders gave the trainees an insight of all of the steps in the value chain from farm to fork and include marketing. This EU initiative was supported with master classes where experts in root and tuber crops gave revealing talks based on the hindsight of their experiences.

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President of ISTRC Dr Andrew Westby presenting to class



Presentation of certificates

A mentoring system will link the early career scientists with senior scientists in the Pacific region who can provide sustainable support. The project is working through the International Society for Tropical Root Crops, which has been in existence since 1967, to link the Pacific scientists with over 320 scientists in Africa, Caribbean, Asia, Europe and the Americas. Future regional training will take place in Uganda, Zambia, St Vincent and lastly Nigeria where the 16th International Symposium of the ISTRC will occur. The project will potentially benefit all ACP countries through professional interaction and capacity building activities. This project contribution seeks to enhance the capacities of scientists, especially early career scientists, so that they have a better understanding of the research needs and hence prepare better quality research proposals. There is also a lack of exploitation of current research results and therefore capacity strengthening is required in this area to benefit the farmers, traders, processors, small and medium scale enterprises and consumers. The ISTRC was started in 1967 at the University of West Indies in Trinidad to address concerns relating

to root and tuber crops. The ISTRC is still very active because 44 years later the key issues still remain. For example, it is anticipated that by the year 2020 more than two billion people in Asia, Africa, and Latin America will depend on root and tuber crops for food, feed, or income with a great proportion of them being the very poor. Therefore, we need better equipped root and tuber crop scientists who have the capability of reaching many of these people through new varieties bred for specific and changing climatic conditions or food security or enterprise and market end uses, and improved management of pests and diseases. These issues are closely related to needs of the people of the Pacific region and USP is well placed to meet these needs.

The European Union has recognised that tropical root and tuber crop are important to African, the Caribbean and the Pacific. In recent years, climate change has also become a critical issue for world development and economic growth. In this respect root and tuber crops are an important alternative to traditional staples and provide food to vulnerable groups at times of food crisis. Investment in tropical



Visit to NARI



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Sweet potato leaves used for pig feed at NARI



Yam planting at NARI

root and tuber crops, however, has been much lower than in the cereal crops despite the potential roles that these crops can play. Capacity development of scientists in ACP has generally been neglected, but root and tuber crops scientists have also received less capacity development support than those working on other crops. The generic problem is that ACP countries face a number of major challenges being poverty, food security, urbanisation, climate change, economic downturn and the need for energy requirements. Root and tuber crops can make a major contribution towards alleviating these problems.

The European Union is concerned about world food security and poverty alleviation not only here in the Pacific but in other parts of the world such as Africa and the Caribbean. The central feature of this project is to help alleviate poverty and improve farmer incomes. The issues that have been identified in this project are poverty reduction, food security, enterprise development and export

development. Climate change and variability (for which root and tuber crops are particularly useful), the global food crisis, economic downturn and urbanization and biofuels all present challenges. ACP scientists therefore need to know how to gear their research towards these constraints and opportunities. Hence, this project seeks to give support to early career scientists so that they submit winning proposals in response to research calls from the EU and other donors. While we have been here in Lae, PNG for the last five days, the Project Management Committee of this project has been working closely with USP staff from Samoa and Fiji.

Looking to the future the climax of this project will be the 16th International Symposium of the International Society for Tropical root crops in Nigeria, September 2012. We do hope that some of the Pacific delegates may be able to attend where we can share knowledge and further develop ways of working together.



Sliced sweet potato for pig feed at NARI

The University of the South Pacific Alafua campus welcomes its new students



USP Alafua Orientation



Dr Kesaia Seniloli addressing the students

The University of the South Pacific Alafua campus welcomed the newly enrolled students during Orientation. Introducing them to resources and facilitate relationships necessary for a successful transition to university life.

Three hundred new students enrolled for the first semester at the Alafua campus alone. This is more than double the number of new students in the first semester for the previous year, which was approximately 100.

This years orientation had the biggest number ever in the last 3 years at USP Alafua with 80 students attending this years orientation programme. It was a special programme and was the first orientation programme that started with the traditional Samoa Ava ceremony to welcome the students and

everyone back to the new year. The SIT student numbers have also grown. Usually there are 7 students studying at USP Alafua from the United States, however this semester there are 20 SIT students.

The keynote speaker, Dr Kesaia Seniloli (Acting Dean of FBE) emphasized the importance of students pursuing excellence in their studies and making the most of all the resources that the University provides for students. She also touched on the priority that the University places on students attendance at tutorials.

After the formalities the students were introduced to the Section Heads and staff before taking a tour of the campus.



SROS launches its new all natural products



Avocado oil



Processing plant

The Scientific Research Organisation of Samoa (SROS) launched its new products the Breadfruit and Cassava Flour, and Avocado Oil on Monday 20th February 2012 at the SROS Nafanua Compound. SROS SAMOA PURE Brand is born from the unique Samoan exotic heritage, rich in natural purity and beauty that embodies the benefits of all natural, pure and healthy living.

