The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks—a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru near Hyderabad, Andhra Pradesh, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium, CGIAR is a global research partnership for a food secure future.
ICRISAT
Eastern and Southern Africa

2012 Highlights
Citation:

An ICRISAT semi-formal publication issued for limited distribution without formal review.

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Cover: A farmer in Malawi poses in her thriving pigeonpea field.
Preface

The wider the range of options open to us, the greater our chances of achieving a meaningful, fulfilling life. This year’s Eastern and Southern Africa Highlights reflects on why diversity matters in agricultural systems. The selected stories demonstrate how we can use and promote Systems Diversity to reduce risk and help families identify and adapt to new opportunities in the face of challenges. We present three examples that clearly reinforce the need for more innovative interface with farmers to make the best out of our technologies.

The story on Malawi’s Medium-Duration Pigeonpea showcases how various aspects of agricultural research from breeding, seed production and training and knowledge can work together for impact. Our work on livestock marketing and feed sources in Zimbabwe provides an example of how diverse strategies in marketing and reinvestment can make farming in the semi-arid tropics less risky and more profitable. Finally, the story on groundnuts in Uganda describes how we can help farmers in collapsed agricultural systems rebuild after shock and conflict.

We hope that these stories provide a sense of how systems diversity can be used to transform and better the lives of many people living in the semi-arid tropics.

William D Dar
Director General

Moses Siambi
Regional Director for Eastern and Southern Africa
2012 Highlights
Diversity in Farming Systems

Why does it matter?
Poverty – A paucity of choice

Poverty is often measured in terms of money. However, a more accurate definition of poverty encompasses more than just money. The United Nations includes “the inability of getting choices and opportunities” in its definition of poverty. A relentless life of limited choices for ourselves and for our children can create a poverty trap – a state of existence that is self-reinforcing. In other words, when we choose from a limited set of options we can end up limiting ourselves further. It will take a very big change or influx of a variety of types of capital (natural, social, economic etc.) to pull us out of this situation.

In the rural context, the agricultural sector, which provides a source of income and food for many millions of families, often

Full-fat cappuccino or non-fat latte? Harvard or Cornell? Deserted short cut or longer road that is well-traveled? Chicken or lamb for dinner? To stay or resign? One child or one more? From the mundane to the life altering, we make hundreds of choices every day. And each of these decisions has consequences that can better our lives or create future problems.

Given that our ability to choose, and also to choose wisely, has a profound impact on our lives and on the lives of our loved ones, what can we do to make better choices? What determines the range of choices available to us? Is it the fortunes of our birth? Our innate intelligence? Access to education? What can we do to help those who have limited choices or who have made poor choices?

Diversity in systems offers the most obvious opportunity for people to make this big change in circumstance. Choices made here have the potential to change lives and set generations on different paths.

The choices for farmers

What to plant? When to sow? How many animals to sell? Where should I sell them? When to weed? Should I spray? How often should I spray? What can I buy if I sell this animal or that bag of groundnuts? These are the some of the choices facing smallholder farmers – choices of investment and returns, choices related to livelihoods and food security. Agricultural research has long been working to expand the range of options available to farmers who attempt to make a risky living from rainfed agriculture in difficult conditions. If farmers have a wider range of options from which to choose – whether in the form of new varieties, new crop management practices, new ways of marketing produce, new

“Choosing helps us create our lives. We make choices and are in turn made by them. Science can assist us in becoming more skillful choosers, but at its core, choice remains an art. To gain the most from it, we must embrace uncertainty and contradiction.”

– Sheena Iyengar in The Art of Choosing

“Fundamentally, poverty is the inability of getting choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and clothe a family, not having a school or clinic to go to, not having the land on which to grow one’s food or a job to earn one’s living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living in marginal or fragile environments, without access to clean water or sanitation.”

partnerships, or new knowledge — then they will be in a better position to capitalize on those choices. Greater diversity in farming systems and livelihoods can mean a better chance of escaping the poverty trap.

Reducing risk
We’ve all heard the phrase before: Don’t put all your eggs in one basket. When we have many options to choose from, when we invest our time and resources in more than one place, we spread the risk associated with that endeavor. Farming in the semi-arid tropics means relying on rainfall and each season is a gamble in terms of energy and money invested and potential profits made.

