



Seeds of Life

Fini ba Moris



**Seeds of Life Program
Timor-Leste**



Left: Alberto da Costa is a contract grower with Seeds of Life. He produces Nakroma rice on six hectares of his land in Laga, Baucau (Photo: Connor Ashleigh)

Cover image: Labourers pick Nakroma rice seedlings on Jose Dos Santos's farm outside Maliana, Bobonaro (Photo: Connor Ashleigh)

Seeds of Life, November 2013

Food insecurity in Timor-Leste affects more than half the population

Timor-Leste is among the world's youngest and poorest countries. It suffers from seasonal food insecurity, with 62% of farming families experiencing one month or more of food shortage. This has a negative impact on nutrition, with more than half of Timorese children under five stunted.



The yields obtained by Timorese farmers growing food crops with the seed they have now are among the lowest in South-East Asia

Timor-Leste has never been food self-sufficient since 1960 (when records began)

Above: Corn spills from a bag in Nisadila, Liquica (Photo: Connor Ashleigh)

Farmers in Timor-Leste use almost no external inputs and the links between soil nutrient status, crop nutrient content, dietary composition and malnutrition are not well understood.

The production and distribution of more productive food crop varieties through Seeds of Life is reducing the usual 2-3 month “hungry season” and improving farming families’ nutrition.



About Seeds of Life

Seeds of Life (SoL) is a program in the Ministry of Agriculture and Fisheries (MAF) that started in 2000.

The program focuses on evaluating and distributing higher yielding varieties of food crops currently grown in Timor-Leste — maize, sweet potato, cassava, rice and peanuts.

It is jointly funded by Australian Aid, the Australian Centre for International Agricultural Research (ACIAR) and the Government of Timor-Leste.

The Centre for Legumes in Mediterranean Agriculture within the University of Western Australia is commissioned to coordinate our Australian-funded activities.

The third phase of SoL (SoL3) first started in 7 districts in 2011, expanded to 10 in 2012 and now operates in all 13 districts.

Left: ACIAR Commissioner Joanna Hewitt with a sweet potato farmer who grows Hohrae 1 in the hills behind Liquica (Photo: Rob Williams)

Seeds of Life has done more than 3,800 on-farm trials with farmers over the last seven years

Facts about the program

Goal

Improved food security through increased productivity of major food crops

Purpose

50% of crop producing households (est. 65,000) have access to and are routinely using improved food crop varieties

Vision

A sustainable national seed system is established in Timor-Leste, capable of providing farming families with regular access to quality planting materials of improved varieties

- MAF-SoL is accelerating the process of crop introduction into Timor-Leste.
- When MAF-SoL introduces new seeds they can be grown free by Timorese farmers, forever.
- MAF-SoL has reintroduced local seeds such as velvet bean to farmers who lost them 30 years ago.
- Staff communicate daily with farmers in more than 10 languages.
- Regular taste and cooking tests are held with male and female farmers as taste preferences are critical to successful uptake of new varieties.

Below: MAF-SoL Quinta Portugal Research Station Manager Denisia Raquela shelling beans in Aileu (Photo: Rob Williams)





Identifying improved crop varieties

MAF-SoL have been testing new varieties of food crops since 2000.

Through the program, MAF has released 10 staple crop varieties, all with significant to remarkable improvements in yield.

All officially released varieties have been assessed against a number of criteria, not only for improved yield and agronomic adaptability but also for their social, environment and gender impacts.

Research is ongoing into varieties of high-protein beans including mung bean, winged bean and red bean. These will be released over the next few years.

Left: MAF-SoL Researcher Inacio Savio Pereira with a tuber from a new sweet potato variety currently being tested (Photo: Rob Williams)

On average, farmers estimate a 57% yield increase using MAF-SoL varieties compared to other varieties

Yield advantage of improved varieties

Hohrae 1
sweet potato

102%



Hohrae 2
sweet potato

91%

Hohrae 3
sweet potato

131%



Nakroma
rice

24%

Sele
maize

50%



Noi Mutin
maize

46%

Suwan 5
maize

54%



Utamua
peanut

47%

Ai-Luka 2
cassava

46%



Ai-Luka 4
cassava

15%

How does Seeds of Life identify improved varieties?



- Replicated trials are held at MAF-SoL's national network of six research centres.
- On-farm experiments are used to test the suitability of new seed varieties under local farmer practices, seasons and in all agricultural ecological zones.
- MAF-SoL has installed 20 automatic weather stations across 10 districts to understand climate impacts on crop production.
- Farmer field days are held where farming families cook and taste-test the identified varieties in comparison with known local varieties.

Above: MAF-SoL staff testing new rice varieties in Selo Craic, Aileu
(Photo: Rob Williams)

Although released varieties originally come from overseas, they are tested and grown in Timor-Leste for at least five seasons before being released

Jose's story: "Nakroma is good seed"

Jose Ximenes, a farmer from Bahamori village, Baucau, first received Nakroma rice seed in 2006.

