



# Nius

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**26 YEARS**  
of Dedicated  
**Agricultural Research for  
Sustainable Development**

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Welcome to the 3<sup>rd</sup> edition of NARI Nius for 2023. If you have any comments or contributions please drop us a line at: [naripng@nari.gov.pg](mailto:naripng@nari.gov.pg) for an e-copy

## Developing useful weather information for farmers

Partners engaged in the ACIAR-supported Climate Smart Agriculture (CSA) project are working together to develop a user-friendly seasonal forecast advisory for farmers.

The project partners include, the Australian National University's Institute for Climate, Energy & Disaster Solutions, Sustineo, Phloem 3, Commonwealth Scientific International Research Organisation, PNG National Weather Service (NWS), Fresh Produce Development Agency, University of Goroka, Australia PNG Economic Partnership, DAL and NARI.

A planning workshop was conducted from May 16 to 18 at NARI in Lae, to see how weather forecast information can be tailored and used by partner organisations.

Discussions from the workshop will see NARI holding monthly meetings with project partners, developing short messages through factsheets, and videos. Short Message Service (SMS) will also be tested.

The messages will be channelled using the NARI website, Facebook, bi-monthly newsletter (NARI Nius), and pretesting the information products as part of the project's monitoring and evaluation. Observation crop trials will be established on farmers' field to test best management practices and identify any information gaps before information products are finalised.

A health check survey was conducted as part of the project's monitoring and evaluation activity. NWS is providing weather forecast information each month.

Tailored information will be pretested through extension service providers, with selected farming communities to see how effective and useful it is.

The development of the weather forecast advisory is supported by ACIAR and its partners including NARI to help farmers plot areas of Eastern Highlands, Morobe and East New Britain find meaningful ways to improve the resilience of agricultural production.

The project ends in September, 2024.



Group discussion exercise during the workshop.



Participants and facilitators of the CSA workshop.



## OTDF officers pleased with rice production workshop

Six agriculture officers with the Ok Tedi Development Foundation completed two weeks of rice trainer of trainers' workshop facilitated by NARI from June 19 to 29.

The six officers' training comprised of theory and practical aspects of rice production from field preparation, quality seed selection, drying, winnowing, germination test, use of mechanised tools in field preparation, harvesting and milling; and sourcing suppliers of mechanised tools to improve and increase rice production.

Group representative Kerea Pele thanked NARI saying that the team had learnt so much and looked forward to imparting knowledge and skills with the communities they work with along the stretch of the Fly River.

The Taiwan Technical Mission also provided two days of training in using eco-friendly farming practices such as using legume plants to improve soil fertility, preparing and applying organic fertilizer for not only rice but for other leafy vegetables and fruits. The ToT rice workshop for the OTDF agriculture officers was facilitated by NARI

from June 19 to 30 and covered various aspects of rice production from field preparation, best practices in field management and mechanised tools for milling rice at the Momase Regional Centre in Bubia, Lae.



Selection of quality rice seeds in the rice field.



Rice planting in a levelled paddy field.

## Top award for the second time

NARI claimed an award for the second time under, the Food, Vegetables and Herbs category during the 2023 Flower Garden and Fashion show at the Lae Botanical Garden.

There were live samples of rice, taro, sweetpotato, posters, seed planting material, orchid plantlets and the Seed Man, which became the main attraction for many visitors to the stall.

Member for Bulolo Junior Sam Basil, and Lae Open MP John Rosso also visited the stall. Mr Basil was impressed with the display and requested to engage staff to help local farmers plant rice at Bangulum in Middle Watut area of Bulolo district.

Staff presented one kilogram of milled rice and seed to Mr Basil. Jenny Batau, officer organising MRC's participation thanked the senior management and staff who committed their effort and time to make the event a success.

NARI received a participation ribbon and first prize under the Food, Vegetables and Herbs category at this year's Flower Garden and Fashion Show at the Lae Botanical Gardens.



NARI stall and close up of the first place award (insert)



Left to right: Coordinating Officer Jenny Batau, Field Assistant Maika Maigou and Plant Genetic Resources Research Associate Cecily Walters receiving first place award from the Honorary member of Friends David Wissink.



## First time for Mother's Day celebration

NARI provided support for the Mother's Day celebrations, the first of such event on Sunday May 04 at the Allan Quartermain Hall outside Lae.