Diversification is usually a smart strategy for farmers in the semi-arid tropics. By growing different crops, by processing those crops in different ways based on what the market requires, by moving from crops only to both crops and livestock, and sometimes even getting jobs off-farm to help earn some much-needed cash, rural families are able to reduce some of the risks associated with farming. They are able to maximize their possibility of success or at the very least minimize the possibility of failure.

Much of the agricultural research done in partnership with farmers and other stakeholders attempts to evaluate and devise new options that will increase the chances of success. Solutions that reduce risk take the form of adding new crops to existing fields, using irrigation where feasible, expanding farmers’ knowledge base to encourage informed decision-making, exploring alternative marketing channels, and bringing together different stakeholders to encourage innovation and create new and lasting partnerships.

Building adaptive capacity
Despite all the risk mitigation strategies and despite all the hard work, life has a way of catching us by surprise. Floods, tsunamis, droughts, famine, political conflict and, on a personal level, accidents, diseases and death can change our lives drastically. Anything can happen at any time and we are left attempting to rebuild with what remains of our lives. What can we do to be better prepared to handle the unexpected? Of course, not all change is negative. Sometimes there are new opportunities to pursue, new markets for our products, new understanding of our situations and new plans for progress. How can we make the most of those?

Our ability to bounce back in the face of change and uncertainty is also tied to diversity. When there is diversity in systems, be it in the form of biodiversity or diversity in knowledge etc., families can adapt better to the new circumstances. Sometimes they can even benefit and do better than before.

Adaptive capacity is the ability of a person, family, community or system to evolve in response to change.
Livelihoods can be defined as a set of strategies used by individuals and households to make a living. The strategies used are a result of a combination of tangible assets (e.g., natural resources, labor availability) and intangible assets (e.g., access to land, relationships between players in a value chain).

Resilient livelihoods can:

- cope with and are able to recover from shock and stress
- maintain or enhance existing capabilities and assets despite uncertainty
- ensure provision of sustainable livelihood opportunities for future generations.

“Adaptive capacity is the aspect of resilience that reflects learning, flexibility to experiment and adapt novel solutions, and development of generalized responses to broad classes of challenges.”


Scientists use the metaphor of a ball and a cup to discuss resilience and systems dynamics. Imagine a ball nesting inside a cup. In a stable state the ball has little trouble staying inside the cup. But if there is a shock to the cup (drought, fires, famine, earthquakes to name a few) the ball can be knocked out of the cup and fall to a lower state of productivity. Increasing the diversity in systems can increase the depth of the cup. So when there is a shock to the cup, it is harder for the ball to fall out.

“Resilience depends on the diversity of the ecosystem as well as the institutional rules that govern the social system.”


Resilient Livelihoods: Harnessing the Power of Diversity

Livelihoods can be defined as a set of strategies used by individuals and households to make a living. The strategies used are a result of a combination of tangible assets (e.g., natural resources, labor availability) and intangible assets (e.g., access to land, relationships between players in a value chain).

Resilient livelihoods can:

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The money earned from groundnut sales is an important source of income for families in Chipata, Zambia. Women spend hours each day shelling groundnuts, a task made lighter when done in the company of friends and family.
Malawi’s Medium-Duration Pigeonpea

An old crop with new life
An alternative to cotton

Raphael Bellings Mwalughali used to be a cotton farmer. But he wasn’t satisfied. “I was looking for another crop to benefit my family. I was looking for something to grow besides cotton,” Mwalughali says. Mwalughali felt that cotton production was labor intensive and costly since the crop required numerous regular pesticide sprays throughout the season. Also, the prices for cotton are relatively volatile, which meant that after a season of investment and hard work, Mwalughali was not assured of a profit for his effort.

So Mwalughali spoke to his friends. “I heard about pigeonpea from my friends. They had grown pigeonpea before and I heard good stories about the crop. So I decided to try it,” Mwalughali says. “I was very happy about the idea of trying out pigeonpea,” Edna, Mwalughali’s wife, says. “We were having some financial problems and I thought this would give us a solution.”

