

Developing agricultural extension capacity in Kenya: *Experiences of Kenyatta University Interns in the Farmer Voice Radio Project*

Group 1: July – August, 2010



Editors

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Kenyatta University interns and staff during the one day reporting workshop held on 29th September 2010 at the Business and Students Services Center. Staff from FVR country office, FIT Resources, Gender and Monitoring & Evaluation component (KU), attended.

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SUMMARY

This report presents briefs on experiences of Kenyatta University students while on field attachment to the Farmer Voice Radio initiative (FVR). FVR is being implemented in a collaborative effort led by the American Institutes for Research (AIR), Kenyatta University, Jomo Kenyatta University, FIT resources, Kenya Broadcasting Corporation and Kenya National Federation of Agricultural Producers (KENFAP), among others. Many small holder farmers participate by opening up their farms to the interns and providing information readily, some of which is selected and broadcast to benefit other farmers through radio.

Kenyatta University deployed its first group of 20 interns to for eight weeks from July to August 2010. For orientation and assistance with establishing links while in the field the interns were attached to KENFAP staff (referred to as Radio Extension Officers, REOs). In areas where REO may not be available the interns contacted with ministry of agriculture staff and worked well. To determine what gains were made during the internship several assessment methods were used. The interns were visited and evaluated at their various stations, where the REOs provided opinion on the achievements of the interns under their care. Secondly, each intern was required to make a presentation on their experiences to a gathering of all FVR partners upon return to campus on 29th September 2010. Thirdly, each intern prepared a brief report about their activities and experiences. The interns also used the SANSA recorders to obtain messages from farmers that could be used as material for national broadcast programs.

On the overall the internship has been rated highly as a unique opportunity by the students. The internship provided an opportunity where the theory learnt in class was translated into real life situations. Many interns underwent dramatic and positive change in their perception of agriculture as a career. The interns already identify the numerous opportunities that exist in the agricultural sector as a vehicle for national development and can identify opportunities for their own contribution. As they went through the internship the students appreciated areas where they need to obtain more knowledge and thus are now more open to learning. Indeed, some of the interns have already started developing small agricultural enterprises to generate income as they continue with their studies.

A remarkable outcome of this internship was the submission of a winning poster on Commercialisation of Spirulina production (see report). This poster was prepared as an initiative of Mr. Mukanda Mohamed (an intern) who came across this product in Kakamega and immediately identified opportunities for its commercialization. The poster was presented at the PANAAC/UNIBRAIN (Pan African Agribusiness and Agro industry Consortium) innovation fair that took place in Nairobi on November 26 – 27th 2010 and the intern won a laptop computer. Mohamed is now viewed as a mentor by his peers!

Besides the successes, the internship had a few challenges. These included absence or frequent transfer of REOs; farmers expecting too much from the URIs; difficulties in transport in some areas; and language barriers. These notwithstanding, the internship was a resounding success and a great experience for students at Kenyatta University. We are most grateful to FVR partners and supporters for making this program possible and look forward to continued close collaboration to make radio extension a lasting success in Kenya and other developing countries.

Thank you,

Dr. Maina Mwangi
Coordinator, FVR internships, Kenyatta University



Excerpts of URI comments

“All in all and despite the challenges, my internship was a wonderful experience. It was both an adventure and a discovery and am very grateful to the organizers of the internship The fact that I was acquainted with the knowledge to address some of the problems the farmers were facing made my time out there even more rewarding and fulfilling. Generally the internship with FVR was an outstanding experience of service and learning and something I would recommend for my student friends.”

“The attachment was very educative, interesting, fun and I learnt many things on farming and agriculture. I also acquired some skills such as being confident, addressing a group of people, and being keen on what other people say. I also learnt how to address a large number of old men and women and to interact well with them.....FVR was an inspirational tool in my life during the attachment. It made me grow to a better person through using the knowledge that I have acquired in school to help farmers in their agricultural activities. I will be glad if I were to work with them again. It was a great experience and now I am in a position to put into practice what I have learnt in school”.

“The use of URI by FVR gives the students an upper hand in participating in development by them using the skills acquired in class to help the farmers and in turn learn and expand their knowledge in various fields.”

“I had the experience of disseminating simplified agricultural information to the farmers especially through demonstration.I also experienced how to link the farmers to relevant agricultural offices or stakeholders so that they could be helped....I had an experience of implementing ethical values of an officer providing services to the community.”

List of contents

ITEM				PAGES
Title page				1
Summary				3
Excerpts				4
Contents list				5
Individual reports				
Report No.	STUDENT NAME	REGISTRATION NO.	INTERNSHIP AREA	
1	Mwita Amos Chacha	A112S/9995/08	Migori/Kuria	6 - 9
2	Nyandega Brian Otieno	A112S/9997/08	Kisumu/Nyando	10 - 13
3	Saline Ojung'a	A91/0527/08	Homabay/Rachuonyo	14 - 20
4	Bonuke David	A112/0532/08	KBC-Nairobi	21 - 23
5	Elijah Muuo Mutinda	A112/1516/08	Kibwezi	24 - 28
6	Gitonga Hellen	A91/0526/08	Nakuru	29 - 35
7 (joint)	Howard Mugeru & Muturi Edwin Mwangi	A112/0547/08 A112/0534/08	Kiambu	36 - 39
8	Ogembo Joel Oyaro	A93/0528/08	Kisii	40 - 45
9	Kwamboka Motaroki Lilian	A91/0533/08	Bungoma	46 - 49
10	Mukanda Mohammed	A112S/9991/08	Kakamega	50 - 54
11	Odhiambo Okello Peter	A91/0546/08	Siaya/Bondo	55 - 58
12	Auma Ruth	A91/0301/08	Awendo	59 - 63
13	Wakhungu Kennedy	A112/0402/08	Transzoia	64 - 71
14 (joint)	Musyoka Ndulu Zipporah & Theuri Mary wambui	A112S/9988/08 A91/0538/08	West Pokot	72 - 75
15	Teressiah Wanjiru Thairu	A112S/9993/08	Nakuru	76 - 80
16	Mugwe Ruth Nyakihu	A112S/12491/08	Naivasha	80 - 82

1. EXPERIENCE IN KURIA/MIGORI DISTRICT

STUDENT NAME: MWITA AMOS CHACHA

REGISTRATION NUMBER A112S/9995/08

DEPARTMENT AGRIBUSINESS
MANAGEMENT AND
TRADE, KENYATTA
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INTRODUCTION

Kuria district is situated in south Nyanza neighboring Migori district and bordering Tanzania. Currently the district has been split into two: Kuria West and Kuria East. Kuria has four town centers in four divisions that are in: Isebania, Kehancha, Kegonga, and Ntimaru. Out of these four town centers, Isebania town center is the most active and economically viable. This is due to the fact that it is situated at the Kenya-Tanzania border. Isebania has attracted a large population from many diverse ethnic backgrounds including the Kikuyu, Luo, Kisii, Indians and Somalis, in addition to the local indigenous Kuria people. Business in this town is lucrative due to the goods crossing the Kenyan-Tanzania border. The second most active town center contributing revenue to the municipal council is Kehancha town, business in this town is good also because the town for quite some time has been acting as the headquarter of the united district.

Kuria has a population of about 0.92 million people. Most people in Kuria are religious; with many churches and mosques established in the region. The economic activities carried out in Kuria include business and agricultural activities. Mostly Kurians are farmers who practice small scale farming due to their small farms and widely spread pieces of land, also most practice subsistence farming. Since most practice small scale farming, the modern machinery is rarely used. Some farmers even engage in off-farm activities such as carpentry, shopkeeping, welding and teaching, most primary school and secondary school teachers are farmers. The crops mostly grown in Kuria include maize, cassavas, sorghum, millet, tobacco, coffee, sweetpotatoes, tomatoes, kales, cabbages etc.

Institutions in Kuria include primary schools and secondary schools, one early childhood Development College, churches and medical centers. There are two agriculturally based companies, i.e. Alliance one Tobacco (K) Ltd. and Mastermind Tobacco (K) Ltd. These two companies mainly deal with tobacco. For administration, Kuria district has two district commissioners due to the split up of the district, one based in Kehancha for Kuria west and another in Kegonga for Kuria east.

FARMER VOICE RADIO INTERNSHIP

During my internship with FVR and working with the Kenya National Federation of Agricultural Producers, I worked with groups registered with KENFAP and some individual farmers and at some other time I visited a group not registered with KENFAP. In my work I informed farmers more about farmer voice radio and its programmes, agricultural tips aired on the national radio and visited the farmers' projects, mobilized them on the projects they were carrying out. The groups below were visited:

GROUP 1***KEHANCHA WOMEN HOPE OF LIFE SUPPORT GROUP***

The group was started in 2004 and its aim is to support widows, HIV victims, orphans and empower women in financial activities related to agriculture. The group also hosts a group of youths. This group has a total number of forty six women members and twenty youth members.

Activities undertaken by the group.

- a.) The group owns a 1.5 acre piece of land on which the members have planted sweet potatoes on one portion and maize. Besides this piece of land, each member has his/her own piece of land.
- b.) The group also has a fish pond in which it is rearing Nile perch.
- c.) On the 1.5 acre piece of land, the group has invented a technology of controlling Striga weed by using a plant called Desmodium, this piece is mainly for demonstration to members and visitors. Desmodium apart from killing Striga on a maize field also helps to improve fertility and also acts as an animal feed due to its high protein content. This technology is called 'push-pull technology'.
- d.) The group through Kenya Women Finance Trust has got loans to help members educate their children and start small enterprises.
- e.) The group also has a sunflower and groundnuts farm.
- f.) This group also practices kitchen gardening that was mainly introduced by Kuria energy group where the women grow vegetables (traditional), then dry them, pack them and sell them in markets. Mostly the vegetables they grow are; nsaga, kunde, morenda and mchicha.

GROUP 2***NYAROHA FURHA YOUTH GROUP***

The group was started in 2007 and its aim is to unite the youths who mostly are school drop outs and form four leavers and to help prevent the youths engaging in criminal activities. The group has a total membership of twenty youths.

Activities undertaken by the group

- a.) The group has an ongoing project on planting tree seedlings then sell them locally. The types of trees the group is growing are; blue gums, cypress and macadamia trees.
- b.) The group also has a sweet potato farm.
- c.) The group is making bricks and selling them to house builders.

GROUP 3***NGURUNA AMUA SUPPORT GROUP***

This group was started in 2009 December. It is mainly male dominated and has twenty seven members.

Main activities

The group is practicing fish farming and has a fish pond courtesy of the Ministry of Livestock and Fisheries.

Another activity is member financial support by contributing to each other through a scheme mainly known as 'merry go round'.

TOBACCO INDUSTRY

Tobacco industry is the main enterprise in which 95% of Kurians engage in, just as they have done over the past many years. Tobacco is first planted on a seedbed for forty five days. On the nursery bed it is sprayed with pesticides to kill pests such as: green June, beetle larva and southern mole cricket. After forty five days seedlings are transplanted into the fields. However planting dates are controlled by the tobacco leaf buying firms. Planting dates are controlled because if the companies allow farmers to plant at their own dates without following the company's calendar almost the whole crop could fail. This is because

when the earliest planting farmers harvest, the crop is vulnerable to attack by pests and diseases destroying the whole crop and this could cause huge losses. Tobacco is an annual crop that is planted once per year. Farmers who don't follow the set planting calendar can suffer as the crop is uprooted while in the seed bed, this is a tool that the companies uses to control tobacco planting dates, and if there are those who hide and plant, their crop is not bought by these companies.

The tobacco companies operating in Kuria provide farmers with fertilizer and pesticides during each season on loan basis where the company deducts its input cost after farmers sell the tobacco. The company is well linked to its farmers through its extension officers in the field who help the company to keep records of each farmer.

When the crop is ready for harvesting the leaves are cut, kept in a cool place under shade. After some days when the leaves are purely yellow in color, they are taken into the 'burn' where they are dried by smoke by firewood depending on type. The locals call the structure that is used to dry tobacco 'etembo' in Kuria language. After it has been dried successfully it is sorted into various grades and taken to the market. Drying is a tricky risk that most farmers are aware of, as sometimes when it is almost dry the leaves catch fire causing huge losses. Another risk is plant damage by hailstones in the field when the leaves are large enough for harvesting.



Fig. 1: Tobacco seedlings on seedbed.

Issues for Farmer Voice Radio

- Most farmers being women don't listen to the radio; this is because a radio set is considered an asset of the men only.
- Another issue is that most of the programmes being aired contain some scientific terms of crop pests or weeds that the farmers can't understand in their local context.
- Some of the brochures prepared to pass agricultural information are done in English, Swahili and not in the local languages.
- Farmers are being sold fake seeds with fake Kenya Seed Company logos by unscrupulous business men.
- Environmental degradation due to cutting down trees for drying tobacco and also the bad smoke that is not good enough to be around that causes air pollution.



Fig. 2: A well maturing tobacco crop.



Fig. 3: Fish ponds in Kuria district.

SUGGESTIONS & RECOMMENDATIONS

- FVR should try to reach even the uneducated Kurias by introducing a programme in Kuria. This could have been easy if the kurian-kisii radio station was still operational.
- Agricultural brochures should be made in Kuria language.
- A research on how to dry tobacco without using firewood or leaves and twigs should be carried out. This is because cutting down trees for tobacco drying is not sustainable and destroys the environment. E.g. a solar drying system could be more effective and environment friendly.
 - The government project planners should include all the stakeholders (farmers) in policy formulation. For example, with fish ponds, everything is financed except the land. Farmers don't feel that sense of project ownership and they expect continued government support.
 - Most farmers can be reached through FVR by airing programmes in local languages.
 - To improve bargaining power of tobacco farmers, a farmers union is needed that can fight for their rights and prevent exploitation by companies and also to present their grievances.

2. EXPERINCES IN KISUMU / NYANDO DISTRICTS

STUDENT NAME:	BRIAN OTIENO NYANDEGA	
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DEPARTMENT	AGRIBUSINESS MANAGEMENT AND TRADE, KENYATTA UNIVERSITY	

INTRODUCTION

Agriculture is a big contributor to the Kenyan economy with small scale farmer playing a big role in food production in the country. For the country to develop much must be done to develop the agriculture scene meaning that farmers must be equipped with relevant information and have easy access to resources, to help in agriculture development, organization such as FVR have partnered with universities to strengthen extension services delivery. In this arrangement interns collect information which will be used by FVR to help out the small scale farmers in developing their farming for better livelihoods. The internship was carried out in Kisumu district working with co coordinators from KENFAP offices. With the help of the REO we were to participate in service delivery, fill monitoring questionnaires and also carry out interviews with farmers which will be broadcasted later.

KISUMU DISTRICT

Kisumu district is situated in the western part of Kenya and has a population of about 1.6 million people. Most of the fish consumed in the country comes from the district, though the fishery industry is not the biggest in Kisumu district. Other economic activities are quarrying and sugar production. I chose the district because it would be convenient for me to operate from my home within the district.

ACTIVITIES UNDERTAKEN

Kombewa Field Day in Kisumu West

This was my first assignment to represent my REO during the field day. It was organized by Patrick Miguna in his farm. In attendance were various organizations and farmer groups such as KENFAP; SCC-AGRO FORESTRY; NORBROOK, ANYWANG WOMEN GROUP, WESTERN SEED COMPANY AND THE AFRICAN AGRICULTURAL TECHNOLOGY FOUNDATION. The theme of the day was to bring different NGO's, cooperatives and farmer groups together and share their area of apprentice with the local farmers in Kombwewa location. Every representative was given a chance to contribute to the theme by showcasing their products or a stage in value addition. I had an opportunity to talk about KENFAP programme / projects like biogas production and farmers fighting poverty and FVR activities.

The event was well attended from primary school pupils, high school student and farmers from various districts. They participated by asking questions and putting views across.

- ✓ My observation from the field day was how willing the small scale farmers are to improve their farming activities by accepting new innovations and farming ideas so as to better their lives from the little farming they do.
- I can recommend that field days be supported by the ministry of agriculture and various stake holders in agriculture since it is a sure way to reach the rural farmers and pass information to them.

After a successful field day in Kisumu West I was sent to visit Mr. John Ague a star farmer to interview and record him about tomato production business. He does his farming in 4 pieces of land next to his home which add up to 1 acre in total. In addition to tomato production he grows kales, brinjals and capsicum. He relies on extension service to acquire more information to improve his farming and belongs to a farmer group in his area.

He relies on his farm to pay his bills and feeds the family therefore making it important to him. During our conversation he singled out marketing as his major challenge. Others are high cost of seeds, middlemen, flooding, thieves, e.t.c. but he has become skillful in dealing with pest and diseases.

He is very open to new technology and information which can help him produce more and he gets such information from listening to agriculture programmes tips, farmers group and extension services provided by various organization. He is proud of his achievements in farming so far and anyone can suggest for improvement in agricultural market which will be easy for the farmers to sell their products and improve their life which will in turn improve the economy hence enhance rural development.

One of my expectations was to visit the registered farmer group under KENFAP and with the help of the district chairman, I visited a few farmers groups starting with St. Philomena women group situated in Central Kolwa. It started in 1998 as a widow and single mothers group with interest in farming. They take care of orphans by taking them to their own nursery school and funding for their primary and secondary education.

They carry out farming as individuals and even rent land to farm in, they provide farm labor as a group. They grow green grams, beans, maize, sorghum and keep poultry to sell so as to take care of their household needs. They have ready market for their products but lack sufficient information or help from various organization that can help them or fund their effort to take care of the community who are less fortunate.

Since most of the group members are old, they do not have enough man power to carry out farm activities.

Radio can be used to pass agricultural information, farmers can also be sensitized about other organizations that can help them with the projects / programs they are doing to help the community.

Next I went to Kombok in Kisumu East to meet members of PUR BER groups. The group was started in 2001, of both gender in a ratio of 2: 1 with 2 representing men and 1 women, the group is made up of 25 members.

