



## **Food Justice Project**

### **Food Sovereignty Tafakari**



**7<sup>th</sup> - 8<sup>th</sup> April 2016 | Gatundu | Central Kenya Region**

**Compiled by Leonida Odongo**

## Table of Contents

<b>Abbreviations .....</b>	<b>3</b>
<b>Background .....</b>	<b>4</b>
<b>Expectations .....</b>	<b>5</b>
<b>Gender Roles .....</b>	<b>5</b>
<b>Recap .....</b>	<b>9</b>
<b>The Science of Seeds .....</b>	<b>10</b>
- vegetative technologies an example being, tissue culture.....	10
- cuttings, rhizomes and runners - .....	10
- tubers - where parts of plants are stored and used to produce young plantlets, an example being potatoes.....	10
- corms and suckers e.g.bananas and arrowroots.....	10
<b>The Politics of Seeds .....</b>	<b>21</b>
<b>Conclusion.....</b>	<b>33</b>

## Abbreviations

<b>COFCO:</b>	Central Organic Farmers and Consumers Organisation
<b>EU:</b>	European Union
<b>EFSA:</b>	European Food Safety Authority
<b>FTAs:</b>	Free Trade Agreements
<b>GMOs:</b>	Genetically Modified Organisms
<b>HCDA:</b>	Horticultural Crops Development Authority
<b>HRD:</b>	Human Rights Defender
<b>IMF:</b>	International Monetary Fund
<b>IPRs:</b>	Intellectual Property Rights
<b>KEPHIS:</b>	Kenya Plant Health Inspectorate Service
<b>OPV:</b>	Open Pollinated Varieties
<b>PVP:</b>	Plant Variety Protection
<b>PPPs:</b>	Public Private Partnerships
<b>PRM:</b>	Plant Reproductive Material
<b>ROI:</b>	Returns on Investment
<b>TRIPS:</b>	Trade Related Intellectual Property Rights
<b>TNCs:</b>	Trans National Corporations

## Background

The *Tafakari*<sup>1</sup> was the 3rd in a series of sessions held by Fahamu under the Food Justice Project whose objective to build a multi-issue movement that is able to address different oppressions that produce inequality including food inequality within communities.

The project in the short term, is expected to result in:

- Alliances built among grassroots communities for sustained dialogues on food and other injustices
- A politically conscious community able to interrogate injustices related to food justice
- An improved knowledge base within the community informed by community based learning.

In the long term, the project aims to achieve:

- Sustained dialogues held in the community beyond the fellowship
- Communities able to dismantle oppressive structures and effectively counter food oppressive regimes and other related social injustices
- Sustainable community based learning centres established and functional within the communities

The Tafakari brought together 32 participants (16 females: 16 males) drawn from Gatundu, Machakos and Nairobi. Central Organic Farmers' and Consumers Organisation (COFCO) hosted the forum. The participants' profile included farmers, a Human Rights Defender (HRD) and a political activist.

## Methodology

The training adopted participatory adult learning methodologies including experience sharing, buzz groups, reflection and games.

---

<sup>1</sup> Tafakari is a Swahili word for reflection



# Day 1: Thursday, 7th April 2016

---

## Expectations

Asked to share their expectations, the participants' responses were:

<ul style="list-style-type: none"><li>• Farmers to learn together</li><li>• To become a transformer farmer (fully organic)</li><li>• Learn more about organic farming</li><li>• Understand how to eradicate food related health problems</li><li>• To sensitize others</li><li>• How to sustain indigenous seeds in the midst of challenges</li><li>• Learn more about farming and seeds</li><li>• Learn how to eradicate Monsanto seeds</li><li>• Understand plant and human disease prevention</li></ul>	<ul style="list-style-type: none"><li>• Gain knowledge to teach others</li><li>• Experience sharing across regions (Gatundu and Machakos)</li><li>• Revive past farming practices</li><li>• Know the rights of farmers</li><li>• Learn successful farming without using fertilizers</li><li>• Learn how to access indigenous seeds</li><li>• Learn how to revive our indigenous seeds</li><li>• Revival of our farming systems</li><li>• Demystify Monsanto seeds</li></ul>
--	---

## Gender Roles

The session started with the participants being asked to define gender. The definition was given as: men and women working together, inclusivity of men, women, boys and girls.

Factors influencing gender were discussed as family, media, religion, workplace and institutions of learning e.g. schools. It was mentioned that within families, women and girls are socialized to play care roles while men are socialized to undertake control roles. It was noted that

gender imbalance is responsible for women and girls not realizing their full potential as they are limited by their culture.

Within religious circles, it was mentioned that many women are not given leadership positions simply because they are women and that biological occurrences in women such as menstruation was being used to brand women as unclean and that women were being denied leadership roles due to their gender.



### **Responding to emerging concerns on gender**

Within the workplace, it was discussed that women tend to be paid less than their male counterparts and are subjected to sexual abuse. It was further noted that as women try to climb economically towards the glass ceiling, they are demeaned by gossip and slander.

In learning institutions it was explained that teachers are responsible for gender stereotyping by discriminating against students based on gender, where girls tend to be encouraged to take simpler subjects like art and males are encouraged to take up the sciences. It was emphasised that gender roles are socially manipulated and if a child is encouraged from an early age to pursue what they want, females as well as males can excel in the sciences.



**Group work: Males only in interrogating gender roles**

**Group Exercise**

The participants were asked to split into three groups (males, female and a mixed group). Each group was asked to note down their daily activities then share this in plenary.