Mwalughali went to the Karonga Agricultural Research Station, near his village of Lughali in Malawi’s northern Karonga District. He came home with 10 kg of pigeonpea seed of the variety ICEAP 00557.

Timing is everything

ICEAP 00557 is known in Malawi as Mwaiwathualimi, which means ‘We are lucky to have this variety’. Mwaiwathualimi, released in Malawi in 2011, is Malawi’s first medium-duration variety of pigeonpea. The medium-duration crop matures in 5–6 months instead of the 8–9 months it takes for the long-duration varieties.

Shortening the time it takes for a variety to reach maturity brings with it several advantages. It gives farmers the opportunity to get their product to the market faster and earn some cash quicker. It can protect their harvest by reducing the chances of insect and disease related damage. And it provides farmers with a buffer against the vagaries of the weather. A crop that takes a shorter time to mature is less likely to fail if the rainy season is shorter than normal.

“When I look at the rainfall of this place, I think this variety is well suited to this area. Even if you plant at a late stage it does well. It doesn’t wither and dry up and the yield is good,” Mwalughali says.

There is also a cultural benefit to growing medium-duration pigeonpea. Maize is the most important crop that is grown by almost all farmers in Malawi soon after the maize is harvested.
most farmers will release their livestock to allow the animals to graze in the maize fields on the leftover stalks and leaves. This practice means that any other crop that is still growing, such as the long-duration pigeonpea, could get eaten by the livestock.

“When I was a small boy, my mother and others in the village used to grow pigeonpea,” Mwalughali says. “But then it was phased out and now it’s back. The variety they used to grow was late-maturing and cattle used to destroy it. This one matures with maize and so it is better. There are no problems now with livestock.”

Providing farmers with alternatives that take into consideration and solve problems like this one showcases the importance of the use of genetic diversity in breeding new varieties and increasing the range of options available to farmers who are looking for alternatives to the status quo. “The pigeonpea work really showcases the importance of maintaining and enhancing systems diversity. By exploiting genetic diversity, the national breeders, in partnership with ICRISAT, have produced a variety that yields well and matures early,” says Moses Sambiri, ICRISAT scientist based in Lilongwe. “This has expanded the range of choices available to farmers. They now have an alternative to cotton, which used to be their only choice for a cash crop.”

Making seed available

It can take time for a newly released variety to make its way from the research stations where it was bred to farmers’ fields. However, in this case the fact that Mwalughali was able to go to the nearest agricultural research station and buy what he was looking for shows that sometimes the system works.

One of the reasons that seed of Mwaiwathualimi is readily available in Karonga District is due to the Malawi Seed Industry Development Project, funded by Irish Aid. The project aims to increase farmers’ access to seed of improved variety of pigeonpea, rice and groundnut seed in Karonga among other districts across Malawi. In Karonga the project focuses on rice and pigeonpea.

“We have around 100 hectares of certified pigeonpea seed production in Karonga this season by working with contract seed producers in the district,” says Felix Sichali, Project Manager at ICRISAT-Lilongwe. Since the project began in 2008, close to 60,000 kg of certified pigeonpea seed have been produced and supplied to the Malawi Government’s Farm Inputs Subsidy Program and the Presidential Initiative on Poverty and Hunger Reduction. These government programs are designed to make sure that farmers have access to the high-quality seed of new varieties so that when they come looking for new options at the research station like Mwalughali did they don’t go home empty-handed.

The results of Mwalughali’s experiment

This is Mwalughali’s first time growing pigeonpea as a cash crop. He planted the seed he bought from the research station on one hectare. He decided to sow the seed on two different dates, staggering the planting in order to maximize his chances against the erratic rainfall of the semi-arid tropics.

“I got a lot of advice when I bought the seed,” Mwalughali says. “I realized I need to be serious with crop management. I should never let weeds grow and when the pigeonpea starts flowering I should be serious about spraying or I could lose everything.”

With all the care that he gave to this new crop, it is no surprise that the pigeonpea has thrived on this field. Mwalughali is pleased with his yield. “I will get 15–20 bags of pigeonpea. I am expecting to get MK 200,000 to 300,000 from this harvest.” (This means somewhere between USD 600 and 800.) “With this money I will be better off and I will be able to solve some of the challenges that I have been facing,” Mwalughali says.