The group came together as farmers so as to empower themselves in the sense of having easy access to agricultural organization, sharing of agricultural information and technology, easy access to credit and extension services.

This is a group that was interested in doing sunflower production so as to exploit the expanding Kisumu airport. I visited them with brochures sent to me from Dr. Maina and Dr. Thagana of Kenyatta University.

The group members grow different products ranging from beans, maize, soya beans, kales, cabbages, ground nuts, since the area is suitable for farming, they do two seasons per year. They pointed out marketing, access to credit, lack of information and middle men as the main challenges facing them. Membership participation also pulls the group in terms of promoting the growth of agriculture in the area and development.

Members pointed out that the use of radio to pass agriculture information can be easy and a reliable way to reach small-scale farmers and help them solve their problems and hence bring about development in the rural sector.

In response to an invitation by John Oganda to visit his group Kagony local poultry and mixed farmer to share with them information, I travelled to Kisumu East in Kagony location to meet the group members. The group was started in 1999 but to now they have 22 members with 4 of them being women. They carry out farming as a group.

They grow vegetables , cereals and tubers using both rainfed and irrigation strategies to farm in a land that has been contributed by one of the members . They also carry out livestock production that includes dairy goat and rabbit production. They use modified green houses for production and also keep tree nursery for selling tree seedlings .

For the dairy goat and rabbit keeping , they have shared the animal amongst themselves with up to 10 members of the group taking care of the livestock in their farms. They have a trained veterinary doctor whose training they sponsored so that the animals are taken care of.

This is one group that was well organized such that they even had their agents who they used to find markets for their products. They use the group to sell their products , acquire information , networking with agricultural institutions , sharing of information , getting access to extension services and access to credit facility.

They go by plans and keep records of their plans. By the time I visited them they were planning to venture into aquaculture whereby I helped them to get the relevant information from the district fisheries offices about the government particularly the ministry of fisheries financing individual farmers and farm groups interested in starting aquaculture so as to improve the production of fish for consumption.

Though the group is well organized ,they face challenges such as limited memberships participation , expensive and high cost of production. The group encourages youth to take up farming by encouraging them to keep rabbits from which they earn commission after sale.

Therefore I can suggest that well organized groups such as this one can be used as examples by extension providers so as to encourage farmers to adopt and embrace group farming which will make it easy for a large number of farmers to have access to the relevant information thus improving their productivity.

OBSERVATION

During my internship I observed the following

- ✓ Farmers are willing to adopt new ways of farming to increase their productivity and earn well from their farms.
- ✓ Small scale farmers don't have sufficient information about farming as a business and value addition therefore still producing for their house hold needs.
- ✓ Farmers are kind to agricultural visitors and will open up to them.
- ✓ Small scale farmers face challenges such as lack of market for their produce and high cost of inputs.
- ✓ Most farmers do not keep records. This should be addressed through extension.
- ✓ They have farmers groups but they do not utilize them in that membership participation is minimal and although most groups are registered they do not exploit the available opportunities to the maximum.

RECOMMENDATION

With rapid growth of ICT , the ICT infrastructure can be improved to facilitate flow of agricultural information for example the use of radio by FVR to reach the small scale farmers can be successfully achieved through proper awareness by the organization so that the farmers and experts can find a way of interacting easily therefore leading to improved agricultural production.

The government plays a big part in the countries agricultural scene therefore having the right policies in place will play a big role in development of agricultural and rural development as a whole.

EXPERIENCE , CHALLENGES AND OBSERVATIONS

As a URI the experiences during my internship were worth it. Some of them include:

- To start with, I experienced the negotiation between farmers and brokers in that in most farm visit I overheard the conversation between the two and the farmers giving in to the demands of the brokers
- Another experience I had was how to disseminate simplified agricultural information to the farmers especially through demonstration.
- To add on that I also experienced how to link the farmers to relevant agricultural offices or stakeholders so that they could be helped .
- In a nut shell , I had an experience of implementing ethical values of an officer providing services to the community.

With every good experience comes along some challenges. Mine included:

- Language barrier.
- Absence of REO which led to loss of time.
- Expensive cost of travelling
- I was slow to take up my own initiatives for examples filling up questionnaire

From my experience and challenges, I learnt the following:

- how to disseminate agricultural information
- the importance of working according to a well developed work plan.
- learnt the importance of extension officers.

In conclusions from my interaction with farmers and farmers groups , FVR can be a success in disseminating timely and accurate information to farmers which will lead to rural development through agribusiness.

The use of URI by FVR gives the students an upper hand in participating in development by them using the skills acquired in class to help the farmers and in turn learn and expand their knowledge in various fields.

3. EXPERINCES IN HOMA BAY / RACHUONYO DISTRICTS

STUDENT NAME: SALINE AWUOR OJUNG'A

REGISTRATION No. A91/0527/2008

DEPARTMENT

**AGRICULTURAL SCIENCE
AND TECHNOLOGY,
KENYATTA UNIVERSITY**



INTRODUCTION

The internship was carried out between 8th July and 27th August 2010. It was organised by Farmers Voice Radio (FVR) in collaboration with Kenya National Federation of Agricultural Producers (KENFAP), KBC, FIT Resources, Jomo Kenyatta University of Agriculture and Technology (JKUAT), and Kenyatta University (KU) together with other partners. I was privileged to cover Homa Bay and Rachuonyo districts of which I did by the grace of God. I was located in Homa Bay town Asego division at KENFAP office given to them by Homa Bay Agricultural Training Centre (ATC).

The town is about 1km from Lake Victoria and has many government offices such as District Commissioners Office, District Educational Office and the Ministry of Agriculture office and Non Governmental Organisations (NGOs) such as Afya II Nyanza under USAID, Care and Plan Kenya. There are also other institutions such the branches of Maseno University, Nairobi University, Youth Technical Training Institute and both primary and secondary schools. The NGOs in the region has facilitated agricultural activities within the great south Nyanza Region.

The area has potential land for agricultural activities. There is black cotton soil in Homa Bay and red loamy soil in Rachuonyo. Most parts of the districts receive bimodal rainfall during the year. The main activities in the two districts are fishing, farming, sand mining and business activities. Major activities in the area such as farming are affected so much by fishing activities since many young men within the area prefer it to agriculture leading to reduction in agricultural output.

Some of the major crops grown in the region include; maize, beans, green grams, sweet potatoes, highland rice and horticultural crops such as butter nut, water melon, tomatoes, vegetables and fruits such as mangoes and oranges.

While in the field many groups of farmers were visited in collaboration with organisations and companies. The parties involved included KENFAP (REO), Ministry of Agriculture, Homa Bay ATC and ORBIT Company which deals with agro-chemicals.

PLACES VISITED

During the internship many places were visited including groups of farmers and individual farmers. The farmers visited were dealing with different crops such as water melon, highland rice, maize, grafted mangoes, oranges, bananas, *Moringa oleifera* and tomatoes grown in a greenhouse by the Homa Bay ATC. Farmers whom we met in groups included farmers from Kabuoch location, Koderia and Gogo Katuma. The activities carried by these farmers are discussed in details here below:

GRAFTED MANGOES AND ORANGES

Mango is a drought resistant crop that does not need much water for a good production except during flowering stage. The farmer carrying out this activity has a small piece of land where he does his grafting

and farming activities. The land is about one hectare including his homestead. He deals with different mango varieties such as Sensation, Sabine, harden, Ngoe, Tommy Atkins, Kent, Parvin, Apple and Peach. The oranges in the farm are also of different varieties such as Mineola, Valencia, Tangelo, Temple chango, Havel and Washington. The seedling sells at 150/= each. The seedlings are on high demand and the farmers do the grafting on order to ensure that all his customers are served well. Originally the scions were obtained from prisons but currently he has all these varieties in his own farm where he obtains the scion while the rootstalk is obtained from the local mango.

The major challenges faced by mango and orange farmers include; diseases, insects such as aphids and snails, there is also flower abortion leading to poor fruit setting.



Bosco a farmer grafting mangoes in his farm with his family members



Grafted mango in Homa Bay

Moringa oleifera

Moringa oleifera is a tree that is widely grown throughout the tropics. It is sometimes known as drumstick or horseradish tree. The tree grows rapidly from seeds or cutting. The leaves can be used as vegetables and its seeds contain up to 40% of oil by weight. Other uses include;

- All parts of the plant can be used as traditional medicines
- Leaves are used as animal fodder.
- Press cakes obtained following oil extraction is useful as soil conditioner and fertilizer.
- Grown as live fence and windbreakers.

- Fuel wood after cutting the main stem to encourage side shoots.
- As an intercrop with other crops
- Wood pulp may be used for paper making.
- The oil is used in lantern flame and produces a smokeless flame.

The leaves have outstanding nutritional qualities among the best perennial vegetables. The protein content is about 27% and there are also significant quantities of calcium, iron and phosphorous as well as vitamin A, B and C. The fatty acid composition of the oil is similar to that of olive oil and as such suitable for cooking and manufacture of soap producing a stable lather with high washing efficiency. The seeds can also be used for purification of drinking water in the ratio of one seed per a litre of water.

UPLAND RICE

Rice growing begun in the area when farmers realised that it was a staple food for many people in the area and the country at large, it was meant to reduce the over dependence on the imported rice from other areas such as Ahero , Nyangweso and Tanzania. Much motivation was given by the Ministry of Agriculture that gave them more information on high land rice and how it is grown. This encouraged the farmers and gave them the assurance of better out come.

This type of rice grows under normal condition as other annual crops and therefore needs no irrigation. It is grown as a mono crop and when intercropped a good result is not realised. The rice is grown directly into the farm unlike irrigated rice that is first established in a nursery before transplanting. Transplanting can only be done when thinning. It is grown at a spacing of 30cm between lines and 20cm between rice and rice. The rice can be grown during the long rains that is between May and August and during the short rains that is between September and December since it doesn't require too much rain and takes only 90 days to mature. The known varieties in these region include; Nerika I, IV, X, XI and Dorado all these varieties have a nice scent. The known varieties have a high yielding potential of 1kg of seeds yielding 50kg of grains.

Major challenges

- Its labour intensive
- Problem of birds that feed on rice leading to greater loss
- There are high post harvest losses especially when planted near the homestead due to interference by chicken.
- In case of a rainstorm great loss is realized.
- Lack of milling machine.



Dorcas, an officer from the Ministry of Agriculture with David Ajwang in his rice farm.



Photo showing net used to control birds that destroy with rice.

WATER MELON

Water melon has been a key crop in south Nyanza due to the availability of good soil in the region. Since there is high level of poverty in the region, its production has been embraced because it is high yielding and has greater income generating potential. To ensure that high yield is retained there is integrated pest management, maintenance of soil fertility and use of friendly insects such as lady birds to control pests such as aphids.

The seeds are the major planting materials, they are grown directly into the farm at recommended space of 1m by 1m but this varies from variety to variety. The varieties in the region are Open Pollinated Varieties (OPVs) and hybrid variety. Hybrid takes longer time to mature than OPVs, normally it takes 75-90 days to mature depending on the variety and weather condition. OPV has a yielding potential of 5-10 tonnes per hectare while the Hybrid has a yielding potential of 20-25 tonnes per hectare. After harvesting it can be stored for a maximum of three weeks after which losses can be experienced. It should be stored in a cool dry place where there is improved ventilation or in a coolant with an ice plant. Marketing is normally done during the flowering period to avoid post harvest losses.

Challenges

- Weather pattern: When there is drought spell during pick flowering period poor yield is realised due to invasion by diseases such as blight and wilt, therefore water melon does well under irrigation.
- Attack by diseases such as blight and wilt.
- Affected by pests such as aphids.

MAIZE UNDER NATIONAL ACCELERATED AGRICULTURAL INPUT ACCESS PROGRAMME (NAAIAP)

NAAIAP is a programme run in the region by the Ministry of agriculture, under the Rapid Result Initiative (RRI). The main aim is to ensure increase in maize yield on a hectare of land from 8 bags to 15 bags in 100 days. To achieve their objective they provide farmers with maize seeds and fertilizer for the long rain and cow pea for the short rains. There is closer supervision of farmers, training and field days organised to ensure that good results are achieved. This programme was put in place to improve agricultural production in the region and to ensure that farmers embrace the use of fertilizer in their farms for good yield and also to deal with the mentality that fertilizer degrades soil. NAAIAP obtained good result in the region since some farmers realised up to 30 bag of maize per hectare. As a result many farmers have adopted the use of certified seeds and fertilizer.

BUTTER NUT

Butter nut is a nutritious horticultural crop that has high yielding potential. Farmers were encouraged to grow by an NGO called Care which gave them the seeds and some training on butter nut growing and management. It takes 90 days to mature and has a yielding potential of 2 tonnes per hectare. It has been found to be a crop with high income which has greatly changed the livelihood of farmers in the region.

Challenges

- There are diseases like blight and wilt during drought
- Normally affected by too much rain resulting into poor yield
- Lack of market due to poor marketing skills
- Post harvest losses due to lack of market

TOMATO GROWING IN GREENHOUSE

Tomato is a horticultural crop that does well in greenhouse. The greenhouse is under supervision of Homa Bay ATC, it was established so as to encourage farmers within the great South Nyanza to embrace the idea of tomato growing in greenhouse. Some tomatoes were also planted outside to act as control experiment and to be used to compare the production difference. The greenhouse has size of 30m by 8m and contains nine hundred plants. For watering purposes it has drip line of 10 lines and a tank with a capacity of 5,000 litres to store water to be used for irrigation. The varieties grown are proster and monimanto. There are agro-chemicals used to control different diseases that include; fungicides (Ridomyl antracol), insecticides (Bernadine/dymethoate, herbernite and bullock star) and Kerol which act as a footbath to ensure that no microorganism is carried into the greenhouse. Strengthening wires are used to support tomato plants.



Greenhouse at Homa Bay ATC [outward look].



Mr Obingo, the ATC deputy principal in the greenhouse.

GROUPS OF FARMERS VISITED

1. Kabuoch Help Group

The group has 10 female, 15 male and 5 youths. They majorly deal with sweet potato and maize production from which they obtain good amount of money. The group usually lend its members cash for purchase of certified seeds and improved potato varieties to improve on their agricultural activities and better results. The major challenges are lack of good market for their produce, striga weed and lack of capital to invest in their farms.

2. Koderia Savings and Creditors Help Group

The group has a membership of 50 of which five are female, twenty male and twenty five youth. The farmers mainly grow sugar cane and bananas both tissue cultured and local varieties. The group has been doing so well and the members are increasing fast. It has also managed to provide services to its members but not in the best way so far due to the following challenges

- Lack of good transportation
- Exploitation by middle men who purchase their bananas
- Diseases that affect banana resulting to low production
- Lack of nearby sugar company to purchase their sugar cane

3. Sweet Potato Growers

This is a group of farmers that deals with sweet potato farming. The group has 100 members out of which 30 are females, 40 males and 30 youths. The farmers major in sweet potato farming, currently they have a plan to establish sweet potato processing and marketing plant. The following are some of the objectives for the establishment of the plant;

- Solve the problem of exploitation by middlemen
- Provide employment for the youth
- To provide ready market for their members
- To provide its members with input and the right planting material

Challenges faced by the URI

- Lack of questionnaires within the first three weeks

- Some interior parts have very poor means of transport making movement difficult
- There was difficulty in dealing with aged farmers
- Language barrier

CONCLUSION

The FVR programme was a good chance for getting good agricultural experience and offering extension services to farmers so as to embrace the fact that agriculture is the backbone of the country's economy. Let's embrace agriculture to save our country and the world from poverty and starvation.

4. EXPERINCES AT THE KENYA BROADCASTING CO-ORPORATION HQ, NAIROBI

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INTRODUCTION

I was attached to the Kenya Broadcasting Corporation (KBC) Nairobi office. On reporting, I was introduced to my supervisor, four other journalists attached to the project and two URI's from Jomo Kenyatta University of Agriculture and Technology (JKUAT).

OBJECTIVES

- Ensuring farmers get relevant information
- Make sure the information is delivered at the appropriate time
- To get as much experience as possible
- Improve the farmers livelihood by changing their perception into taking up agriculture as a business.

ROLES AND RESPONSIBILITIES

- Research on agricultural tips
- Develop scripts on agricultural tips. The agricultural tips were in English for English service, Swahili for Idhaa ya Kiswahili and Kikuyu for Cooro FM.
- Translate the Agtips from English to Swahili on a daily basis.
- I participated in some agricultural programmes.
- I took part in a small drama on mastitis.
- I also recorded an interview about challenges of development and commercialization of biotechnology products by Dr. Simon T. Gichuki, Biotechnology coordinator, Kenya Agricultural Research Institute.
- I also attended a meeting by the Kenya Association of Manufacturers (KAM) on which they were releasing an official press statement on their support of the then draft constitution. The meeting was held at the Laico Regency Hotel.

Topics covered in Agtips

WEEK 1 MONDAY 5TH-11TH JULY CASSAVA PRODUCTION

- Nutritional benefits of Cassava
- Growing cassava as a business/Cassava value addition.
- Cassava diseases.
- Cassava harvesting

WEEK 2 MONDAY 12TH -18TH JULY FARMING AS A BUSINESS

- Why invest in agriculture
- Smallscale farming with business sense

WEEK 3 MONDAY 19TH -25TH JULY CASSAVA AND POTATO PRODUCTION/GENDER

- Nutritional benefits of Cassava
- Growing cassava as a business/Cassava value addition.
- Cassava diseases.
- Cassava harvesting
- Potato diseases.
- Gender and farmer groups

WEEK 4 MONDAY 26TH -1ST AUGUST GENDER AND FARMING/ AGRICULTURAL LOANS

- Gender and farmer groups
- Gender and productivity level
- Agricultural loans (loan costs)
- Repayment of loans

WEEK 5 MONDAY 2ND - 8TH AUGUST TRADITIONAL VEGETABLES/BENEFITS OF BAMBOO

- Benefits of traditional vegetables
- Amaranth
- Bamboo as a business
- How to grow bamboo

WEEK 6 WEEK MONDAY 9TH -15TH AUGUST BENEFITS OF TRADITIONAL VEGETABLES/GENDER AND MONEY

- Gender challenges in agriculture
- Gender and money
- Amaranth

In some cases, the REO was the one who decided what topics were to be covered in the agricultural tips and in other instances, we ourselves would come up with the topics we would cover through research. The agricultural tips used to run 4 times a day, at 6.35 am, 7.50 am, 1.50 pm and 5.35 pm.