<b>Men only</b>		<b>Women only</b>	
6:00am	prayers	4:30am	prayers
6:30am	inspect the compound	4:45am	making fire
7:00am	take breakfast	5:00am	warm the water for milking and bathing
7:30am	take a bath and brush teeth	5:15am	milking and preparing the children
8:00am	different duties	5:30am	prepare breakfast for children
1:00pm	take lunch	6:00am	children leave for school
2:00pm	continue with daily activities	6:15am	take the milk to the dairy
5:00pm	day's duties come to an end	6:30am	prepare?? the husband
6:00pm	review of daily happenings	7:00am	husband has eaten and leaves home
6:30pm	bathing	7:15am	cleaning utensils, cleaning the house, washing the clothes
7:30pm	resting		



8:00pm	take supper	8:30am	taking cows to graze
9:00pm	retire to bed	9:00am	go to the <i>shamba</i> <sup>2</sup>
		12:00am	go back to prepare lunch
		1:00pm	lunch and washing utensils
		2:00pm	looking for cow feed
		4:00pm	milking
		4:30pm	taking the milk to the dairy
		5:00pm	preparing for dinner
		6:00pm	children bath
		7:00pm	eating dinner
		8:00pm	washing utensils
<b>Mixed group (males and females)</b>			
6:00am	prayer	2.00pm	cleaning the house
6:15am	going to shamba	4:00pm	refresh mind
10:30am	breakfast	5:00pm	go to class
11:30am	closure job	6:00pm	attend classes
12:00am	bathing	8.30pm	supper
1:00pm	lunch	9:30 pm	sleeping



## Presentation: What do women do in the household in any given day?

### Observations

- It was observed that women carry out majority of activities in the household
- It was confirmed that women in farming households do not control resources. It was observed that males in the family make

<sup>2</sup> Swahili name for a piece of land

most decision-making roles.



### **Learning and sharing across regions**

It was concluded that there is a need for sharing of tasks within the household and recognition that women also need to have rest and participate in decision making .It was mentioned that women spend the bulk of their time on the land and should therefore actively participate in decision making concerning their farms. It was also emphasized that there is a need for attitude change towards women controlling resources and that women as well as men were able to control resources effectively.

## **Day 2: Friday, 8th April 2016**

---

### **Recap**

During recap, the participants shared what they had learnt:

- Seed preservation using ash and cow dung
- Local seed storage methods in granaries
- Understanding varieties of seeds
- Gender roles and how women suffer
- The link between gender discrimination and farming

Based on the recap, it was noted that the participants could identify the link between the previous learning sessions (soil) and the current learning session (seeds).

## The Science of Seeds

A seed was defined as part of a plant that can be used to propagate new plants. It was explained that these seeds could either be a grain or seedling, corn, cutting, root scion, tuber or stem. It was further mentioned that as a result of seed certification, seeds were becoming unavailable and more expensive. Additionally, it was discussed that according to the Seed Act 2013 for Kenya, certified seeds when packaged should be free from diseases, pests, other contamination materials and healthy, including when physically mature.

Seed security was defined as a state where all users in a region or farming system have ready access to sufficient quantities of seeds of a desired genetic make up and physical quality, and at the right time year after year.

### Seed production technologies

Seed production strategies were discussed as through Genetic Modification (GM) seeds can be produced through any of the following processes:

- Genetic engineering
- Hybridization
- Pollination through:
  - vegetative technologies an example being, tissue culture.
  - cuttings, rhizomes and runners –
  - tubers - where parts of plants are stored and used to produce young plantlets, an example being potatoes.
  - corms and suckers e.g. bananas and arrowroots.

### Sexual propagation

This was explained as seed produced as a result of pollination. Two types of pollination are:

- a. self-pollination - this is where pollen is transferred from the anther of a flower to the stigma of the same flower. This is made possible (catalyzed) by the activity of wind or insects such as bees. Examples of crops that undergo self-pollination are wheat, finger millet, rice, tomatoes, and legumes such as beans, cowpeas and groundnuts.
- b. cross-pollination – this was explained as occurring when pollen is transferred from the anthers of one plant to the stigmas of another. Either wind or insects or other animals can transfer the pollen. Examples of cross-pollinated plants by insects and mostly

bees are sunflowers, sesame, onions, cucumber, cabbages and carrots. An example of a wind-pollinated crop was cited as maize.

### **Sources of Seed in East Africa**

- Own Seed - individual farmers produce, select and save seed by separating seed from the crop
  - Individual sources including individual tree seedling nurseries.
  - Grain and seed banks - farmers produce and select seed individually or collectively but store centrally for security reasons.
  - Seed stockists - farmers obtain seed from a certified seed stockist
  - Commercial seed merchants - these provide packaged seed that is certified by Kenya Plant Health Inspectorate Service (KEPHIS). They avail their seed through retail systems found in most towns in the country
- Tree nurseries –are either centrally or individually run. They can also be institutionally supported. Tree nurseries producing fruit tree seedlings need licencing from Horticultural Crops Development Authority(HCDA)

### **Seed Production Process**

It was explained that seed there are two ways of producing seed (i) sexually and (ii) asexually

### **Hybrids**

Hybrids were defined as the first generation seed crossed between two different parents, usually carried out over a long period of time. The first step is to select the desired trait, e.g. in maize, big cobs could be desired to increase the yield per unit area of land. Another beneficial trait could be sheathes that fully cover the cobs.