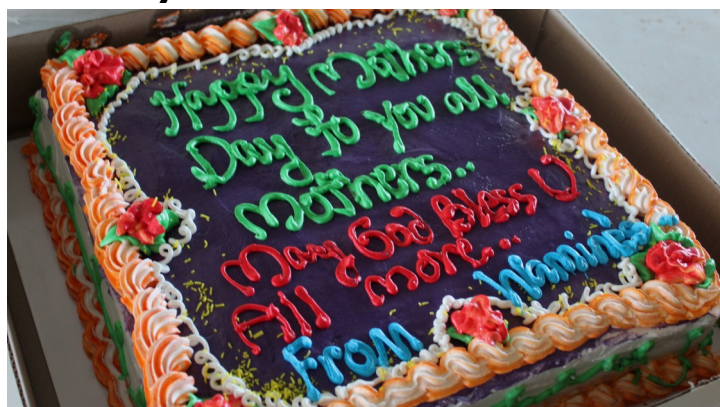
Mothers including female staff marked the day beginning with bible reading, prayer, contemporary group activities, speeches, dances, individual fashion wear, exchange of gifts, a fashion parade and sharing of food.

The success of the event was led by the organising committee through Senior Human Resource Officer Lina Asiri.

Ms Asiri led a group activity that saw the values and importance of motherhood.

Technical Editor Barbara Tomi shared a compelling story about how she was raised by a strong mother and overcame challenges to enjoy a positive life.

A word of thanks was made to the NARI management, Wamine family, and others including staff who had contributed their time and efforts to stage the first Mother's Day celebrations at NARI.



Group activity by the mothers.

## Rice evaluation trial progresses to Phase 3

The rice evaluation trial at the Momase Regional Centre in Lae has progressed from Phase two to three with 9 genotypes under upland rain-fed condition.

Phase two of the project experienced a short dry spell for 3 weeks in late 2022 and provided an opportunity to assess which genotypes that could perform well.

The nine genotypes selected for Phase 3 were based on their plant height, high yield, their flowering ability, tolerance to dry period, pests and diseases.

The overall objective in conducting the evaluation trial is to diversify rice varieties for farmers to have access to and introduce more superior rice varieties apart from the introduced varieties. More work is required in making further assessment for the 9 genotypes.

Rice Agronomist Charlie Suruban is leading this evaluation trial at Bubia, Lae and is pleased with results from Phase 1 and 2. There are four low-land released rice varieties by NARI, NR 1, 9, 15 and 16. NR 2 and 3 are for the highlands.



Phase 3 of the rice evaluation trial at Bubia.



One of the nine genotypes selected for Phase 3 trial.



## Automated weather stations are useful in agriculture

Automated weather stations and smart management of weather information play an important role in improving agricultural production.

Understanding real-time weather information such as air temperature, rainfall, wind speed and humidity can help to protect and secure, healthy crop yields.

Extreme weather conditions such as drought, flood and frost leads to a decline in crop production and increase in cost.

Weather information will help farmers make informed decisions about when to plant, irrigate, and fertilize their crops. Data collection through automated weather stations are also useful in improving water management by helping farmers know how much water

is needed to keep their crops healthy, reduce water wastage and increase the efficiency of irrigation systems. As climate smart agriculture technology continues to advance, it is likely that automated weather stations will remain a fundamental part of crop cultivation in the future.



Replacing battery of the automated weather station.

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## Former officer passes on

Alai Simin was a biometrician and also considered a multi-skilled officer during his tenure with NARI.

The role of a biometrician involves, providing advise through statistics to organisations on issues related to health and biology. Sadly after battling a long illness, he passed away on May 16, 2023.

Late Mr Alai will be mostly remembered for his good sense of humour, holding various roles within the institute and his undying passion for rugby league.

Former colleagues, family, friends and those who knew late Mr Simin gathered to pay their last respects during his funeral at the Allan Quartermain Hall at 10 Mile outside Lae, on May 25.

His daughter Miriam Simin read out a compelling life story of her late father who served with distinction during his active years of work with DAL, before making the transition to NARI and retiring in 2009.

Physical Facilities and Infrastructure Manager Thomas Omot spoke on behalf of NARI saying late Mr Simin was a rare talent as a biometrician and passionate in his work.

Other staff spoke highly of his good leadership, commitment and good mentoring skills to help others work better including Prof Tom Okpul, who is now a lecturer at the PNG University of Technology.

Mr Simin leaves behind wife Ruth Simin, three lovely children and five grandchildren.

Alai Simin was born on January 01, 1968 in Chimbu.

His casket was laid to rest in his home province of Chimbu.



Ms Miriam Simin presenting her father's life story.



Late Alai Simin (third from right). File photo



Ms Simin receives cash contribution by staff from Mr Omot as Human Resource Officer Susan Manasi looks on.