Apart from the agricultural tips, there were other programmes run on KBC that were agriculture related. They included :-

1. Mali shambani on idhaa every Monday at 8.00pm
2. Agriculture for life on English service every Saturday at 8.30pm

In the above two programmes, experts from different areas of specialization in agriculture were invited and interviewed to give their expert opinion on different issues affecting farmers. It was interactive as farmers or listeners at large were given the opportunity to call in and ask questions on the discussed issues and even give their contributions. The experts were not necessarily paid to come for the interviews because some of the programmes were not sponsored. Experts from different disciplines and aspects were invited so as to ensure there was diversity of information delivered to farmers.

An indicator to show that farmers were really taking an interest in the programmes, was by the comments and the number of questions they asked through a number that was given to them, some even sent short messages, SMS , thus making the programmes more interactive.

Challenges experienced in the above programmes

1. Identification of the right people to talk on particular issues that had been selected.
2. Limited resources- it was important that farmer voices were heard. However due to some financial constraints, the producers rarely made trips to the field to interview star farmers.
3. Some experts also demand that they be paid for their services. Most of the time this is impossible especially if the programmes being aired are not sponsored.
4. Limited equipment. Producers are sometimes forced to borrow some important equipment like recorders etc. due to limited numbers

Challenges I experienced during the internship

- ❖ There was not a well defined work plan to follow so abit of time was lost.
- ❖ Lack of skills in writing the script for agricultural tips especially translating them from English to Swahili.
- ❖ There was a shortage of books on agriculture at KBC thus we relied a lot on the internet for information.

Recommendations

- 1) It would be good if in future the interns would come up with a definite working plan together with the REO so that they know exactly what is expected of them.
- 2) KBC should may be liaise with its partners like for example universities or even donors so that books on agricultural information are made available for research.
- 3) Identify more star farmers and share their achievement to the rest of the people for successful adoption.

What I learnt from the experience

I learnt a lot during my two months stay at KBC.

- how to write a script.
- I went to the field and interacted with some stakeholders in agriculture including researchers, journalists and farmers.
- I also expanded my knowledge on agriculture.
- Learnt to be a team player.

Conclusion

The experience was great and an eye opener to the situation of agriculture in the country and I am really grateful to have been part of such a great project.

ACKNOWLEDGEMENT

I would like to sincerely thank my host and supervisor at KBC Mrs. Topista Nabusoba, FVR for financial support, Dean School of Agriculture and Dr. Maina, Kenyatta University, FVR Country office team and the program supporters for spending their valuable resources to create this Internship Program which is very helpful for all students involved in Kenyatta University.

5. EXPERINCES IN KIBWEZI DISTRICT

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Introduction

Kibwezi is a dry region but farmers have some opportunities to practice agriculture both under irrigation and rain fed agriculture. Agriculture in Kibwezi does not mainly depend on rainfall due to shortage and unreliability. People have turned to irrigation using water from the Kibwezi River which has been dammed. From where water is then channed to individual farms.

Objective

- Providing extension services to improve agriculture in Kibwezi irrigation scheme.
- Know some of the shortcoming faced by farmers both dry land and under irrigation.
- Know the degree to which agricultural information is spread to the farmers.
- Create awareness on where they can get agricultural information.

Findings

- Most of the extension service is provided by agro chemical companies Osho chemical and Syngenta.
- Farmers have most of the information needed to improve their agricultural production but they do not put it into use.
- Most of the land under irrigation has been intensively used hence low production.

Crop production

Kibwezi has a governmental irrigation scheme, which is under the Dwa sisal production farm. The water for irrigation is distributed from a dam of about 200m diameter by a channel. The main channel is 15 kilometer and 1m by 1m. This makes it difficult for the farmers to get enough water through out .To cater for the problem farmers irrigate their farms on specific days i.e. the irrigation schedule is divided into 3 phases. Monday and Tuesday, Wednesday and Thursday, Friday and Saturday and then Sunday is set apart for maintenance of the channel.

A suggestion to address this issue of shortage is building of a wider chamber and this will bring more land under irrigation by extending the channel. The ministries of agriculture together with Rea vipingo farm are implementing a plan to improve the channel.

A variety of crops are grown in this irrigation scheme but the main crops are the horticultural crops which are transported to Nairobi.

The horticultural crop farmers have organized themselves into two groups. One of which help them to market their goods while the other one help them to acquire loans from finance bodies.

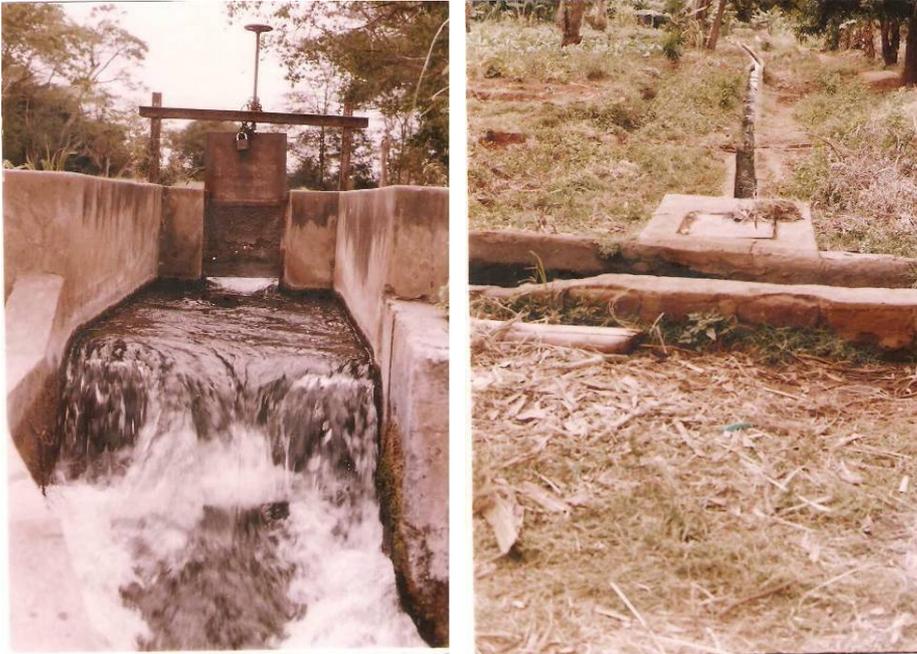
The marketing co-operative plays several functions and has the following advantages to farmers.

- Help their negotiation for better prices
- Help them to source for market.

- Improve quality control.

Any farmer who wants to join the co-operative has to pay some fee and subscription monthly of sh. 100. He then joins and starts attending meetings when he has a crop to market.

Due to fluctuation of prices in some seasons, farmers tend to grow crops for local markets. In this there is no marketing organization.



Water from the dam to the main channel and then to the smaller distributing channels.



The dam holding water used for irrigation.

The scheme is composed of about 250 farmers where 60% of them are doing horticultural farming and 70% of them are marketing through the co-operative. The horticultural crops are transported twice a week to Nairobi by two main exporting companies' i.e. Makindu growers and packers, and Vegcare that is on Mondays and Fridays. Other exporting companies may come in between i.e. when there is surplus production.

The other co-operation is organized by K-rep bank to enable farmers to get loans. The loan is given in two categories; wakulima loan with a grace period of three months and the normal loan with a grace period of one month. Farmers contribute weekly and have an account which is used as security for the loan.

The co-operative has a constitution of set rules which makes farmers organized. They meet on Fridays, Mondays every week.

Most of the farming information is provided by agro-chemical companies which have their agents who promote their products and pass information regarding pests and diseases which affects the crop and the farmers. Apart from information about pest and diseases they also teach the farmers on how to improve soil fertility by the use of organic and inorganic fertilizers. The companies which are actively participating in these activities are Osho and Syngenta. Syngenta has an agent based permanently at Kibwezi.

The ministry of agriculture is doing very little in providing information to the farmers for this is only done through seminars, which are not frequently held, and not all farmers attend for some are not held within their reach. The ministry could improve on this to provide extension service and also set up some demonstration farms where farmers should learn more and air their views.

Some of the farmers lack capital and technical knowhow to apply what they have learnt. E.g. on using green houses and improved varieties and breeds.

Dry land irrigation

Most of the dwellers of Kibwezi depend on rainfall for production of subsistence crops, which include maize, beans, pea among others. There is no use of agro chemical i.e. pesticides, fertilizers e.t.c. the production level of this system is low due to other factors that include poor varieties, lack of capital to use pesticides and other chemical, lack of enough labour among others. Also most of the farms have been put into use for more than 50 years hence there fertility is low. This situation of poor production can be improved via several ways:

1. Use of fertilizers (the government to reduce the prices)
2. Increasing awareness on the advantages of organic fertilizer
3. Seminars and rallies to change the perspective of most of the farmers to do agriculture as a business.
4. Making use of tractors and ox plough to break hardpan and mix top and bottom soil.
5. Controlling erosion.

The dry land farmers can also be encouraged to practice irrigation.

Livestock production

Livestock production in Kibwezi is done on small-scale production and mainly the poor breeds are kept. Some of the animals domesticated include cows, goats, sheep, chickens etc. Most of the cows kept are of poor breeds, which can only produce 2 liters of milk per day. The bulls are of more use for they provide animal labour. Some farmers started to rear the high bred animals which can produce 10 liters of milk per day and is milked twice. Other are rearing the maasai cow which is well adapted to high temperature and can produce up to 8 liters of milk also milked twice. Very few attempts have been made to domesticate the hybrid breeds i.e. fresian. A farmer at a place called Kwakyal has to grow very unique plant which is ever green to provide shade for the animal and also sprinkle water on the body of the animal when it is too hot. The animal does not do well because of the high temperature and external parasites which include tsetse fly and ticks. I suggest that it will be more beneficial if farmers rear the maasi breeds which are tolerant to high temperature and also to external parasite.

Youth participation on agriculture

Youth are not directly involved in Agriculture; this is mainly due to lack of land and capital to either purchase or lease the land. They only take part in providing labour for pay. The rest of the youth go for higher education, move to towns to find other types of employment.

GENDER PARTICIPATION

Most of the land under irrigation and under rain fed agriculture is owned by men. However, most of the work is done by the woman. When the women need to get loan he must consult the man because she has no asset i.e. land title deed. This restricts women access to financial assistance.

In the small non agricultural businesses females and their children are more involved.

Mangelete radio station

This station was first started as a women group organization which had a common goal. That is to pass information to the nearby people and address common issues affecting women. It started in 2002 and in 2006 it became a radio station. It was funded by the government and NGO. After it started it had a wider coverage of about 60km radius in the year 2008. Its coverage reduced to about 30km and this is thought to be due to increase in waves of other radio station. The station airs an agricultural program each day from 10am to 12.30pm. This program has been of a great advantage to the people around the station the program is (IKYA KWO KWE) KAZA MKONO).

Challenges faced by the station

- Lack of funding - it is a non commercial station yet it receives very little funds from the government.
- Poor organization and lack of adequate management.
- Small coverage area.

Other sources of information

The main source of agricultural information in Kibwezi is through MUSYI FM which is a local radio station. It has two agricultural programs. Tuesday and Wednesdays which are sponsored by companies which manufacture chemicals i.e. Osho and Syngenta. Syngenta on Tuesday 8pm to 9pm and Osho on Wednesday 8.00pm - 9.00pm. In each program a certain crop is discussed from growing to harvesting (growth chain) and the pest and diseases then the relevant treatment.

Suggestion

- Mangelete radio station should be funded to increase its area of coverage.
- The government through the ministry of agriculture should extend the main irrigation channel to bring more land under irrigation.
- More agricultural officers to be posted at Kibwezi to provide extension services.
- More seminars and rallies to be held to provide farmers on modern farming systems and technologies.
- Adoption of hybrid animals to increase milk production.
- Farmers should be encouraged to use information they have to improve agricultural productivity.
- Farm inputs and pesticides, fertilizers should be made cheap to make them affordable to farmers.
- The youth should be encouraged to participate in agriculture
- Women should be considered being more productive in family activities and the financial bodies should have a provision which they can acquire loans for their business activities.



Left: produce in the local market; right: Fig5. Grading of horticultural crops

Economic situation.

Farming is the major source of income in Lare division. Many farmers depend on their farm produce to provide for basic household needs. Most of the farmers sell their produce through middlemen who hawk the produce to the nearby towns (Njoro and Nakuru) using bicycles.

Main off farm activities are casual labour in farm, wage employment, selling milk, shop keeping and fetching water in dry seasons. The farming system is largely a crop-livestock mixed production, with main components being maize/beans intercrop and dry enterprise.

ACTIVITIES CARRIED OUT DURING THE INTERNSHIP

The main activities carried out during the internship were visiting farmer groups as well as individual farmers.

Group 1

The first group to visit was a farmer group growing cassava and sweet potatoes. The group has 25 members mostly men aged 40 and over, but also include women in their activities. On the other side, the group has no youths possibly because they do not want to involve themselves with the older people. The main agenda of the meeting was to be taught on value addition of the two crops (cassava and sweetpotatoes). This was to enable them to store their harvest for a longer time without going bad. It would also increase market price. It was facilitated by the ministry of agriculture in Lare division. The group was started by farmers as a merry-go-round. They later came up with cassava project as well as sweetpotatoes. This was due to the changing climatic condition which has led to severe drought in the area in the past years. They therefore looked for possible solution to this problem. With the help from the ministry, they managed to get seeds and other information concerning the two drought tolerant crops. Even if the project is in its early stages, there is hope for success as they have already started harvesting sweetpotatoes (3 months) which take shorter period of time to mature compared to cassava (8-12 months). In addition, the group is also coming up with another project of rearing sheep when they succeed in the first one.

I managed to introduce the farmer voice radio to the group and very few farmers listen to the program. The response about the program and agtips were promising. They like listening to programs based on farming. They are also very grateful for the contribution made by media since most of agricultural information they get is through media.

The problem experienced by cassava and sweetpotatoes farmers is lack of ready market for their produce, price fluctuation as well as high cost of input.

Group 2

The second group that i met is Farmer Field School (FFS) graduation. The major activity in this group is practise of Conservation Agriculture in the field. For one to graduate, they have to learn the techniques of CA practically in the field for 3 years after which they are awarded certificates.

Conservation agriculture mainly entails reduced disturbances in the soil by reducing tillage as much as possible. This is done by use of herbicides for primary and secondary tillage. The main crop grown through CA is maize. It is intercropped with leguminous crops such as mucuna, beans e.t.c. The FFS plant maize and carry out different management practices to test which practice is best. Maize planted under CA remain green for a longer period compared to maize planted under normal tillage.



a. Maize planted under CA.



b. Maize planted under normal tillage.

Soil under CA is covered most of the time and this reduces loss of moisture through evaporation. Soil erosion is also reduced. This practice also reduces work in the farm. Farmers are therefore encouraged to practice conservation agriculture in their fields.

Farmers in Lare division have access to a demonstration farm (Mt. Clara Mwangaza). It is the only demonstration plot in this area run by a private institution. They hold a Field day on the plot yearly. One of their objectives is to educate and provide farmers with the seeds that are tolerant to drought since the area experience rain shortage most of the years. In year 2010, they demonstrated and educated farmers on some of the abandoned crops ie. Cassava, sweetpotatoes, sorghum and pigeon peas. Other areas which was covered are good storage of harvested crops to avoid aflatoxin, value addition, livestock management e.t.c

Maize was one of the crops that were being demonstrated and i was privileged to be the facilitator. Many farmer wanted to know the varieties that can grow under low rainfall, short period, less pest attack and still produce good harvest. Maize crop is the main crop grown in Lare, both for food and commercial purposes. Farmers were therefore being taught on its management and more on the dangers of aflatoxin if not well dried and stored.

The following are some of the crops in the demonstration farm.



Cassava.



Pegion pea.



pegion pea pods.



Sweetpotatoes.



Sorghum.

Star farmers

There are several star farmers that I happened to meet practicing different farming practises. The first farmer grows tomatoes in a greenhouse. He also grows other commercial crops such as sweetcorn but I got more interested in greenhouse tomato production. He has grown tomatoes for the last 2 years. According to him, tomato production in greenhouse does not give any profit. Here are the problems that makes him dislike this technology;

- The sellers of the seeds are not sincere and end up selling seed varieties that are not favourable for greenhouse.
- There is a big problem of white flies which have become resistant to all the pesticides that he tried.
- Finally, is the fluctuation of market prices. There is no distinction of greenhouse tomatoes from the other and hence when there is tomato flooding , they sell at losses.

Due to these problems the farmer has given up his greenhouse tomato production. At the time of visit he was already uprooting the tomatoes claiming that he planted the wrong variety and that it does not do well. The white flies were also too many and uncontrollable.

I also wanted to know how much he has utilized information from the radio concerning farming. He says that the information on radios is unreleiable since when they try whatever they hear, they do not get the results they are told about. He therefore does not believe everything talked in radio.



Tomatoes in greenhouse.



Whiteflies on tomato leaf.



Uprooting of tomatoes.

The second star farmer has several enterprises ie Greenhouse tomato production, smallscale sugarcane farming, livestock farming, tree planting including nurseries for commercial purposes, different vegetables,

sweetpotatoes and water reservoir among others. My interest in this farmer was sugarcane since he is the only one I encountered practising this kind of farming. He has planted 1 acre of sugarcane which is mainly for commercial purposes. He sells his sugarcane locally and makes good money out of it.

On the side of greenhouse, he is also doing well and has no complaints since he has employed an expert on that side. The farmer gets most of farming information from the ministry of agriculture in Lare division but also utilizes some that he gets from radio. Generally, he is happy with his farming which is the main source of income.