Mwalughali is planning to build a better house for Edna and their four children. “I will buy iron sheets for next year and then also buy the frames for the doors and windows,” he says. “During the rainy season it is a challenge to have a grass thatched house. Mice bore through the roof and then the roof leaks. Also, an earth floor gives us problems with termites. It is better to have a cement floor,” he says.

Mwalughali also plans to reinvest some of the money in farming next year. “I plan to save some of the money to grow a larger area next year. I have the capacity to grow three hectares of pigeonpea. I have got the capital and I can manage three hectares,” he says. If Mwalughali can manage to keep reinvesting and earning a good profit from those decisions, he may be well on his way to securing a firm footing for himself and his family.
Helping Farmers Care for Each Other

“We know them in our village because we live near each other. We see them and we can tell that the child is needy,” Margaret Mwafulirwa, Chair of the Chimwemwe Club, says. “Maybe the mother is dead or maybe she is divorced or a widow. Once you are a widow, you run out of ideas on how to take care of your children. Sometimes you grow old so you may not have the energy to do the other activities that will help you support the children.”

Instead of simply standing by, Mwafulirwa and a group of women decided to do something to help these families. With the encouragement of Wells, the Village Headman at the time, the women organized themselves into a club to help the children. The club does what they can to ease the financial burden of providing education and food. “We buy pencils and notebooks for the children. We are taking care of ten children at the moment. When we see that they do not have enough food we make contributions and bring maize to them,” Mwafulirwa says.

The group started to grow pigeonpea in 2011. “We met Dr. Siambi in our field during a visit and he asked us what we do for a living. So I responded and told him that we are in a club that takes care of orphans in our village. So Dr. Siambi asked us if we would accept a gift from him that could help us take care of these children and I said yes that would be welcome,” Mwafulirwa says.

The group plants the pigeonpea in a communal field with everyone contributing their time and labor. “We use the pigeonpea as food but we also sell it and earn an income out of it,” Mwafulirwa says. “The way we look at our field now, we can comfortably say that we will raise around MK 80,000 (USD 230) after selling our harvest.”

The club has decided to reinvest some of this money by buying goats. “We can buy a goat for MK 10,000 and then we will take care of it until it gives birth and then we will sell the goat for MK 50,000.” The group also has plans to increase the area of their communal field to get a bigger harvest next year.

Growing and selling pigeonpea seed has allowed this club to handle their own problems instead of relying on outside assistance. By organizing themselves into a group, sharing their time and labor, and growing a marketable crop, the club serves as an example of how people can be empowered to help themselves in times of trouble and close the circle of ties and relationships that bring communities together. As Mwafulirwa says, “We feel that if we take care of these orphans, maybe tomorrow the same orphans will come back and support us.”
Livestock Feed & Feedback Loops

Increasing farmers’ options in Zimbabwe
Prosper Magabo is an organized woman. It is clear in the way she holds the livestock sale forms in her left hand and her pen ready in her right hand. She has tucked her IDs in her left pocket and the money she will earn will go in her right pocket. Her organization is also evident in the way she can articulate her expectations without hesitation. “I have decided my price. It is thirty dollars minimum per animal,” she says. Magabo is attending a livestock auction in Gwanda, Zimbabwe. She has ten goats and three sheep to sell. “The reason we are selling these animals is because of drought and we need some cash,” she says.

The auctions for small stock are a relatively recent development in Gwanda. They were piloted by an EU-funded project called Livestock and Livelihoods. In addition to this, another project led by the Organisation of Rural Associations for Progress (ORAP) built dedicated sale facilities for small stock in 2008. The auctions for small stock have now become a familiar feature of market day in Gwanda.

“Creating alternative marketing options is good for farmers. By increasing their choices of where to sell their animals, farmers are able to make decisions that ensure that they are getting a fair price for their livestock,” says André van Rooyen, Scientist at ICRISAT-Zimbabwe.

Surveys conducted before 2006 revealed that as many as 85% of farmers were selling their animals at the farm gate. While sales at the farm gate may be convenient for farmers since the buyers come straight to their doorstep, there are serious doubts about whether the prices offered are fair. Farmers feel that they do not have any bargaining power and that they are being taken advantage of.

