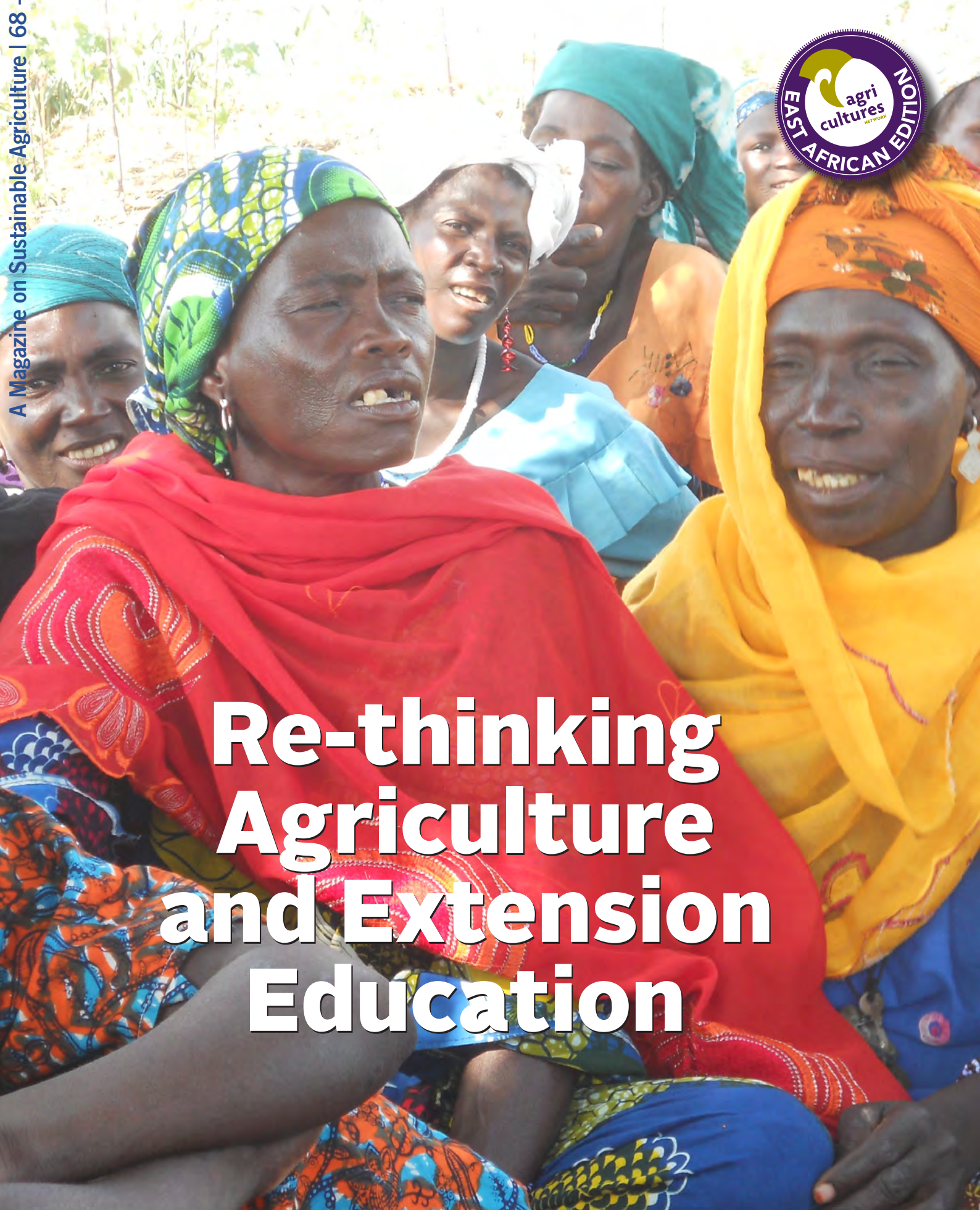


# BAOBAB



## Re-thinking Agriculture and Extension Education



## Re-thinking Agriculture and Extension Education

Recent developments have radically changed conditions that small scale farmers have relied on for generations for food production and livestock rearing globally. Among these include: reduction of land available for farming due to population pressure and land grabbing; deterioration of soil fertility and health as a result of extractive farming practices; and unpredictable weather patterns caused by climate change.

These challenges call for an equally radical shift in the mode of training for extension agents. Conventional extension training, which remains predominant in both state owned and non-state owned training institutions and universities in many countries, has remained focused on technology and knowledge transfer from “experts” to farmers. Farmers are then expected to adopt “modern” practices developed elsewhere without their participation and involvement.

Fortunately, an alternative school of thought has emerged that advocates an entirely different approach to training and education of extension agents that essentially puts farmers at the centre of the extension process. Approaches such as farmer-led extension; extension through social learning - as captured by Ann Waters-Bayer and her team in an article in this issue; and the well-known farmer field school (FFS) approach spearheaded by FAO, are informed by this thinking.

Some governments, as reported by John Opira and Esther Lung’ahi on the Uganda experience, have moved to create mechanisms for delivering training of extension agents informed by farmers’ needs rather than institution-based research. The Theme Overview, by Loes Witteveen and Jorge Chavez-Tafur, captures similar thinking but also stresses the need to view small scale agriculture not only as a productive activity but also one that cements the connection between land and natural resources to peoples’ ways of life and in effect shapes their cultures.

In sub-Saharan Africa, small scale farmers have fared particularly badly through inadequate support by governments’ extension services. Where such services exist, they are based on the conventional model which compromises the effectiveness of these vital services.

The outlook is however not all gloomy as is evident from the article by PROLINNOVA on farmer innovators. Researchers, government and development agencies are beginning to see farmers as sources of new and high impact technologies and to value farmers’ knowledge. Giving farmer innovators the recognition and prominence that they deserve brings about the needed shift in the way extension agents are trained and in changing their attitudes towards small scale farmers.

James Nguo  
Regional Director

### ISSN: 0966-9035

Baobab is published four times a year. It is a magazine on small-scale sustainable agriculture which is the East African edition of the AgriCultures Network global magazines.

### Editorial Board

James Nguo  
Anthony Mugo - Editor in Chief  
Noah Lusaka  
Samuel Mwangi  
Esther Lung’ahi

### Illustrations

Shadrack Melly

### Cover Photo by

Fiona Percy - Regional ALP Program Coordinator,  
CARE International

### Layout and Design

Conrad Mudibo - Ecomedia Ltd.

### Important Notices

Copyright

Articles, pictures and illustrations from *Baobab* may be adapted for use in materials that are development oriented, provided the materials are distributed free of charge and ALIN and the author(s) are credited.

Copies of the samples should be sent to ALIN.

### Disclaimer

Opinions and views expressed in the letters and articles do not necessarily reflect the views of the editors or ALIN. Technical information supplied should be cross-checked as thoroughly as possible as ALIN cannot accept responsibility should any problems occur.

### Regional Editions

1. Farming Matters global edition by ILEIA
2. LEISA REVISTA de Agroecologia, Latin America edition by Asociacion ETC andes.
3. LEISA India, by AME Foundation
4. AGRIDAPE, French West African edition by IED Afrique
5. Agriculture, experiences em Agroecologia, the Brazilian edition by AS-PTA
6. Chinese edition by CBIK

### Talk to us

The Baobab magazine  
Arid Lands Information Network, ALIN  
P. O. Box 10098, 00100 GPO, Nairobi, Kenya  
AAYMCA Building, Third floor, Along State House Crescent,  
Off State House Avenue, Nairobi  
Tel. +254 20 2629761 • Telefax. +254 20 2629762  
Cell: +254 728 606916  
E-mail: [baobab@alin.net](mailto:baobab@alin.net) • Or visit us at [www.alin.net](http://www.alin.net)  
Follow us on Social Media: Facebook page;  
Baobab Alin: Twitter @BaobabMagazine and @Alin\_3Point0

### About ALIN

Arid Lands Information Network (ALIN) is an NGO that facilitates information and knowledge exchange to and between extension workers or infomediaries and arid lands communities in the East Africa region. The information exchange activities focus on small-scale sustainable agriculture, climate change adaptation, natural resources management and other livelihood issues.



**05** **THEME OVERVIEW**  
The Key to Agricultural Transformation



**08** **PROJECT FOCUS**  
Transforming Lives Through Farmer Field Schools in Dry-lands



**31** **GUEST COLUMN**  
Agriculture Education Key to Development



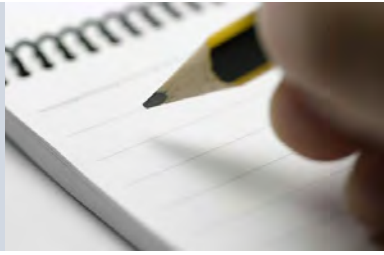
**25** **ON THE SUBJECT OF**  
Social Learning at the Eastern African Farmer Innovation Fair



**11** **OPEN COLUMN**  
Agriculture Extension in Uganda  
16 Joint Learning in Agricultural Innovation Cases  
19 Seeds and Farmer Field Schools  
23 Young Farmers Seek Agriculture Education



**...AND MORE**  
14 Stork Story  
28 Technical Note: Enhancing Learning through Radio in Tanzania  
32 Call for Articles  
34 Watering *Baobab*  
35 Book Reviews



*Baobab* welcomes comments, ideas and suggestions from its readers. Please contact us via e-mail at [baobab@alin.net](mailto:baobab@alin.net) or write to P. O. Box 10098, 00100 GPO, Nairobi, Kenya.

**I work for Nature for Life Conservation Initiatives (NALCOI)**

a non-government and not-for-profit organisation operating in Kamuli District Eastern Uganda. NALCOI is a growing organization and works for promotion of environmental conservation and protection, and promotion of human health. NALCOI is duly registered with the Government and networks with public and private sector organizations at national and international level. We, the team at NALCOI, are alive to the rapidly changing trends and provide customized solutions keeping in view the individual needs. We would like to subscribe to *Baobab* since it has useful information relevant to our organization.

Kalindi Sadat, Kamuli, Uganda.

Dear Kalindi Sadat,  
*Baobab* is only available in electronic format for now. Visit <http://alin.net/Baobab%20Magazine> to download a copy and also to access past issues.

Editor

**I thank ALIN for the Sokopepe initiative** that I learnt through the *Baobab* Magazine issue on markets. I would like ALIN to register more buyers since the project will ensure that farmers are not exploited by the middlemen and the buyers should specify the commodity they intend to buy and the amount needed.

Charles Kachike, Marigat, Kenya

**I am a community mobilizer on HIV and AIDS awareness and education.**

I appreciate the content in *Baobab* magazine. I am particularly interested in articles on HIV and AIDS which had been featuring in the past issues. I have been using the articles for capacity building of community groups. I kindly request ALIN to feature information on HIV and AIDS in the next issue especially in the areas of mode of spread, prevention and adherence to prescription instructions for appropriate drugs.

Paul Marutit, Kenya.