It was discussed that for example, if the desired traits described above are found in different maize plants, the desired hybrid seed is produced by artificially transferring pollen from plants of big cobs and placing the pollen on the silk of the plants with sheathes that fully cover the cobs, resulting in maize with both traits. The process is repeated over several seasons to ensure greater uniformity.

Other desired traits could be; improved plant colour, disease resistance, high vibrancy and increased vigor in comparison to the characteristics of either of the two parents considered separately.



It was mentioned that hybrids were introduced into the East African farming system back in the 20th Century in order to increase farm productivity. With recommended practices, the hybrids out yield indigenous varieties hence are preferred by many farmers.

It was noted that, hybrids require higher input in terms of chemical fertilizers, pesticides and labour for them to produce optimally.

It was explained that without this input, indigenous seed could yield better than the hybrid seed under similar conditions since they easily adapt to local conditions. Additionally, hybrid seeds cannot be saved for future planting since the seeds from a first generation crop do not yield to the same level as the original seed. This means that new seed must be purchased during each planting season to ensure continued production.

### **Components of Seed**

The components of seeds were described as follows

Seed coat	This is the outer part of the seed, it is responsible for protecting the seeds
Plumule	The part of the seed that grows into a shoot, it eventually becomes the leafy part of the plant
Radicle	This is the part of the seeds that grows into the root
Endosperm	This is the tissue like substance found in plant, it provides nutrition to the seed and is also a source of oil and protein

### **Quality seeds**

It was mentioned that farmers need to ensure they have the right quality seeds before they plant. Features of good seeds were described as follows:

- Can germinate
- Right moisture content 13.5%
- Free of diseases & pests

Bad seeds on the other hand were discussed to have the following characteristics:

- Are shriveled
- Are broken
- Are rotten
- Infected with diseases & pests
- Over processed (damaged by high temperature or machines)
- Discoloured seeds
- Aflatoxins



### **Discussions on technical aspects of seeds**

It was further discussed that hybrid seeds mostly have a terminator gene, which is inserted in the maize so that it does not reproduce after some time. This, it was explained, meant farmers have to buy seeds season after season.

### **Seed selection**

Seed selection was described as the process of identifying the characteristics of desired plants and isolating these seed for purposes of bulking and later for use on own farms. It was explained that the common practice was to retain one year's seed for planting the following season.

It was also explained that seed selection involved observing the plants with desired characteristics, identification, marking and later harvesting these seeds separately.

These seeds are planted with the dual intension of harvesting crop for food and the best seed.

### **Factors to consider during seed selection**

- Adaptability of the crop to local conditions in terms of rainfall and weather patterns; pests and disease incidences and soil characteristics.
- Growth of the crop in the field where healthy and strong crops

- are selected.
- Selection of seed must come from a crop that is free from diseases and pests.

### **How to plant seeds – practical demonstration**

The participants were asked to prepare one half-inch hole, put 3 trowels of manure on the hole, mix it properly then plant 9 seeds in each hole. It was advised that with 9 seeds, the farmer was assured of better yields than the current system where the farmer plants just one seed per hole. The holes were dug in a zigzag method leaving some land fallow.

The zigzag method of planting was described as more efficient compared to the farmer having to till the whole farm. This was aimed at enhancing soil fertility, giving adequate space to crops, ensuring enough sunlight for each crop and enhancing accessibility to nutrients. It was discussed that as the population grows, the demand for food also grows whereas the land available for crop production continues to decrease. The importance of seeds was described as follows:

- Seeds are of immense economic value
- They contain high protein, starch and oil reserves that help in the early stages of growth and development in a plant.
- In addition, many of the animals rely on fruits and their seeds as a primary food source.

### **Fruits and seeds**

It was explained that seeds come in all shapes and sizes. It was further mentioned that Nuts, capsules, follicles, drupes and legumes are all different types of fruit. Fruits may be hairy, smooth or corrugated and often oddly shaped.

### **Propagation**

This was explained as the increase in plant population by allowing plants to produce from one generation to the other. It was discussed that crop propagation increased the plant population by allowing plants to reproduce from one generation to the other. This helps in the conservation of various plant species through the years. Plants can be propagated through either seed propagation or through vegetative means.

### **Seeds and fruits dispersion**

Once fruits are formed and reach maturity, animals, wind and water may act as avenues for dispersion. Birds and mammals eat the fleshy fruits of plants and take these to new places before the seed are released in the droppings. This enables germination of the seed in its

new environment.

It was mentioned that some fruits are naturally explosive, such as peas and beans especially on a hot day when pods explode and seeds fly many meters into the distance.

### **Conservation of seeds**

It was explained that the conservation of seeds is very important because loss of biodiversity is a challenge to many countries in Africa. It was explained that collection and storage of seeds helps in the survival of native plant species, also that seeds of individual species could be used in reintroduction and recovery into other locations when the need arises. It was explained that seeds could be used to establish seed orchards from which further seed collections can be sourced.

### **Seed Collection strategies**

It was explained that farmers should never take more than 20 per cent of the seed from a particular plant unless that plant and the immediate habitat where it grows is destined for destruction (for example, clearing or road maintenance).