Sugarcane.



Greenhouse structure.



Rabbits.

I happened to visit a third farmer who can also be considered as star farmer. She too has a greenhouse where she grows tomatoes. She also has other enterprises such as cassava, sweetpotatoes, different vegetables, aloe vera, and livestock.

My interest in this farmer was on the aloe vera plant. She is one of the very few farmers who has planted this plant in Lare division. The type of aloe vera is used as a medicinal plant. She started with 4 suckers which she bought at ksh. 150 per sucker. The plant produces suckers which are used for propagation. One advantage of this plant is that it is not affected by drought.

For processing, aloe vera is sold in kilogram while for planting, it is sold as suckers. At the time of visitation, this farmer had not sold any of its products but uses it to cure such diseases as cold at home and to neighbours.

The farmer also rears Merino sheep for commercial as well as subsistence use. A mature male sheep is sold and ksh. 7,000. They are mostly sold for rearing and not for butchery.



Aloe vera



Merino sheep

Among the farmers that I visited, only one practises rotational in her farm. She has both crop and livestock farming. Some of the crops include pasture (grass and nappier grass), bananas among others. Livestock include goats and cattle. She rotates nappier grass, cattle, sheep and vegetables.



Napier grass.



Banana plant.



Vegetable farm.

There are other individual farmers whom I visited and too have interesting practises. Most of the farmers grow food crop and sell some for cash. They also keep smallscale livestock. There are no large scale farmers due to land shortage.

Many farmers have organized themselves into groups of common interest. These groups have really helped in growth and development of the area through farming. However, most of the members in these groups are elderly people. Very few youths are in groups and incase they have one, its only for youth. There is no much interaction between older and young people.

Lare division is believed to be a very productive area. Farmers are also hardworking. The major problem is rainfall which has reduced and at times fails completely. Incase of enough rainfall for instance in year 2010, production is plenty. Farmers have tried to grow drought resistant crops but in very small plots which cannot fully provide for their needs in case of drought. More emphasis is therefore needed to encourage farmers to grow these crops. Another problem is that after harvesting, farmers sell all their produce when they are flooded forcing them to sell at a loss. This leaves them without any food or cash since they do not store for future.

Use of radio

Vernacular radio stations are the most popular in Lare division. Many of the farmers like and listen to farming programs in radio but few listen to FVR. However, very few have tried those practices due to lack of enough capital. The following are some of the issues that farmers feel that they would like to get more information;

- pest and disease control in crops especially vegetables and potatoes.
- Disease control in livestock.
- Crop pest and disease control in organic farming since chemicals are not completely not to be used in this type of farming.
- More drought tolerant crops.
- Good marketing strategies.

Lessons learned during the internship

1. The internship was a good chance of interacting with farmers. Through this interaction I was able to learn new agricultural techniques and see them applied practically e.g. Conservation agriculture.
2. It was a good experience of the real world. Meeting with different people has enabled me to know

- how to handle people with their differences.
3. Farmers who are already in groups taught me the strategies of developing low income people to earn more and view farming as a business. This in future is a good tip to educate other farmers.
 4. Some of the problems experienced by farmers give direction on areas that need more research and hence give one an option on which area to specialize on.
 5. Finally, working with FVR enabled me to reach more people and was a good experience which can be applied later in life. I also know how to reach many people and get feedback.

Problems experienced during the internship.

1. Transportation was one of the problems. There are no good transportation network in the area. Some of the roads are also inaccessible especially during rainy seasons.
2. Translation of information to vernacular. Lare division is made up of almost one community. Most of them therefore use vernacular language and have forgotten the national languages. The problem now occurred in translating the questions or information into vernacular, which they understand best.
3. Some of the farmers did not give correct information while others feared giving their names claiming that their land might be taken away.

Conclusion

The internship ended on August 30th 2010 and was generally very good and educative. Besides the problems in the area, there is much to learn and also to educate farmers who are eager to learn new farming techniques. Also it was a good chance of emphasizing farmers to pay attention and participate in programs especially farming programs in radio since it is the most convenient and fast way of communicating.

Key to abbreviated terms

LH	Lower highland zone.
UM	Upper midland zones.
CA	Consevation Agriculture.
FFS	Farmer Field School.
URI	University Radio Intern.
REO	Radio Extension Officer.
FVR	Farmer Voice Radio.

Additional sources of information

- Materials from Mtakatifu Clara Mwangaza.
- Ministry of Agriculture Lare division.

7. EXPERIENCES IN KIAMBU DISTRICT

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INTRODUCTION

KENFAP-Kenya National Federation of Agricultural Producers is an NGO that engages in support service to farmers as well as capacity building. These services entail helping farmers to initiate projects through funding and input provision as well as expertise advise on agricultural activities. In addition, KENFAP is partner in the FVR (farmers voice radio) program that promotes use of radio as a more effective platform for delivering agricultural information to farmers. Through it, with inclusion of university students (URIs) from our Kenyan universities as well as radio stations (KBC) together with a programmed feedback system to enable easy flow of information to the involved stakeholders, the aim was to enable improvement of agriculture. Our area of designated coverage involved Kiambu and Kabete region with a station office at Lang'ata.

BACKGROUND INFORMATION

Kiambu district is a high potential area located in central province. It has favourable climate for production of coffee, tea, horticulture products and dairy farming. Kiambu has an advantage due to its close proximity to Nairobi hence its farm products have ready market with good process. Kabete region generally experiences cool climate and quite enough rainfall that enables agriculture to be carried out in the region. The cool climate allows for the growth and survival of horticultural crops that are grown organically (kales, lettuce, broccoli, tomatoes, dania). Soil type in the area is red-loam that has good water retention and fertility for agricultural purposes. It is evenly spread out in the area also expanding its sustenance to other crops such as maize, napier grass, beans e.t.c. Natural environment of the area is occasioned with vegetation such as bushes, trees and other wild vegetation that keep the soil intact.

The main economic activity in the area is farming (organic horticulture) practiced widely in the region. Trade is also conducted in small scale around the region in few market centres, notably Wangige. Kabete area is densely populated with an even distribution of population in the region, under their administrative centres. Majority of the elderly people are involved in agriculture for their livelihood forming majority of the work force, with a few young farmers.

Definition of terms

1. Star farmers-these are farmers identified to be exemplary in their farming and take agriculture as business and act as motivation for other farmers.
2. REO- Radio extension officer.
3. URI's-university radio intern.

4. FVR-farmers voice radio.
5. KENFAP- Kenya National Federation of Agricultural Producers.
6. KFS-Kabete Food Security.

KEY FEATURES

Kabete farmers were mainly involved in organic horticulture. Crops grown included; kales, tomatoes, lettuce, dania, broccoli. Cultivation was done on small plots and land areas no more than half an acre. They were first brought up in seedbeds on a different part separated from the main farm, and transplanted when ready.

Strengths

The reason for success of organic horticulture in the region is;

- climate in the area is suitable for the crops.
- Suitable soils of good fertility and good water retention capacity.
- Availability of water
- Extension services provided by NGO's through extension officers give the farmers more valuable agricultural information that enables them get quality services and as a result quality produce.

CHALLENGES

- One of the main challenges faced is the acquisition of market for the produce. Easily accessible markets for their farmers are Wangige and Nairobi.
- Middlemen also exploit the farmers, by taking their produce at lower costs and selling them at higher costs taking advantage of farmers' lack of knowledge of market and market prices.
- Not all farmers conform to strict organic farming as some use pesticides and herbicides for combating pests and diseases.
- Capital is another problem for these farmers to finance their activities on the farm.

OPPORTUNITIES

1. First is the evolution of organic horticulture, to further commercialize it by usage of green houses to maximize on the area's potential.
2. Formation of farmer groups to enhance capacity building in farmers with aid from other stakeholders and agricultural support groups.
3. Exploit untapped organic horticultural market by delivering higher quality produce.

KABETE FOOD SECURITY

KFS is a farmer group in Kabete that is involved in sharing of agricultural information between the farmers on organic horticulture, means of production e.t.c. It's comprised of 36 members, 25 male and 11 female farmers.

MANDATE

KFS helps its members by passing of agricultural information on organic horticulture through its regular meetings, organized by the chairman and other officials. It also helps them in marketing their produce by creating a trading block through collection of member produce. The group also organizes extension visits to its members, by organizing visits from extension officers. Organizing meetings and seminars for the farmers to expose them to better agricultural methods.

CHALLENGES

1. Members don't really engage in organic horticulture as they use unrecommended chemical inputs.
2. Members can't obtain agricultural credit and hence can't maximize on efficient quality production.
3. Some pests and birds are a constant threat to tomato and lettuce growth.
4. Over reliance and dependence of some farmers on NGOs for extension.
5. Challenge of market and middlemen, exploiting the farmers.

INTERVENTION MEASURES

1. Offering of agricultural credit to enable them engage in quality horticultural production.
2. Helping them acquire licenses to practice organic horticulture in order to be recognized as certified organic horticultural growers.
3. Extension officers to help monitor farmers' produce growth process to ensure required standards of production are met.
4. Farmers face the ever persistent trouble of finding a market for their produce, exploitation of middlemen, thus the government to initiate measures to phase them out.

STRENGTHS

- The group has initiated regular meeting programs for members to monitor their farms and share agricultural knowledge. The meetings are scheduled weekly on Fridays.
- The group also allows and organizes for members to attend farmer groups and seminars as well as agricultural shows for enlightenment.
- Has credible leadership in officials that are well experienced in horticultural growth, thus easy co-ordination.
- The group has a manageable size of 36 farmers, who are easy to co-ordinate with a good measure of gender balance, 25 men, 11 women.

Dairy farming

Dairy farming is one of the main sources of livelihood in Kiambu. This is due to the good conditions existing with numerous processors competing for the milk produced in the area, e.g. Githunguri Dairy Farmers cooperative society.

Background

Githunguri dairy farmers co-operative society limited is located in Githunguri town, 50km from Nairobi. The society was established in August 1961 with a membership of only 31 small scale dairy farmers (members). Currently the society has over 17,000 members. The society plays a key role in adding value to the members milk and marketing milk which is processed and packed in form of fresh milk, fermented milk (maziwa lala), butter, yoghurt, ghee and cream under the flagship brand of "Fresha". The choice of the Fresha brand name denotes freshness and is epitomized by the slogan "Real Farm Freshness"

Mainly the firm purchases milk at a minimum of 25/= a litre which is better than what other plants offer hence encouraging farmers to do dairy farming. The firm also organizes classes for farmers which are conducted on zonal basis. This gives farmers chances to learn better methods of dairy rearing. The firm has also put in place a system that allows farmers to get feeds that are of high quality and at a good price. This system gives the farmer a suitable method of payment, where the farmer is deducted from their monthly earning. The Githunguri dairy also has an artificial insemination programme. This ensures that farmers own quality animals therefore giving quality products.

Membership and Turnover

In 1999 the society was collecting 24,000kgs of milk per day and its annual turnover was Kshs. 211 million. Today the society collects over 170,000kgs of milk per day and its annual turnover is over 3 billion shillings. The society had only 15 stores in 1999, the number has now risen to 45. All the 45 stores are stocked to the tune of Kshs. 63 million. At the stores, credit is provided for animal and human feeds to the members against their produce. Strengthening of the store services has brought gender empowerment as individuals no longer squander scarce family resources. The multiplier effect of this success is increased milk production by the members and added value to the members, employees, customers and all other stakeholders in the entire value chain.

CONCLUSION

Organic horticulture in the region is a potential source for improvement of farmers' livelihoods through commercialization of the enterprise. Therefore with government and NGO support, Kabete region could well be a source of organic horticultural products for the country as well as foreign markets. It's therefore imperative that all stakeholders, through a participatory, monitoring and evaluation approach be integrated to ensure positive outcomes from organic horticulture practiced in the area, through initiation of projects with star farmers as leading examples.

8. EXPERINCES IN KISII DISTRICT

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BACKGROUND INFORMATION

Kisii district is one of the regions in Nyanza province. It borders Buret District on the west, Rachuonyo District to the North, Bomet District to the south East and Transmara district to the south. The district covers a total area of 1918.2km². Kisii region has 3 major districts, 18 divisions with 8 constituencies. There are 11 local authorities.

In 1999 the region had a population of 884,830 of which 47.9% were males and 52% were females. The 2008 projected pollution had an increment of 8% in each subsequent year as from 1999. At the beginnings of 2008, the population density was projected to be approximately 830 persons per sq km and is expected to reach 1036 persons per sq km by the end of 2012. The population density is high in areas with large proportion of arable land. This is because majority of people living in this region depend on agriculture for their livelihoods.

TOPOGRAPHIC FEATURES AND CLIMATIC INFORMATION.

The region is endowed with several permanent rivers, e.g. River Gocha. Wetlands in this region also cover a large area and most of them are under trust land. The region has a highland equatorial climate resulting into a bimodal rainfall pattern with an average annual rainfall of 2000mm which is highly reliable. It has two rainy seasons the long rains occurring between February and June and the short rains between September and Early December. Dry spells do however occur sometimes towards the end of the short rains.

The high altitude in the region causes lower temperatures. However, the proximity of the equator raises the temperatures to mean annual maximum of 27⁰C in the lowlands and a minimum of 16⁰C.

The high and reliable rainfall coupled with moderate temperatures is suitable for growing of crops like tea, coffee, pyrethrum, maize, beans, finger millet, potatoes, bananas and groundnuts; making them major crops of economic importance in the region. The climatic conditions also makes it possible to practice daily farming in the region.

GROUPS VISITED DURING THE INTERSHIP PERIOD

GUCHA SELF HELP GROUP: (KENYENYA)

The group was started in 2001 with a membership of 17; 13 of which are active. Among the 17 members, 10 were male whereas the rest were female.

TYPES OF PROJECTS UNDRETAKEN BY THE GROUP:

- i) Juice processing executed due to the availability of fruits is the region.
- ii) A proposed Agro vet shop.

sprays done on vegetables which tend to kill bees. However, farmers bordering forest areas can exploit the existing potentials. Honey marketing is also not well established. Refined honey is sold in shops in towns.



Some of the honey harvesting equipment used by the group.

Major pests affecting bee keeping in the region:

- i) Safari Ants: Controlled by greasing on all posts and hanging wires.
- ii) Wax moth beetles and rats : these are also nuisance and will make bees abscond the hive due to disturbance.
- iii) Nosema: is a protozoa disease which is now common. It can be controlled by proper cultural methods



GOMBA COMMUNITY SELF HELP GROUP:

It was started in the year 2007 with a membership of 9, 5 being female and the rest male. The group is mostly composed of elderly individuals.

Type of project in the group

The group is involved in growing local vegetables in leased pieces of land. Examples of vegetables grown are amaranthus, nightshade and others. The mode of farming is purely organic; the source of organic manure is usually from their kitchen waste, and animal wastes. The target market groups are the local communities.



Some of the local vegetables

For this group a recommendation is to implement value addition through drying to prolong shelf life.

NYABIGEGE WOMEN GROUP.

The group was started in the year 2000 with a membership of 35. Most of these members are elderly within an exception of a few who are of middle age.

TYPE OF PROJECT IN THE GROUP

The major project in this group is tree farming and growing of local and indigenous vegetable. The types of tree grown in the farm as Calliandra calathyrus. Calliandra trees develop a deep root system, so they do not compete much with food crops for water and soil nutrients. Calliandra hedges were due to the success of this project through milk productions the group decided to expand their project to fodder production.



Some of the fodder production activities undertaken by the group.

FODDER PRODUCTION AND MANAGEMENT

Fodder production also entails the production of grasses: example of fodder produced are leucena, calliandra and sesbania; but the group has majored mostly in grass production. Napier grass is grown through the practice of tombokiza; whereby a hole 3 by 2 feet is dug, 1 bucket of manure and water are poured in the hole and cuttings are then introduced in the hole. After one month the grasses are usually ready for harvesting and one hole is usually enough to feed a dairy cow for 1 day hence 30 holes enough for one month.

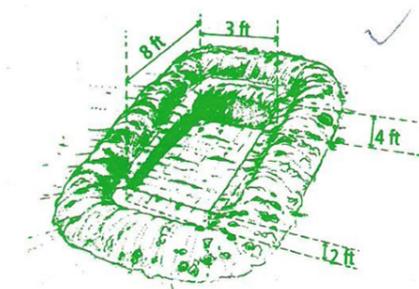
MINIMIZING WASTAGE

You can conserve napier grass at the time of surplus. This can be used during the dry season when there is feed shortage. Conservation can be done through small scale silage making that was practiced in the group.

SMALL-SCALE SILAGE MAKING

Step 1.

Prepare a shallow pit, preferably on slightly sloping ground. The depth of the pit should decrease from the higher side of the sloping ground to the lower side giving a wedge-like shape. Dimensions of the pit depend on the amount of forage to be stored.



Some of the information available to group members on silage making.

NYANDEREMA YOUTH GROUP.

The group was started in the year 2005 with a membership of 15. The group is composed of young male not older than 40yrs. The group started with the brick making project and now also involved in fish farming.

BRICK MAKING

It's done on communal land and the labour is provided by the group members. The income from these projects is taken to an account after which at the end of every year every registered member is given a specific amount. The income also provides sources of loan to its members at a lower rate and higher rates to the non-members.



FISH FARMING

The idea of fish farming was brought to reclaim the land degraded after baking bricks. The types of fish in the farm were tilapia and Nile perch. Some have catfish.



Different types of fish reared by the group.

MARKET

The target market for the fish is the local communities.

MAJOR PROBLEMS

Attacks by the leeches.



NYAURA WOMEN SELF HELP GROUP

The group was started in 2009, with memberships of all elderly women. Through the project of S.D.C.P (small holder dairy goats). The types of dairy goats reared were the seamen, the alphine and anglonobian: the type of housing that was built is the elevated ground level shed. With slatted floor. To maintain the high standards and protect the good genes, breeding is usually controlled and it's done through artificial insemination by authorized personnel.