The traders also find this system difficult. They have to go from door to door buying the one or two animals available and it can take a long time and intensive management before they source enough animals to merit a trip to the nearby city of Bulawayo where they can sell their livestock. By holding monthly auctions, however, the traders can be assured of a sufficient volume of trade to fill their trucks in a few hours, reducing the time spent sourcing animals, and making them more willing to pay a fair price to the farmers for the animals on sale.

Recent ICRISAT surveys in Gwanda have shown that more than 80% of farmers are now selling their small stock at the auctions. “This is a very promising result. We have seen a complete shift in how farmers are selling their animals and it is clear that the auction system has been a huge success,” says van Rooyen.

**Reinforcing a positive feedback loop**

ICRISAT research has shown that the highest mortality rates for small stock occur during the dry season, when the animals struggle to find enough to eat on the dry rangelands. In a year of drought, many farmers sell their livestock, often in an attempt to earn a little cash instead of facing a total loss when the animal dies.

Magabo however is doing something a little different. With the money that she earns from selling these animals she plans to buy supplemental feed for the other livestock that are remaining at home. “We own 60–80 goats and 70 head of cattle,” she says. Magabo has worked out that she will need 50 bags of stock feed to see those animals through the dry spell. She will use some of the money from the sale of these animals to buy those 50 bags, thereby securing her family’s assets during a time of uncertainty and high risk.

“Magabo’s story is a great example of how farming is made less risky with the right reinvestment strategies,” says van Rooyen. “By marketing their animals through the auctions where they can get a fair price, and then carefully reinvesting that money in their farming system, this family is now able to get through the hard times. We are seeing that more and more farmers are following this way of thinking and benefitting from these feedback loops.”
Partnerships for innovation

A certain amount of capital needs to be reinvested in any business if it is to grow. But it is not always easy for farmers to reinvest as they have limited sources of cash and many different needs for every dollar earned. Discussions with farmers through Innovation Platforms revealed that farmers were willing to spend money on their livestock now that the auction system was providing them with a fair and transparent marketing channel. The Innovation Platform in Gwanda brings together a variety of stakeholders ranging from producers to buyers and even local level policy makers to discuss the challenges and opportunities in the livestock sector. The decisions made here are then tested and implemented by the different parties.

When the Innovation Platform discussed how farmers struggle to feed their animals during droughts or during the dry season, one of the proposed solutions was to evaluate the feasibility of buying stock feed. The stakeholders discussed a variety of issues such as pricing and transport. Farmers felt that the prices of stock feed at their local agro-dealers was far too high. The prices ranged from USD 21–26 per 50 kg bag. The manufacturers’ price however was only USD 12.

“When agro-dealers were asked why they had placed such a high markup for this product, they said that it was because it was a product that no one really buys. So they rarely made much money from stocking these bags and preferred to use the shelf space for other more popular products,” says Patricia Masikati, Scientist at ICRISAT-Bulawayo.

“We asked them whether they would consider lowering the price if they could sell greater volumes and they were very excited by that possibility," says Masikati.

And so the negotiations began in earnest. The local agro-dealers agreed to accept a 12.5% commission. This would reduce the price of the 50 kg bag to USD 16, a figure that was more affordable for farmers. “We organized the truck to drop off the bags of feed and it was a huge success. Between mid-October and mid-November, the agro-dealers had sold about 40 tons of stock feed. All together farmers invested around USD 15,000 in that one month, “ says Masikati.

“By bringing together all the different players, we were able to share our different view points. This brings with it a greater understanding of why the system functions the way it does and where changes can be made,” says van Rooyen. “The Innovation Platforms use diversity of knowledge and partnerships to expand the role of education and dialogue and develop feasible, lasting solutions to problems.”

Survey results

In early 2012, ICRISAT conducted a survey of more than 200 households to look at some of the reasons why farmers were investing in stock feed, how much they were able to invest, and what they hoped to get from the investment.

The results showed that when the rains were good, it would take a household of six on average
After the sales, a satisfied Magabo holds her cash and waits to complete the paperwork.
Not only store-bought: Can farmers grow feed?