**I am a local development consultant working in Kenya**

to help reduce and eliminate poverty among the marginal, bottom of the pyramid communities. Your June 2013 edition of *Baobab* is fascinating with pro-poor market system information. I kindly request you to send me a soft copy of this very informative edition of your publication. I would like to receive your future issues as they are fascinating and full of practical sustainable development information and ideas.

Joseph P Muga, Kenya

Dear Joseph,  
Thank you for this feedback, please visit <http://alin.net/Baobab%20Magazine> to download copies of current and past issues of *Baobab*.

Editor

Thanks a lot for *Baobab* issue 67. How can I get the old publications from issue No. 1 to the editions of mid 2008? I will be glad if you help me get them in soft copy since they are very informative.

Kelvin Mully

Dear Kevin,  
Please visit <http://alin.net/Baobab%20Magazine> to download copies of past issues. We will send you other old publications as requested.

Editor

**I am interested in rabbit farming.**

My only worry is that I do not know whether there is market for rabbits. Also how do I get the good rabbit breeds? Lastly where do I get more information on rabbit keeping in Kenya? I am based in Nairobi. Kindly assist.

Ibrahim Yassin, Kenya

Dear Ibrahim,  
Please contact [chairman@rabak.or.ke](mailto:chairman@rabak.or.ke) or call +254 20 721 219 092

Editor

Advertise in...

**BAOBAB**

Baobab: The Respected, Cutting Edge Agriculture Magazine

Published by Arid Lands Information Network (ALIN), an international NGO based in Nairobi, *Baobab* is well established magazine that focuses on small scale sustainable agriculture. It has been published since 1988. It covers Kenya, Uganda and Tanzania and all aspects of the agriculture value chain. It is also disseminated to a range of local, regional and global agriculture networks.

**Attractive, modern catchy feel**  
Articles are simplified and well illustrated. It is published in glossy high quality paper with a catchy modern layout.

**To book space, contact:** *Baobab* Magazine, Arid Lands Information Network (ALIN) P. O. Box 10098 00100, NAIROBI, Kenya  
Tel: +254 (20) 2629762 E-mail: [info@alin.net](mailto:info@alin.net)

# The Key to Agricultural Transformation

Recent decades have seen an increasing recognition of the role that education plays in rural development. Some rural communities now have new buildings, new curricula, and new educational options, such as Farmer Field Schools. Yet, in many countries, the education system still falls short of what is needed, especially in terms of agriculture and meeting the needs and concerns of rural dwellers. With farming systems showing diminishing yields and many rural areas experiencing pervasive poverty and degradation, youngsters all over the world opt to move to the cities. What answers does education provide? It rarely addresses emerging challenges, such as degraded resources or climate change, nor does it make a real contribution to helping rural people have a better understanding of how to improve their livelihoods. Changes are needed so that education effectively contributes to transformation towards a more sustainable and just agriculture.

By Loes Witteveen and Jorge Chavez-Tafur

**T**he importance of education for development is almost universally accepted. Education is not only a human right, but also a tool for development. But it is obvious that this tool is not always delivering results in rural areas. Although more students are reached now than in the past, the resources available are still limited. A much larger problem, however, is the way in which countries' education systems meet rural needs, especially when these are rapidly changing. This raises the question of whether education should respond to today's needs or focus on preparing students for the future. In industrialised countries, very few school children will become farmers, or will make a living in rural areas. Similar, though less extreme, patterns can be discerned in many developing countries where many school leavers find the pull of the city irresistible. They see a direct link between farming and poverty and view the city as a greener pasture. Inadvertently or not, education programmes in rural areas encourage the youth to leave for the cities.

Yet agriculture will continue to be a fundamental economic activity, and farming will continue to shape

the lives of hundreds of millions of people around the world. Even abandoned villages will remain part of the cultural heritage and deeply rooted identities of large populations. However rapidly urbanisation proceeds, rural émigrés and those who continue to live in the countryside will continue to relive their stories and songs that portray afternoons in the shadow of a mango tree and the ritual celebrations for a good harvest. But how can these nostalgic memories be aligned with the realities of inherited poverty, land grabbing and stagnant traditions? Millions of students going to school today (together with millions who still don't have the opportunity) will follow in the footsteps of their parents and grandparents and become growers or herders. They, like their parents now, will be responsible for providing 50% of the world's food. How to prepare them for this responsibility?

We should start by identifying the type of agriculture we want as a (global) society. The choice is essentially between pursuing a globalised industrial agriculture, or an alternative pathway that recognises the multi-functionality and diversity of family farming and the contribution that it can make to challenges such as



©Isaiah Espisau 2013

hunger and malnutrition, loss of biodiversity and climate change. If we follow the latter path, teaching methodologies such as Farmer Field Schools are very useful: they focus on strengthening farmers' capacities to analyse their agro-ecosystems and to take decisions based on this. This empowers them to make their own judgements and take decisions that work for them, rather than depending on others telling them what to do. These efforts support the continuous development of an effective and efficient production system.

**Skills and values** But just as development is not limited to economic growth, agriculture is not only about yields and outputs. Agriculture is not just a technical activity requiring technical skills, but also a key force that shapes societies, cultures and landscapes. Even urban environments are shaped by farming and agriculture: as consumers we all benefit from the services provided by farmers.



If education is to contribute to the transformation of rural areas, it needs to be more than just *for agriculture*, limited to teaching farmers how to farm. As the different articles in this issue show, educational programmes *about agriculture*, targeted at a wider group than just farmers, are also important. While formal and non-formal education should train farmers to develop specific skills for the sustainable production and marketing of their products, it also needs to be about values and interests, and about transforming perceptions and attitudes – in rural areas and in the cities, among farmers and consumers. In spite of the

key role played by farmers, farming is often seen as an activity carried out by those who cannot do anything else; a last option that can easily be abandoned as soon as other opportunities arise. Unfortunately, most education programmes encourage these views, leading to the feelings of “disjointedness” and seen in rural areas all over the world. Education needs to counter this, to help develop feelings of self-esteem, appreciation and pride among farming communities and give them the recognition they deserve. The key role farmers play today, and which they will continue playing, needs to be acknowledged and positive articulated.

These changes need to be supported by changes in those responsible for education and extension programmes, and also by changes in those in charge of a country’s policies and programmes. For example, teacher training programmes that encourage teachers to reach out to young women, ethnic minorities or pastoralists, and to develop new perspectives on family farming with them, play a valuable role in encouraging diversity and opening up hitherto unrecognised potential. The best examples are seen in approaches where the curricula are built on local knowledge and experience, on what students know and want to know, and on the challenges they face. There should be changes in the perspective of involvement of extension agents by building on their immediate needs and concerns and enhancing their professional identities.

## Reconnecting with family farming

All too often education in rural areas serves to disconnect and estrange rural people from their own culture and environment, and increases the gap between rural and urban settings. Yet education can actively support young rural people in their search for identity and future opportunities. Education needs to be better connected to rural realities and the enormous potential that family farming, based on agro-ecology, has in addressing the pressing challenges facing the world today. The initiatives highlighted in this issue, even if small in scale, are all building towards this. It’s time to come up with the energy, inspiration and dedication to make education a genuine force for innovation in agriculture and in rural areas. ■

Loes Witteveen co-ordinates the Master’s programme in Rural Development and Communication (RDC) at Van Hall-Larenstein University of Applied Sciences. Jorge Chavez-Tafur is the editor of *Farming Matters*. The authors thank Mary Gyaako Abokyi, Tesfaye Gemechu Amesa, Walid Abdullah Farhan Mahuob, Tegegn Daniel Molla, Murtiti Setiasih Muharamiah, Grace Tambo, and Muditha Pathmajay Thelikada Palliyage, graduates of the RDC programme, for their support in producing this issue.



# Transforming Lives Through Farmer Field Schools in Dry-lands

By Isaiah Esipisu

Agricultural education, extension, and advisory services are a critical means of addressing rural poverty, because such institutions have a mandate to transfer technology, support learning, assist farmers in problem solving, and enable farmers to become more actively embedded in the agricultural knowledge and information system (Christoplos and Kidd 2000, 11). Extension is responsible to almost one billion small-scale farmers worldwide. It is thus urgent to seek the best ways to support such farmers in terms of information, technology, advice, and empowerment





©Isaiah Espisu 2013

Farmers sorting onions after harvest in Mbeere South, Kenya

## The Mbondoni Disabled FFS

On a Wednesday morning, Josphine Mutindi, a smallholder farmer in Mbondoni village of Mbeere South in Embu County is busy sorting tomatoes in sizes as required by the market despite her physical disability – thanks to the new village based education that has empowered her.

The entire Mbeere area is dry!. But 25 smallholder farmers from the area, living with different forms of disability have turned part of it into a green haven, harvesting tons of horticultural produce despite the tough climatic conditions.

“Our success is a result of a knowledge exchange programme, which has really transformed our lives,” says Mutindi, a member of Mbondoni Disabled Farmers Field School. The group is just one of several others in these areas that has formed similar groups, and are already producing enough to feed their families and generate income.

Mutindi tells *Baobab* that by exchanging knowledge with other dry-land farmers through weekly forums, many people have been able to develop resilience to the prevailing climatic conditions, which she says has changed drastically from what it was some 20 years ago.

“I grew up in this area. And when I was still a teenager, my parents could predict a particular week when it was going to rain. And with that, we could even plant in advance before it rained,” she says. But today, she says that dry seasons have become longer than usual, and whenever it rains, it floods the entire area unlike what happened before.

## Community Empowerment

It was due to such unpredictable variations of climatic conditions that ActionAid International Kenya with support from Australian Aid (AusAid) implemented the concept of Farmer Field Schools to enable farmers to share indigenous knowledge of dry-land farming and crop management.

“For this concept to work, we first identify groups of people with a common interest who are willing to get together on a regular basis to study the ‘how and why’ of a particular topic,” says Philip Kilonzo, the livelihoods technical adviser with ActionAid Kenya International.

**F**armer field schools (FFSs) are a popular education and extension approach worldwide, now in place in at least 78 countries (Braun et al. 2006). Started in Indonesia in 1989, FFSs have expanded through many parts of Sub-Saharan Africa. Kenya alone is the site of more than 1,000 such schools with 30,000 farmer graduates (FAO/KARI/ILRI 2003). Such schools use experiential learning and a group approach to facilitate farmers in making decisions, solving problems, and learning new techniques. Many donors, governments, and non-governmental organizations (NGOs) enthusiastically promote FFSs in Sub-Saharan Africa today.

During such meetings, topics covered can vary considerably from pest management, organic farming, animal husbandry, and plant and soil health, to income generating activities such as agri-business among others.

However, Says Kilonzo, the FFSs are usually adapted to field studies, where specific hands-on management skills and conceptual understanding (based on non-formal adult education principles) is required.

## Involving Pupils

In the interest of the future, the aid organisation has as well introduced a similar concept to school going children especially in Kenya's arid and semi-arid land areas. "Since agriculture is no longer and examinable subject in our primary schools, we have introduced Junior Farmer Field Schools (JFFSs) through school based clubs as part of extra-curriculum activities," said the livelihoods technical adviser.