MAJOR CHALLENGES

Common diseases that can be controlled through good management practices. Examples of diseases foot rot, ORF (contagious pustular dermatitis), Bloat, and Mastitis.

Marketing of goods and their products

Current market structure: Dairy goat producers can sell the goods from their farms to other farms or to middlemen. The present marketing system has several disadvantages including the fact that:-

- i) There are no selling alternatives or competition.
- ii) There is little or no information on the prevailing market prices in all parts of Kenya.
- iii) Most dairy goats are sold at times of need when the producer requires money urgently, and therefore doesn't have the patience to wait for higher offers. In weak bargaining position the producers tends to receive lower prices for their goats than they would otherwise receive.

ADVANTAGES OF GROUPS FOR BOTH PRODUCTIONS AND MARKETING.

- i) Sufficient amount of produce to justify collection by the buyers.
- ii) Easy access to information on markets and produce requirements it becomes easy for buyers to organize training and seminar for groups.
- iii) Less expensive per member in running group activities.
- iv) Economies of scale from bulk purchase of inputs.
- v) More likely to obtain external support and training
- vi) Strong bargaining accumulation to purchase group inputs.
- vii) Capacity to generate pressure aimed at procuring services from government (roads).

REFERENCE

Government printer, Nairobi, KISII CENTRAL DISTRICT DEVELOPMENT PLAN; 2008-2012.
Office of the Prime Minister, Ministry of State for Planning, National Development and Vision 2030.

Acknowledgement

Many thanks to REO Kisii region; coordinators of KENFAP, KU, FVR and sponsors for supporting this initiative to improve food production, health and welfare of women and men farmers.

9. EXPERINCES IN BUNGOMA DISTRICT

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INTRODUCTION

The internship was organized by the Farmer Voice Radio (FVR) initiative in collaboration with the Kenya National Federation of Agricultural Producers (KENFAP). FVR is an initiative working closely with radio stations and offers farmers extension support that is accurate, timely, focused and frequent while KENFAP is a registered, non-political, non-commercial democratic federation of Kenyan farmers whose main interest is to negotiate with the government and bargain for better pricing of farm inputs and produce, establish market links and solve other problems farmers are facing. University radio interns (URIs) are a key feature of FVR and I was privileged to work as a URI in Bungoma South district. I started my internship on 12th July and finished on 27th August. I chose to go to Bungoma because I had never been there before and so I took it as an opportunity to get to visit the western part of Kenya. During the first week I was not able to carry out any activity because the REO had just resigned from KENFAP but in the beginning of the second week I was able to contact the assistant secretary to KENFAP in Bungoma district, Mrs. Janestella Okumu who offered to work with me during my stay.

ECOLOGICAL CONDITIONS OF BUNGOMA SOUTH DISTRICT

Bungoma is a town in western province bordered by Uganda to the west and is in the south of Mt. Elgon. It is divided into Bungoma East (Webuye), Bungoma West (Sirisia), Bungoma Central (Chwele), Bungoma North (Mukuyuni) and Bungoma South. I was based in Bungoma South district. It is generally a high potential area with a cool and wet climate and is located at a high altitude of 4000-5000 feet above sea level. The area receives rainfall throughout the year hence the people usually practice rain fed agriculture. There are two rainy seasons hence two planting seasons annually. In the past, the Bukusu people (main inhabitants of Bungoma district) lived on millet, cassava and livestock but now grow mostly maize, beans and cabbage for food and some grow sugarcane for cash. They also rear a few cows, goats and poultry. Therefore the Bungoma people are majorly small-scale mixed farmers.

ACTIVITIES UNDERTAKEN DURING THE INTERNSHIP

- Visited over thirty individual farmers in various villages
- Attended the KENFAP executive general meeting
- Visited a fish farmer in Kewa village (a star practice)
- Visited a dairy farmer in Luucho village (a rare activity in the district)
- Met Jaribu Women group members in Kanduyi
- Visited Kitinda dairy co-operative society
- Visited a greenhouse tomato farmer
- Met Lwanda Women group members
- Filled over thirty FVR questionnaires

- Together with the new district coordinator visited the KENFAP greenhouse and tissue culture banana bulking centre at Webuye
- Visited Mrs. Josephine Khisa who had been recognized as the best smallscale farmer in the country
- Towards the end of my internship I also had a chance to visit the spirulina greenhouse in Kakamega

Land use for crop production

During the first weeks of my internship I met a number of individual farmers within the various villages in the district. Being new in the area Mrs. Janestella was really helpful and she accompanied me to each household. The first major issue I found was that although the farmers owned large tracts of land, most of them cultivated only a small portion while the rest lay idle. I felt that it was necessary for the farmers to be educated on proper use of land and by so doing, food security will be improved and the poverty levels alleviated. In most households as I found out, food from one season could not sustain them till the next harvesting season but with adequate knowledge on proper land use, I thought it could be easy to avoid such situations and make their farms more productive. For instance, the Bukusu people value maize a lot and therefore most of the cultivated plots are occupied by maize. As I talked to some of the farmers, I was able to encourage them to diversify the crops grown on their farms and include some of the indigenous crops such as sorghum, millet, cassava and yams so they would not have to rely on maize and beans alone. This was not only going to ensure food security but also improve their livelihoods.

- I also found out that most farmers were encountering very large losses due to pest and disease problems and could not afford some of the chemicals and pesticides needed to counter these problems. I took the opportunity to discuss some of the integrated pest management practices with them for example including trap crops such as napier grass in their maize plots to help trap pests like the maize stalkborer and hence reduce the losses associated with them. Due to the fact that they had adequate land, I also encouraged them to practice crop rotation so as to reduce incidences of some of these pests. By so doing they would not only get increased yields and higher returns as a result but also put most of the idle land into use.

Fish farmer

I also visited a particular farmer who owned four fishponds on his farm which I thought of as a star practice because fish farming is a very rare activity in the district. The fishponds are large measuring 9m by 6m. According to him, the reason why fish farming is not such a common activity in the district is because of the high cost involved as well as inadequate supply of water. He gets his water in a very unique way. He has a borehole from which he has drilled tunnels taking water directly to his ponds. He also owns a tree nursery and as he took me around other households, we were able to encourage the farmers to grow trees around their farms. He also encouraged them to engage in fish farming because it was a very profitable venture and the market was also good.

Dairy farming

Very few farmers reared cows and therefore dairy farming was poorly developed in Bungoma South district. I was curious to know the reason and this led me to Mr. William Makokha's farm who also happened to be the chairman of Kitinda dairy cooperative society. He owns four dairy cows and a number of the indigenous breeds. He gave me the history of dairy farming in the district that dates back to the establishment of the society in 1957. It was meant to help the farmers market their milk because at that time there was a lot of milk. However, the society stalled in 1996 due to poor management. At the time it was run by the government which had taken a loan and was unable to pay due to accumulated interest. It also ended up owing farmers huge debts of upto 3.5million shillings, rental charges, electricity and sewerage bills when they tried leasing it out to a private entrepreneur in 1999.

Before it stalled, farmers could sell their milk, get their dues at the end of the month and pay fees for their children. As a result of its closure, they no longer had a source of income and nowhere to sell their milk hence most of them had to sell off their cows. The farmers came together and decided to reopen it. Milk supply was and is still very minimal and despite the fact that they are running it non-profitably, they have kept it open hoping to get government support or a good financier to revive and in turn revive dairy farming in the district. They are still trying get back their money from the entrepreneur (the matter is in court). The farmers are however hopeful that they will revive dairy farming in the district.

Women groups

Lwanda women group was registered in 2004 with the main objective of improving the social welfare and living standards of its members. They practice mixed farming and have started various projects on their farms with the help of the group.

Jaribu women group was started in 1987 with fourteen members. Its main objective was to improve the welfare of the members. They also engage in farming activities, assisting HIV/AIDS orphans, making bricks and giving loans to members.

Use of manure and fertilizer

Having visited many farmers and considering most of them had difficulties acquiring inputs such as fertilizers, I felt the need to educate them on the use of organic manure. Most of the hedges on their farms are made up of tithonia also known as wild sunflower. I was able to teach them how to use tithonia as an organic manure as well as a topdressing fertilizer. We went through the whole procedure of chopping the tithonia, putting it in the compost pit, turning it and checking if it is fully decomposed and applying it on their farms. I was also able to demonstrate to them how to make topdressing fertilizer using tithonia by soaking it in water in a tightly closed container for seven days and spraying it on their crops. Most of the farmers were willing to try it out because the materials were easily available and it was much cheaper. To me it was the greatest contribution I made to the people because the farmers got to realize that some of the solutions to their problems could actually be found within the farms themselves.

Greenhouse farming

I had a chance to visit the KENFAP greenhouse at Webuye in the company of the new district coordinator (REO) who came two weeks towards the end of my internship. The greenhouse had tomatoes which were not doing so well. The lady in charge is a member of Lwanda women group and we advised her to do gapping where they had died. She was also in charge of a tissue culture banana bulking centre although at the time it was not giving them any returns because the area Member of Parliament had given free tissue culture banana (TCB) plantlets to every farmer in the area and so the mature plantlets at the centre had no market.

KENFAP meeting

I attended the KENFAP executive general meeting, Farmers Fighting Poverty Project. The members had joined the Banana Growers Association of Kenya and were encouraging farmers in their local branches to join the association, grow tissue culture bananas and use the returns to improve their livelihoods. They also agreed that each member in the KENFAP committee buys a number of plantlets from the bulking centre and plant on their farms because there was no market for the already mature plantlets.

Visit to Spirulina production site

I had a chance to visit the Spirulina plant in Kakamega in the company of the Kakamega URI and one of my lecturers. I got to learn that Spirulina is a superior food supplement with high nutritive and medicinal

value. It is the highest protein containing food, has the highest beta carotene content, is richer in iron than even spinach and is nature's richest source of vitamin E. It greatly boosts the immune system, reduces allergies and helps fight cancer amongst other diseases. It was an absolutely new thing that I got to learn about over the internship period.

Poultry farming

Having visited a very successful poultry farmer who was targeting to have over one thousand layers by the beginning of next year, I was motivated to put up a small poultry structure at home which I could not have even thought of without the field experience.

Challenges

It was however not smooth all through. I faced a few challenges.

- one major challenge I faced was that I was new in the area and I was not familiar with the language so I had to go everywhere in the company of Mrs. Janestella and the fact that I had to travel from town to the villages to meet farmers required money and sometimes it was difficult for me to facilitate her as well as myself. Even though it was challenging, it did not hinder me in any way, I had to do what needed to be done.
- Another major challenge was that some farmers gave out more information in the absence of the recorder.
- I also had a challenge filling the FVR questionnaires because most farmers said they rarely listened to radio, some never owned a radio while for some it was because of the poor signal reception of some stations especially KBC.

Conclusion

All in all and despite the challenges, my internship was a wonderful experience. It was both an adventure and a discovery and am very grateful to the organizers of the internship and to Mrs. Janestella Okumu who ensured that I got a thorough exposure out there in the field. The fact that I was acquainted with the knowledge to address some of the problems the farmers were facing made my time out there even more rewarding and fulfilling. Even though I had difficulties filling the questionnaires at the beginning, after encouraging the farmers to use radio as a way of obtaining agricultural information I was able to fill many questionnaires towards the end and to me the response was very rewarding. Generally the internship with FVR was an outstanding experience of service and learning and something I would recommend for my student friends.

Suggestions

- I would recommend that in future, the presence of Radio Extension Officers (REOs) be addressed earlier before URIs are sent out to the field so they won't have to face challenges fitting in.
- There were also suggestions from farmers that FVR programmes be introduced on the local radio stations which farmers at the grassroots prefer listening to.

10. EXPERINCES IN KAKAMEGA DISTRICT**STUDENT NAME: MUKANDA MOHAMED****REGISTRATION No. A112S/9991/08****DEPARTMENT AGRIBUSINESS
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Agriculture extension in Kenya is the key to proper production. This helps in combating food insecurity in the country. The provision of extension services is a collective responsibility of the people with correct knowledge on proper agricultural practices. This thus requires appropriate skills to disseminate the agricultural information. The university radio interns are among the extension service providers. The area of my operation was in Kakameg/Vihiga districts in Western province. This study was conducted from 5th July-31st August 2010. The objective was to provide extension services and conduct a survey on the use of radio in extension programmes on agriculture. Radio as one of the major tools of communication reaches a wide scope in terms of coverage. Its affordability and portability makes it convenient and a better tool of extension provision.

BACKGROUND INFORMATION

'MULEMBE KARIBU KAKAMEGA' (Hallo, welcome to Kakamega). These are some of welcoming words that are written boldly on the billboards that welcome one to Kakamega district in Western Kenya. It lies about 30km north of the equator. It is the headquarters of western province and the district as a whole. However in the new dispensation it is among the forty seven counties with nine constituencies.

A large percentage of the people live in rural areas. There are various communities living in the district with majority being the Luhya. Masinde Muliro University of Science and Technology is the major higher education institution found in Kakamega. It 's the only public university in Western province. There is also the Kenya Agricultural Research Institute(KARI) which is a public institution that does research in agriculture and disseminate information to farmers. The Kakamega provincial hospital and the Kenya Medical Training College are the health facilities available in Kakamega . There are various banking institution that provides a banking services to the inhabitants of Kakamega.

Most people in the district are small scale farmers. They mostly depend on farming for their livelihood. Availability of the university has greatly boosted the business in the district. Proximity of the district to Mumias encourage s most people to get into sugarcane farming. They take the cane to Mumias sugar company for processing and inturn they get some pay. This has turned out to be the major cash crop farming activity in the district.

ACTIVIES CARRIED OUT

There are various activities that I carried out during the period I was in the field. I used a snowballing method to get farmers for interviewing. I used the sansa recorder to record the information that I was gathering from the farmers. In addition, questionnaires were used to carry out the survey. Visiting farmers, interviewing them and documenting the recordings was one of the activities carried out.

I also got some innovations that were much required by farmers in the district. I worked with KENFAP staff to create awareness of biogas plants. We visited several farmers some of whom adopted the idea and constructed the biogas plants in their homes.

CHALLENGES FACING FARMERS

Farmers face various challenges in their farming activities.

- One of the challenge is that they lack adequate information about farming due inadequate extension services that that the farmers get. This makes them produce little and thus increasing levels of poverty.
- Another challenge faced by farmers is access to credit. Most farmers are unable to adopt certain innovations due to lack of credit. They also fear to use their land as collateral when they get a loan from a bank. They get into small groups and start a merry-go round and the table banking but is not sufficient for their needs.
- Lack of funds encourages pests and disease attacks since they cannot afford to purchase the pesticides and herbicides.
- The majority of farmers still depend on rain fed farming. This is a challenge because the weather or rains are unpredictable and inadequate. However , most of the farmers do not consider embracing irrigation because it is expensive.
- Access to markets or lack of it is a challenge to most farmers. For instance farmers in parts of Ikolomani find it difficult to sell their produce since the ready market is in Kakamega town. This is because of the poor roads and long distance. Thus , most farmers produce for family consumption.

UNIQUE PRACTICES

Spirulina production

I met a group currently doing a project on a micro-algae known as spirulina. They also do mushroom farming and make various products, e.g. mushroom flour. The group was formed in 2008 and has a total of twenty members who are youths. Has twelve male and eight female. The group was formed with the prime objective of addressing the development issues among the youths in the district. The group has previously conducted campaigns against drug abuse and were funded by NACADA. They also conducted a HIV/AIDS awareness campaign amongst the youth in the district.

Spirulina is a filamentous blue-green algae that is found naturally in alkaline lakes or propagated under the controlled conditions. It is a nutritious micro-algae and most people tend to use it as food supplement to supply valuable nutrients in their diets. The micro-algae has got the proteins , carbohydrates, and vitamins. The largest concentration of spirulina today can be found in Lake Texcoco in Mexico, around lake Chad in central Africa and along the Rift Valley in East Africa.

Spirulina is known as super food because its nutrient content is more potent than any other food. Most of the essential nutrients needed by our bodies are concentrated in spirulina. It's comprised of at least 60% vegetable protein ,essential vitamins and phytonutrients. Spirulina is a low fat , low calorie ,cholesterol-free source of protein containing all the essential amino acids. Its nutrients are well assimilated by the body since it contains no cellulose in its cell walls. Helps to combat problems like diabetes , anemia, and atmospheric pollution.

However, production of spirulina under greenhouse entails getting the right seed and propagating it in a basin. The basin should have adequate water. Since spiraling thrives well in alkaline media, various salts have to be added in the basin. These include; calcium chloride, magnesium sulphate, potassium

nitrate, urea, ammonium sulphate, citric acid, sodium chloride and potassium sulphate. Thus, the water (spirulina) in the basin has to be agitated at an interval of 30 minutes so as to increase the multiplication of the seed under the controlled temperatures of about 38 degrees centigrade. After seven days the spirulina is ready for harvesting. It is harvested, sun dried, crushed into powder, packed and then sold. Value is added to it by putting it in capsules and making other products from it. They are then sold and thus generating income for the group.

- *Following this internship an opportunity was identified for commercializing Spirulina production. A poster on this concept was entered into the PANAAC/UNIBRAIN Innovation Fair held at Hilton Hotel, Nairobi on Nov. 26 – 27 2010. This idea was selected among the top three most promising and opportunities are being explored to develop it further. Mohamed was recognized and awarded a laptop computer for developing this idea. The poster appears at the end of this report.*

Striga weed

While visiting farmers I identified a problem in their maize fields. They were heavily infested with the deadly striga weed. I therefore delved deep in research to know what the weed was, its effects and how it can be eradicated from the maize fields. For technical support I visited KARI-Kakamega. After doing my research, I was to train them on the possible potential remedies of striga but they shied away.