## Producing quality foundation rice seed is important

Field officers at the Momase Regional Centre in Lae continue to produce quality rice seed before distributing to farmers. To produce pure and quality seed you have to know the rice variety and its characteristics which include plant height, grain type (short, medium, long), colour of stem, leaves and flowering time.

The MRC team are producing NARI Rice 1 seed which is a medium height, and is a long grain variety to distribute to farmers and other interested clients with resistance to Brown Plant Hopper.

To have quality rice seed, plant height has to be uniform, different colored stems or leaves apart from NR 01 and uneven flowering pattern is removed from the field.

NARI maintains breeder and foundation rice seed for model farmers to maintain certified rice seed to supply farmers in their community.



Healthy looking rice grains provide better seed in rice farming.



Removing rice plants that are not growing in line to maintain pure rice seed.

## Guard officers issued new uniforms



Guard officers and Guard Supervisor Gabriel Kimson (*third from left standing*).

Guard officers were issued a new set of uniforms by the Manager Physical Facilities Thomas Omot on behalf of the senior management.

Twenty seven officers based at the NARI Headquarter and Momase Regional Centre received two sets of uniforms; 1 pair of boots, 2 pairs of trousers, 2 shirts and a cap with NARI logo.

The guards were pleased and thanked the management saying they will work to the best of their efforts by demonstrating good work ethics and ensure uniforms are looked after. The management urged guard officers to remain cautious and vigilant by ensuring they protect NARI staff and properties. NARI will also issue new uniforms to 90 guard officers in other regional centres.



# Seasonal Farm Advisory 12/07/23

## Alerts and Warnings

Drought Alerts or warnings are issued when acute water shortages are likely to occur.

Figure 1 highlights areas considered to be suffering from a prolonged (drought watch), serious (drought alert) or severe rainfall deficiencies (drought critical). The terms **drought watch**, **drought alert** and **drought critical** are defined by:

- **Drought watch** – rainfall lies between the bottom 30<sup>th</sup> and 10<sup>th</sup> percentiles for the period in question.
- **Drought alert** – rainfall lies above the lowest five per cent of recorded rainfall but below the lowest ten per cent for the period in question,

**Drought critical** - rainfall is among the lowest five per cent for the period in question.

There is a strong likelihood of persistent dry conditions over southern parts of West Sepik, Enga, SHP, West New Britain, East New Britain, New Ireland and Bougainville continuing from July through to December 2023. The persistent dry conditions over East New Britain, Bougainville, New Ireland and Manus could lead to drought alert and drought critical conditions in some areas