Kamunyagia Primary School is one of ten institutions in Mbeere South region where teachers help pupils to gather some agricultural skills alongside their usual lessons.

Pupils in this school have formed a membership club for junior farmers. Despite the scorching drought in the area, the club's one hectare of land donated to them by the school is full of succulent green crops including more than 300 mango trees, 200 pawpaw trees, cassava plants and 30 vegetables patches, one for each member of the club.

"This is not part of their normal curriculum. We are only equipping them with survival skills since agriculture is not an examinable subject," said Newton Gitonga, the club's patron and a science teacher at the school.

Kilonzo further explains that the field schools are not a replacement for formal education, or meant to take children out of schools, and is not a way to promote subsistence agriculture as the only livelihood option for the children. "It is meant to encourage and support livelihood diversification for better food security for a sustainable future," he said.

## Learning New Techniques

During these lessons, the students are taught about poultry husbandry, rabbit keeping, simple techniques of soil moisture conservation as an important component of dry-land farming, horticultural practices, pests and plant disease management among other lessons depending on the interests.

"All our club members have replicated these lessons in their homes. I have a kitchen garden at home, where I use different techniques that I have learnt from school to grow vegetables, fruit trees and other crops," said Purity Njigi, a class seven pupil at the school.

"The main aim of the farmer schools, both for pupils and adults, is to enable individuals to learn from each other, in order to improve food productivity and develop resilience to the changing climatic conditions," said Kilonzo.

According to FAO the farmer field school learning technique has shown massive success by increasing food productivity in several countries in the world particularly in Asia.

## Conclusion

Today, the 25 members Mbondoni Disabled Farmers Field School who largely depended on food aid some two years ago have become net producers of tomatoes, beans and vegetables sold to a number of towns including Embu, Makema, and sometimes Nairobi.

"From a half an acre of land, I earn not less than KES 40,000(USD465) per harvesting season which comes once in three months," said Mutindi. She now comfortably pays school fees for her two sons in secondary schools.

Isaiah Esipisu is a science writer based in Nairobi. He can be reached through [esipisus@yahoo.com](mailto:esipisus@yahoo.com)

## References

Braun, A., J. Jiggins, N. Röling, H. van den Berg, and P. Snijders. 2006. A global survey and review of farmer field school experiences. International Livestock Research Institute. Nairobi, Kenya.

Christoplos, I.; J. Farrington; & A. Kidd. 2000. *Extension, Poverty and Vulnerability: An Inception Report*. The Neuchatel Initiative 2000. Uppsala, Sweden.

FAO/KARI/ILRI (2003) Farmer Field Schools: the Kenyan Experience. Report of the FFS stakeholders' forum held on 27 March 2003, Nairobi.

## Feedback

LET US KNOW BY SMS

Dear Reader,

The short messaging service (SMS) option of getting in touch with the Baobab editorial team is back!

Send us an SMS letting us know what you think about a certain article, suggestion for future articles or any other general comment. To send an SMS, start with your name, gender, age, location, country, email, postal address followed by the letters BB, page number of article then your comment.

Send your SMS to the number  
+ 254 717 032 322.



# Agriculture Extension in Uganda

©John Opira 2013

Agricultural extension in Uganda has undergone a number of transformations. Additionally, there have been marked changes in the concept of agricultural extension itself, which is increasingly seen in terms of commercial or farming for market with emphasis on “modernization” of agriculture as opposed to family farming, which produces most of the food consumed in Uganda. The dilemma is that the majority of the Ugandan farming community is predominately focused on subsistence and thus may not be suited farmer-owned contract extension systems favoured by today’s global agri-business.

By John Opira and Esther Lung’ahi

## Declining Food Production

**T**he dilemma arises from population facing declining food production posing an immense challenge to those engaged in promoting food production through small scale sustainable farming. Agricultural extension services are under constant pressure to be responsive to ever-growing challenges of, and to show impact in, food production. The pressure is giving rise to

calls for changes in the traditional public extension systems which are now seen as outdated, top-down, paternalistic, inflexible, subject to bureaucratic inefficiencies and therefore less able to cope with the dynamic demands of modern day agriculture (Rivera *et al*). There are even calls for re-examining the term ‘extension’ as it seems to reinforce the thinking in terms of downward technology development and transfer (dissemination) processes.



©John Opira 2013

## What Happened with Extension Services?

In sub-Saharan African countries, the pressure to change has been exacerbated by the consequences of economic structural adjustment programmes which were implemented in the late 1980s and early 1990s and which rendered the traditional extension systems inappropriate.

Concerned with sources of agricultural growth for the future, the Uganda government has developed a new plan based upon two strategic pillars—raising overall agricultural yields and productivity and diversifying smallholder production patterns into a mix of higher-value, export oriented commodities, along with lower-value food staples. Developed by a broad constituency of stakeholders—officials and politicians, farmers, NGOs, civil society, and the community of donors—the new plan places a high priority on agricultural research and extension and especially on improving the process of technology generation and transfer through the decentralisation of activities, greater participation of potential users, and improved utilisation of knowledge found in local communities.

## Decentralising Extension Services

Major reforms of agricultural extension are planned under National Agricultural Advisory Services (NAADS). These include further decentralisation of extension responsibilities, from the district to the sub-county level; contracting extension services from a range of providers; involving farmers in programme planning, evaluation, and decisions about extension providers; establishing cost sharing between national and local governments and farmers; and the creation of more effective operational links between farmers, markets, extension workers, and agricultural researchers.

Under the programme, approximately 65 per cent of the NAADS resources will finance the contracting

of extension services. Opportunities will be created for a range of players (including private sector, the National Agricultural Research Organisation (NARO), universities and technical training institutes, NGOs, and farmer associations) to bid for providing such services. The Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) will ensure that NAADS operates within well-defined policy guidelines and a regulatory framework. The NAADS Secretariat will help districts and sub-counties develop the capacity to participate in the programme. Farmers (through farmers' forums) together with sub-county administrations will manage the processes of planning, financing and contracting the service providers.

The new approach in Uganda stands in contrast to past extension programmes in a number of ways. It moves away from monolithic and civil service heavy structures by explicitly encouraging plurality in extension providers and methodologies. Perhaps most importantly, the NAADS design is an attempt to make extension advisory services much more directly responsive to farmers' self-identified needs.

## The Extension Concept

The original concept of extension was that of bridging the gap between the farmers and the sources of information or knowledge. Such sources included organisations or institutions generating knowledge and technologies such as research centres, universities and government administration agencies. This was based on what Comptom (1989) called traditional model;

Research → Extension → Farmer (Which is also called technology transfer).

Semana (1998) explained the understanding of extension concept as based on three premises namely: being educational; having a philosophy; and scope with responsibilities. The educational element of extension is two fold: being informal and non-formal.

The informal type of education is one that has no syllabus. Its syllabus is the farmers' problems and needs. It also has no classroom, since its classroom is the farmer's home or farm. The teaching of the extension worker to the farmers is based on the farmers' conditions and setting. The non-formal type of extension education on the other hand is planned, has written objectives and content, can be examined but in most cases it is not. This type of education is carried out through short courses of one or two days at community centres, sub county headquarters or one to two weeks or one to two months at District Farm Institute (now some called District Agricultural Training and Information Centres and some called District Agricultural Development Centres or rural centers and schools).

Looking at extension as being educational presupposes that doing extension work involves teaching and learning. This means that the extension worker like a teacher needs to prepare and rehearse beforehand and teach well. The teaching should stimulate the farmer to learn and understand. The farmer as a learner should have interest and the willingness to learn. The seriousness and thoroughness of the extension worker is governed the philosophy of extension. Examples of such a philosophy include the following:

- (i) **“Start where people are”**: This means studying the farmers through visits and surveys in order to identify their level of farming knowledge, their communication skills, their attitudes, their social cultural system, way of life, problems and felt needs.
- (ii) **“With what they have”**, such as farm tools and any other capital available; and
- (iii) **“Help them help themselves”** this means teaching farmers how to do better farming using their own efforts and resources following the principles of extension.

## Gulu University Outreach Programme education and extension

According to James Opoka a lecturer at Gulu University Faculty of Agriculture, farmers are usually faced with many varied challenges. These may not be addressed at once. However, the outreach program carried out in the University has taken a combination of approaches where students visit farmer groups to provide a two way learning approach between the students and the farmers. In addition, students who graduate leave with hands-on experience, they are positive to any assignments and easily get employment.

The teaching methods in the institution include tutorials, practical training through demonstration plots, field attachments and taking students to specialized training facilities which are research based institutions. These include: Ngetta, Mukono and Serere Agricultural research stations. While at the stations, students are taken through practical trainings in different fields of specialization.

Mr. Opoka reveals that educators try to keep abreast with the current environmental issues like food security, climate change, and global pandemics among others. Lecturers are equally encouraged to be informed about e-learning tools, social media, GIS training and other tools like visual problem appraisals. He adds that the practical aspect of the training tries to address the challenges in agriculture, technological adoption, animal breeds and improved varieties of crops and livestock.

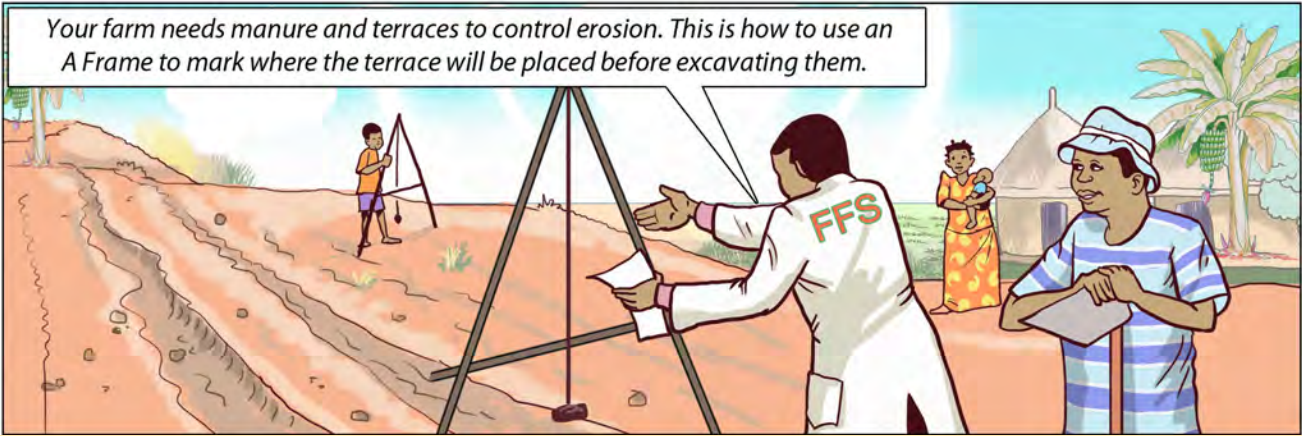
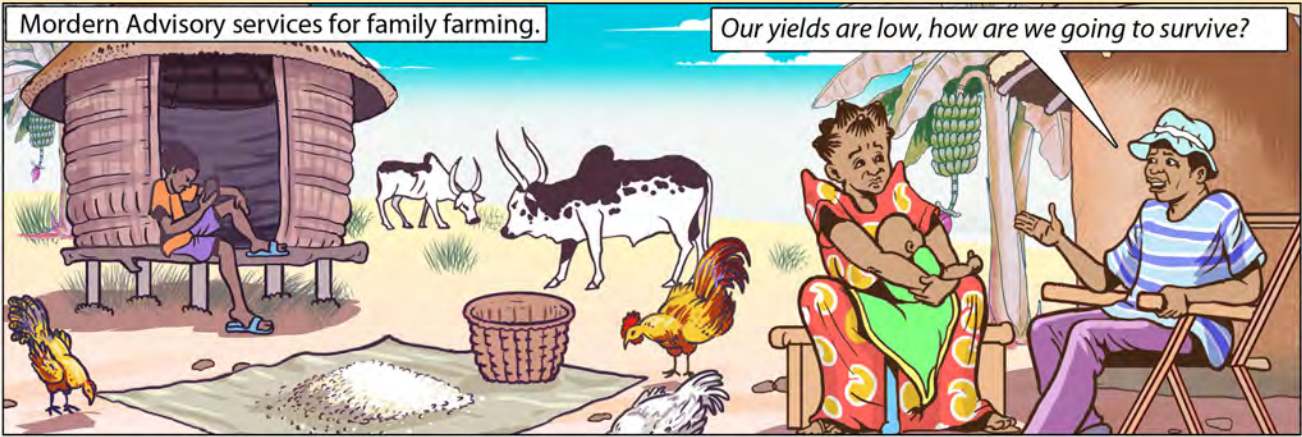
The University works closely with other stakeholders. This has led to the introduction of two curriculums (Masters in Agri-enterprise Management and Masters of Science in Post-harvest Handling). In addition, the faculty is currently doing a tracer study, consulting both the alumni and employers for a comprehensive curriculum review. The Faculty work with other agricultural research institutions to provide practical training to students, attaching students to farmers through the outreach program and consulting business communities.