It is from this foundation that SROS is committed to using Samoa's abundantly under utilized local produce to develop new food and plant products through scientific research and development to help enhance and ensure sustainable economic and social progress.

The main ingredient components used in SROS's Samoa Pure breadfruit and cassava flour, and avocado oil are all natural 100% Samoan local grown fruits from family backyard gardens and village plantations. Carefully hand picked to bring to life the natural and pure nutritional flavour of Samoa Pure developed products. Offering a tantalizing nutritious experience that binds you to the exotic Samoan culture and reconnects you to Samoa's rich fertile land.

SROS has passionately developed, researched and scientifically tested these products with the ultimate aim to enhance quality of life for all and give an all natural and nutritious Samoan experience.

Going forward SROS is committed to develop new exciting products using locally grown under utilized produce to boost healthy living.

The first local production of Samoa Pure Virgin Avocado Oil is a first in Samoa and Pacific Region. Avocado oil is extracted from the fruit's edible pulp that surrounds the seed. All pure and natural with no artificial additives. It has a healthy 75% monounsaturated fat content that lowers bad cholesterol and helps increase good cholesterol. It is power packed with nutrients that is good for the body. These are just some of the benefits of the avocado oil.

The gluten free breadfruit flour is produced from the abundantly available throughout the year, six locally grown varieties of breadfruit which are the Aveloloa, Maafala, Maopo, Puou, Sagosago and Ulu falaoa.

The gluten free cassava flour in the short two month period of around February and March during the year when breadfruit is not in season, the cassava or manioc root crop is the perfect alternative feedstock source for flour production. Cassava is a perennial woody shrub with an edible root, that is mainly used for animal feed in Samoa.

Cassava like breadfruit does not contain the high protein source gluten. The process and technology for cassava flour preparation is similar to bread fruit but simpler and offers consumers the same health and application benefits.

A gluten free diet is beneficial to ones health and fast gaining worldwide popularity for positive health reasons. For those suffering from Celiac disease, a gluten free diet is the only treatment.

New Pullets for the Poultry Farm



Day old pullets



One thousand and forty chicks from New Zealand arrived this month and were housed at the USP-IRETA Poultry farm. These day old chicks are very delicate and need special care in order to survive, grow, and become productive adults.

Chicks need a clean environment that protects them from drafts and keeps them at the proper temperature. Once chickens are a few weeks old they can remain outdoors in cooler weather, but day-old chicks need extra warmth. Their environment must provide them with constant access to food and water; it should have proper flooring material, and be located in a safe place away from predators. A brooder is usually used to provide all of these necessities for the pullets where they can be kept warm for the first several weeks and are to be watched very carefully.

Two types of chicken are raised in the poultry farm. These are the layer and broiler. The layer chicken specifically lays eggs while the broiler chicken is raised for its meat.

In the beginning pullets are fed with starter feed followed by grower. Then once the chicken starts laying they will be fed with layer feed. Eggs are collected three times a day. The average life of a layer to produce the most eggs and of the highest quality is 80 weeks before it is sold for meat.

For the broiler chicken after 21 days of being fed broiler starter it is then fed broiler grower until it is 29 days old. Next it is fed broiler finisher 1 until day 43 it is fed broiler finisher 2 until day 49. This is when it is ready to be sold and its meat is ready for consumption.



Growers



Techniques of measuring soil training

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Nematologists Tony Pattison and Teagan Kukulies from the Queensland Government Department of Employment, Economic Development and Innovation facilitated a training for soil technicians at USP Alafua.

The training is part of a Australian Centre for International Agricultural Research (ACIAR) funded project with the objective to improve soil health in the Pacific, support sustainable development and improve food security.

The training was for one week on new techniques of measuring soil biology. This will add on to the current techniques that are carried out by the Alafua lab technicians.

An envisioned outcome of the training is to enable growers and farmers to prepare good soil that produces a better yield of taro and in due course to also do the same for other crops in the future.



Monitoring and Evaluation of Information Training

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Training for Information officers in Fiji

The first ever workshop on the “Use of Smart Toolkit to Monitor and Evaluate Information Products and Services” was carried out for five days at the Tanoa International Hotel in Nadi, Fiji.

The main objective of this training course was to empower information specialists to evaluate their information projects, products and services through the use of the Smart Toolkit and related resources. Such empowerment will contribute to capacity building in agricultural development in the ACP.