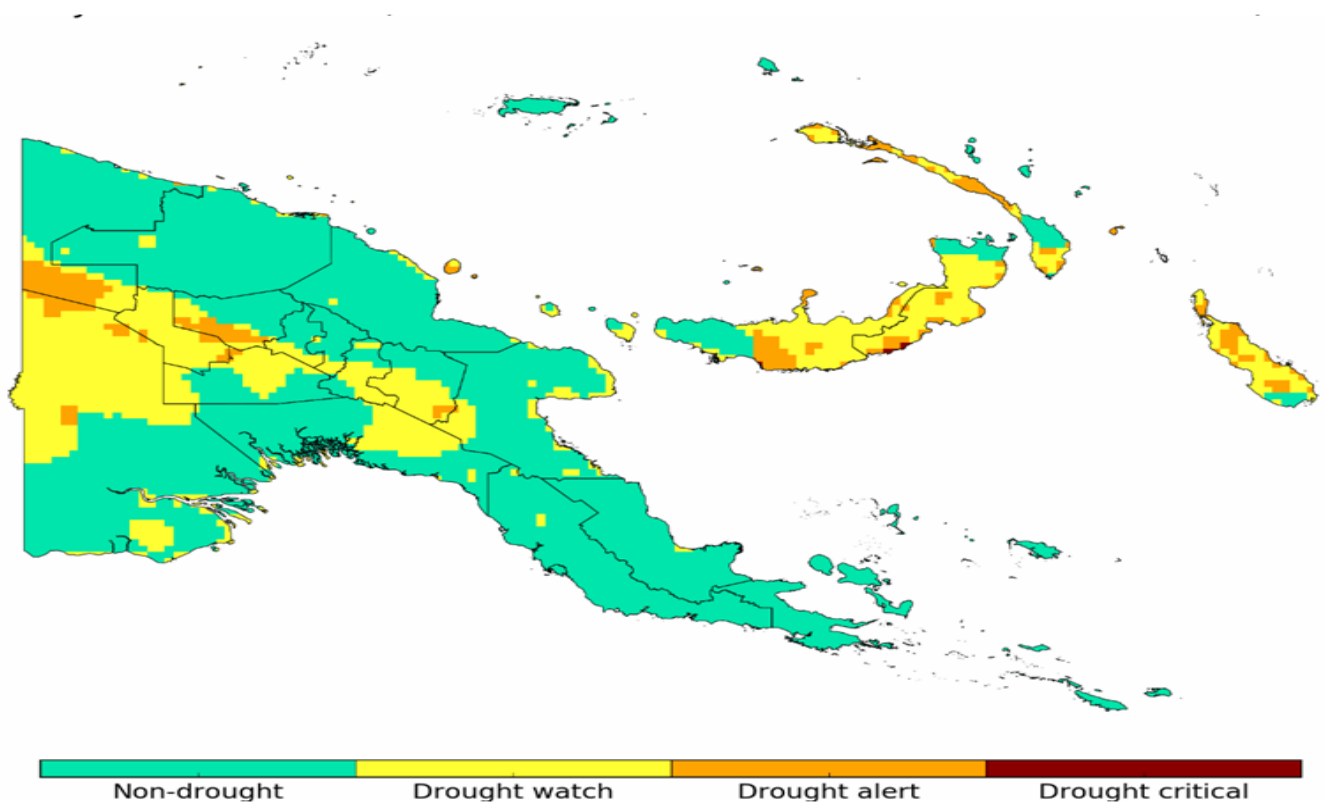


Figure 1: The drought indication for a 6-month period starting in July 2023

It is important to understand how much rain has fallen up until the point at which the forecast is made.

The cumulative rainfall over the previous four months provides an important insight into the level of soil moisture available for crops.

When 100m to 500mm less rainfall has fallen than the four-month average, soil moisture levels are likely to be lower than normal.

A forecast of dry conditions, coupled with lower than normal soil moisture levels will mean that farmers will have to consider management practices that conserve moisture.