Northern Uganda has vast fertile land that is underutilized. The faculty therefore strives to provide the expertise that will enable the community to benefit from this resource. As it stands, farmers wait for students to reach them. They are however encouraged to reach for assistance from these institutions and other agricultural resource centers in the region.

John Opira is ALIN's Country Manager based in northern Uganda and can be reached through; [opirajohn@gmail.com](mailto:opirajohn@gmail.com). Esther Lung'ahi is a Project Officer at ALIN and she can be reached through; [Elungahi@alin.net](mailto:Elungahi@alin.net).

## References

- Semana A.R. Agricultural Extension Services at Crossroads: present dilemma and possible solutions for future in Uganda, Makerere University Department of Agricultural Extension/Education
- Semana A.R. 1987, *The need for establishing a research extension linkage*. In CIAT African Workshop Series No.2 Workshop Proceedings: Bean Research in East Africa Mukono, Uganda 27-25 June 1988.
- Rivera M.W., WILLIAM, ZippW. and Gay A. (2000) Contracting for Extension: Review of Emerging Practices. AKIS Good Practice, Agricultural Knowledge Information System (AKIS) Thematic Group. The World Bank.



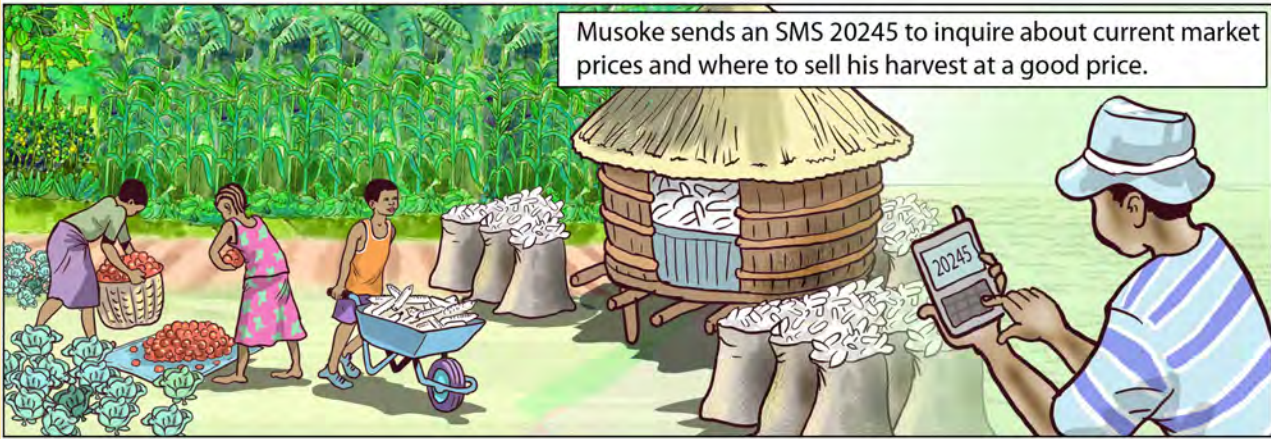
I have done all you advised but I am unable to purchase seeds and fertiliser.



Yes, I will introduce you to a farmers' credit association where you can access the farm inputs on credit and pay when you harvest and sell your crop.



Here are certified seeds and the fertiliser you need. See you after harvest.



Musoke sends an SMS 20245 to inquire about current market prices and where to sell his harvest at a good price.



Here is the money for the farm inputs. I am happy I got bumper harvest. Thank you.

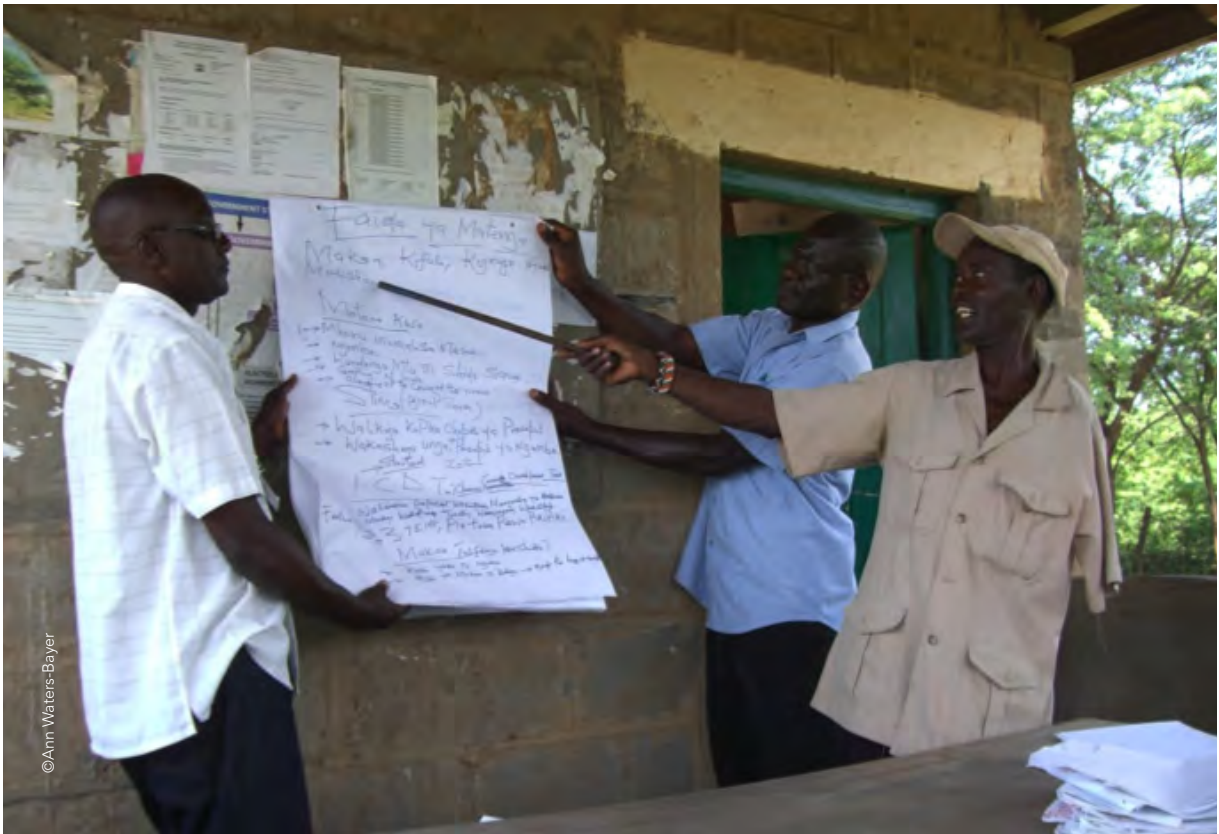


In today's world, there are many options and technologies for communication. Farmers can now get the right information efficiently through technologies to improve their yields and to know where to sell surplus for the best price.

# Joint Learning in Agricultural Innovation Cases

By Ann Waters-Bayer, Geoffrey Kamau and Bernard Triomphe\*

Researchers are making advances in seed and fertiliser technologies, but creative solutions are also needed to improve market access, as well as to mitigate the impact of climate change among smallholder farmers. Africa’s ability to improve sustainable agriculture will depend largely on processes of interactive learning and innovation in practice.



©Ann Waters-Bayer

**H**ow does innovation actually happen in smallholder farming? If people involved analyse this together, can this process of joint learning advance the innovation process? These are questions behind the JOLISAA (Joint Learning in Innovation Systems in African Agriculture) project. A team of researchers from Africa and Europe identified numerous innovation cases involving smallholder farmers in Benin, Kenya and South Africa and then selected a few “lesson-rich” cases for deeper analysis. Each case assessment team, including researchers, extensionists, students

and farmers, learned together about the history of the innovation process, what the different actors contributed and how they were linked. The focus was on the role of local people’s knowledge and creativity. The teams gathered information through interviews, group discussions, multi-stakeholder workshops and documents, and made timelines to identify critical points and influences in the innovation process. The African and European students working in the teams were exposed to a structured “discovery” mode of learning in the midst of development by smallholders.





©Ann Waters-Bayer

This first important step was to reach a shared understanding of “innovation”. This refers to doing things in new and better ways, and can include new technologies but also new forms of organisation or new rules about how resources are used.

**What was discovered?** The teams in Benin, Kenya and South Africa found that innovation does not occur in a linear way from “Research” to “Extension” to “Farmers”. Instead, it involves complex and “messy” networks of many different types of people who use ideas from different sources and make adjustments and improvements along the way. The innovation path often takes quite different directions than expected by the people who started with a new idea.

In some cases, a research organisation, an NGO or an externally funded project was very active in initial stages (e.g. on-farm experimentation), while farmers and their organisations or local entrepreneurs become more active in later phases. In many cases, formal research did not initiate or play a leading role; indeed, sometimes researchers were not involved in the innovation process at all.

What triggered innovation was sometimes a problem, such as declining soil fertility or reduced water supply, and sometimes a market opportunity or the introduction of new practice (e.g. a new way of boiling rice in Benin), which led to a whole chain of innovations by diverse people.