### **Why use local seeds?**

- Local seeds have adapted to the local environment
- Local populations are more suited for site rehabilitation and management
- There is a possibility of having genetic variation between populations that may reflect critical reproductive and physiological differences

### **Seed quality and germination**

To grow plants from seed, some knowledge of the quality and germination requirements of your seed is required. Not all fruits will produce seed. Not all seed produced will be viable or terminable. Seed is a highly variable resource and lack of seed production in flowering plants can be caused by a number of factors. These were mentioned to include:

- Pollination failure,
- Resource deficiency,
- Predation and genetic defects causing developmental failure.
- Environmental stress and age structure of the population, which can also contribute to a low seed production.

### **Seed quality testing**

It was explained that a number of quick tests could be conducted on seed to determine whether or not the seed is potentially viable. Additionally, it was mentioned that insect damaged seed and shriveled seed is unlikely to germinate and that fruits with no seed within will

also not germinate.

## **Methods of seed quality testing**

### **a) Visual inspection**

It was explained that through visual inspection a person with the naked eye looks at seeds and if the seeds are very small uses a magnifying glass.

Features to look at during inspection were discussed as colour, infestation by pests, whether the seed coat is intact. It was explained that the healthiest seed most likely to germinate is one that is undamaged and plump.

### **Seed sectioning (cut test)**

The cut test was described as very simple method to determine whether the seed is full (contains an endosperm, the food necessary for growth and development) or empty.

The process, it was explained, entailed taking a seed sample and cutting each carefully to confirm whether its firm and white inside .It was explained that when shriveled seeds or those that are very dry are not good for planting.

### **Reduced surface tension flotation test (float test)**

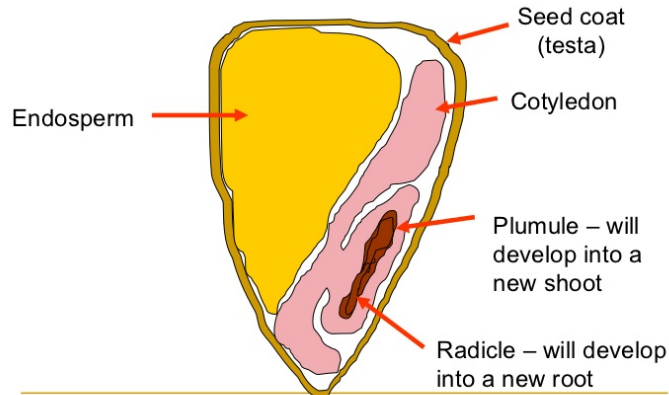
It was deliberated that this is an effective method to determine whether seed is full or empty. The test is simple and requires a container to hold water (a bucket, jar or cup depending on the quantity of seed being tested), a few drops of detergent to lower the surface tension and the seed.

It was explained that if the seeds sink it means they are full and healthy, while if they float, they are either empty or shriveled.

The most important criteria used to select seeds were cited to be performance of the seed in the last season. This selection criterion is based on the seed's adaptability, drought tolerance among others. Some traditional methods used by local communities for seed storage include smearing of cow-dung on the seed surface, use of pest repellants and pest proof containers.

## Internal Structure of seed Maize

### Endospermic Seed e.g. Maize



### Vegetative propagation

This was described as a technique where crop multiplication is done using the non-seed parts of crops. The parts used include the stem cutting, shoots, bulbs and rhizomes. Examples of such crops include sweet potatoes, sugarcane, cassava, onions, sisal, ornamentals, arrowroots, bananas and pineapples among others. Examples of vegetative propagation were given as budding and grafting. It was explained that budding and grafting is done for fruit trees e.g. mangoes avocados and citrus including cash crops e.g. coffee.

### Crop husbandry

Other practices for better crop husbandry shared were: proper methods of planting, gapping, staking (for tomatoes) and propping (for bananas). Additionally it was explained that farmers could use weeding, pruning, mulching and crop rotation.

### Broadcasting

This was explained to refer to a planting technique that involves spreading of seeds in the field at random. It is mostly practiced for pastures and fodder grasses as well as small grains such as sorghum and millet seeds. Additionally it was mentioned that the plants are then thinned to achieve the necessary plant population with thinning being used for gapping, as weed suppressors or as mulch.

### Row planting and spacing

This was explained to involve planting of seeds in rows or lines specifically prepared for that purpose. Spacing of different crops will depend on farmers' practices that may be determined by the tools used or from past experiences. This ensures that enough space is

provided between plants for optimal growth. Spacing and depth of covering of seeds varies with different soil types, seed sizes and farmers' experiences in different regions.

### **Hybrid seeds**

#### **Disadvantages of Hybrids**

The disadvantages of hybrids were discussed as follows:

- They require high inputs to produce desirable yields.
- Hybrid seed is relatively expensive compared to indigenous varieties.
- Once hybrid seed is replanted, its yield decreases. Hybrid seed requires huge resources, technical know-how and labour.
- The technology to produce the hybrid seed is controlled and owned by the multinational companies or government agencies.
- Smallholder farmers have limited capacities to produce hybrid seed.
- Continuous use of hybrids leads to over dependence on seed from specific sources since most of it is not produced in the farm.
- They are not easily accessible either because of lack of money or supply.

#### **Open Pollinated Varieties (OPVs)**

It was explained that OPVs are those whose pollination is not controlled. They arise because of growing various lines of crops together, an activity that allows cross-pollination thereby combining different characteristics from different parents. Examples of cross-pollinated crops are cowpeas, maize and beans among others. Seed arising from these crops can be grown and replanted without loss of vigor.