Storing your wealth in the form of livestock is a smart option with one big catch – you have got to make sure your animals stay alive until you decide to sell them for what you deem is a good price. “The biggest challenge to livestock farmers in Zimbabwe is getting their animals through the dry season,” says Patricia Masikati. Zimbabwe’s dry season lasts from August to November and results in a severe shortage of grazing for cattle and goats. The mortality rate of goats has been calculated to be as high as 30% in the drier parts of the country.

Farmers attempt to supplement the grazing from the rangelands with crop residues, the stalks and leaves left in the fields after harvest. However, if the wet season was poor (and in semi-arid Zimbabwe it often is), the crop fields are also sparse and do not offer livestock enough or nutritious feed.

One solution that looks promising is for farmers to grow fodder crops on part of their farms. Drought-tolerant fodder crops could provide farmers with an alternative to the depleted rangelands to help get their animals through the dry season. In an effort to find and promote viable options for farmers in semi-arid southern Africa, the Challenge Program for Water and Food (CPWF) recently evaluated this solution with farmers in Zimbabwe.

One of these farmers is Mr Patrick Ndlouv from Inziza District. Ndlouv grew maize, groundnuts, bana grass, mucuna, and dual-purpose sorghum on ten 10 x 20 m plots. Results obtained from on-farm experiments done in the district show that average yield for sorghum, bana grass and mucuna is 3.5, 8 and 5 tons per hectare, respectively. In the current season Ndlouv managed to harvest about 1000 kg of biomass from the experimental plots. He intends to use the biomass as dry season feed for his cattle and goats.

Ndlouv was impressed enough with these results to host an exchange visit on his farm so other farmers from Gwanda and Matobo Districts could learn about the benefits of growing fodder and learn from his experiences. Also, this season Ndlouv has expanded his area under fodder crops to a half acre.

Ndlouv, second from right, hosts an exchange visit so his neighbors from Gwanda and Matobo can learn about mucuna.

Masikati used the data collected from farmers such as Ndlouv in a simulation model that calculated potential biomass production under a variety of climatic conditions. “We looked at different fodder options and the biomass production in years with above average rainfall, years with average rainfall and drought years,” says Masikati.

The results from the model indicated that the best option for many farmers, who are used to growing maize, was to introduce mucuna in a rotation with maize. Mucuna, also known as Velvet bean, is a tropical legume that has the ability to improve soil fertility by fixing nitrogen. When grown in rotation with maize, it improves maize yields and also serves as livestock feed.

“If farmers would devote three hectares half to maize and half to mucuna in a rotation system on average, even in a drought year they would be able to meet 80% of the total biomass required to see their livestock through dry season. This is for a herd size of about 15 animals,” says Masikati. “However, if they just grow maize on the same hectarage, without any additional fertilizer, as is the common practice, they can only get on average about 20% of the biomass they need.”

The beauty of this type of solution in Masikati’s view is that the farmers do not have to compromise on their food security. “It isn’t a solution that asks them to grow fodder at the expense of their own food. Farmers’ food requirements can also be met this way,” she says.

For those scientists and development practitioners with a systems perspective, it is promising to develop solutions that are environmentally sound in the long term. When farmers grow both fodder and food crops together, livestock are able to feed on both the crop residues and fodder, making them more likely to survive the dry season. These animals can then be used productively (i.e., slaughtered for home consumption or sold). The result is a more resilient farming system that is better integrated with greater water-use efficiency.
New Groundnut Germplasm

Catalyzing change in Uganda
In the late 1970s and 1980s Uganda fought a war against Tanzania and subsequently waged another war for power between rival political factions. These years of conflict resulted in hundreds of thousands of Ugandans living in refugee camps that were subject to military control and sometimes human rights abuses. Life in those times was far from normal. In the recent years of relative peace, Ugandans are rebuilding their lives and trying to get back to a new normal. Having access to seed of improved varieties of groundnuts is helping them move forward.

**The power of change**

A stubborn man can not get rich. That is the meaning of the phrase “Langalapelony” – a phrase that also serves as the name for a group of farmers in Nwoya District, in northern Uganda. The group’s name reflects their belief in harnessing the power of change. There is no point in being stubborn and clinging to the old ways. It is flexibility and experimentation that produces positive results.