"I planted the 5 kg of seed on a 6m x 4m plot as a trial. I applied the practices taught by the MAF-SoL staff and got a very good result," he said.

From the 5 kg of seed, Jose produced enough seed to plant 5 hectares the following year.

"And now in 2013, I'm planting Nakroma in my 10 hectares of field, from which I can produce 20 tonnes of Nakroma," he said.

"Nakroma is good seed. The yield is high and it's not crushed or broken when milled. I will continue to plant it."

Below: Jose in his rice field in Bahamori, Baucau (Photo: Yessy Octaviana)

In 2010 Jose started to sell his rice seed to the government with help from MAF-SoL staff.

He sells his production from 5 hectares to the government and keeps the rest for home consumption.

"I'm really happy that the government is able to purchase the seed from me because now I can get more income for my family's necessities."

With this extra income Jose has bought a tractor and thresher, and sent his children to school and university.



Guilherme's story: Hooray for Hohrae

Guilherme da Costa is a farmer living in Bahu village, Baucau, who plants the three improved sweet potato varieties: Hohrae 1, 2 and 3.

He first got involved with Seeds of Life in 2009 when he was invited to grow the improved sweet potato varieties as part of an on-farm demonstration trial. He initially received 25 cuttings to plant in his plot.

From these small beginnings over four years ago, Guilherme now grows the three varieties in his two fields because he finds the results so impressive.

"The yield is good, the root is big, and it has a great taste," he said.

Guilherme continues to produce sweet potato cuttings to replant in his plot. He also shares some cuttings with neighbours so they can benefit from the improved yields.

After harvest, Guilherme's wife will sell the sweet potatoes in the local market and they can earn more than US\$1,000. With these profits they have been able to build a house and send their children to school.



Above: Guilherme in his sweet potato field with some of his Hohrae 2 (Photo: Yessy Octaviana)

"I am really happy with the result of these sweet potatoes. It doesn't take a long time to grow – only 3 months and then we can harvest"

Jose's story: Nuts about Utamua

Over a two-year period Jose, a farmer from Hatuquesi village, Liquica, earned enough money selling sacks of Utamua peanuts at the district market to send his children to school.

He says this is more money than he would have received from growing local varieties.

"I'm happy because I used this money to pay my children's school fees" he said.

In fact, he is so happy with the high yields from Utamua that he has stopped growing local peanut varieties and continued growing only the improved variety.

88% of adopters perceive an increase in productivity of the MAF-SoL varieties compared to other varieties they use to grow


Below: Jose Pereira (L) with family members and MAF-SoL staff member Leandro Pereira (R) (Photo: unknown)



Increasing farmer access to quality seeds

Seeds of Life launched the **National Seed System for Released Varieties** in 2013 to provide the farming families of Timor-Leste with secure access to good quality seed.

The system is designed to include commercial seed producers and community seed production groups that produce enough quality seed to meet each district's seed demands, enabling Timor-Leste to achieve seed security and sovereignty.



The Timor-Leste
Government can save
money by not having to
buy, store and distribute
imported seed

Farming families avoid having to use seed
varieties not suited to local growing conditions

Above: Labourers transplant young rice seedlings on Jose Dos Santos's farm outside Maliana, Bobonaro (Photo: Connor Ashleigh)

How does it work?

1. Research and development

MAF identifies, selects and develops the superior varieties for official release, and produces breeder and foundation seed under highly-controlled conditions.

2. Certified seed production

Contract growers multiply foundation seed of released varieties under close MAF supervision to produce high-quality certified seed.

3. Commercial seed production

Registered seed producers multiply certified seed according to the ministry's quality assurance guidelines to produce large quantities of branded and truthfully labelled commercial seed that farmers and others can purchase with confidence.

4. Community seed production

Farmer groups use commercial seed to locally produce unlabelled community seed, which is properly stored and available for farming families to use next season for their food production.

Right: Seed Production Officer Constantino da Costa checking Sele seed at Triloka Seed Warehouse, Baucau (Photo: Connor Ashleigh)



Quality assurance is key

Maintaining seed quality is critical to maintaining farmers' trust in the improved seed varieties. Seed quality is assured through:

- Clear systems and procedures that guide the government and farmers in producing and marketing quality seed
- A quality assurance system built on capable staff and properly equipped laboratories of the MAF Seed Department.



Above: Veneranda at her home in Bandera-hun, Aileu (Photo: unknown)

Veneranda's story: "I prefer Sele"

Veneranda Alves Mendonca, a farmer from Bandera-hun in Aileu district, has planted the high-yielding Sele maize variety three times.

After her first planting of 25m² as an on-farm demonstration trial she expanded her Sele plot to 364m² (26m x 14m), approximately the size of a basketball court.

"My children love the delicious, fragrant flavour of Sele, and ate most of the Sele from this plot as fresh maize."

As a result she was only able to harvest 10kg to store as seed to plant in the next season.