#### **Advantages of Open Pollinated Varieties**

These were given as:

- Seeds are readily available to farmers
- Maintaining seed production of the varieties is relatively easy
- Open pollinated varieties are adaptable to a wider range of weather conditions
- Farmers can retain seeds on their farms this helps reduce cost of production
- Seeds can be replanted and used for the next planting seasons

#### **Disadvantages of Open pollinated varieties**

- OPVs are not patented hence available to most farmers
- Piracy is limited on OPVs
- They are not easily commercialized hence they are readily available to everyone and the possibility of genetic piracy is unlimited.



- They are not easily commercialized, as they are readily available for growth to everyone.

### **Disadvantages of Genetic Engineering (GE)**

Some possible disadvantages of GE include:

- May contaminate other plants
- Are in many cases patented
- Lack of adequate information/low awareness and general ignorance about GE/GMOs

### **Seed bulking**

This is a process of seed multiplication where a small amount of seed is reproduced to increase the amount of seed required. The seed produced is later distributed to reach farmers either through commercial outlets, bulking programs or through seed sharing.

It was explained that seed bulking is practiced at various levels including commercial seed bulking; government and institutional seed bulking; group based bulking and individual farmer bulking sites.

Importance of seed bulking at community level:

- Having adequate seed in the community
- Ensuring seeds are affordable and of good quality
- Enabling ease of multiplication of seeds
- Ensuring almost extinct seeds are reclaimed
- Seed and crop diversity is enhanced.
- A source of income through the sale of seed.
- Providing a good learning point for small-scale farmers.
- Making farmers' seed secure and independent from seed merchants.
- Saving at farm level on purchase of external seed.
- Enabling farmers to evaluate and get the seed that is suitable to their region.

### **The Bulking Process**

The process was explained as follows:

Seeds are selected based on quality; the selected seed is then planted in a separate field from the other crop. Undesirable crops are then uprooted preferably before flowering. After harvesting, deformed and rotten seed are removed and if found not to be poisonous, they are fed to livestock or used to prepare bio-fertilizer at farm level. After threshing, shelling and cleaning, the seed is dried for storage.

## **Seed Banks/Community-Based Seed Production**

Community seed production was discussed as farmers growing and preserving their own seed at village level for the purpose of ensuring seed quality and access to adequate amounts of appropriate seed for socio-economic purposes. In community seed production, seed is grown individually or collectively. It was pointed out that these seeds are preserved communally in community seed banks. The process of seed production involves selection, growing or bulking, harvesting, post harvest handling and storage.

### **Seed pre-treatment**

It was explained that before storing seed it is necessary to ensure proper cleaning and drying to avoid losses. This can be achieved through sorting and winnowing and pest and rodent control. It was discussed that seeds should be treated with materials that keep off pests. Examples were given of Neem leaf powder, which repels the maize weevil, other seed preservatives were given as cow-dung or coating the seeds with pepper.

The importance of safe seed storage was discussed. The storage area, containers and seed should be kept clean and free from old grain, dust, straw and insects.

Storage related problems in the session were discussed as pests and diseases e.g. weevils, mice, rats and squirrels.

Community seed banks were outlined as a solution to the challenges facing farmers. The seed related challenges facing farmers were discussed as follows:

- Over dependency on commercial seed sources.
- Loss of indigenous seed and seed diversity.
- Reduced seed saving strategies at community level

### **Advantages of Community Seed Banks**

It was explained that with community seed banking, the community could store and at the same time distribute seed locally making it available at the right time to the communities. This reduces the cost of purchasing seed from external sources. Other advantages of community seed banks were given as:

- Seed is available at the right time and hence available for early planting by farmers.
- Seed banks helps bring communities together thus helping them to collaborate, initiate plans and manage activities together

- without depending on seed merchants
- Enhances community cohesion and creates a sense of oneness through seed exchange
- Enables farmers to exchange seeds of different varieties
- Enables seed rejuvenation and crop diversification
- Seeds saved by farmers are indigenous and so adaptable to local conditions (pest and disease resistance, adaptable to local soils)
- There are no extra costs involved as in most cases the farmers are using locally available resources



## **Interrogating Seed Sovereignty**

### **The Politics of Seeds**

Politics was defined as the authoritative allocation of values and who gets what, when and how. In linking seeds and politics it was mentioned that Transnational Corporations (TNCs) collude with government to create a conducive environment to allow seeds to be sold.

It was further explained that governments are responsible for allocating agricultural resources to farmers but they do not provide these resources and farmers are not cushioned when their seeds fail to germinate.

It was pointed out that TNCs that manufacture seeds are out to make profits and do not care whether the farmers' seeds grow or not.

It was discussed that government officials in charge of providing seed information to farmers do not carry out their roles effectively but rather push the agenda of corporates.

### **Historiography of Our Seeds Gatundu**

- Seed selection of *Githiga*<sup>3</sup> was done by elderly women
- Selection based on size and appearance
- Seeds at the centre of a cob were selected
- Use of ash as preservative
- Special place for storage of seeds done by hanging
- Seeds tied together using leaves
- Places for storage were known as *Itara*<sup>4</sup> and *Ikumbi*<sup>5</sup> –seeds were given freely
- Seeds were very healthy, sweet and very productive
- Seeds produced original taste
- Seeds were free from diseases and could germinate quickly

### **Struggle to Reclaim our Seeds: figures that tell tales**

The participants were taken through various figures, which were of significance:

- 23.5 million = money Monsanto got as suits against farmers and farm businesses
- Kshs 480 = 2 kg of maize seeds
- 300,000 = Number of farmers who have committed suicide in India
- 200,000 = rice varieties in India before “green revolution”
- 2000 = rice varieties in India after “green revolution”
- \$10 million = money paid by Monsanto to pursue farmers on patents
- 142 = lawsuits filed by Monsanto on seeds
- 56 = small firms and businesses Monsanto sued in 2012
- 70 tonnes= rice destroyed by Colombian government in 2011 in Campo Alegre, saying the seeds were not processed
- 75% of food from USA must be purchased, processed and transported by US companies
- 4 = number of companies that control transport and delivery worldwide

### **Definitions**

The participants were taken through an understanding of the following seed related terms as:

Peasant varieties	Also known as peasant seeds, refers to
-------------------	--

<sup>3</sup> Githiga is a types of maize

<sup>4</sup> Itara a place for storing and drying firewood

<sup>5</sup> Ikumbi is Gikuyu name for granary

	crops developed by small scale farmers under local conditions to suit local needs
Industrial varieties	Refers to seeds developed for industrial agriculture
Royalty	An allocated amount of money that the breeder of a seed has to be given as intellectual property for breeding a new seed variety
Green Revolution	<p>The name given to agricultural "modernization" programme seeking to produce cheap inputs for industries and cheap food. This came with the replacement of farmer saved seeds with new seeds hailed as high yielding varieties.</p> <p>These seeds however required chemical inputs and irrigation and farmers had to have access to credit. This ruined soils; farmers were replaced by machines and put into debt. It also damaged environments and resulted in farmers' suicides e.g. in India</p>
Intellectual property laws	These are laws that recognise seeds and plants as private property and give breeders a monopoly over their marketing
Patents	A form of Intellectual Property which is granted for new inventions and guarantees the owners a period in which they market the product exclusively
Catalogue	A list of crops
Bio-piracy	The process of stealing ownership on crops and other living plants and patenting them
Terminator gene	A gene inserted into plants to make them incapable of replanting after a season. It becomes infertile
Free Trade Agreements	Agreements between two or more countries that liberalise trade (eliminate trade barriers)
Plant Variety Protection (PVP)	Is a legal system similar to patent that gives property rights to plant breeders over new varieties

## **The Seeds Debate**

Asked why seeds were important, the participant's views were:

- The source of food
- At risk of extinction
- The potential to increase agricultural production thus farmers' yields
- They determine the upper limit of crop yields and the productivity of all other agricultural elements???
- Facilitates food resources to enable diversification of nutrition
- Enables access to food

## **Are our seeds under attack?**

The session entailed discussions on corporate capture of seeds. It was agreed they are now being controlled by a handful of Trans National Corporations (TNCs); today 10 corporations control commercial seeds. Many are also pesticide producers who develop Genetically Modified (GM) that support chemically intensive agriculture.

It was pointed out that in the USA for example, one company (Monsanto) controls over 90% of the seed market. Additionally, large corporations are buying off small seed companies hence the increased monopoly of seeds. Examples were given of where Monsanto has taken over wheat production in Latin America and rice seed companies in Asia.

It was observed that public seed systems are disappearing as a major source of seeds for farmers. It was mentioned that seed companies are working together with public research institutions, furthermore donors e.g. Bill Gates are pursuing private sector for production of seeds.

## **The Genesis of the seed control**

It was explained that corporates are controlling not only our seed but also our farming system. Genetically modified seeds and hybrids are being manufactured through a chemically intensive process. The control of seeds is also anchored on the sale of seeds, fertilizers and machinery.

It was deliberated that corporations are also exercising control over other aspects of farming including contract farming in the livestock sector for example - 50% of the worlds pork, 66% of the worlds poultry and egg production.

It was mentioned that small seed companies are bought up or squeezed out of markets by giant multinationals, gather support for domestic support to push for changes to seed regulations, intellectual property laws and biosafety legislation.

Creation of the World Trade Organisation (WTO), liberal trade and investment agreements was explained to be another method of monopoly of seed production using trade. Furthermore, it was noted that these agreements have continued to open developing nations to investment by foreign agribusinesses.

In discussing corporate capture of food, the power wielded by corporates was shared as follows:

<b>Company</b>	<b>Country of origin</b>	<b>% Control</b>
Dupont	USA	22%
Land O' Lakes	USA	7%
Group Limagrain	France	8%
Syngenta	Switzerland	13%
Monsanto	USA	35%
Sakata	Japan	3%
Bayer Science	Crop Germany	4%
DLF Trifolium	Denmark	2%

It was observed that seed companies were reaping huge profits while farmers continued to suffer due to the high prices. It was emphasised that the best approach to address the seeds dilemma was for farmers to start their own seed banks.

### **Corporate seed robbery and our seeds**

It was discussed that corporates, in order to create a conducive environment for sale of their seeds, collude with governments to set up laws that criminalise the exchange of seeds and to introduce harsh penalties for those who save and exchange their seeds. An example was given of expansion of the seed and markets for Monsanto's Genetically Modified (GM) soya beans in Argentina and Brazil since 1996. Other examples in exploiting seeds were given as introduction of Intellectual Property Rights (IPRs)

It was explained that seeds are being introduced into Africa and Asia together with corporate farming; an example was given of China, which is promoting the use of Chinese hybrid rice varieties in many parts of Africa.

It was noted that corporates are fuelling a lot of money and supporting all kinds of laws that criminalise indigenous seeds systems e.g. IPRs



seed regulations, investment protection this results in the killing of various varieties of indigenous seeds.