CTA along with KIT, IICD and a host of other institutions and individuals from African, Caribbean and Pacific (ACP) countries, have developed the second version of the Smart Toolkit aimed at assisting practitioners in monitoring and evaluating information projects, products and services. In 2008 and 2009, key elements of the Smart Toolkit were used in a training course in the Caribbean and in Southern Africa to develop the capacities of professionals and empower them to monitor and self-evaluate their projects, products and services. This course was the first one in the Pacific and is

targeted at regional organizations and research institutions after a specific request from information practitioners in the region.

The key areas addressed during the training were: Contribution of information projects, products and services to the achievement of development goals ; project cycle, monitoring and evaluation concepts and trends ; introduction to evaluation steps, components ; formulating terms of reference (TOR) ; developing TOR, purpose, scope, who, why, methods, reporting ; designing the evaluation ; logical framework, logic model information needs, evaluation questions and indicators ; data collection and analysis identifying stakeholder’s information needs ; communication plan for critical reflection and reporting ; implementing evaluation: tips and tricks; communication plan for critical reflection and reporting ; action planning for follow-up training.

There were fifteen participants from different regional institutions from around the Pacific such as SPREP, SOPAC, USP-IRETA and SPC.

Tourism has helped develop Samoa

Crystal RLSS



Tiavi waterfall



Tourism in Samoa has increased a lot over the past couple of years, and because of this it has helped develop our country in so many ways. It has helped our economy, our infrastructures such as roads, buildings, schools etc. It has also contributed to the motivation of our people to look after the environment to attract more tourists to Samoa. Our natural scenery is one of the attractions in Samoa. The beautiful landscapes and mountain views just attract tourists who enjoy the beauties of nature. The Ministry of Natural Resources and Environment (MNRE) have put up laws & rules to help protect our environment. This has been a huge development as well. Our local citizens have set up businesses to promote some of our Samoan made handicrafts like bags, bracelets, necklaces & also Samoan traditional clothes, and the visiting tourists love it. Also our culture attracts & interests many tourists. Due to this, many of the local schools now make learning of the Samoan language and culture compulsory which is a very good development to maintain the identity of Samoans. We also have many hotels and motels being set up all over the country, both in rural and urban areas. Some in rural areas for tourists who

enjoy nature and the beautiful beaches, and some in urban areas for tourists who like to explore Apia and for shopping.

Agriculture has also become one of the major developments. And because of this, the farmers both in rural and urban areas have contributed a lot and are benefiting from sales of local produce to the hotels. They have also done a great job promoting some of the native plants and fruit trees of Samoa to the visiting tourists (even to the local people). They have large varieties of different fruits, roots, vegetables and a spectacular range of flowers. These promotive activities not only help Samoa's economy but it helps the farmers and florists as well. So this is another great development Samoa has achieved. All of these have amazingly developed. The beaches and scenery attractions have also been great tourist attractions. All these aspects have been useful for Samoa's development in all kinds of ways; for the local people and our government. Tourists who travel to Samoa are very lucky not only because of our environment but also because of our hospitable people who look after and promote Samoa.



Grafting knowledge in the desert

AVRDC

In keeping with AVRDC tradition, Greg Luther, Head of AVRDC Global Technology Dissemination and Deng-lin Wu, AVRDC Grafting Specialist, shared their vegetable grafting knowledge with a group of 21 researchers, extension specialists and university students in a training course organized by AVRDC and the Abu Dhabi Food Control Authority (ADFCA) at Al Gwaitat Agricultural Research Station, Al Ain, United Arab Emirates from 17-18 January 2012. Scientists from ADFCA and the Farmers' Services Center, and students from United Arab Emirates University, Faculty of Food and Agriculture attended the lectures and hands-on sessions. Grafting, one of humanity's most clever inventions, has been in the horticultural toolbox for thousands of years. The method of attaching scions (tops) of a preferred plant— usually a fruit-bearing tree—to rootstocks of a hardier plant was used by the Chinese before 2000 BC, and then spread to the rest of Eurasia. Farmers in ancient Greece knew the practice well. Thanks to the intervention of sharp minds and sharp knives over the centuries, today we enjoy varieties of apples and cherries that never would have been domesticated, as their natural reproductive method prevents genes from being passed on consistently. Grafting works for other plants, including vegetables. With vegetables, the goal of grafting is not variety preservation, but crop preservation. The method gives farmers a measure of control over soil-borne diseases and waterlogged soils, helping them bring in a good harvest despite difficult growing conditions. AVRDC – The World Vegetable Center began research into vegetable grafting in the early 1990s, initially by grafting tomato scions with desirable fruit characteristics onto disease tolerant and flood-tolerant eggplant and tomato rootstocks to improve yields in tropical Asia. The technique is now a mature technology the Center teaches to nurserymen, researchers, extension specialists and farmers around the world; it is applicable to tomato, eggplant, chili, sweet pepper and a range of cucurbits, including pumpkin, bitter gourd, bottle gourd, cucumber, and watermelon.