- This is a unique experience because they register low maize yields due to the effects of striga and yet they cannot allow themselves to learn the control measures of the deadly weed. *The reason was that they feel stigmatized when they are associated with this parasitic weed (striga).*

Findings about radio and extension services

Most farmers that I interviewed use radio as a source of information from different areas. Since most of them are elderly they tend to listen to news and funeral announcements and entertainment. They also listen to agricultural programs in KBC idhaa, citizen radio, Mulembe Fm and West fm. In KBC they listen to agricultural programs like Mkulima, tembea na majira which give information on various areas in agriculture. In west fm which is a local radio station in western province there is a program known as 'soko hewani' which links the farmers to the markets.

However, most of the farmers are much satisfied with the information that they get. They put into practice whatever information they get depending on the farming enterprise that they are involved in. Consequently, one of the constraints that the farmers face is the language barrier. Some farmers do not understand the Kiswahili language used in the agricultural programs. Some feel that the timing of programs is not appropriate to them and they would like the programs to be aired in the evenings when most of them are at home.

Farmers I talked to claim that they have never seen the government agriculture extension officers. Having the ministry of agriculture and that of livestock departments in the district there is still inadequate extension officers to help farmers in the region. The Kenya National Federation of Agricultural producers (KENFAP) provides extension service to farmers. It mostly deals with farmers who are in groups. They use local, area and national leaders to be able monitor the groups and disseminate information to farmers.

Challenges faced

- The first challenge was absence the KENFAP coordinator in my station. Therefore there was little support. This delayed me from starting the assignment at the station but I decided to get assistance from the KENFAP youth leader who helped alot.
- Some farmers are interior and reaching them is difficult. This required use of motorcycles that are more costly for moving from one place to another.
- The language barrier was also a problem. This was mostly experienced when I was administering the questionnaires. I would translate into Swahili so that the farmer gets the question correctly but

unfortunately some could still not understand the language. Since some of them speak vernacular that I cannot well understand I would get someone who do understand it to translate it for me.

- Most of the machines in the office were not working so I would use my own money to do things that I could have done with machines in the office.

Key lessons learnt

Farmers face many difficulties more so in getting extension services and markets for their products. If only more agricultural information can be given to farmers then the agricultural sector will grow tremendously. The youth need to get into farming and see it as a paying enterprise for it to grow big and create employment.

Things I liked

1. Interacting with farmers on the ground and getting to know the real situation on the ground.
2. Most farmers are ready to share the information they have.

Things I didn't like.

- ✓ Low adoption rate of technologies
- ✓ Rather low support from KENFAP office.

Recommendations

- I would recommend that the FVR to partner with other vernacular radio stations to provide information in vernacular. This will make more farmers understand what they are supposed to do.
- The various programs to be repeated several times or the scheduling should be in search away that it targets a large number of farmers.
 - More extension officers to be trained and employed.

Conclusion

Agriculture extension is most crucial to farmers and various stakeholders should be responsible the work. The various extension methods have to be integrated for effective service provision.



The intern performing various activities during the attachment.



Providing affordable essential nutrients to curb malnutrition through commercialization of *Spirulina* production



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INTRODUCTION

Spirulina is a micro-algae that thrives well under an alkaline environment. Spirulina has for long been used as human food because of its high nutritional value (Table 1). In Kenya Spirulina is not yet well known. It's production and utilization is still at its infancy stages. There are few individuals producing and marketing Spirulina relative to the potential demand in the market. Opportunities exist in increased production, improved processing and increased market access.

Objectives

1. To encourage *Spirulina* production in areas that are vulnerable to malnutrition.
2. To supply low cost and hygienic *Spirulina* based nutritional supplements.
3. To process package and market *Spirulina* prone to malnutrition.

Table 1: Comparison of nutritional values in micrograms

Vitamins	1g Spirulina	1g carrot	1g spinach
Carotenoids	3700	110	48
Beta carotene	1400	15	7.95
Vitamin E	100	4.65	14
Thiamin B1	-	0.35	0.9
Riboflavin B2	-	0.4	2
Niacin B5	-	1.4	6.2
Vitamin B6	8	2.7	2.2
Vitamin B12	-	0.03	0.55
Inositol	-	-	6.4
Folic acid	-	0.25	1.45
Biotin B7 or H	-	0.05	0.07
Pantothenic acid B	3	0.01	2.7; 2.5
Vitamin K	22	0.15	3.05
Vitamin C	-	7	0.5
Minerals			
Calcium	10,000	350	1150
Phosphorus	8,000	350	450
Magnesium	4,000	130	600
Iron	1800-6000	3.85	38
Zinc	300	0.5	6
Copper	12	0.5	0.95
Manganese	50	1.75	6.45
Chromium	3	0.04	0.09

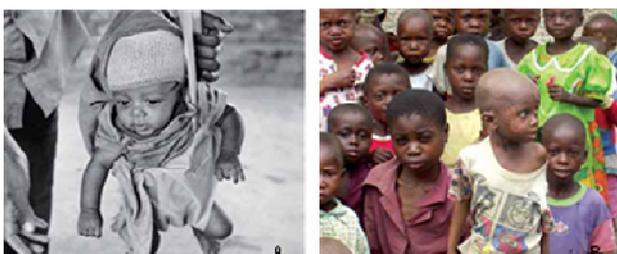


Fig 1. A & B: Malnutrition in Africa can be effectively managed using Spirulina.

Agribusiness approach

Selected farmers will be trained on how to produce Spirulina in greenhouses. For sustainability the trained farmers will be contracted to supply Spirulina to established processing units. The supplied Spirulina will be processed, packed, branded and marketed with greater focus on low income consumers. Options will be investigated for blending Spirulina with other food products targeting low income consumers. Marketing opportunities will be explored through NGOs working with communities facing malnutrition.



Fig. 2: Simple Spirulina production process. A) greenhouse structure; B) polythene basins; C & D) drying using solar energy.

SUGGESTIONS & RECOMMENDATIONS

1. Opportunities for using Spirulina in treatment of patients in hospitals should be identified.
2. To reduce costs of Spirulina production, alternative mineral supplements for its growth should be identified.
3. Capital support to implement the idea.
4. Strategic partnerships to implement and drive the enterprise.



Fig. 3 various products made using Spirulina. A: nutritional supplement capsules; B: chocolate bar; C: Spirulina cake; D: Spirulina coffee; E: Spirulina powder; F: Spirulina granules.

11. EXPERIENCES IN SIAYA / BONDO DISTRICTS

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Introduction

The agricultural field attachment commenced on July and ended at the beginning of the month of September. The major activities undertaken included; providing agricultural extension services to the farmers in the region, interviewing and voice recording of star farmers found in the two mentioned districts.

Although the two districts lie in well drained regions, little commercialised agriculture is currently taking place as majority engage in small scale production mainly for family use. The two districts are located in close proximity to Lake Victoria basin, most places are hilly with river Yala crossing in between the two districts.

The two districts depend on food surplus from other neighboring districts like Nakuru, Busia, Kitale and Trans-Nzoia, though large tracts of land do exist whereby plantation agriculture can be practiced. Nearly 90% of the Agricultural production between the two districts is carried out by old women and men as the most energetic generation engage in other activities like being touts and *boda boda* (motorcycle taxi) operators.

REASONS FOR AREA SELECTION

- To expand my knowledge of the agricultural activities currently taking place in the districts.
- To know the best performing crop varieties being grown in the region
- To gather knowledge on the application of modern agricultural technology and methods by farmers in the district
- To discover the factors hindering agricultural production in the two districts
- To suggest possible ways through which agricultural production can be increased in the districts.

DESCRIPTION OF SIAYA DISTRICT

Siaya district lies in a hot and wet region. It receives convectional type of rainfall due to its close proximity to Lake Victoria. Different types of soil exist within the district, ranging from the red volcanic soils to the vermiculates. Two rainfall seasons exist, and during the rainy seasons, maize and beans production is the main activity.

DESCRIPTION OF BONDO DISTRICT

Most of the parts of Bondo district are semi-arid in nature as it experiences uneven rainfall distribution. Vermiculates are the major types of soil that exist and crop production is not widespread as compared to Siaya district. To some extent, it's fed by Siaya district. Cassava, Millet and Sorghum are the major crops produced.

The potentiality of agricultural production within the two districts is however coupled with different negative factors some of which include:-

- continuous land fragmentation due to rapid population increase and it is not surprising that some of the inhabitants are squatters.
- Due to high humidity and temperature during the production process, high incidences of pests and diseases exist and this leads to low output.
- Many people also have negative attitude towards agriculture as it is associated with dirt.
- Little financial support is available to the few farmers interested in large scale production. Though some farmers obtain loans from the financial institutions available, the loan sometimes end up being misused.

AGRICULTURAL PRODUCTION

BONDO FARMERS

These farmers have come up together and are currently getting financial assistance from KENFAP. They are involved in dairy goat keeping. This is one of its kind in the district. Much of the information concerning dairy goat keeping is provided by the Ministry of Agriculture and the KENFAP officials. Currently 240 dairy goats are available in the region and it's projected that by 2015, each individual member should have a dairy goat for economic gains.



Dairy goats reared in the region.

UGUNJA FARMERS

It comprises of many hard working farmers currently producing different cassava varieties. The major cassava varieties under production include; the local variety which is facing extinction as it is low yielding and is vulnerable to cassava mosaic disease and cassava brown streak virus.

Cultivar MIJERA has been proven by the farmers to be the most suitable for production in the region. However, SS4 and MH95 are also high yielding. Cassava is grown for commercial purposes. The roots and cuttings are sold to the locals. A sack cuttings is sold at 500 shillings and this is proving to be a lucrative business.



Farmers with a bounty cassava harvest.

ALEGO AND GEM FARMERS

Farmers in this region engage in different agricultural practices which include rearing of dairy animals, fish rearing, maize and beans production and poultry keeping which is rapidly gaining recognition due to availability of ready market. Horticultural production (tomatoes, kales, cabbages, pepper and onions) also exist.



THE FUTURE OF AGRICULTURE IN SIAYA

- Much of the land is being wasted in construction of new houses and homes, a major factor leading to land fragmentation and if this is not urgently checked, the potential areas for agricultural production may not exist by 2030.
- More information especially on financial management should be provided to the farmers who get access to loans to curb numerous cases of fund misuse by farmers.
- The modern agricultural production methods and technology should be provided to farmers to assist in efficient and up to date land utilization.
- Much work is also needed for the conversion of the numerous youths in boda boda industry to the agricultural industry. *Surely they should be informed that millions exist in the soil.*

Conclusion

The experience gained was great though agriculture is still lagging behind in the two districts and more effort is required to uplift its standard.

Acknowledgement

All my sincere gratitudes go to staff at the School of Agriculture and Enterprise Development, Kenyatta University, FVR and all its supporters and partners for making this opportunity possible.

12. EXPERIENCES IN AWENDO

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INTRODUCTION

Agriculture continues to be a fundamental instrument for sustainable development and poverty reduction in Kenya. The sector's dominant role as a source of foreign exchange and as an engine for overall socio-economic development through forward and backward linkages with the manufacturing sector remains unchanged. This paper highlights sugar cane production in Awendo/ Rongo region (South Nyanza Sugar belt) and star innovation that would improve the productivity and profitability for poverty reduction and improved rural livelihood.

BACKGROUND INFORMATION

The South Nyanza sugar belt is tucked some 450km west of Nairobi on the shores of Lake. Victoria. The region experiences hot and wet climate, receives convectional rainfall and has ideal conditions for sugar cane; -temperatures range from 17 to 30 degrees with approximately 1400mm of rainfall annually in a bimodal pattern. The soils are mainly black cotton soils, sandy loams and red laterite with pockets of black cotton soil and clayey soils.

The main economic activity in the area is cane growing. However other crops such as maize, beans, horticultural crops (though for subsistence) is also grown. Chilli and sweet potato (rich in vitamin A) are also upcoming though not yet popular. Apart from Sony Sugar Company other institutions are Moi Institute of Technology located in Kitere, various banking institutions, e.g., NBK, KCB, EQUITY and Post bank and other microfinance institutions together with several learning institutions.

THE SONY SUGAR COMPANY LIMITED

This company was established in 1976 with the objective of increasing national sugar production to reduce dependence on importation, creating employment opportunities and enhancing regional development. The factory is located in Sare Division in Rongo District which borders Homabay to the North West, Kisii to the North east and Migori to the South west. It was commissioned in 1979 and was supplied with sugar cane from the then larger Migori district. The factory has now increased its catchment area to cover the Transmara region.

Sony is owned by the government and the area under nucleus estates is about 70 square kilometers while majority farms are owned by small scale growers formerly under the out-grower's organization (SOC) but currently operating independently. Some farms are under contract with the company while others are non-contracted. Farmers with contracted cane farms are supplied with inputs such as cane seedlings, fertilizers, herbicides and other services such as land preparation and cane transportation to the factory after harvesting. On the contrary the other farmers have to make their own private arrangements in all their activities.

SUGAR CANE GROWTH PHASES

Sugar cane has four important growth phases namely establishment and germination, tillering, growth phase and ripening and maturation phase all of which takes between 18 months to 24 months. As mentioned earlier cane grows best in warm, sunny frost free weather such as in Awendo, it can grow up to 4 metres tall.



Aerial view of nucleus sugarcane estate (left); Cane flowers (right).



A sugarcane plantation.

Importantly, sugar cane harvesting is done by chopping down the stems but leaving roots so that it re-grows for the next crop. Harvesting tends to be done during the dry season and the cane taken to the factory by truck.



Farmers cutting cane

CHALLENGES FACED BY FARMERS

The sugar industry in Kenya suffers from myriad of problems which have either directly or indirectly resulted in increase in the level of poverty among sugarcane farmers. These include:

- Weak representation of farmers institutions

- Lack of accountability and transparency at all levels
- Excessive taxation and deduction of farmers income
- Delayed farmers payment
- Declining soil fertility
- Ineffective weed control
- Intermittent moisture stress
- Low quality seed cane for plant crop establishment
- Continuous sugar cane monoculture
- Inefficiency in cane transportation which results to post-harvest losses

CHALLENGES FACED BY THE COMPANY

The government owned sugar miller faced a management crisis having had no managing director for more than a year in 2007. Bad debts that continue to plague the sugar millers have not spared the firm either and by June 2005 Sony sugar had the highest burden of 3.38 billion more than the value of the Company's total fixed assets estimated at 2.3 billion. Furthermore, Sony has a capacity to produce over 3000 tonnes a day but the state corporation has to contend with 2700 due to inefficiencies since the crushing machines are already old.

EFFICIENCY AND TECHNICAL PROGRESS LIMITATIONS

It is important to note that technical progress involves a shift in technology that is, adoption of new technologies. Technical progress would involve adoption of better seed varieties, land preparation technologies and use of recommended fertilizers and supplementation with farm yard manure. One factor that is hindering change in efficiencies and technical progress is the continued land sub-division which brings with it diverse management styles. This is especially with farmers who have some form of autonomy in their operations. They decide what cane to grow, whether to apply fertilizers or not, what land preparation technique to use, the level of labor to allocate in production and the seeding rate. This autonomy causes the diversity in the different efficiency levels. If such differences could be minimized, and some uniformity introduced, then possibly the efficiency differences could be minimized. Such uniformity would be achieved by having a universal way of doing things in this region.

INTERVENTIONS

The agronomy program endeavor to develop interventions that enhance production and remove some constraints to production by focusing on the following:

- Enhancement of seed quality for increased yields
- Crop diversification to combat sugar cane monoculture
- Integrated soil fertility management and improvement
- Formation of appropriate crop husbandry packages for optimum yields

To improve efficiency in cane transportation the company recently acquired 25 tractors and trailers. The fleet is aimed at ensuring that no cane harvested lies uncollected in the farms. These would therefore add up to the speedy delivery of sugarcane. The fleet was acquired through funding from the Kenya Sugar Board. Towards the crushing inefficiencies due to old machines 130 million Ksh has already been injected to bring the machines up to speed. Additional funding is also being sought to increase the crushing capacity and finance the annual servicing and maintenance since the issue of capacity has affected the company limiting its benefits from economies of scale.

In an effort to diversify and maximize its potential, the company's management is looking at venturing into ethanol production. Already co-generation that has now become the hallmark for millers is in progress. The company produces four megawatts of power and plans are underway to increase this output

to cut production costs. In case of production of excess power, arrangement with the power generators and distributors in the country to sell the surplus will be made.

CONTRIBUTION OF THE SUGAR INDUSTRY TO THE COUNTRY'S GROWTH AND DEVELOPMENT.

This sub-sector holds a key position in the Kenyan agricultural sector. It provides direct and regular employment to workers. Indirectly however, the industry employs thousands of casual workers on farms as weeders and cane cutters among others. It also acts input suppliers for other companies as marketing and distribution agents for sugar and sugar by-products. Sugar also acts as a foreign exchange earner and if sufficiently produced it can save on import expenditure. It is also a major food item in the household budget of the average Kenyan and refined sugar is essential raw material in food processing, confectionaries, beverage manufacture, soft drinks and pharmaceuticals industries and also the molasses which is a by-product used in fertilizer manufacture and as a feed to animals.

Apart from sugar cane growing in the region other agricultural activities are discussed below;

MAIZE

The ministry of agriculture runs a programme in the region known as National Accelerated Agricultural Input Access Programme (NAAIP). Under this programme, farmers are provided with maize seeds and fertilizer so as to increase maize yields and it has been reported that yields increase from 8 bags/ha to about 15-18 bags/ha in 3 months. The officers supervise farmers who are organized into small groups according to their locations. Field days are organized to train farmers to ensure that good results are achieved. This program has enabled improvement of agricultural production in the region and has taught farmers to embrace the use of fertilizers for increased yields. Due to the provision of certified seeds, some farmers have been able to realize over 25 bags of maize per ha which is encouraging and more farmers are adopting the use of the seeds and also joining farmer groups. This project in my opinion would go a long way in alleviating hunger and improve food security in the region.