# Seasonal Farm Advisory 12/07/23

Tercile rainfall probabilities for July to September 2023

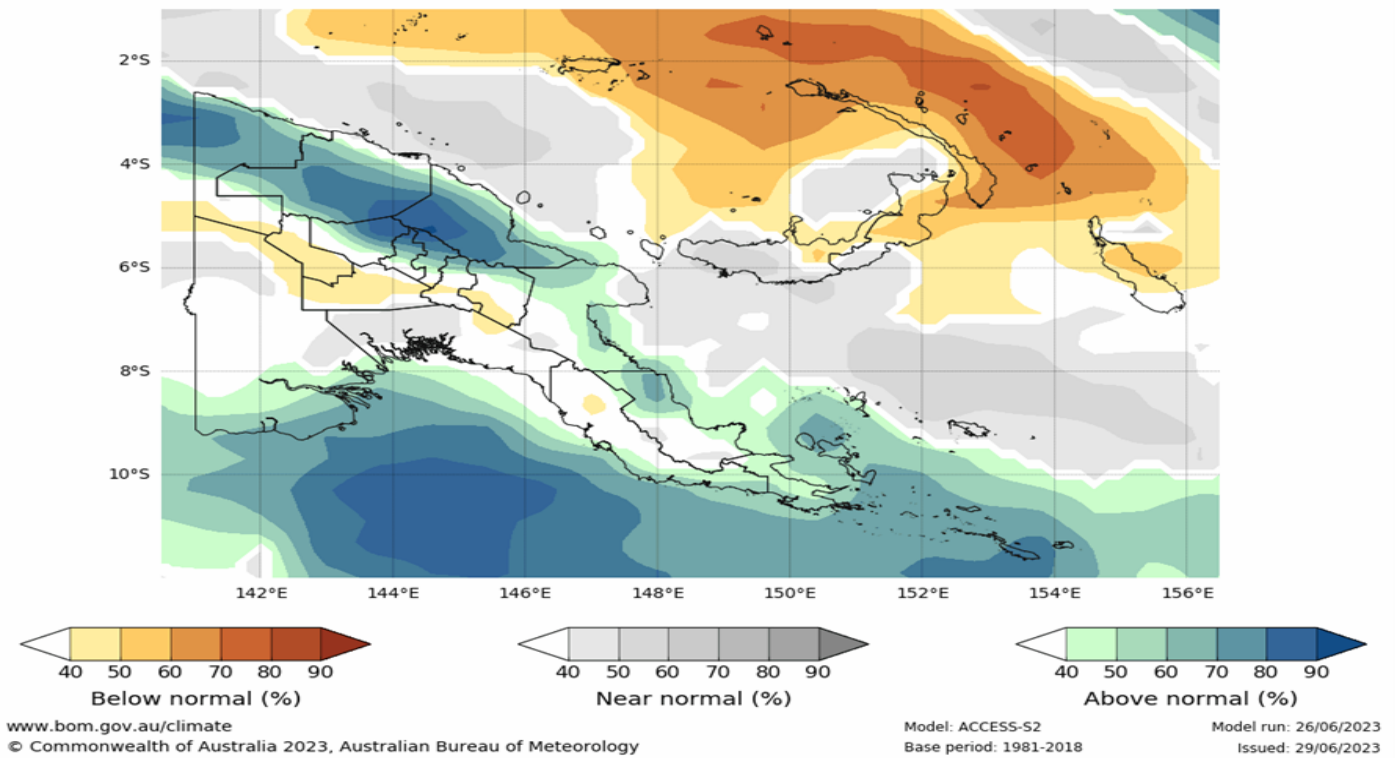


Figure 4: The forecast likelihood of below normal, normal and above normal rainfall conditions for the period August to October 2023.

Tercile rainfall probabilities for August to October 2023

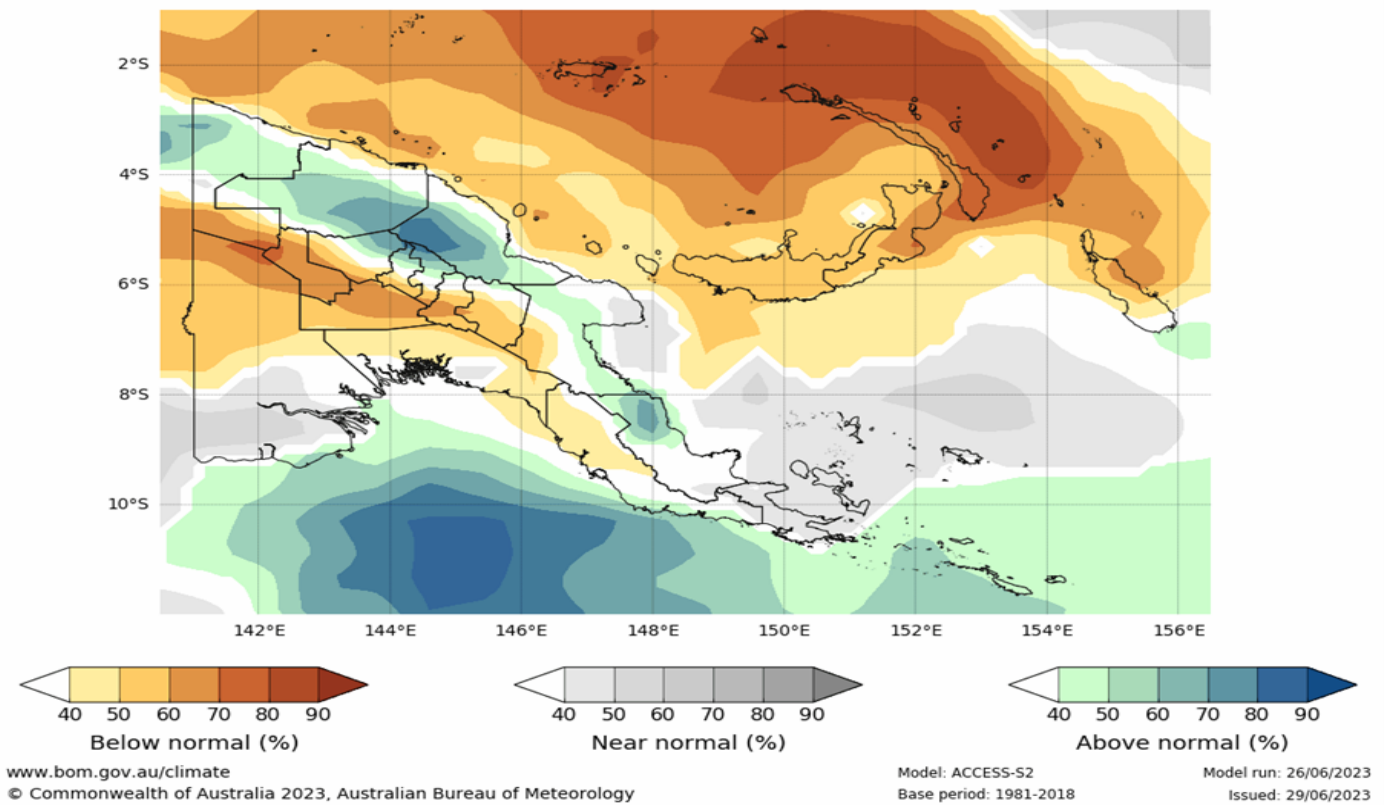


Figure 4: The forecast likelihood of below normal, normal and above normal rainfall conditions for the period August to October 2023.