***"I prefer Sele
maize for its
large cobs
and its flavour,
which is sweeter
than the local
varieties"***

Timeline of the National Seed System

June 2012	MAF formed a multi-stakeholder working group to develop a draft National Seed Policy.
March 2013	National Seed Policy finalised and endorsed by the Minister of Agriculture and Fisheries.
May 2013	19 seeds officers appointed at inauguration of Timor-Leste's first National Seed Laboratory.
June 2013	Guidelines for Registration of Commercial Seed Producers and for Commercial Seed Production endorsed by MAF Vice Minister.
July 2013	First three farmers associations registered as Commercial Seed Producers.
September 2013	Workshops held in all 13 districts to socialise the registration guidelines.
October 2013	Registration of 26 Commercial Seed Producers



Timor-Leste's first national seed laboratory opened in May 2013

Left: MAF Minister Mariano Sabino Assanami giving Dorilanda da Costa Lopes, District Seed Officer, her certificate for completing seed certification training (Photo: Alva Lim)

During the program's remaining three cropping seasons, the seed system will be progressively improved. During this time, the program aims to develop appropriate Seed Regulations and a comprehensive National Seed Law.

By the numbers

Seed production in 2012-13

- **134 contract seed growers** (29 women, 105 men) produced 51.4 tonnes of certified seed under strict supervision.
- **11 district seed officers** use facilities in 6 purpose-built seed warehouses and 3 well-equipped laboratories to ensure the quality of certified and commercial seed.
- **Almost 30 commercial seed producers registered** to produce truthfully labelled seed of improved varieties.
- **681 community seed production groups (CSPGs)** work in 135 sucos, involving 8,687 farmers (32 % women).
- **Over 100 tonnes of community seed** were produced by CSPGs and farmers associations (>60 tonnes of maize and 40 tonnes of rice).
- **135 Suco Extension Officers** (121 men, 14 women) work in 11 districts to support the community seed production groups.



*In 2013-14,
Seeds of Life
aim to have
1,200 CSPGs
producing over
200 tonnes of
community
seed*

Above: The village chief (L) and MAF-SoL staff stand among the land used for communal seed harvest by the seed group in Tequinomata, Laga (Photo: Connor Ashleigh)



Collaboration

- Seeds of Life collaborate with **many NGOs** (including CARE, CRS, World Vision, Oxfam, Mercy Corps and Hivos) who each year support an additional 300+ CSPGs in districts where they work.

Cuttings distribution

- Around **95,000 cassava** and **230,000 sweet potato cuttings** were distributed to 517 farmer groups in 234 villages in 2012-13.

Capacity building

- **9 MAF-SoL staff have studied a masters degree** in agriculture in Indonesia and Australia through the program.
- During the first half of 2013 there were **16 training opportunities provided every day** for staff.

Left: MAF-SoL District Seed Officer Basilio da Silva Pires shows how to prepare a sweet potato cutting at a training for extension officers (Photo: Alexia Skok)

Ensuring equal access

MAF-SoL is proactive in ensuring that gender is mainstreamed in the National Seed System. Research shows that giving women access to agricultural resources, training and services helps them increase their farm productivity by 20 to 30% (ACIAR, 2013).



Seeds of Life is working towards:

- integrating men and women's needs regarding improved varieties into research activities
- ensuring at least 30% female participation among contract growers and labourers of seed processing centres
- ensuring at least 30% women participation in community seed production groups and farmer associations. Women are also encouraged to take leadership positions among these groups.

25% of on-farm demonstration trials are run with female farmers and women are represented on the National Variety Release Committee

To reach these objectives, the Seeds of Life Gender Team is holding gender awareness workshops and training for staff, piloting bottom-up gender work-plans and monitoring how activities are being implemented.

Above: MAF-SoL staff with members of a farmers group in Maubisse, Ainaro (Photo: Connor Asheigh)

Improving nutrition

Seeds of Life is helping to reduce hunger and meet the calorie needs of farming families through its improved varieties.

To improve nutrition, SoL is:

- promoting a high-yield, high-carotene variety of sweet potato (Hohrae 3)
- promoting seed storage in airtight steel drum to prevent weevil and vermin damage
- researching improved varieties of high-protein crops such as winged bean, mung bean and red bean
- encouraging adoption of a multi-sectoral nutrition program.

SoL is also supporting MAF to develop its own strategy for nutrition-sensitive agriculture.

Right: Different varieties of sweet potato ready for tasting at a farmer taste test (Photo: Rob Williams)

***Just one cup (200g)
of orange fleshed
Hohrae 3 meets the
daily adult requirement
for vitamin A***





“The 9 kg of Utamua seed that our group received yielded 1.5 drums of peanuts. To produce the same yield with a local peanut variety requires 22 kg of seed. We’re delighted with the results.”

Left: Vicente Gerardo is head of a 19-farmer group in Bobonaro that received Utamua, a peanut variety highly valued for its large size