SWEET POTATOES

Local farmer varieties of sweet potatoes in the region include Nyathi odiewo, jayalo and kuny kebuonjo all of which are named in vernacular. There are significant differences between the varieties in yield, disease and pests tolerance, and consumer preferences on marketability, taste, aroma, ease of cooking and texture. It is important to note that sweet potatoes have been consumed since time immemorial. However, the ministry of agriculture in conjunction with other stakeholders has come up with a sweet potato variety with vitamin A. Though not widely grown in the area due to susceptibility of the variety to potato root borers and other pests, it has proved nutritious and interventions are underway to curb the above mentioned limitation.

CHILLIES

The chilly growing enterprise is novel and few farmers have ventured into it. However, so far, gains have not been realized due to lack of market for the product. Chilly is also unpopular in the area due to its laborious nature especially at harvest time and yields are low. I believe with further research intervention its productivity would increase and better yielding varieties will be introduced and farmers then would appreciate chilly growing as an economic enterprise in the area.

CONCLUSION

There is need to fully embrace newer production methods. Farmers can still use the existing technology to achieve better yields but would do better with new technology. SONY for instance has both technical change and efficiency problems. On average, the farmers are not utilizing the available technologies fully hence declining productivity level. Additionally, adoption of newer production technologies in the region

seems to be on a downward trend. In as much as this could be blamed on the farmers, extension plays a big role in informing farmers on newer cane production technologies. This is an indication that proper extension advice is missing.

RECOMMENDATIONS

While technologies may be available, it has been noted that farmers in the region have limited awareness and access to appropriate technologies. There is therefore a pronounced need to source, exchange and promote the adoption and use of these technologies using participatory extension approaches such as establishment of demonstration plots, on

farm adaptation trials and farmer fields schools which offer a group-based learning process and is a tool for empowering communities. There is also need to develop and disseminate extension material in printed and audio-visual forms for example leaflets, posters, fact sheets, cultivation and identification guides, slides and videos.

Additional sources of information

1. Mr. Dolah, Managing director, SONY. Personal communication.
2. The Daily Nation: Business News Fri. 17th 2010.
3. www.sonysugar.co.ke

13. EXPERIENCES IN TRANSNZOIA / KITALE

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INTRODUCTION

After a successful seminar held at Kenyatta University for the University Radio Interns Training program on 28th June -1st July 2010, we proceeded to our respective stations. Our mandate was to provide extension services, collect information from the field through interviews with farmers and filling questionnaires, and transmit the information to other FVR partners for processing and broadcasting.

As the URI I was required also to identify farmers with 'star' practices, initiatives and innovations. I reported on duty on Tuesday 6th July 2010 at the Eldoret office. Eldoret town is the headquarter of Uasin-Gishu district in North Rift. It is an agricultural zone that receives reliable rainfall throughout the year to sustain farming of both livestock and crop production. I worked within the KENFAP offices and was able to get support and guidance from the R.E.O who prepared a work plan.

Objectives of the University Radio Interns

- (i) To report their experiences & findings to F.V.R
- (ii) To interview farmers and record their findings.
- (iii) Record farmers and forward the recordings to F.V.R/KBC headquarters.
- (iv) To work together with star farmers group.

AGROECOLOGICAL CONDITIONS OF ELDORET AND TRANS-NZOIA

(i) Rainfall

Rain is the main source of water required by plants and livestock in this region. Rainfall intensity is average and the region receives average annual rainfall of about 1200 -1400mm per year. Both the rainfall reliability and distribution has led to high produce in the area. Kitale receives rainfall between the month of April and November.

(ii) Temperature

Eldoret and Kitale experience cool temperatures. The highest temperature is in January and February. The mean annual temperature for the region is 20.3^oC.

(iii) Soil

The area has got the black alluvial volcanic soil that supports a variety of crops. The soil drainage is good allowing soil aeration.

MAIN AGRICULTURAL PRACTICES CARRIED OUT IN THE REGION

Maize

Eldoret and Kitale are well known for maize production. Kitale that is the headquarter of Trans-Nzoia county is known as the country's granary. Maize is grown on large tracts of land ranging from 5 to 500 acres. Most of the farm practices are mechanized due to the size of land. Maize is grown for about 4-5 months before harvesting.



Wheat

Wheat is the second largest cereal grown after maize. It is mainly cultivated in Eldoret in the county of Uasin-Guishu. Wheat is also grown on both large and small scale farms.

Other crops

These include beans, vegetables, potatoes and fruits for example passion fruits, oranges and avocado.

Dairy farming

Is also another agricultural practice that is carried out in the two district of Trans-Nzoia and Uasin-Gishu. The main type of cattle breed kept in the region is exotic since the region is a highland. Most of the farmers sell their milk to the K.C.C and middlemen who buy milk. However most farmers sell their milk to the co-operatives.

Tea

Is also grown in Trans-Nzoia in the slopes of Cherangany hills and Mt.Elgon as a cash crop. Tea is processed within at Kapsara tea factory.

A healthy maize crop

FARMERS GROUPS ENCOUNTERED

- 1) Kayenet women group that deals with farmers table banking and dairy farming.
- 2) Metembe group that deals with maize cultivation.
- 3) Moiben wazee honey group that deals with bee keeping.
- 4) Waitaluk pig keeping group.
- 5) Kiplombe youth group that deals with poultry keeping.



Expansive wheat fields

(1) KAYENET WOMEN GROUP

It is found in Trans-Nzoia district, Cherangany division and Kiptoror location. It was started in the year 2000 by women who had common interests of improving their livelihood and reducing poverty in the community. The group deals with table banking and dairy farming. The group has got twenty five registered members, they buy a heifer on a rotating basis until all members are able to get at least an exotic heifer. The milk they get is collected at one point and is marketed as a group to K.C.C.

ACHIEVEMENT OF THE GROUP

- i) Every member has got a dairy cow and is able to get milk for the family.
- ii) Group members earn a living through the money they get from selling milk.

CHALLENGES

- Lack of credit facilities to expand the group.
- Milk sale price low.
- Diseases attack their cattle and they end up incurring expenses and losses.

2) MATEMBE GROUP

Matembe group is found in Trans-Nzoia district, Cherangany division and Geta location. It has got eighteen members of which nine are men and nine are women. The group was formed in the year 1998. Their main activity is growing maize. The group does not own its own farm but leases from the community. Currently it has twenty-five acres. After selling their output a certain amount is set aside and the rest is shared among members equally. The group has acquired a tractor and they are currently planning to purchase a piece of farm.

ACHIEVEMENTS

- (i) It has been able to purchase farm implements and machinery.
- (ii) It has changed the livelihood of members by improving their living standards.
- (iii) Increased food security among the members.

CHALLENGES

Main problems are related to maize cultivation.

- (i) High cost of inputs. E.g. fertilizer.
- (ii) Pests e.g. stalk borer and aphids that attack maize.
- (iii) Diseases e.g. maize streak, smut attacks the maize in the field.
- (iv) Lack of funds to purchase inputs and expand on the scale.



Napier for fodder

3) MOIBEN-WAZEE GROUP

The group is found in the Uasin-Gishu district, Ziwa division, Moiben location. The group was started in the year 1995 by a group of men who had a common interest of making profit. The group has got fifteen members. It is mainly involved in bee keeping and fish farming. Each member has got his own bee hives at his farm but they collect honey and market together as a group. The group has got also a joint fish farming project that is practiced along river Moiben. It has got six main fish ponds. Fish is mainly harvested after every four months and is sold in Eldoret town. The money the group gets is shared among members and a certain percentage is kept in their savings account.

CHALLENGES THAT THE GROUP FACES

- (i) Lack of capital to expand their projects.
- (ii) Competition from other sellers of honey and fish that leads to low price.
- (iii) Mismanagement of group's funds.
- (iv) Some members misuse the dividends they get through alcohol hence they don't improve their living standards

4. WAITALUK SELF HELP GROUP.

It is found in Trans-Nzoia county, Kaplamai division, Waitaluk location. The group was founded in the year 2004 and has got twenty two members of which nine are men and nine are women. The group mainly deals with pig keeping and processing of pork.

It has got its main station where pigs are kept but beside this group members also keep pigs at their homes. Members sell the mature pigs to the group where slaughtering and processing is done. The group has gone to the extent of marketing sausage and sale it to the nearest town. Besides making sausage the group has acquired a ready market in Nairobi that takes fifty kilograms of pork every day averaging to about 350kg per week.

CHALLENGES

- (i) Pig's feeds are expensive to purchase.
- (ii) Due to high demand of pork in Nairobi there is a problem of meeting the market demand daily.
- (iii) Pigs are affected with diseases.

5. KIPLOMBE YOUTH GROUP

The group is located in Uasin-Gishu district, Ziwa division, Kiplombe division. The group was established in the year 2003 with a total of fifteen members. It has got eight ladies and seven men. The group is involved in poultry keeping. They keep both exotic and indigenous chicken. The total number of chicken kept is around five hundred out of which three hundred and fifty are exotic and one hundred and fifty is indigenous. The exotic chicken kept are all layers, eggs collected are sold directly to the shops in Eldoret town. The local chicken is also meant for meat and eggs.



Poultry farming

CHALLENGES

- (i) Cost of layers mash is high and this leads to low cost of output.
- (ii) Diseases e.g. Newcastle attacks the chicken at an early age.

OPPORTUNITIES

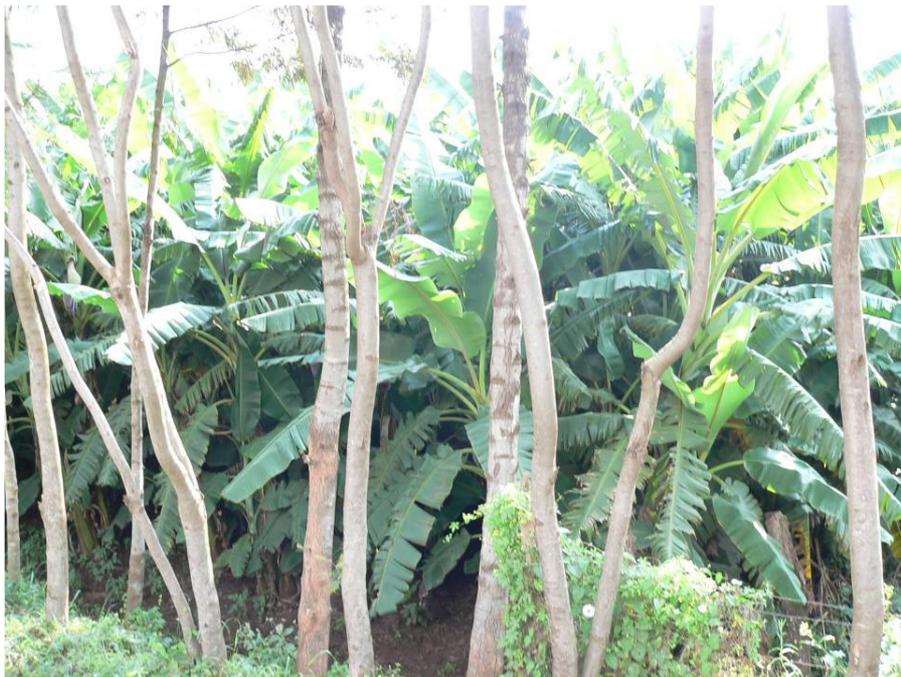
- (i) High demand of eggs in the nearest town.
- (ii) Cheap labor from the group members who work in the border.

INDIVIDUAL FARMER VISITED

Nicolus Arap Tanui

Resident of Soy division. He practices mixed farming and it is his unique farming that triggered my attention. He has got:

- one acre under beans,
- four acres under maize,
- two acres of different fruits (orchard),
- two acres of bananas.
- four large fish ponds and sells fish in Eldoret & Kitale town.
 - also supply fingerlings to other farmers.
- has been keeping bees and has got fifteen bee hives in his farm.



Banana farm in Transzoia

Mzee Nicolus Tanui has been making approximately forty thousand shillings per month but the cash increases depending on season of the year. Most of his earnings come from selling milk and fish that gives about 70% of his earnings. Despite all this tremendous results Mzee Tanui has been also experiencing the following challenges:

- (i) Bad weather that leads to low yields for example drought. Sometimes high rainfall also ends up destroying crops, e.g hail stones.
- (ii) Low price of his products for example milk goes as low as twenty shillings per litre.
- (iii) Pest and diseases: This leads to low yield and high cost of production.



A busy market for agricultural goods in the region

LESSONS LEARNT

As an intern in the field I enjoyed my work and it has been a successful one and interactive. I was able to interact with people of different cultural backgrounds, most of the people are welcoming and friendly. I was able to learn new ideas & technology in the market and how it has been applied in the field and challenges that farmers face. However beside all this there were some few challenges that I encountered in the field.

CHALLENGES FACED

- (i) Most of the roads in Trans-Nzoia are impassable. Roads are all weathered and during rainy season it is difficult to access farms. This also delays transportation of agricultural products to the market.
- (ii) Transport from one place to another is expensive. For one to reach a farmer one has got to hire motorbikes at a fee of 450/= per day.
- (iii) Most people only understand well when they are taught in their mother tongue making it difficult for me to interview them. Sometime I used to get an interpreter to translate information to farmers.
- (iv) Some English words especially the scientific names of certain crops and weeds were difficult to be translated into vernacular.

RECOMMENDATIONS

- FVR should use local radios that broadcast in vernacular so as to reach most of the rural people who listen to local radio frequently .
- Most of the regions do not have enough extension officers to advice farmers. I therefore recommend that the of number extension officers to be increased.
- Due to financial constraints I urge the organizers to increase the interns' allowances to enable them carry out their duties effectively.

- FVR should try work with other relevant stakeholders



Mature maize stacked to dry in TransNzoia. Farmers need to be provided with better knowledge and facilities for drying and storage to reduce yield loss.

CONCLUSION

Despite the few challenges the internship experience was useful and practical since I was able to experience most of the things that I had learned earlier in class. Agriculture being the backbone of the country's economy should be given priority by the government for example by subsidizing farmer's inputs and improving price of their commodity.

The government should also give farmers credit facilities to making farming more productive. Farmer's voice radio has provided credible information to the farmers by equipping them with agricultural tips and information. In summary FVR and KENFAP is well placed to improve the living standards of the farmers in the region.

ACKNOWLEDGEMENTS

I take this opportunity to sincerely thank **FVR, KBC, KENFAP**, Kenyatta University management, staff and students who have made the internship successful and practical.

14. EXPERINCES IN WEST POKOT DISTRICT

STUDENT NAME	DEPARTMENT	
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INTRODUCTION

West Pokot is a district in Rift Valley province. The area has varying climatic conditions with some areas experiencing highland weather conditions and some areas experiencing arid and semi-arid conditions. Agriculture is highly practiced in the highlands with the farmers growing bananas, potatoes, pyrethrum, coffee, tea and a variety of fruits and vegetables. The farmers also practice livestock keeping including: cattle, sheep, dairy goats and poultry. The agricultural techniques used in West Pokot are not very advanced and the farmers use the traditional forms of farming.

We chose to go to West Pokot because we saw it as a great arena to learn, interact with the local communities and get to know more about the agricultural activities and culture.

Areas visited

Some of the divisions we were able to visit included: Chepareria, Talau, Kaibos, Lelan, Siyoi and Sokomoko.

Chepareria

Chepareria division is found on the Western side of West Pokot district. The area has varying climatic conditions for example Kosulul area is very fertile with dark loamy soil rich in nutrients and supports the growing of maize (H613), beans, fruits like oranges, avocados, passion fruits among others where as Kapsongar area experiences very high temperatures with minimal rainfall of about 250mm. The area experiences arid and semi-arid conditions and is suitable for growing cotton. The residents are highly discouraged from growing maize, beans, fruits and vegetables because they do not do well in the region hence incurring losses.

Activities carried out

We were able to visit 8 farmers. We managed to talk to them about the importance of growing crops that take a short duration to mature for example vegetables (kales, spinach and cabbages), tomatoes and fruits so as to have sufficient food to increase food security and also to sell the surplus so as to reduce poverty levels and for the farmers to have improved living standards.

We were able to attend a field day in Kapsongar village on cotton growing and this was quite an eye-opener because we were educated on cotton growing, it's importance to our economy and where to get market for the produce. We were able to know that the key to the success of agriculture in

Kenya lies in knowing the right crop to grow at the right place with favorable weather conditions. We were able to work with two groups in the area.

Group 1

The first group was composed of 58 members comprising of 20 women and 38 men. Some of the activities carried out by the group included: A kitchen garden where they grew sorgum, millet, cassava, pigeon peas, green grams among others. They also had a demonstration plot whereby the farmers could try out a concept before practicing it on their farms.

They had a 2acre piece of land that had been bought by pooling of resources. They have grown maize and beans. The produce is sold to the members and their neighbours and 50% of the profit is divided among the members and the other half is ploughed back to the group.

Group 2

The second group composed of 30 members inclusive of women only. The reason for this, they claimed, is that men disturb them. The group has bought a 4acre piece of land and rear dairy goats for commercial purposes. They also grow fruits and have demonstration farms where they educate the members on improved forms of agriculture. In addition to this they have merry-go-rounds where they raise funds to help each other in case of a problem.

We managed to interview the farmers using the sansas and the questionnaires.

Talau

Talau is located on the northern part of West Pokot district. The land is very fertile and the farmers own large tracts of land. Some of the crops grown in Talau include: coffee, bananas, maize, beans, short-term crops like kales, indigenous vegetables, tomatoes, fruits, onions among others.

Activities carried out

We were able to visit 10 farmers in the area and managed to interview them using the sansas and the questionnaires. The farmers in Talau do not have any common interest groups based on agricultural activities. The farmers practice small-scale farming and there was no exceptionally outstanding farmer.

Kaibos

It is also located on the northern part of West Pokot district and is equally fertile. The farmers carry out diverse agricultural activities like livestock keeping, poultry keeping and growing of coffee for commercial purposes. The area experiences a lot of rainfall and the climate is favorable for growing many crops that thrive well in the highlands. The land is very sloppy and as result problems related to soil erosion are experienced. To curb this farmers work hand in hand with the ministry of agriculture to build up terraces.