# Seasonal Farm Advisory 12/07/23

## Some location-specific rainfall outlooks:

*Note: This period coincides with the normal drier time of the year for these areas. The table indicates the chance of getting more or less rain compared to what is normally expected at this time of the year.*

### Markham Valley

The monthly seasonal forecasts for the Markham Valley region suggests near normal to above normal rainfall conditions in the early dry season months from June to August followed a lower than normal rainfall forecast for September to October.

June	July	August	September	October
Near Normal	Above Normal	Above Normal	Below Normal	Below Normal
Less than 40% likelihood	40 to 50 % likelihood	40 to 50 % likelihood	40 to 50 % likelihood	40 to 50 % likelihood

### Asaro Valley

The monthly seasonal forecasts for the Aiyura region suggests normal dry season rainfall conditions from June to August with lower than normal later in the dry season from September to October.

June	July	August	September	October
Below Normal	Above Normal	Near Normal	Below Normal	Below Normal
40 to 50 % likelihood	40 to 50 % likelihood	Less than likelihood	50 to 60 % likelihood	40 to 50 % likelihood

### Bena

June	July	August	September	October
Below Normal	Near Normal	Below Normal	Below Normal	Below Normal
50 to 60 % likelihood	Less than 40 % likelihood	40 to 50% likelihood	60 to 70 % likelihood	70 to 80 % likelihood

The seasonal forecast for the Bena region normal shows normal dry season conditions June and July with a strong forecast for drier than normal condition from August to October.

### Kerevat

June	July	August	September	October
Near Normal	Below Normal	Below Normal	Below Normal	Below Normal
Less than 40 % likelihood	40 to 50 % likelihood	50 to 60 % likelihood	60 to 70% likelihood	60 to 70% likelihood

The seasonal forecast for the Kerevat region strongly suggests below normal rainfall conditions will persist for much of the July to October 2023 period.



# Seasonal Farm Advisory 12/07/23

## General Recommendations

With the exception of those areas (e.g. Lae) receiving rainfall under the SE Trades influence, the months of the June to October period are typically the drier months with some areas which receive most rainfall under the NW Monsoon influence having a pronounced “dry season”.

The Seasonal Rainfall Forecasts for June to August, July to September and August to October 2023 suggest above normal rainfall conditions over much of the northern half of the PNG mainland (I.e. Morobe, Madang, East Sepik and northern parts of West Sepik),.

The Islands region and central highlands region (particularly parts of Hela, Southern Highlands and Enga) are likely to experience a drier than normal “dry season”. The Southern region is expected to be as usual for this time of the year.

This is a period of gradual decline in soil moisture with reduced rainfall. Crop productivity will largely depend on its adaptation and soil water holding capacity.

While areas differ, the “Above normal” forecasts at this time of the year are only likely to provide supplementary soil moisture do not ensure success for commercial crops without irrigation.

*Table 1 Considerations to changes to Farm Management practices for “Dry Season” areas*

<b>Considerations to changes to Farm Management practices for “Dry Season” areas</b>	
Pre-planting decisions	Due to the drier than normal conditions, you may want to reconsider planting crops at this time if irrigation is not available.
Land Preparation	Consider planting close to an irrigation source for water access.
Irrigation / soil water management	Recommend irrigation for all commercial growers for various crops during this period. In drier highlands areas like Bena, irrigation is essential for any commercial crops. Mulching may assist to retain soil moisture. Note – Due to less cloud cover, higher yields can be expected with irrigation for most crops.
Pest and diseases	Ensure weeds are controlled to reduce competition for soil moisture. Sweet potato weevil infestation can be high. Manage using surveillance and cultural controls ( barrier plants, repellent plants etc) or pheromone traps.
Harvest	The lack of cloud cover will heat produce in the field and increase need for post harvest cooling - Harvest early in the day or late afternoon to avoid peak periods of heat stress
Frost	A higher incidence of frost can be expected in high altitude areas.



# Laboratory Service Enquiries

The Professor John Kola Chemistry Laboratory is a national chemical testing laboratory that has been operating for over 30 years.

The laboratory offers a wide range of analytical and diagnostic testing services.

The laboratory is accredited to ISO/IEC 17025 which is a general requirement set by the International Organisation for Standardization (ISO) and International Electrotechnical Commission (IEC) for the competence in testing laboratories.

It certifies a laboratory as an Accredited Chemical Testing Laboratory under the ISO/IEC 17025:2005 Guidelines.