On the other side, there are farmers' seed systems that still provide food for much of the planet, but receive no government support.

### **Agricultural commodity trading companies investing in farms**

Cargill	Palm oil, sugar cane, dairy, cattle, poultry, pigs, aquaculture
Bunge	Sugar cane, cereals, oil seeds, cattle
Mitsui	Cotton, dairy, cereals, poultry
Charoen	Pigs, aquaculture, fruit and vegetables
Willmar	Palm oil, sugar cane

It was further discussed that in Argentina, as a result of corporate agriculture, 30 companies control over 2.4 million of hectares of farmland (10% of the country's total) and these companies have a supply relationship with farms.

It was pointed out that governments are collaborating with corporates to provide incentives to foreign investors by signing up and implementing western based international property laws and food safety regulations that favour corporations. Additionally, governments also pump a lot of money into infrastructures that favour corporations.

It was noted that governments from developing nations have also developed their own corporations for agricultural production, these still continue to exploit local peasant farmers in the countries in which they operate because they are driven by profits.

It was explained that there is a direct relationship between agribusiness and the global financial sector; globalisation continues to concentrate wealth and power in the hands of financial giants. Global finance operators are looking for quick returns on investments with most of the money flowing into agribusiness and commodity speculation.

In discussing who feeds the world, it was pointed out that research confirms that peasant farmers provide 50% of food whereas industrial

agriculture contributes just 30%. In Africa, it was pointed out that 80% of farmers are small-scale farmers.

### **Current Trends on Seeds**

In discussing the current trends on seeds, it was explained that from the 1980s to 1990s there was a dismantling of state companies that had interest in farmers. It was further discussed that all subsidies on agricultural production were removed e.g. provision of free seeds or subsidies in case of crop failures.

### **How seed laws make farmers' seeds illegal**

The deliberation assessed trade and investment, intellectual property laws, International Union for the Protection of New Varieties of Plants (UPOV), trade and investment.



### **Deliberations on corporate capture of seeds**

It was explained that through marketing laws, corporates define criteria that must be met before seeds are put on the market, and leads to the creation of a uniformity in seeds.

Intellectual property laws were discussed to recognize exclusive ownership of seeds to companies and the justification for this was that it gives companies temporary monopoly to get high Returns on Investment (ROI).

Types of intellectual property systems for seeds were given as patents where no one can produce / reproduce/exchange /sell /use patented plants for research without the owner's authority. Plant variety protection was described through UPOV as a system of harmonising plant rules.

It was further explained that through UPOV, farmers are not allowed to re-use privatised seeds. If farmers are suspected of violating this law they have their houses searched without warrant, can have their crops harvested and processed, produce seized and destroyed, or. Additionally, can be sent to jail for a number of years.

Trade and Investment Agreements were discussed as tools used by corporates to force governments to adopt policies that promote corporate rights over seeds. It was further mentioned that WTO has trade related aspects of IPRs.

### **Existing food system**

The existing food system was discussed as being exploitative as farmers are dependent on seeds sold by corporates, which is expensive .In addition it was shared that when crops fail to germinate, the farmer has no protection from loss.

It was further discussed that the current food system is research based where a lot of research is being done on food to come up with new varieties. It was pointed out that the continuous research has been responsible for the changing tastes of food.

It was mentioned that the current food system is well funded and this is in part due to exploitation and speculation on food. It was observed that corporates have discovered that controlling food means controlling nations hence were making huge profits.

It was noted that there was a lot of alliances between seed companies and researchers working together in order to continue exploiting farmers.

It was mentioned that various countries have used a variety of legislations, which criminalize age-old activities related to saving and exchanging seeds.



**Reflecting on corporate capture of seeds**

### **What is seed sovereignty?**

This was explained as the process where farmers have control and are at the centre of their seed systems.

The rights of farmers in relation to seeds were described as:

- To sow, breed, save and exchange all seed and other planting material
- To participate in decision making concerning seed improvement/breeding, selection, quality standards, pricing, production, distribution and diversity
- To access seeds
- To be protected from being sold fake and inappropriate seeds
- To have a true choice between use of certified seeds and seeds from farmers' own saved seeds
- To customary practices in relation to indigenous seeds (exchange and saving)

### **Seed Sovereignty Problem Tree**

**Roots:** colonialism, neo-colonialism, industrialization, technologies

**Stem:** food production myths (e.g. Green Revolution), IMF, WB, WTO, FTAs, politics, agro fuels, tax, Public Private Partnerships (PPPs)

**Fruits:** Destroying small-scale farming, poverty, displacement, ecological breakdown of soil and water systems, soil infertility and diseases, unlawful arrests, suicides, seed sterility, GMOs

## **Solutions/demands toward system change**

Asked what should be done to change the system, the participants had the following views:

- Market linkage for organic farmers
- Mobilize other farmers
- Share seeds
- Share good practices
- Subsidies from government
- Support for organic farming
- Farmers lead the way
- Reports
- Protection and representation of farmers

## **Learning from Across Regions: Agriculture, Seed Management and Policies in Germany**

### **Land use**

It was explained that 47% of land (58.6 hectares) in Germany is used for farming purposes: 13% grassland, 30% forests, 34% arable land and permanent cropland.

### **Productivity, Import, Export**

On productivity, import and export, it was explained that Germany is the second largest importer of agricultural goods in the world and at the same time the third largest agricultural exporter.

It was explained that around 1 million people were working in approximately 285,000 agricultural enterprises currently from 1,146,000 in 1970s. It was noted that there are fewer farms that manage bigger tracts of land.