The teams found that, to be able to understand how innovation happens, it is not enough to look at only a year or two. For example, in Kenya, where the joint learning was coordinated by Kenya Agricultural Research Institute (KARI), the innovation history of *Prosopis* went back to the 1980s, when the Food and Agriculture Organisation (FAO) introduced this “miracle plant” to save the drylands from desertification. Initially, it was considered a success but then the local people found that the shrub invaded and ruined their pastures. Then Farmer Field Schools were formed to find ways to control *Prosopis* by cutting and pruning, using pods as feed and making charcoal. This meant that laws against charcoal burning had to be changed. Thus, technical innovation was linked with organisational and institutional innovation.

This and many other cases showed how innovation “success” stories turned out to be more complex and less rosy than presented by projects. The project staff was often blind to what was going on outside what the project had planned. Yet recognising such “innovation in the wild” (unplanned innovation) is essential for making an innovation process into a real success and to keep it going.

Another example is that of aloe in Baringo District of Kenya. The case assessment team started looking at an EU project designed to prevent overuse of wild aloe. Aloe was to be cultivated, a processing factory set up and a new value chain created. At the same time, local aloe harvesters continued to sell their products to boilers who were supplying Somali traders. Local innovations were developed in the informal value chain. Traders trained boilers how to produce better-quality gum. Some local small-scale enterprises emerged for soap and cosmetics. Some harvesters started cultivating Aloe, independent of the project. All of this happened unbeknown to the project.

The teams found that well-documented innovation cases were usually connected with projects. In theory, such projects can stimulate innovation by helping to overcome initial barriers until a critical point is reached where the innovation can really “take off” and continue on its own momentum. However, many projects artificially promote short-term uses of technologies – often depending on external inputs – that may not be sustainable, trigger opportunistic behaviour, lead to a dependency mentality and overlook locally developed low-cost and potentially more sustainable innovations. Examples of farmer-led innovation processes were more difficult to find, because they are seldom noticed or documented.

**What was learnt?** The process of learning together about an innovation case helped the people involved to understand better what was happening. In some cases, the multi-stakeholder workshops offered the first opportunity for the different actors in the case, e.g. farmers, processors, traders and researchers, to meet and communicate directly with each other – and to consider how the innovation process could be improved. The joint learning about innovation was meant to provide lessons not only for the people directly involved in the cases. It should also show policymakers, researchers and development practitioners how to support innovation processes that enhance the knowledge, creativity and linkages of smallholders. Some lessons include:

- Innovation is happening in rural areas also without intervention; African smallholders are actively responding to challenges and seizing new opportunities, and this should be recognised by formal research and development;
- Innovation processes unfold in unpredictable and unplannable ways. Ultimate success is more likely if rigid and prescriptive schemes are avoided and if existing innovation processes are supported over a long time in a flexible way adapted to the specific context and the evolving opportunities;
- Innovation processes can be boosted through appropriate policy (e.g. to allow charcoal making from *Prosopis* or to facilitate informal aloe harvesting and trade) and by strengthening links among actors;
- Smallholders’ knowledge, experience and creativity make a vital contribution in innovation processes that can improve the livelihoods of millions of rural households in a sustainable way.

## Integrate joint learning in agricultural education

Greater recognition of the existing and potential role of smallholders in innovation provides a better basis for their partnership with other stakeholders. Showing ways to recognise local initiatives and link these with externally funded initiatives will make it easier to pool energies and knowledge in a continuing process of innovation to reduce poverty and increase food security. The approach of joint learning by diverse actors involved in innovation cases should be integrated into formal agricultural education. There are innumerable farmer-led innovation cases still to be documented. This is a way to learn from and change perceptions about smallholders and to motivate everyone to keep innovation happening in African agriculture.

Dr. Ann Waters-Bayer works with ETC Foundation (Netherlands); she can be reached through [ann.waters-bayer@etcnl.nl](mailto:ann.waters-bayer@etcnl.nl)

Dr Geoffrey Kamau works at the Kenya Agricultural Research Institute (KARI); he can be reached through [gmkamau\\_1@yahoo.com](mailto:gmkamau_1@yahoo.com)

Dr Benard Triomphe works with CIRAD (France); he can be reached through [bernard.triomphe@cirad.fr](mailto:bernard.triomphe@cirad.fr)

*\* On behalf of the JOLISAA ([www.jolisaa.net](http://www.jolisaa.net)) team, including also Anne Floquet, Bernard Bridier, Brigid Letty, Conny Almekinders, Henri Hocdé, Joe Stevens, Jolanda van den Berg, Nicolienne Oudwater, Nour Sellamma, Simplicie Davo Vodouhe, Teresiah Ng’ang’a and Todd Crane. This work was funded under Framework Programme 7 of the European Commission. The opinions expressed herein are the sole responsibility of the authors.*

# Seeds and Farmer Field Schools

By SEARICE

The agrobiodiversity@knowledged programme initiated by Oxfam Novib and Hivos, aims at generating and sharing evidence and insights for transformation in the area of agricultural biodiversity. At the heart of the programme is a global knowledge and experience community of organisations working at various levels on this topic with millions of farmers worldwide. For resilience and risk-spreading, as well as to meet highly diverse consumer and market demands, farmers need to be able to have a choice from a wide variety of seeds. SEARICE has developed a methodology to enhance farmers' breeding and seed selection processes, working with individuals and organisations throughout South East Asia in order to upscale results. We use the Farmer Field School methodology to do so.



**F**or more than 30 years, the introduction of modern varieties as part of the Green Revolution, and the subsequent loss of agricultural biodiversity, has been a cause of concern for many people. Farmers have become more dependent on traders and external companies for their seeds.

Fortunately, efforts like on-farm conservation are safeguarding the genetic characteristics that will otherwise disappear if farmers only plant modern varieties, and are therefore helping to increase the genetic diversity of crops available.

By working with national and local partners, such as agricultural extension departments, agricultural research centres, academic institutions, civil society organisations and farming communities, SEARICE promotes community-based conservation and sustainable use of plant genetic resources in Bhutan, Thailand, Cambodia, Laos, Vietnam and the Philippines. A key element of its approach is organising and facilitating Farmer Field Schools.

**Learning about seeds** FFS use a flexible training methodology based on farmers' priorities rather than a set curriculum brought in by the extension worker. Having an empowering effect, they are a perfect approach for the plant genetic resource activities that SEARICE promotes. Within the training programme, farmers share their perspectives on the varieties that they use, those that have been lost, and those that they want to plant. It is not uncommon to find farmers who, for example, like a specific variety of rice because it is aromatic, but who would prefer if it would also have a shorter production period. Our training programme aims to help farmers search for and develop different varieties based on their needs and preferences.

As part of the FFS curriculum, farmers get to experience the whole plant breeding cycle in the first season, using the basic components of plant breeding – varietal evaluation, seed rehabilitation, actual breeding or crossing and segregating line selection. After the first season, farmers decide which aspects they would like to focus on. The varietal evaluation trial allows them to grow several varieties that meet their criteria on a demonstration plot, and then select and decide which of these varieties will work well for them in their locality. Another study field is line selection, where farmers select materials from promising or stable lines. In the third activity, seed purification, farmers learn to choose good seeds

to restore a variety of which the purity and quality has deteriorated. Finally, the fourth training section involves farmers learning to do the breeding of new varieties themselves, either through selection from early generation seeds (segregating lines) or by actual crossing selected parent materials.

At the end of the season, close to harvest time, we organise a Farmer Field Day: farmers from neighbouring communities come to learn about the different varieties that have been tested and which appear to have potential. This field day is a good time for choosing seeds for the next season – for participating farmers as well as their neighbours. The field day is a way of reporting back to the community, but also a good opportunity for lobbying and advocacy. Government officials and policy makers are usually invited so they can find out about what the farmers have been doing and (hopefully) support them in the future. In some cases, local media are also invited for wider dissemination of the farmers' initiatives.

We want farmers to be able to control their own seeds. Research centres do line selection and breeding, of course, but they have their own ideas about the characteristics that a variety should have, and only ask farmers for their opinion when the selection process is complete. By involving farmers from the beginning of the breeding process, the whole process is based on their criteria and needs, and the final product will be one that they really want. Our experience has shown that, even by the end of the first season, farmers are very eager to continue and have a clear idea on how they want to proceed.

**Changing mindsets** SEARICE does not implement the FFS itself, but mobilises others to do so. Working with local and national institutions is a way of scaling up the project, ensuring that more farmers are involved, and more farmers benefit. We train local extension workers – mostly from the government, but also from interested civil society organisations and schools – to conduct the FFS. We introduce the principles of adult education and the steps that make up a Farmer Field School, the process of engaging farmers in a participatory process, and of course the technical aspects related to plant breeding and the conservation of a region's plant genetic resources. Local governments can support the FFS by providing resources such as land or inputs. Research centres play an enormously important role in providing seeds for varietal selection or pre-breeding materials for segregating line selection or farmers' breeding in the FFS.



Working with these institutions also helps us bring about a change in attitudes towards working more closely with farmers. Unfortunately the dominant paradigm in these institutions is often to work top down, seeking to impose institutional priorities on the farmers. As we partner with government agencies and other organisations, their perspectives change when they see the results in the field. SEARICE provides support for at least three seasons, but we hope that by the end of the third season there is enough interest and enthusiasm among the local partners or farmers themselves to continue without external support. At this time, SEARICE withdraws but continues to provide technical backstopping on an on-call basis.

As part of our policy work, we target universities and seek to influence mainstream agricultural education to include more participatory approaches. Actively engaging students in research in the communities helps farmers to record inputs or calculate the benefits from production. But it also changes the students' mentality, encouraging them to be more engaged with farmers when they start working, rather than taking the top-down approach.

## Changing extension

### Farmer Field Schools

Farmer Field Schools are a structured approach to facilitate experiential learning by farmers on their own fields. This approach was developed with rice farmers in Indonesia in the early 1990s, and is now widely used in a variety of contexts. While developed initially to teach farmers about integrated pest control to reduce pesticide use, it is equally suitable for many other agro-ecological farming strategies.

In a FFS, farmers are trained to systematically observe their crop ecosystem from week to week and, based on their observations, to make informed decisions on how to act next. Extension agents act as facilitators, making FFS a more participatory learning method than regular extension. Through interactive learning and field experimentation, farmers learn problem-solving skills that make them less dependent on external information sources. Ideally FFS graduates increase knowledge within their communities by disseminating their findings with other farmers. (Source: Learning AgriCultures, Module 7, ILEIA.)



Sometimes, when extension workers apply the FFS approach for the first time, there is some hesitation because it is new for them. SEARICE prefers to work with those who are already familiar with FFS and support its principles, but also wants to bring about change among those who are doubtful. Usually, when extensionists start seeing the results from the FFS, their perspective changes. We keep providing the trainers with support in terms of technical backstopping and reflection on their work. Every now and then a star pupil arises, who is more passionate than the others and who keeps taking the initiative.

For example, partners such as those in Pangasinan, the Philippines, have spread the programme to other areas and even developed a FFS for school children. SEARICE can only provide minimal resources, but some partners are willing and able to obtain resources from other places and take initiative themselves.