Prof John Kola Chemistry can perform chemical testing and all methods used are recommended by American Public Health Association (water), Australasia Soil and Plant Analysis Council (soil and plant), Association of Official Analytical Chemist (food and natural products).

## Contact details

**Prof John Kola Chemistry Laboratory  
Kilakila**

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BOROKO

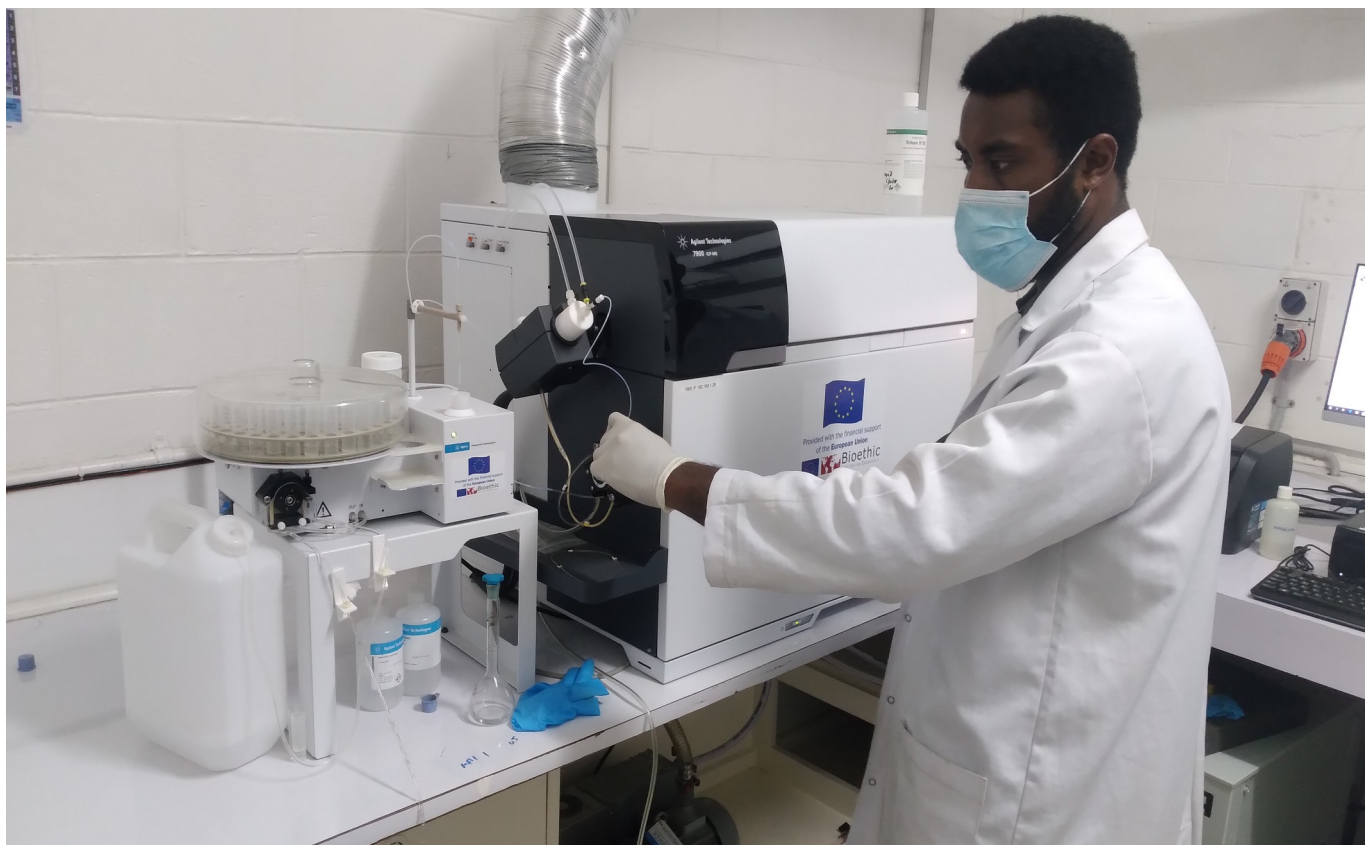
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## Guesthouse Enquiries



### Gadi Ling Guesthouse

**Kerevat, Rabaul, East New Britain**

**Contact person:** Daisy Besari  
**Phone:** 983 9145 or 983 9200  
**Email:** [daisy.besari@nari.gov.pg](mailto:daisy.besari@nari.gov.pg)