The Langalapelony group was formed in 2008 and today has 30 members – 24 women and six men. The group originally grew soybeans but soon switched to groundnuts because this crop showed greater potential for earning a profit.

"Those years when we were in camps, there were no new varieties," says Christine Akumu, Chair of the Langalapelony group. "Our fathers grew these varieties and there was nothing new. The yield of these old varieties just kept on declining."

"The group used to grow a Valencia variety, Irudu Red, and another local Spanish variety called Red Beauty, which came into existence in the 1970s," says David Okello, the National Breeder for groundnuts at Uganda’s National Agricultural Research Organization, (NARO). "After years of growing the same thing, those varieties started to become susceptible to early leaf spot and rosette."

Early leaf spot is a groundnut disease that is caused by a fungus. One of the symptoms of the disease is a characteristic brown lesion on the leaves that is surrounded by a yellow halo.

"Rosette is the most destructive viral disease in groundnuts in Africa. This disease can cause a reduction in yield of up to 100% in endemic years," says Emmanuel Monyo, Scientist at ICRISAT-Nairobi.

Rosette-resistant Serenut 3

One of the answers to the problems of old susceptible germplasm takes the form of a new variety called Serenut 3. The variety is resistant to rosette, has drought tolerance characteristics and produces a yield that is up to 30% more than the previously existing varieties.

According to Akumu, "One acre of the local variety used to yield seven bags. One acre of Serenut 3 yields 18–24 bags and each plant has a lot of pods." The other advantage is one of profit. "The old varieties got us 40,000-50,000 Ugandan Shillings per bag. Serenut 3 gets 60,000 to 70,000 per bag," she says. This works out to USD 16–20 for one bag of the old variety of groundnut and USD 23–27 per bag for the new variety.

The group members share a field of around five acres where they practice some of the new..."
management techniques they have learned. They work together on sowing, weeding and harvesting, and based on their past successes are willing to invest more of their time and labor than before. “In the past we were weeding once and now we weed twice a season because we have seen the difference in performance,” Akumu says.

The group was able to obtain seed of Serenut 3 and the relevant knowledge that they needed on agronomic practices through the Tropical Legumes II project. “Promoting access to seed of improved varieties is one of the main objectives of TL II. Our goal is to reach 57 million farmers during the project lifespan,” says Monyo. The project is funded by the Bill & Melinda Gates Foundation and is implemented by ICRISAT, IITA, and CIAT with the aid of key national program scientists in 13 countries across Africa.

Self-organization to success

The group managed to get a bumper harvest of 120 bags of groundnuts. Of this, they kept some bags for seed and sold a total of 98 bags, which earned them 6.4 million Ugandan shillings (USD 2500), a significant amount of money in Uganda. “We sat down as a group and decided what to do with the money we earned,” says Akumu. “We gave each other some money as an appreciation for our hard work.” The group also set up a village savings and loan scheme.

Limited access to credit and loan facilities can make life difficult for farmers during emergencies or when they want to expand their businesses. Setting up savings schemes is an excellent form of local-level self-organization. People work together to gain access to services they never had before. These long-lasting links are vital to building adaptive capacity in rural communities. Should any form of disaster strike or any opportunity knock these farmers are better able to rely on each other and the decisions they have made to see them through the time of change.

It takes money to make money

True to their name, the Langalapelony group is determined to be innovative. The group decided to invest their money in livestock. They bought 22 goats at 72,000 Ugandan Shillings each, an equivalent of USD 30. “We bought some females so that we can increase our herd. So far we have 10 new goats and we have a male Boer goat to breed with,” says Akumu.