Initially, most people we work with believe that only those with a Ph.D., or those who work at an agricultural research centre, should be engaged in plant breeding. They think we are crazy to enhance farmers' breeding skills in this way. But they change their minds when they see what farmers are capable of. This is why the Farmer Field Days are such an important and inspiring part of the process: they highlight what farmers have learned and the potential they have for doing this kind of work. We have already developed a pool of farmer breeders, and they have done remarkable work. One farmer in the Philippines, Jerry Demon, breeds corn and claims he can surpass the production of GM corn.

This process does not only help others to realise what farmers are capable of, but also farmers themselves. Talking to farmers, it becomes clear how it has empowered them. In the northern Philippines, farmers have bred and now produce a variety of rice suitable for the rice cake industry, which used to buy rice from outside the province. One of the farmers approached the rice cake producers and challenged them: *"tell me what sort of variety you want, and I will be able to produce that."* Another farmer told us that he was not too worried about crop failure in the face of natural disasters: *"I know even if my crops get destroyed by a calamity, I still have the knowledge to continue producing very good variety seeds, and that I will be able to pick up and recover."*

### Sharing knowledge

As part of the Agricultural Biodiversity Community we are all learning from each other. For instance, at SEARICE we are discussing which marketing elements are required to guarantee farmers' rights and to continue to promote biodiversity. The community allows us to explore the solutions that other organisations have found. In a broader sense, international knowledge exchange helps us share our experiences and convince others to take a farmer-centred approach in the policy and practice of education.

SEARICE: Based in the Philippines, Southeast Asia Regional Initiatives for Community Empowerment (SEARICE), is a regional non-government organisation which promotes and implements community-based conservation, development and sustainable use of plant genetic resources. E-mail: [searice@searice.org.ph](mailto:searice@searice.org.ph).

For more information about the programme, write to Sarah Doornbos, Knowledge Officer, Agrobiodiversity@knowledge.nl. E-mail: [s.doornbos@hivos.nl](mailto:s.doornbos@hivos.nl)

# Young Farmers Seek Agriculture Education

By Mwangi Mumbo

While the youth continue moving to cities seeking opportunities, an increasing number, especially in rural areas, have developed great interest in agribusiness. They have aggressively sought agricultural education and skills to boost their crop and livestock production, as well as to obtain information on sources of credit for their fledgling businesses.

“Out of the 15-20 farmers who attend the one-week short courses in our institution, over 50 per cent are under 30 years. Young people have realized that there is money to be made in agriculture especially with the expanding markets in urban areas”, observed Mr. Francis Kamau Njange, the Principal of Baraka College of Agriculture in Molo, Nakuru County.

The Catholic Church- administered institution has been training fresh students and practicing farmers for the last 39 years-mainly in modern farming skills and business management. The college offers one-and-a-half year certificate and diploma courses in

sustainable agriculture and rural development for school leavers.

Students undergo theoretical and practical work in crop and animal production, agroforestry, soil and water management, farm mechanization, farm structures, agricultural marketing, organic farming and dry land farming. They also learn skills on how to start new agribusinesses and to effectively run them.

“Some of the practicing farmers coming for the one-week courses do not even take notes. They are interested in learning hands-on skills such as honey harvesting, making compost manure, organic farming as well as other agronomic emerging technologies. Agricultural





education should not be limited to the literate. Hands-on experience is very important”, says Mr. Kamau

Farmers attending the short courses pay between Ksh 8,000 (USD94) and Ksh 12,000 (USD 140) depending on the skills they are interested in acquiring.

While acknowledging that agricultural may not look fashionable to many youths, Mr. Kamau notes that rural youths who have experienced the benefits of agricultural are attending the training with passion. They are ready to go and practice what they have learned and make money for themselves. They are specific in what skill or enterprise they want to start. He refutes claims that agricultural institutions suit their training for large scale farming, noting that while that may to a big extent be the case, most courses at Baraka College are made for smallholder agriculture.

In Kenya, key agricultural sub-sectors such as coffee and dairy are in the hands of smallholder farmers having less than 2.5 acres of land. For instance, over 80 per cent of the milk produced in the country comes from around 800,000 smallholder farmers who farm on less than 5 acres of land and own between one and 10 dairy cows.

“We sensitize young people to change their attitudes towards agriculture especially in rural areas. We have noted an increasing number of young people turning to dairy farming, indigenous chicken rearing, horticulture and rabbit keeping”, noted Mr. Kamau, who has worked at the institution for 14 years.

With the high cost of inputs and farm labour, Mr. Kamau argues that sustainable agriculture is necessary. “Organic farming is the way to go”.

However, to realize these goals, organic farming alone has its limitations.

“It may take years for poor farmers to develop their small farms to produce organic foods. We instruct farmers to embrace the use of commercial fertilisers and pesticides as long as they do not interfere with the soil ecology. Sustainable agriculture can only be useful under this arrangement. As a vital measure, farmers should have their soils tested every 5 years for pH and mineral contents. Expert advice on the test results will allow farmers to rectify their soil shortcomings for instance incorporating organic farming practices, addition of lime or reducing fertiliser usage”, said Mr. Kamau

He further emphasized that intensive use of fertilisers and pesticides leads to reduced biodiversity due to deaths of soil microorganisms noting that sustainable agriculture connects farmers to the natural environment.

“Owners of small parcels of lands have real connection to their farms-where they produce food and earn income. They are therefore bound to protect the biodiversity to benefit more in the long term”, he said.

With the imminent effects of climate change on agriculture, prospective and practicing farmers have to learn skills on mitigating these weather influences.

Farmers are trained on small holder irrigation systems, greenhouse management, water harvesting and rehabilitation of water wells. They are also trained on the use of improved stoves (jikos) which help to reduce fuel consumption and deforestation - which positively impacts on the environment.

The College also emphasizes farmers taking up small livestock enterprises such as rabbit keeping and indigenous chicken. These enterprises require little resources and have huge returns in a short time. For instance, in Molo area, a grown rabbit fetches Ksh 3,000 (USD 35) while in a Nairobi hotel it will earn the farmer Ksh 5,000 (USD58). The same applies to chicken which can be fed on kitchen remains with a little supplementation and low cost of production.

The college is located seven kilometers from Molo Town and has modern agricultural and boarding facilities. Students are drawn from all over the wider East Africa: Kenya, Tanzania, South Sudan and Uganda.

It has modern workshops where farmers learn hands-on skills in making beehives, smokers, poultry housing and constructing farm structures. It has also established greenhouses for training farmers on nursery management and horticulture.

Of the 32-acre college farm, five acres constitute a demonstration farm where organic farming techniques are learned. Focus in this organic demonstration farm is on small livestock management, compost manure production and mixed fodder production. Farmers are also trained on farm planning especially knowledge on crop rotation and feed formulation using locally produced forages.

Mwangi Mumero is a freelance journalist and can be reached through; [mwangimumero@gmail.com](mailto:mwangimumero@gmail.com)





©Prolinnova-Kenya 2013

# Social Learning at the Eastern African Farmer Innovation Fair

By Teresiah Ng'ang'a (Prolinnova-Kenya), Amos Thiong'o (APF AgriHub Kenya), Geoffrey Kamau (KARI), Nicholas Juma (PROLINNOVA-Kenya) & Ann Waters-Bayer (Prolinnova, ETC Foundation)

Learning can take many forms and happen in many different places, not only – and indeed, not primarily – in institutions of formal education. A particularly effective way for people to learn is through exposure to something new and unexpected, which stimulates them to rethink.



**T**he PROLINNOVA (PROMoting Local INNOVation in ecologically oriented agriculture and resource management) network seeks to encourage people concerned with Agricultural Research and Development (ARD) to engage in forms of “social learning” that bring together different groups – particularly smallholder farmers, scientists and rural advisors – to change their mindsets. One example of this is the Eastern African Farmer Innovation Fair held on 28–29 May 2013 in Nairobi.

A group of Kenyan governmental and non-government organisations concerned with smallholder-oriented ARD, coordinated by PROLINNOVA–Kenya and AgriProFocus Agri-Hub Kenya, organised this first-ever regional farmer innovation fair in eastern Africa. With support from numerous quarters – above all, the CCAFS (Climate Change, Agriculture and Food Security of the CGIAR) research programme – 50 women and men farmer innovators from Ethiopia, Kenya, Tanzania and Uganda converged in Nairobi to showcase and share their achievements in improving farming and livelihoods.

### Focus on small-holder farmers

The event celebrated the creativity of smallholder farmers and gave them public recognition as innovators and entrepreneurs. It drew attention to the importance of farmer innovation in agricultural development and brought policymakers and the general public into direct contact with farmer innovators. The farmers who travelled to Nairobi from rural areas in the four eastern African countries had a chance to engage with policymakers, researchers, development practitioners, entrepreneurs, students, teachers and consumers, as well as with each other. Visitors could discuss with these outstanding farmer innovators and learn from them in an open and convivial setting.

The fair offered a platform for sharing ideas and expertise on various products, services and technologies related to agriculture. It included exhibition sessions and panel discussions on four themes: crop production, livestock production, soil and water management, and marketing and social institutions. A short video of selected innovations set the scene for the panel discussions, which led to tips on further developing and upscaling the innovations, triggered joint learning, opened up marketing and networking opportunities, and encouraged farmer-led innovation for food and nutrition security and good environmental management.



The fair reflected a rich diversity of good ideas developed and put into practice by smallholders. Some examples from Kenya (captured on video in YouTube) include:

- LoFoDa (Locally Formulated Dairy) goat meal developed by the Nyandago Farmers Group, represented at the fair by Joe Ouko
- Pre-determining sex of chicks through the shape of the eggs, an innovation developed through trial and error by Christine Kilonzi
- A chicken incubator developed by Ronald Nyagaka, made of locally available materials and using the warmth from the fireplace; it can incubate 300 eggs at once with a success rate of over 90%
- The “Jack 2” avocado developed by Jack Rware after over 20 years of own on-farm research by combining local breeds of avocado and a variety brought by missionaries to produce a huge fleshy avocado fruit weighing almost 2 kg



- The Market Access Center (MAC) started by the Keekonyokie slaughterhouse in Kiserian to assist pastoralists in adding value to meat products.

The liveliest tent was that of the Ethiopians, who offered coffee and popcorn using the 3-in-1 cooking and serving pot developed by Yebeyere Assefa, who won the award as best woman innovator at the fair.

Notable in the Uganda group of innovators was the involvement of youth in the innovation process, such as in developing a greenhouse made of empty water bottles, presented at the fair by Joshua Kyagulanyi.