At ADFCA, Greg introduced the technique to participants, emphasizing the advantages grafting offers for protecting crops from soil-borne diseases such as bacterial wilt and fusarium wilt, and pests including root-knot nematodes. Deng-lin then guided the trainees as they practiced various grafting skills including insertion, tongue approach,



Deng-lin Wu (second from right), VRDC Assistant Specialist, Global Technology Dissemination, explained vegetable grafting techniques and answered participants'



A modern take on an ancient method. Tiny latex tubes secure the scion rootstock until the stems grow together

and tube-splice grafting on tomato, tomato-eggplant, and many other grafting combinations. Six nationalities were represented among the ten women and eleven men participants: United Arab Emirates, Iraq, Egypt, Palestine, Syria and Jordan. ADFCA's Research and Development Division plans to use local vegetable varieties that tolerate drought and high temperatures as rootstocks for grafting programs to help farmers increase productivity and reduce pesticide use.



Snapshot of a cucurbit graft

Farewell Dr Mareko Tofinga



Dr Mareko Tofinga presented with a gift by Acting Head of School Dr Adama Ebenebe

Dr Mareko Tofinga, Associate Professor at USP Alafua School of Agriculture and Food Technology (SAFT) and a veteran USP academic resigned to start with his new post as a member of parliament for his home country Kiribati. He worked at USP for 30 years from January 1982 to February 2012.

Dr Mareko has taught numerous students from around the Pacific region that have entered the gates of Alafua campus who have become leaders in institutions and government departments, politicians etc. He was also teaching along side some of his former students who themselves have become lecturers in Alafua today. A few of these former students and now former colleague's at Alafua were present at the farewell function to bid him farewell. He has inspired many students with a passion to study agriculture and assist in the development of their struggling home countries. Staff gathered together to share many memories, giving advice on his new vocation as a Kiribati member of parliament and farewell a much respected colleague.

Dr Mareko will be missed by not only the staff but also his students.

Best wishes Dr Mareko!



Giant African snail find

NZ MAF (Ports News)



A sharp eyed tally Eddie from Wallace \Investments spotted a giant African snail *Achatina fulica* and handed it onto quarantine inspector Ratan Singh. The snail was found on the wharf where a number of containers ex the vessel Southern Lily 2 voyage 287 had been stacked. The vessel had been unloading containers from Apia, Tonga and



Pagopago.

These snails can cause serious problems with both human health and have the potential to wreak havoc on local plant populations by their extensive feeding. Being hermaphrodites “ you need only one”

Benefits of Coconut Oil

Didinet

A STUDY is underway to identify areas of opportunities for developing agribusinesses in the country. The study being conducted through the enabling agricultural trade (EAT) project of the United States Agency for International Development (USAID), is aimed at identifying strengths and weaknesses of players involved, from smallholder farmers to the private sector, government agencies, research and development organizations, NGOs, women groups, cooperative societies and others who may in one way another are engaged in agriculture development in the country.

During a visit to NARI headquarters (on Tuesday), EAT representative, Louise Williams, said while the depth of relationship with the US and PNG may not be the same as that with Australia, the US government is still committed to creating an environment for agriculture development in the country.

Louise, who is part of the ‘Agribusiness Commercial Legal and Institutional Reform (AgCLIR)’ assessment team in PNG, said that countries like PNG will have to develop its agriculture sector as the majority of the people are still engaged in it. She also noted PNG has a lot of potential in the agriculture sector compared to many other countries.

She said the purpose of AgCLIR is to identify key legal, regulatory, and institutional issues that are impacting production, efficiency and opportunity in the agriculture sector.

Louise, who has been involved with similar projects in Africa, said the project is aimed at assisting countries like PNG in targeting where their regulatory environments may favour or interfere with economic growth and investigate how these issues may affect the agriculture sector.

“Quarantine matters, marketing, transport, human resource development, and others issues that may be contributing to development of agribusiness opportunities are being looked at”, she added. EAT project, funded by USAID, supports the U.S. government’s global efforts to create conditions for agricultural growth. USAID established EAT based on substantial academic and field experience suggesting that a sound legal, regulatory, and institutional environment is a pre-requisite to economic growth in the agricultural sector. EAT provides enabling environment and necessary tools that identify, diagnose, and reform agribusiness enabling environment constraints that hinder start up and growth across the agricultural sector. The information gathered around the country through this project is expected to be discussed at a forum with representatives from participating organizations next Monday at the Gateway Hotel, Port Moresby. This gathering is expected to make recommendations on how to deal with strengths and weaknesses identified in the agriculture sector, which would help develop the pathway to developing agribusiness opportunities.

The Flood in Fiji early this year



Ba town



Sleeping Giant mountains



Ba town



Drasa flats



Nadi bus stand



Tree on bridge



Road flooding



Labasa Savusavu highway



Flooding in Lautoka