Activities carried out

We were able to work with 16 farmers in the region. We dealt with one group (KAPEGRO) and we helped them in some activities. The group was started in 2007 and has a total of 36 members, 16 women and 20 men. Among these, only 5 are youths. The activities carried out by the group included: bee keeping, sheep rearing, and growing of crops such as beans, maize, potatoes and vegetables. This is done on 7acres of land that the group owns. With the profit, 10% is shared equally among the members and the rest is used to run the activities of the group. A hindrance to joining this group is the amount of membership fee paid, which is Ksh 5860 (*current exchange rate about Ksh.*

78 = 1 USD), hence the members are mostly the financially stable in that location. We interviewed the farmers using the sansas and the questionnaires.

Siyoi and Sokomoko

Most of the farmers in Siyoi are small-scale farmers and grow their crops for subsistence purposes. The land is fertile and the area experiences high amounts of rainfall. Maize thrives very well in this area.

Lelan

It is located on the eastern part of West Pokot. The land is very fertile and the area experiences high amounts of rainfall. The farmers grow pyrethrum, potatoes and keep large herds of cattle and sheep. It is the most fertile area in West Pokot and most of the food sold in West Pokot comes from this region. The sheep reared is mainly for wool. They are sheared once per year and one sheep produces between 4-5kgs of wool with 1kg going for Sh.130. The market is based in Eldoret.

Pyrethrum is also grown on large-scale basis but the farmers are highly discouraged because of the fluctuating prices and poor market for the produce.

The potatoes grown in the area are supplied to the whole of West Pokot region and even as far as Turkana and Lodwar districts which are more than 350km away.

We were able to work with 26 farmers and interviewed them using the questionnaires.

Observations

- The farmers are willing to learn and depend on agricultural officers to provide them with extension services.
- The farmers are ready to embrace the changes but are not willing to take the risks. Their success is dependent on someone else's success. This has had a negative impact in the area because most of the farmers end up growing the same type of crops leading to low prices for their surplus produce hence incurring losses.
- There is poor infrastructure in most of the areas we visited. This has inconvenienced the farmers because they are not able to transport their produce to the market leading to perishability. This is a great loss to the farmers hence discouraging them from putting in more effort.
- Most of the farmers do not belong to agricultural groups. This is due to the high fees one has to pay to join a group and for others it is due to ignorance. By joining these groups, the farmers are able to learn more and acquire knowledge in kitchen gardening, bee keeping, keeping dairy goats among others.
- We also noticed that the area has very few agricultural field officers. This has had a negative impact since they are not able to meet the requirements of all the farmers in the region. In some places, the last time they received a visit from the officers is 1994.
- There is considerable insecurity in the area. This has discouraged many farmers from rearing cattle.
-

Challenges faced by the farmers

- The farmers do not have sufficient funds to do some of the activities on their farms.
- The farmers do not have ready market for their produce.
- Farmers do not get the farm inputs on time hence delay in planting.
- Poor Infrastructure

- Inadequate extension services
- Poor radio reception

Use of radio

Most of the farmers listen to the radio especially programs on agriculture and would prefer them to be presented in vernacular, for them to be prolonged and if possible between 8:30-9:00pm. In addition to this most of them complain that the call-in lines are either congested, do not go through, the presenters should use a slower pace when reading out the numbers to call-in.

Suggested solutions

- ✓ More extension services to be provided. If possible more agricultural officers to be posted to West Pokot.
- ✓ The farmers to be encouraged to diversify their agricultural activities.
- ✓ The government should come in and help improve the infrastructure in the area so as to enable them to buy inputs and to sell their produce.
- ✓ The farmers should be encouraged to join groups and be taught on their benefits for example: ease in acquiring loans, ability to learn from each other and apply in their own individual farms among others.
- ✓ The radio stations should use vernacular when presenting the programs, the programs should be prolonged and the farmers to be given clarification where necessary.
- ✓ The farmers should be taught on modern farming techniques so as to improve agriculture.
- ✓ The farmers should be educated on alternative means of transport for example use of donkeys to transport their produce to the market. Farm inputs to be brought closer to the farmers for them to plant on time.

Challenges faced by the URIs

- ✘ Lack of support from REO.
- ✘ The climatic conditions were very unfavorable for covering long distances.
- ✘ Long distances between the farmers.
- ✘ Poor means of transport
- ✘ Language barrier.

Lessons learnt

- ✘ Confirmed that agriculture is the backbone of Kenya's economy.
- ✘ It was a platform to practice what has been taught in class.
- ✘ Taught us to relate with people of different temperaments.
- ✘ Being a hardship area, it taught us on how to adapt to various environments very well.

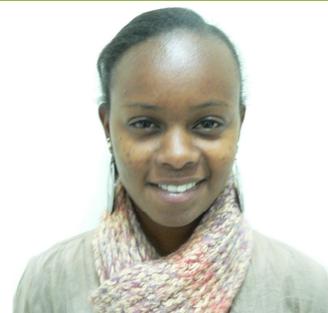
Conclusion

We are very grateful for the opportunity to work with KENFAP and FVR as URIs. It was not only a learning experience but an interactive one as well considering none of us came from the area. We were able to apply the knowledge that has been taught in class practically as well as get to see crops that we only knew or didn't know theoretically. Again we are grateful.

15. EXPERINCES IN NAKURU DISTRICT

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Introduction

During the attachment, most of the activities were carried out in the field. I worked together with the REO who incorporated us into the KENFAP field activities and developed a work plan together. Some of the activities implemented included promotion of biogas production technology, training farmers on farming as a business, records keeping, value addition, kitchen gardening, among others. We also mobilised communities to participate in programmed activities. Whenever we were not visiting farmers in the field, we worked at the KENFAP shop. The areas visited include; Muguga, Njoro, Menengai Crater, Heshima and Mau Narok where we met different types of farming groups as well as individual farmers.

My choice of Nakuru district was motivated by several reasons. First, Nakuru happens to be my home area therefore I am familiar with most of the places that I visited. Since we were working in the field and visiting farmers in various places, it would be cheaper to commute from one area to another then back home thus saving on costs such as rent and meals. Another reason is that Nakuru has many people practicing farming as part of their livelihood since the soils of the area support many types of crops. During the previous April holidays, I had carried out an assigned in the area on farmers who keep farm records thus I was familiar with nearby farms in Nakuru.

Background

More than 25% of people living in Nakuru district live in the 6 townships and 4 trading centres of the area of which the Nakuru municipality with more than 92,000 inhabitants is the most important town in the province. The percentage of the urban population is comparatively high hence industry and tourism play an important role that should not be underestimated. The natural features in the region include Lake Naivasha, Lake Nakuru, Lake Elementaita, Menengai Crater, Mount Longonot and Suswa Hills. They are considerable tourist attraction sites.

Nevertheless, livestock and agriculture play an important part in the economy of the district. For every 387,504 rural persons, a total area of 576,200 ha is available. That is not much but for a small farmer in the better areas, it is adequate. The Elburgon division with only 1.18 ha per household and 0.26 ha per person (UH1, UH2, LH2 and LH3 ecological zones) is a good example of this.

In most areas of the district, the ecological conditions are rather unsuitable for arable farming and livestock is the main economic activity. In Kijabe location (mainly UM6, UM5 and LH5), 31.34 ha per household and 6.78 ha per person are available; not much but ranching plays an important role here though land pressure is stronger and the population density much higher. The area used to be a large scale ranching area and some ranches still exist but the main part of the area (especially former forests and large scale farms) is quite densely populated. Problems such as soil erosion and degradation are a great consequence of too high stocking rates occurring more often. That is why improvement of the overall land use and agricultural productivity is necessary in order to stop the steady destruction of the natural potential. This is very important because the population is still growing rapidly and as far as can be predicted, livestock and agriculture will remain the basis of the future economy.

Areas visited

Muguga farms

- The first place we visited was a group of farmers in Muguga called the Farmer Field School who usually hold their meetings on Tuesdays. The group is composed of 22 registered members; 20 male and 2 female. They rear poultry, dairy goats and cattle each, whereby they sell their products as a group, get agricultural information together and financial support. They market their own products as a group to meet the high demand from many customers. Among them are star farmers who have practised the new Agricultural techniques which include; green houses, fish ponds, rabbit keeping (interbreeding), poultry (different breeds) and zero grazing of cattle and goats in very small pieces of land of about 50 x 100.
- The farmers in Muguga have a ready market for their produce although they sometimes encounter fluctuation in prices and exploitation by middle men due to lack of market information. Since their group is a registered one under KENFAP, they have many benefits as they get free extension services, low prices for farm inputs and a ready market for their produce. KENFAP and I also monitored their progress. We advised them on how to seek good market prices, importance of keeping farm records, biogas projects and the FVR. We therefore formed a radio listener group and chose a group leader.
- The Muguga Farmer Field School liked listening to the agricultural tips and due to this, they have put them into practice and so far, they are doing well as far as their production is concerned.
- The farmers were very welcoming, friendly and co-operative. We therefore paid regular visits in their farms mainly on Tuesdays.

Menengai crater

- We were also privileged to visit farmers in Menengai Crater where we met a youth group by the name Menengai Youth Group. It consisted of 12 members; 2 ladies and the rest were men. They rear rabbits and grow trees as part of their livelihood since they sell them locally. A mature rabbit costs Kshs 1000 while the young one is Kshs 500 each. They have planted trees that are essential, purifying, enriching the air, regulating the atmosphere and climate, preventing droughts and flood, protecting the soil and creating the habitat on which myriad flora and fauna and mankind absolutely depend on. We sensitized them about FVR and from there they formed a listener group and chose a group leader. As we held the discussion we realised that they faced many challenges.

Some of them include inadequate feed, shortage of water, lack of capital, lack of market information, stiff competition, diseases affecting trees and lack of pure breed of rabbits. We advised them on some of these issues such as marketing and they are now far much better than before as seen in the quality of their produce.

- Some of the youths have developed interest in Biogas and are now being trained on how to construct Biogas plants. They are very committed in Agricultural activities and always worked towards attaining the best in order to improve their living standards. We realised that the youths rarely listen to Agricultural Programmes because they prefer Radio Stations such as KISS FM, EASY FM among others since they listen to the music of their choice but after we sensitized them, they became interested and are now listening to these Agricultural programmes. Since then, the youths are now better farmers although adoption of some of these techniques has been a constraint due to lack of funds to initiate them.

Kiti

- We visited individual farmers in Kiti, a place called Heshima. One of the farmers was a Biogas user and at the same time rearing poultry and the other one had grazing units for dairy cattle and goats for meat. The farmer using Biogas was very pleased with it as it is cheap, fast and environmental friendly. In addition, it was time saving as he had no time to look for firewood. The same farmer had 850 layers whereby they produce 10 trays in a day and she sells Kshs 200 per tray to brokers who then sell them in town. Although she has been keeping poultry since 1994, sometimes there is decrease in egg production due to change of feed and she hardly gets the right treatment when her poultry become sick. The other farmer with a zero grazing unit for goats keeps them for mats and hides. The goats were 20 in number, very clean and healthy. She keeps them for economic purposes whereby each goat is sold at around Kshs 5000 to other farmers and people from the slaughter houses. She also sells hides which is worth Kshs 4000 each. She feeds them with chicken waste and de-worms them frequently. These goats hardly fall sick. The farmers in Kiti have a passion for farming and have majored on it as they depend on it as a source of their income in order to improve their living standards. We sensitized them about FVR although they were aware and we discovered that they are loyal radio listeners. Some of their livestock tips were from the radio.

Mau Narok

- We visited a Bee Keeper in Mau Narok in a place called Likia. She has been keeping bees since 2004 and she begun it due to the cut flowers in her farm which attracted bees. The bees occupy a small piece of land of about 20 by 20m and take less time in taking care of them. She had two bee hives, one in her house and the other one outside. The bees have been of great benefit to her as they provide her with honey which she uses to make oil for sunburn and pimples and also making candles. The bees only require water and flowers. They produce 10 kgs to 30 kgs of honey which she sells at about Ksh 10,000. Honey has a very high demand of which she cannot be able to meet. Bee keeping is very profitable and an idea with high potential in the area.

Kerma

- We visited a group of farmers in Njoro in a place called Kerma by the name Small Holder Dairy Group who usually meet on Wednesdays. The group consisted of 26 members; 19 female and 7 male. The group was very active and cooperative and this was seen when we met them preparing land for planting beans together as a group. They were welcoming and very friendly. The main aim of farming in this group was to carry out farming as a business and to easily get access to market information, meet demand of their customers, get financial support and to engage themselves in demonstration plots. The farmers kept farm records which enabled them to monitor their dairy farming. We sensitized them about FVR and we learnt that they liked listening to the Agricultural programmes and that they are using some of the tips such as the use of certified seeds. Although they have been doing their best in farming, they need financial support from donors in order to start a factory for their dairy farming in order to add value to their milk. They also need agricultural officers to visit them at the grassroots level and advise them on their farming activities. We also sensitized them about the ongoing biogas project.

Experiences and lessons learnt

- The attachment was very educative, interesting, fun and I learnt many things on farming and agriculture. I also acquired some skills such as being confident, addressing a group of people, talking through the phone and being keen on what other people say. I also learnt how to address a large number of old men and women and to interact well with them. They introduced us to the farmers hence we were not like strangers to them.
- FVR was an inspirational tool in my life during the attachment. It made me grow to a better person through using the knowledge that I have acquired in school to help farmers in their agricultural activities. I will be glad if I were to work with them again. It was a great experience and now I am in a position to put into practice what I have learnt in school.
- I had two REO's who were very cooperative. They tried their best to make us excel in our field activities, in other words, they were always there for us as we worked together. KENFAP was a good pathway to reach the farmers at the grassroots. The staff was very cooperative, welcoming and willing to work with us.

Challenge faced

- Although the attachment was very interesting, we faced a few challenges such as risky means of transport whereby one had no choice but to use motor bikes for transport to the distant rural areas since it was the only means of transport available which was also very expensive. Some roads were very steep and rough.

Recommendations

- ✓ I learnt that the main requirements for farmers to succeed are:
 - agricultural officers to reach them at the grassroots level;
 - market information;
 - financial support.

- ✓ When it comes to radio (agricultural programmes), many farmers would like to listen to them. To improve this;
 - they should be presented in the evening;
 - should be repeated several times during the week;
 - should be presented in all languages;
 - should mainly discuss crops, livestock, diseases, market trends, the right animal feeds, how to get farm inputs at good prices and agriculture as a business.

- ✓ I would suggest that next time at least KENFAP and FVR should have their own means of transport such as vehicles which should be used to take their staff to the farmers in the rural areas for quick and easy access to farmers.

16. EXPERINCES IN NAIVASHA, NAKURU DISTRICT

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**Introduction**

Naivasha is market town in Nakuru county in the Rift Valley Province. The growth of its economy is boosted by people living in the satellite towns such as Kayole, Kinamba, Karagita and Karati who provide a workforce for the town. Naivasha is endowed with various sceneries such as Lake Naivasha & Mt.Longonot which are major tourist attractions. The major economic activity is agriculture especially the flower farms which are important for the Kenyan economy and the smallholder farms. There are also fishing activities along the lake.

The district is estimated to have a population of (national census report, 2009). During the internship, I worked with farmers from areas such as Nyamathi, Karati, Karagita and Maraigushu.

Nyamathi

- ⊙ Visited the Thaerera Group which has about 50 members with 38 women and 12 men.
- ⊙ The group is funded by the government in the Njaa Marufuku Grant Programme.
- ⊙ They have a greenhouse in which they have cultivated tomatoes. They also engage in cultivation of kales, onions, beans and cabbages.
- ⊙ Due to the dry climate and sandy soils, they have dug a dam from where the water is pumped to the farm, then led to the crops by drip irrigation.
- ⊙ The group had a challenge of unity of members due to the division of tasks among members since most of them are over 50 years hence sickly.
- ⊙ The members use the radio as a source of agricultural information in their individual homes and asked for more publicity of FVR.

Karati

- ⊙ I worked with the St. John's Self Help group which engages in planting of indigenous tree seedlings and passion fruits in a tree nursery.
- ⊙ The group has nine members with 5 men and 4 women and meet every Tuesday.
- ⊙ They face a challenge in the production of passion fruits since they do not have knowledge on how to improve their fruit cultivation.

- ⊙ They are also supplementing their income by joining the Dorep group where they pay Ksh.200 each to purchase two chicken each after which each egg sold is sh.30 hence a more profitable endeavour.
- ⊙ The farmers use the radio as a source of agricultural information though it is not timely since it is broadcast in the morning when they are going to the farms.

Maraigushu

- ⊙ The third group I worked with was the Mahigaini organic group which was established in the early 90's.
- ⊙ It has 18 active members that is 7 women and 11 men.
- ⊙ Though the group does not have a project together they are taught on new innovations and practice it in their separate homes.
- ⊙ However, all members have kept rabbits especially the California White whose meat is recommended to diabetes patients.
- ⊙ Some members belong to the Dorep Group where they purchase day old chicks at Ksh.95 then rear them and sell eggs at Ksh.600 per tray. This has been a profitable venture.
- ⊙ The major challenge they have is the markets especially for the rabbits.
- ⊙ The radio is a useful source of someone agricultural information to them however, they requested for follow up on implementation on techniques broadcast on FVR.

Karagita

- ⊙ I visited the Mbegu (Ol-Njorowa) Farm in South Lake region.
- ⊙ The farm was established in March,1993 is approximately 75ha in size.
- ⊙ The farm specializes in cultivation of roses only for export.
- ⊙ The farm does not use the radio as a source for agricultural information but depends on the expertise of their staff.

Challenges

- ⊙ It was a challenge to address some of the groups without identification.
- ⊙ Some of the areas where the farmers groups thrive are difficult to access.

Conclusion

- ⊙ The internship experience was worthwhile since I was able to reach more farmers and sensitize them on farmer voice radio.

Recommendations

- ⊙ The next group of interns should be given an introductory letter from the university so that farmers trust their identity.
- ⊙ The Radio Extension officers should meet the farmers beforehand to sensitise them on the activities of URIs.