The fair also gave an opportunity for participants in the international workshop on Agricultural Innovation Systems in Africa (AISA) to meet and engage with the farmer innovators. Indeed, the workshop was opened at the fair, thus putting smallholders' front and centre from the very outset. The workshop was co-organised by several international initiatives – including JOLISAA (JOint Learning in Innovation Systems in African Agriculture), PROLINNOVA, CCAFS and the

AusAID-funded FSIFS (Food System Innovation for Food Security) project. It sought to gain a better understanding of agricultural innovation processes, with a focus on recognising the role of smallholders. The AISA workshop participants – researchers, academicians and policymakers from Africa, Europe and Australia – observed, listened and learned at the market booths. Then women and men farmers from each of the four eastern African countries gave their messages to the AISA participants about what to remember during the rest of the workshop. In this way, smallholders' voices guided the AISA participants in their further deliberations on how research, practice and policy can strengthen innovation processes in smallholder agriculture.

The farmers urged the scientists to visit them in their fields to see what is actually happening and advised the scientists not to be in a hurry if they want to understand local innovation. They invited scientists to work together with them in improving their innovations. The farmers were proud to be able to show the formal research world that farmers are also researchers. Indeed, Michael Makuthu, a Kenyan innovator who showcased a technology to control aflatoxins in grain storage, called himself a “freelance scientist”.

The EAFIF was an eye-opener not only for scientists and academicians but also for the general public. The feedback and requests received by the farmers during the fair suggest that this event was highly effective in stimulating social learning that links local and scientific knowledge and changes how farmers and scientists regard each other. The fair also offered a marvellous learning opportunity for university students who served as guides, translators and social media communicators during the event.

More information, blogs and photos from the fair can be found at [www.prolinnova.net/content/fair-and-workshop-recognising-farmer-innovation-eastern-africa](http://www.prolinnova.net/content/fair-and-workshop-recognising-farmer-innovation-eastern-africa) and <http://aisa2013.wikispaces.com/farmer+fair>

Teresiah Ng'ang'a, an agricultural sociologist, is coordinator of the PROLINNOVA–Kenya network, she can be reached through; [twnganga@gmail.com](mailto:twnganga@gmail.com)

Amos Thiong'o an agricultural value chains expert is Country Coordinator of Agri-Hub Kenya, he can be reached through; [a.thiongo@agri-hubkenya.com](mailto:a.thiongo@agri-hubkenya.com)

Dr. Geoffrey Kamau works at KARI, he can be reached through; [gmkamau\\_1@yahoo.com](mailto:gmkamau_1@yahoo.com)

Nicholas Juma works for PROLINNOVA–Kenya, he can be reached through; [juniqo@gmail.com](mailto:juniqo@gmail.com)

Dr. Ann Waters-Bayer works for ETC Foundation (Netherlands), host of the international PROLINNOVA network. She can be reached through; [ann.waters-bayer@etcnl.nl](mailto:ann.waters-bayer@etcnl.nl)



# Enhancing Learning through Radio in Tanzania

By Noah Lusaka

The simplicity of radio causes many to overlook its power as an effective communications tool especially for marginalized communities. Yet as Mr. Joseph Sekiku discovered, radio plays a powerful and life-changing role in isolated communities that are in critical need of information. The Family Alliance for Development Cooperation (FADECO) community radio shares information with communities on diverse topics, from agricultural advice, market information to weather updates in real time.

## A solution for the Information gap in Karagwe

FADECO community Radio (100.8 FM) is based at Kayanga town in Karagwe District of North Western Tanzania. The radio is among the pioneering stations in Kagera region established in 2007 to fill an information infrastructure gap. FADECO Radio's topics range from health, agriculture and environment to women empowerment and general news. The main goal is to educate, communicate, entertain and empower communities.

In the true spirit of delivering innovative extension and advisory services Mr. Joseph Sekiku the Director at FADECO radio relates this to the phrase "Give a man a fish and he will eat for a day. Teach a man to fish and he eats for a lifetime." Information and education empower people, and prevent problems from starting. Sekiku uses these programs to "teach people to fish." He runs education programme farming as a business. FADECO Radio coverage includes Karagwe, Missenyi, Bukoba and Muleba (all in Kagera Region, North West Tanzania). The station can also be heard in neighboring border districts in Uganda (Mbarara, Rakai and Masaka) and Rwanda (Kibungo, Rusumo).

*“Would you imagine that many people think that I know everything? They have a lot of trust in me and in order not to disappoint them and fulfill their wishes; I have invested in Information Dissemination.”*  
*Joseph Sekiku, Director Fadeco Radio, Karagwe Tanzania*

## The Interactive Information flow system

Mr. Sekiku has trained a team of 23 journalists who gather community news from different locations. Using recorders, the journalists' interview farmers about their experiences in local knowledge, agricultural production successes, constraints and social news. Another important tool used by radio FADECO is the Frontline SMS platform. Communities communicate via text message making programming more interactive and to spread specific information that is requested by the community. During special shows, communities call in and selected specialists answer technical questions. This way, farming families gain more knowledge and move beyond a subsistence level of farming; to viewing themselves as entrepreneurs investing in a better future.

## Responding to Technical inquiries

The response to FADECO Radio's agricultural programmes has been unprecedented. The combination of Frontline SMS and radio has allowed over 450 farmers to subscribe to text messages from FADECO's interactive radio show. One of the most exciting programmes that FADECO Radio runs is a question and answer show where farmers send technical questions to FADECO via text message. The questions are then classified and managed through Frontline SMS. FADECO team then researches the answers to the questions by texting and e-mailing agricultural experts, perusing through publications like *Baobab* (ALIN), *Spore* (CTA) and Internet. People who text in receive their answers on the subsequent show. Sekiku has organized his contacts into 'Farmers' and 'Agricultural Experts' so that he is able to alert certain groups, via SMS, to tune into relevant shows. FADECO radio also provides automatic weather updates.

## Going Beyond Broadcasting

FADECO Radio is determined to support farmers to access appropriate skills and knowledge and goes beyond broadcasting by organizing farmer interest

groups to participate in thematic workshops, meetings and forums where low cost and simple agricultural technologies are demonstrated. Farmers have been exposed to simple technologies such as solar fruit-driers and processors. Successful demonstrations in the past focused on indigenous poultry breeding, a motorcycle water pump that can be used for irrigation and integrated crop pest management among many more. A community Maarifa centre was established for training farmers

## The impact to communities

FADECO community radio has contributed to the holistic development of the Karagwe region by offering a channel for community dialogue, learning and empowerment. Some of the key impacts on sustainable agriculture include:

- Awareness creation about higher coffee prices in neighboring Rwanda and Burundi that prompted Tanzanian coffee farmers to demand higher prices for their coffee. Coffee prices rose from Tsh. 300 to Tsh 1,500.
- Introduction of simple solar dryers to communities. The dryers are used for value addition to fruits and vegetables. Agerman company Matunda Mema, has commercialised drying pineapples for export.
- In the village of Ihanda, FADECO radio promoted a chicken breeding project, from which 87 families are now benefitting. The project is managed predominantly by women. The Chairperson of the Ihanda chicken breeding project says that the project has improved the nutrition and income of families in the village. The increase in income has helped them to support their children's schooling. Each family produces an average of twenty eggs per day.

## See also

- <http://www.unesco.org/new/en/communication-and-information/resources/news-and-in-focus-articles/in-focus-articles/2012/karagwe-celebrates-five-years-of-ipdc-supported-community-radio/>
- <http://communityserviceintanzania.wordpress.com/tag/joseph-sekiku/>
- <http://radio.frontlinesms.com/2011/06/reaching-communities-through-the-airwaves/>

Noah Lusaka is Projects Manager at ALIN. He can be reached through [nlusaka@alin.net](mailto:nlusaka@alin.net)

Joseph Sekiku is the Director of FADECO, he can be reached through: [fadeco@satconet.net](mailto:fadeco@satconet.net)



# Agriculture Education Key to Development

By Isaiah Esipisu

Kenya, like many other African countries is highly dependent on agriculture for her economic development. However, this important subject has largely been downplayed in the country's formal education system, where it has been scrapped off from the primary school syllabus, and is only an optional subject at the secondary level.

So far, the agricultural sector remains the main driver of Kenya's economy contributing almost 23 percent to the country's Gross Domestic Product, and fetching over Ksh11 billion (USD 130 million) from the export market, as per government records at the onset of the year 2013.

But as climatic conditions continue to shift leading to unexpected droughts, storms, floods, plant pests and diseases among other calamities, agriculture education is going to be a single most important subject to enhance future food production, as well as help farmers adapt to climate change.

"I hold the view that education has the potential to transform rural communities through adapting to climate-smart agricultural practices," says David Njengere, a Senior Assistant Director at the Kenya Institute of Education.

Njengere observes that almost every community in the rural areas has a school, which can be used as the entry point to agricultural education. "Since the learners in the schools eventually become the land owners in the communities, teaching them climate-smart agriculture would be a sustainable strategy of mainstreaming

climate-smart practices," he tells *Baobab*.

However, this subject remains a gap in many communities because of failure of the government to recognise agriculture as a basic subject.

According to experts, children have an ability to retain knowledge and skills learnt in their childhood, and use them later to offer solutions to existing problems. Given that prevailing impacts of climate change and food insecurities are already causing devastation on the entire continent, it is critical that children be introduced to adaptation practices at an early age.

With the World Bank warning of a likely four degrees centigrade rise in global temperature by the end of the century, there is an urgent need to equip the society with the right knowledge, particularly on food production.

"Unlike teenagers and adults, children's minds are highly receptive to new ideas and technologies," says Moses Otwoma, a psychology student in Nairobi.

Several other studies have demonstrated that schoolchildren can be used as effective agents of

change. Whatever is learnt at such a tender age, say, new agricultural technologies, it is most likely to be transferred to the communities in the future.

With these insights, the World Food Program underscores that nutrition, agricultural and environmental education to schoolchildren is among the wisest investments that any government and donor can make to address existing food security problems.

To bridge this gap, many nongovernmental organisations across the country are working in collaboration with different schools to re-introduce the 4K club concept.

“Indeed, there are millions of Kenyans particularly in rural areas who still earn their living from simple skills they acquired from the famous ‘Kuungana, Kufanya, Kusaidia Kenya,’ popularly known as 4K Clubs,” says Philip Kilonzo, the Technical Advisor - *Livelihoods* at ActionAid International Kenya.

‘Kuungana, Kufanya, Kusaidia Kenya’ is Swahili for ‘Coming together, to Act, in order to Help Kenya.’

In many cases, 4K club members engaged in sustainable agriculture through hands-on activities in the schools’ demonstration gardens.

As a result, many members of the 4K club could transfer the technologies learnt to the communities. At the same time, some of them could take active initiatives to keep rabbits, chicken, goats, or even grow horticultural crops for income generation.

This became a perfect foundation for many smallholder farmers today, who are now considered to be the main drivers of the country’s economy.

In the sub Saharan African region, 80 percent of the population depends predominantly on rural economies, which is characterised by small scale farming. Evidently, majority of primary school leavers in a country such as Kenya have always lacked a chance of further formal education, and therefore farming becomes their main livelihood option.

“Scrapping of agriculture as a subject in the primary school curriculum will automatically have a devastating negative impact to the entire country in the near future,” said Kilonzo.

According to Moffat Ochuka, a teacher at Emetetie primary school in Kakamega County, the move to scrap off agriculture from the curriculum undermines the spirit of self-reliance, talent development and by extension economic development.