It was pointed out that nine out of ten farms are managed/run by the proprietors themselves. Most of the land is leased (around 60 percent in 2013). It was however explained that 10% of farms are run as partnerships, limited liability companies, cooperatives and private limited companies together work over 30% of Germany's farmland.

### **Domination by large farms/ mass husbandry**

It was discussed that 50% of agriculturally used land farmed by one tenth of all the farms (each one at least 100 hectares of land). It was shared that 2,700 of the largest of the 49,100 German pig farmers have over 11 million pigs in their sties, which is over 30% of the total stock.

It was explained that almost all fattening chickens originate from farms that keep more than 10,000 animals. Additionally it was shared that at the beginning of 2013, the 200 largest hen farms kept 53% of the total stock of hens in Germany each having at least 50,000 hens.

### **What do farmers earn?**

It was shared that 46% of farms in 2013 are farmed as a side business; this means that the farm operators earned at least half of their income from activities other than farming, it was further explained that around 40% of the farmers' income comes from the government /EU as subsidies.

### **Organic Farming**

It was explained that approximately 8% of all farms in Germany are organic, additionally it was mentioned that organic products now account for approximately 4% of the total turnover in the food sector.

It was discussed that organic farmers have lower yields than their colleagues in conventional farming. It was deliberated that yields for crops such as wheat or potatoes, for example, are approximately 50% lower, the milk yield from cows amounts to 90% of yields at conventional farms. To promote organic farming farmers receive additional area-based payments from the EU and the member States, which amount on average to 142 Euros per hectare (2012/2013).

### **Subsidies**

On subsidies, it was explained that the main support fund is a direct payment made under the EU's Common Agricultural Policy. With this policy, all farmers receive a standard amount for each hectare they farm irrespective of what or how much they produce which translated to EUR 175 per hectare in Germany.

It was explained that in future, 30 percent of these payments would only be made if the farmers carry out specific additional environmental services (greening).

### **Reasons for legalizing subsidies**

*"Governmental aid is also designed to compensate for the fact that farmers in Europe must meet significantly more stringent standards than their colleagues in other parts of the world, especially in the fields of environmental conservation, animal welfare and consumer protection. These higher standards raise the cost of production in many cases and may be a competitive disadvantage in a globalized market. Support seeks to offset this disadvantage and ensures high product safety and high quality."* - **German Federal Ministry of Food and Agriculture**

## **Legislation**

It was discussed that the legislative requirements within the EU are rigorous; they require all farmers to comply with standards: environmental conservation, animal welfare, occupational health and safety, and consumer protection hygiene regulations, stipulations and prohibitions on the use of plant protection products and minimum standards for animal housing.

Additionally, it was explained that use of antibiotics as a growth promoter in fattening has been banned in the EU since 2006. It was mentioned that in Germany, keeping chicken in cages had been banned since 2015.

## **EU Seed Laws**

It was deliberated that the EU has had a seed catalogue system since 1966, which required member states to maintain a national catalogue of officially recognized varieties, which may be freely marketed.

It was pointed out that in 2013, the European Commission tried to push through a marketing law on Plant Reproductive Material (PRM) that would make it mandatory for all members' states to enforce as law the restriction of sale and use of any seeds, which have not been registered and approved by the EU.

## **European Seed Laws**

It was explained that in 2013 the European Commission tried to push through a marketing law on Plant Reproductive Material (PRM) that would make it mandatory for all member states to enforce as law the restriction of the sale and use of any seeds, which had not been registered and approved by the EU.

It was noted that this law was rejected by the EU parliament in 2014 after a lot of resistance by the Civil Society through open letters to MPs, demonstration and signing of a petition by 900,000 people. It was however pointed out that the push for adoption of this law is still on-going but as of 2016, no consensus had so far been reached.

It was shared that the complexity and lack of unity of the EU system leaves loopholes for farmers and national governments to allow informal exchange of farmers' seeds in small amounts.

It was explained that Trade Related Intellectual Property Rights (TRIPs) everything is regulated over EU. Examples include patents .The reason for TRIPs is given as to protect unauthorized exploitation of new creations, prevent competition and ensure Return on Investment. Additionally, it was explained that royalties have to be paid to breeders of new varieties of seeds.



## **GMOs**

It was mentioned that GM crops are forbidden (planting and selling) in Germany and considered a risk to human health by the European Food Safety Authority (EFSA). However, it was mentioned that import and sale of GM food for humans and animal consumption is allowed. Additionally, it was discussed that around 30 million tons of GM feed for animals is imported to the EU every year. It was explained that food containing more than 0.9% of GMOs must be labeled.

Exceptions given were that when GMOs have the authorization of EFSA they can be planted in the EU. Varieties that can be planted were given as cotton, maize, oil seed, soybeans, sugar and yeast biomass.

It was further shared that Monsanto Maize (MON810) is allowed and widely grown in Spain, but in Germany (since 2015) and other countries e.g. France, Greece, Hungary and Luxembourg, all GM crops are forbidden. It was further pointed out that in many countries in the West, it's national legislators who make decisions on GMOs.

## **Conclusion**

It can be concluded that the Tafakari achieved its set objectives. Farmers were more aware of the selection process and planting of seeds and had gained insights into the role of corporates and seeds. The participants also got an opportunity to understand about the monopoly on seeds and subsidies from other parts of Europe (Germany). The participants promised to share knowledge gained with fellow farmers within their communities.