Some of the goats have already produced kids, proving that the group is able to make more money by diversifying their sources of income. But being innovative does not necessarily mean stopping when there is a solution that works. “Our target for this coming season is to go from 120 bags to 300 bags,” Akumu says, with a quiet confidence that comes from knowing what working together can achieve.
Appendixes
Publications List 2012


Staff List 2012

ICRISAT-Nairobi

Administration
Director - ESA S.N. Silim
Assistant Director A. Orr
Sr Administrative Assistant L. Biwe
Administrative Assistant G. Maweu*
Head of Finance and Administration A. Gakinya
Accounts Assistant L. Kiriri
Driver/General Assistant A. Mutuku
Projects/Communications Assistant D. Kisavi
Research Division
Principal Scientist - Dryland Cereals M. Mgonja
Principal Scientist D. Harris
Project Coordinator, TL II T. Abate*
Project Coordinator, TL II E. Monyo**
Project Assistant L. Claessen

ICRISAT-Bulawayo

Administration
Principal Scientist & Country Representative A. van Rooyen
Country Administrator P. Mugoni
Senior Finance Officer I. Ncube
Senior Finance Associate M. Sigauke
Finance Officer O. Katsaura
Finance Officer O. Ncube
Senior Administrative Associate Z. Mabhikwa
Administrative Associate C. Ndwalaza
Information Communication Technology Manager K. Pfugu
Stores Assistant S. Mikandla
Logistics and Procurement Officer C. Donono
Repotographer A. Khanye
Farmer Manager R. Shamwarina

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Regional Scientist S. de Villiers*
Regional Scientist F. Simtowe*
Post Doctoral Fellow H. Ojulong
Scientist N. Ganga Rao
Research Associate P. Audi
Research Associate E. Muange
Research Associate B. Munyasa
Research Associate E. Manyasa
Research Associate M. Ibrahim
Research Associate C. Mwema
Research Associate J. Kibuka
Research Associate P. Kaloki
Research Associate P. Sheunda
Research Associate A. Oyoo
Research Associate D. Otwani
Research Associate S. Neri
Research Associate V. Njung’e**
Project Assistant T. Etyang**
Senior Technician (Mechanic) C. Mabika
Electrician D. Sibanda
Associate (Communications) J. Ndlovu
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Driver D. Sibanda**
Driver T. Mipfu
Driver M. Manyani
Driver M. Mlotshwa
Driver C. Sibanda
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Office Assistant (Cleaner) S. Ndlovu
Field Supervisor Q. Nikomo
Regional Editor S. Sridharan

Research Division
Scientist K. Mazvimavi*
Scientist S. Homann Kee-Tui
Scientist J. Nyamangara
Post Doctoral Fellow R. Maskati-
Scientist Hlanuyayo**
Scientist T. Dupe
Scientist A. Majuru
Scientist S. Kudita

ICRISAT-Lilongwe

Administration
Country Representative M. Siambi
Finance Officer B. Kashale
Accounts Assistant T. Kademba
Accounts Clerk A. Loga
Administrative Officer H. Warren
Associate (Administration) L. Chiwaya
Driver/General Assistant P. Rukweza
Driver/General Assistant M. Kambwiri
Senior Guard H. Namkwenya
Guard B. Chakongwa
Guard M. Bello
Cleaner J. Banda
Gardener D. Kadengu

Research Division
Principal Scientist-Breeding E. Monyo*
Principal Scientist P. Okori**
Regional Scientist C. Ojewo**

ICRISAT-Mozambique

Administration
Principal Scientist In Charge T. Amede**

Research Division
Technical Assistant/Driver A. Castro

Note:
*Staff member left during the year
**Staff member joined during the year

Associate Professional Officer S. Njoroge
Associate Professional Officer K. Mausch
Associate Professional Officer S. Anitha**
Project Manager F. Schali
Senior Scientific Officer O. Madzonga
Scientific Officer H. Charlie
Scientific Officer H. Moere
Scientific Officer W. Munthali
Senior Associate (Research) H. Chipeta
Senior Associate (Research) E. Mkuwamba
Senior Associate (Research) E. Chilumpha
Senior Associate (Research) L. Gondwe
Senior Associate (Research) T. Chirwa
Associate (Research) C. Kamanga
Associate (Research) E. Kumiute
Associate (Research) I. Kimbvala
Associate (Research) H. Mlenge
Associate (Research) S. Malunga
Associate (Research) M. Kandoje
ICRISAT

Eastern and Southern Africa

2012 Highlights

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD). ICRISAT is headquartered in Patancheru near Hyderabad, Andhra Pradesh, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.