“This is even worsened when agricultural activities are used as a form of punishment,” says Ochuka. “Those who are forced to cultivate land for example, as a form of punishment will naturally view agricultural activities in a negative perspective,” he adds.

Such punishments are still used in several schools across the country, since corporal punishment is no longer accepted by law.

On a different front and as a way of bridging the gap, development practitioners including local NGOs are currently involving both primary and secondary schools by equipping them with skills on sustainable agriculture through hands-on activities in the schools’ demonstration gardens.

This is part of the broad attempt to equip the young generation with new and practical agricultural skills (applied in schools and homes), to promote greater acceptance and adoption of food production technologies among the youth and the wider community. It further promotes business culture and increases confidence for more youths to participate in the sector.

The acceptance of such initiatives by school teachers, pupils and the society at large is a clear indication that there is a gap, which calls for policy review.

As well, some officials at the Kenya Institute of Education have developed a project proposal to try out similar concepts (out of the normal curriculum) in some pilot schools. “However, we are still looking for the technical and financial support to implement this proposal,” Njengere told *Baobab*.

“A much as pure ‘academic’ is important in schools, hand-on lessons must be treated as equally important particularly in the developing economies, since it is one of the main ways such countries can get themselves out of poverty,” said Kilonzo.

Isaiah Esipisu is a science based writer in Nairobi. He can be reached through [esipisu@yahoo.com](mailto:esipisu@yahoo.com)





# Agricultural Biodiversity: Breaking the Barriers

Agricultural biodiversity plays a huge role in maintaining resilient local economies, balanced diets and balanced ecosystems. The rapid disappearance of agricultural biodiversity and the lack of measures to protect it are therefore great causes of concern.

**M**ainstream agricultural policies, which generally promote monoculture agriculture, Genetically Modified Organisms (GMOs) and Intellectual Property Rights threaten such agricultural biodiversity, having an impact on agricultural landscapes, species, varieties, breeds, the wild relatives of crops and livestock, pollinators, micro-organisms and genes. These policies and practices lead to the disappearance of plant and animal species, and the knowledge embedded in their management and use.

There is some good news though: in recent years many promising initiatives have been launched around the world that aim to preserve and manage agricultural biodiversity. Small-scale family farmers often play a central role in these, acting as custodians of biodiversity. But other actors and institutions also play important roles. Producers, public and private institutions and

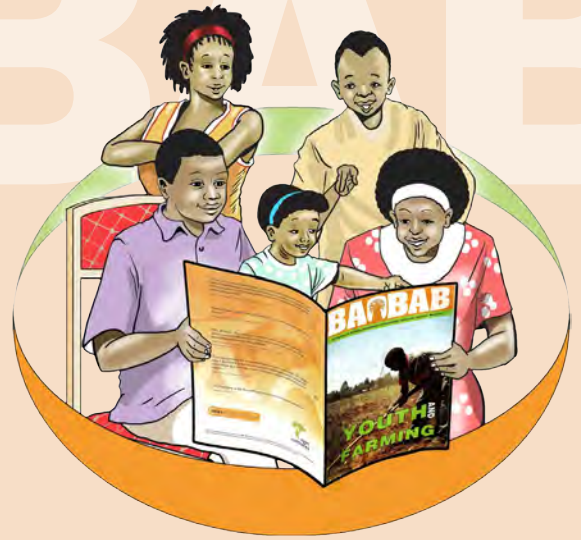
consumers are reconnecting with each other through innovative market arrangements, many of them at local or regional level. Farmers and researchers are taking up joint research initiatives, and farmers' organisations are engaging in dialogues with policymakers, pushing for policies that enhance agrobiodiversity.

Issue 69 of *Baobab* will look at these emerging initiatives and at the insights gained from others around east Africa to up-scale these experiences. We particularly aim to explore the factors that influence the transformation towards more sustainable and diverse production systems, and the factors that help break existing barriers: why have some experiences been more successfully spread and scaled up?

The topics we will look at will include the revitalisation of local seed systems and indigenous livestock breeds at a large scale; the market mechanisms and policies that support agrobiodiversity; farmers' innovations and the role of knowledge and information networks. Since 2014 will be the International Year of Family Farming this edition will explore the close interconnection between agricultural biodiversity and family farming.

Articles should be sent to the editor, [E.lungahi@alin.net](mailto:E.lungahi@alin.net), before November 15th, 2013.

## Watering Baobab



### Introduction

The Baobab is a quarterly magazine that is published in March, June, September and December. Every issue has a theme that guides the topic one can write on. Topics for December issue 2013 for example is Agroforestry.

### How to Write

Know what you are writing about in advance and think clearly, carefully reflecting on:

- WHAT was the initial context and what were the difficulties faced?
- WHAT were the reasons for the approach taken to improve the situation?
- HOW did they go about it and who took the initiative?
- WHEN did all this happen, and to what extent was the timing important?
- WHAT happened as a result?
- WHY did it work out as it did? (We appreciate opinions/ analysis/ conclusions relevant to field level, as well as recommendations for policy makers).
- WHERE did the action take place?

### Please Ensure that You

1. Thoroughly read the call for articles and check that the article fits well with the theme being covered.

2. Explain any terms or ideas that may not be understood in every part of the world.
3. Acknowledge all sources and references used.
4. Explain any abbreviations used. Full editorial support is provided. As the articles go through a rigorous editorial process, authors are usually requested to provide additional information or clarifications. We would therefore rather have too much information than too little in the first draft!

### Format

1. Articles should be about 700 to 1000 words (one, two or three-page articles) and should be emailed to baobab@alin.net or info@alin.net as a word document attachment.
2. Include no more than five references. Each reference should include title, year of publication, name of author, and publisher.
3. Please provide a current contact address at the bottom of the article. This will also be published in the magazine. We would also appreciate a contact phone number for our own use.

The editor reserves the right to decide whether or not to publish an article or contribution after receipt of the first full draft. Articles that are accepted will be edited to the *Baobab* house style and shortened if necessary.

Contributions edited in this way will be returned to the authors for approval before publication. Articles accepted for publication in the *Baobab* may be chosen for translation in any of the six regional editions. We will endeavour to inform authors if their article appears in other editions.

### Photos

Pictures speak volumes. Two to four pictures relevant to what you have written must accompany your article.

Illustrations, drawings, or maps are also welcomed. Please provide the name of the photographer or artist. Please ensure the photos or illustrations are of suitable quality.

Send the pictures as attachments in jpeg format of at least 300kb and above. Also remember to include a caption outlining the people or activity in the picture.

### Creative Commons License

Please note that we use the “Creative Commons License Attribution non-commercial share alike 3.0 unported” policy regarding copyright. We encourage free and open exchange of information. As such readers and authors are encouraged to copy and circulate articles from the *Baobab* quoting the source. In addition, this means that we may use submitted photos or text in our other publications. We will try to contact you and credit your work in accordance with the license.



### Resources

The Purpose of this Guide is to support those involved in extension evaluation to choose how to conduct more comprehensive, rigorous, credible and useful evaluations. It supports readers to understand different types of evaluation, to make decisions on what is most appropriate for their circumstances, and to access further sources of theoretical and practical information.

It is recommended for the following readers:

- Those commissioning and managing Evaluations
- Professional evaluators and staff responsible for monitoring systems
- Professionals involved in training and educating evaluators
- Researchers looking for ways to synergise their efforts with evaluation initiatives.

Christoplos I, Sandison P, Chipeta S. (2012). Guide to Evaluating Rural Extension, Global Forum for Rural Advisory Services (GFRAS), Lindau, Switzerland

### Handbook: Rural Extension Volume 1: Basic Issues and Concepts

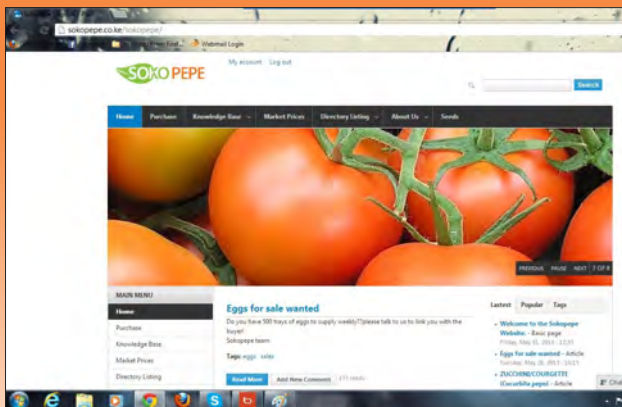
Edited by Volker Hoffmann, Maria Gerster-Bentaya, Anja Christinck and Mamusha Lemma

Published by CTA, the first edition of this handbook, which consisted of just one volume, was released in the German in 1981 and later translated into French and Chinese. 20 years after, the second edition, came out, consisting of two volumes in German (1987 and 1988), followed by an English version (1989 and 1990), and a Spanish version (1989 and 1990).

The overall aim of the editors is to present and disseminate concepts and methodologies that bring greater transparency to the planning, implementation and evaluation of advisory work, thus converting decision-making into a more rational process.

The book provides deep insights about extension as an “age old practice” and acknowledges the need to contextualise modern day extension work in the current environment dominated by the challenge of climate change. It is an invaluable read for anyone keen on understanding the evolution of extension and better understanding its core principles.

### SokoPepe - 20245: Where producers meet buyers!



More and more people are registering on SokoPepe. Are you one of them? If not, register NOW to get:

- Real time agriculture commodities prices
- Linked to bulk purchasers of agricultural commodities
- Value chain information including farm inputs and service providers
- Bidding, hence optimize prices

- Farming tips
- Livestock husbandry tips
- Geo-maps of key services such as warehouses and cold storage facilities
- A payment solutions for safe, efficient and secure money exchange across mobile networks
- Tangaza Pesa services

To register, send SMS to 20245  
Reg#IDnumber#FirstName#LastName#County

**To check prices of commodities:** Send SMS:  
Price#Commodity#Town  
Example: Price#Maize#Nakuru

**To get Farming Tips:** Send SMS: Tips#Product name

**Alternatively:** Visit [www.sokpepe.co.ke](http://www.sokpepe.co.ke) Click “Register” and follow the prompts SokoPepe if a product of Arid Lands Information Network (ALIN) [www.alin.net](http://www.alin.net)  
Tel:+254 20 2629762 Mobile: +254 20 728606916

“If you have come to help, you may as well leave again. But if you see my survival as part of your future we can work together.”

*Quote from an unnamed Aboriginal woman*

“We must then build a proper relationship between the richest and the poorest countries based on our desire that they are able to fend for themselves with the investment that is necessary in their agriculture, so that Africa is not a net importer of food, but an exporter of food.”

*- Gordon Brown, Former British Prime Minister*

“Agricultural extension is about sharing scientific findings and know-how with farmers  
And helping them capture a greater share of the value chain.”

*Michael Hailu, Director, Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA),*

*The Netherlands, 2011 during a conference themed: Agricultural extension: A TIME FOR CHANGE, held in Nairobi, Kenya, November, 2011.*



Enabling Access. Creating Knowledge  
Empowering People