### Hill Top Guesthouse

**Aiyura, Eastern Highlands**

**Phone:** 7969 5466 between 8am to 5pm

**Contact person:** Tamo Tarra  
**Email:** [tamo.tarra@nari.gov.pg](mailto:tamo.tarra@nari.gov.pg)

### Western Pacific Guesthouse

**Contact persons**

**Jill Kavi**

7020 9001/ 7931 31 88 or 753 93924

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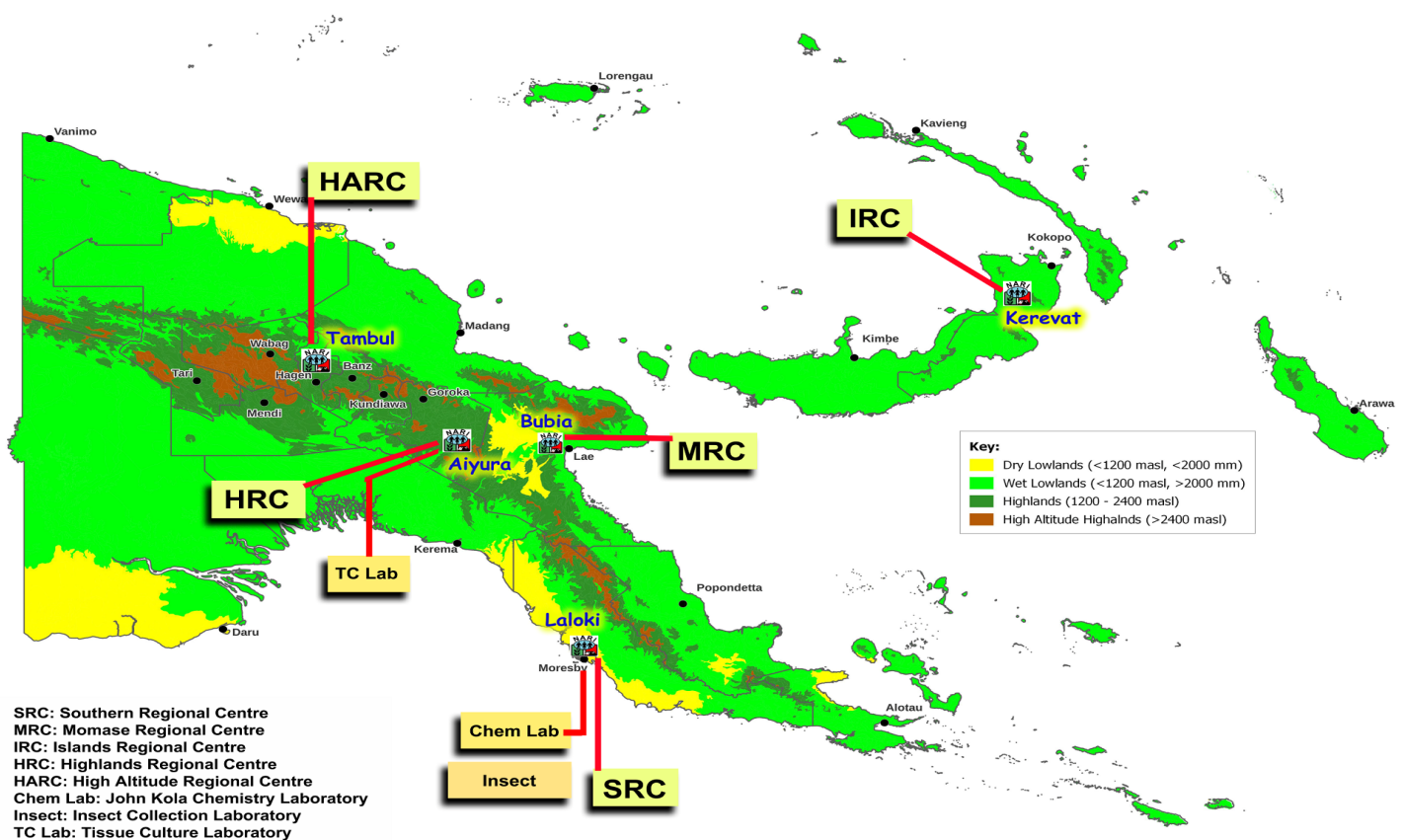
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The National Agricultural Research Institute (NARI) was established by an Act of National Parliament of Papua New Guinea (PNG) in July 1996 as a public funded, statutory research organisation, to conduct and foster applied and adaptive research into:

- i) any branch of biological, physical and natural sciences related to agriculture;
- ii) cultural and socioeconomic aspects of the agricultural sector, especially of the smallholder agriculture; and
- iii) matters relating to rural development. and of relevance to Papua New Guinea.