General Guidelines
on
Ox ploughing, Agric marketing, Agro dealership
and Farmer Field School

Republic of South Sudan
Ministry of Agriculture, Forestry, Cooperative and Rural Development

SORUDEV
South Sudan Rural Development Programme

Foreword

Food and nutrition security and poverty reduction are a priority of our government. The Ministry of Agriculture and Food Security, and the Ministry of Livestock and Fisheries are mandated to ensure that the people of South Sudan produce sufficient food to feed themselves and for export. We have developed the National Agriculture Livestock Extension Policy (NALEP) and launched the process of developing the Comprehensive Agriculture Master Plan (CAMP) through which many projects will be implemented.

The Ministries at national and state levels are challenged by limited resources and weak capacity of community based extension workers, particularly at the County and Payam levels yet these are the staff that meet and advise our farmers. Increased production and productivity issues are crucial if we are going to ensure that crop farming and livestock rearing that our smallholder farmers and families depend on is improved.

We highly value and appreciate the support and efforts made by our development partners and the UN agencies, and in particular the support from the European Union to develop thisextension guide to be used by our community based extension workers at both county and payam levels.

The process was rigorous. I am assured that the three guides (crops, livestock and the general guidelines) are written in the language that will be understood by our extensions staff in different agricultural zones of the country.

I am delighted that these guides in the form of booklets will now be used across the country.

Hon. Dr Lam Akol Ajawin
Minister of Agriculture and Food Security
The Republic of South Sudan

Preface

This extension guide for farmers and extension practitioners in South Sudan was compiled over a period of a year. The process brought together staff of both states and national ministries of agriculture and ministry of livestock and Fisheries including technical from the Non-Governmental Organizations and two UN Agencies. The technical information in this booklet is from the experience of South Sudanese farmers, extension staff and development partners implementing food security projects. Additional information was sourced from materials developed by the government, the NGOs, FAO, UNIDO, academic, research and agricultural training institutions across Africa but most especially from the East African sub region. The European Union through the South Sudan Rural Development Programme (SORUDEV) funded and facilitated the process.

The technical information on crop production and animal husbandry techniques that exist in South Sudan were scattered in many documents, places and in the forms that could not be readily accessed or understood by farmers. Above this, there were issues relating to the accuracy of information in them. This booklet therefore provide verified and validated technical information on production techniques that can be used by community based extension workers, County and Payam field extension staff and farmers across agro ecologies of South Sudan. The process of collating the information for the booklet began in June 2014 in the Greater Bahr el Gazal states and was validated twice in the equatorial states of Yei and recently in Juba Juba in May 2016. Throughout this period, the material were pre tested in many communities and at each review stages gaps, clarity, accuracy and relevance were checked and improved on.

Specifically, the guide on crop production cover crops agronomic and cultural practises for eleven selected crops namely Sorghum, Maize, Rice, Sesame, Cowpeas, Groundnut, Beans, Cassava, Sweet Potatoes, Tomatoes and Kale. In each of the guides you will find information on seed varieties, cropping seasons, land preparation, spacing, pest and diseases management, harvesting techniques and marketing. The second guide on animal production covers husbandry techniques for Cattle, Goats, Sheep and poultry. The guide provides technical information on selection, housing, feed types and feeding, diseases (including disease management) and marketing. The third guide contains a set of guidelines on Ox Ploughing, Agricultural Marketing, Agrodealership, Village Savings and Loans Association, Community Mobilization and Farmer Field School.

'Tayo Alabi

Facilitator

CONTENTS

1. Introduction

Domestic animals have been widely used by people and households to simplify domestic and field chores since time immemorial. Many communities around the globe remain dependent on animal power for crop production, rural transport, fetching water and firewood and carrying farm products. Animals used for draught work include cattle, buffaloes (mainly in Asia), horses, donkeys, mules and camels.

There are many benefits of using draught animals in food production as compared to human power. The focus of this guide is to support the use of ox-ploughs and this can also be extended to the use of donkey-drawn ploughs. Generally, the following are some of the major benefits of using draught animal power (DAP) including ox-drawn ploughs in agricultural production and DAP rippers in conservation agriculture.

The advantages of using draught animals versus human power for cultivation are shown in Table 1.

Table 1: Advantages of draught vs. human-powered cultivation

Nº	Animal draught	Human power
1	Saves human energy and makes work easier	Cumbersome and tiring
2	Cultivates a larger acreage of land in a short time (time saving)	Less acreage covered over longer periods
3	Creates employment opportunities (e.g. for ox-plough hire, transport and artisans)	Limited to household labour
4	Saves on family labour	Requires many members of the family

There are also some disadvantages of using DAP. It can be costly to maintain, cannot be efficiently used in wet or clay-heavy soils, cannot be used on slopes and is inefficient in flooded areas.

1.1. Impact of animal draught ploughing on the environment

There is concern that the use of DAP, through opening vast amounts of land, may lead to soil erosion. This can be mitigated by introducing tree nurseries, promoting tree planting and ensuring that tree felling is selective in order to reduce deforestation. Another possibility would be to introduce agricultural resource conservation practices along with this type of cultivation.

1.2. Barriers to the adoption of animal traction technology

Gender barrier: Even though women constitute the majority of farmers in most communities in South Sudan, men are most likely to own cattle and bulls. For this reason, women have limited access to oxen and less decision-making power on matters of animal traction. Women require the permission of their husbands to access oxen for animal traction; as a result, women become more engaged in tedious manual operations such as land clearing, tillage and weeding of their farms. This hinders production (the area of land that can be cultivated) and productivity in most parts of South Sudan.

Cultural barriers: Some communities in South Sudan consider the use of cattle for traction to be a waste of highly valuable resources and therefore customarily unacceptable. Traditionally, the South Sudanese keep cattle for social reasons, such as for use as dowries in marriage and as an economic asset for social status.

Economic barriers: Not all people in the communities own animals that can be used for draught power or are able to access draught animals (or the implements needed for cultivation such as ploughs). This limits their access to animal traction services.

Physical barriers: Some locations, such as Upper Nile and Jonglei States, have black cotton (clay) soils that are dry and cracked outside the rainy season (hence most implements cannot turn the soil) and when it gets very wet, the soil sticks to the implement making it difficult to draw. Some terrains are also too steep and hinder movement of the draught animals.

2. Training oxen for ploughing as a draught animal

2.1. Steps to consider in the selection of animals

Oxen or donkeys to be used as draught animals (particularly for tillage operations such as ploughing, harrowing and ridging) have to be properly selected and trained. Selection of the right type of animal to be used is crucial to the success of animal traction. As the focus of this guide is on animal traction in the context of South Sudanese experience, the following factors should be considered when selecting an animal for traction:

1. Breed: Local breeds or cross-breeds are preferred because of their hardiness and their tolerance to the local environment (i.e. diseases, traditional management systems and terrain). Breeds with short legs and a strong, muscular body are preferred. They should have horns (in order to hold the yokes properly) and their tails must be very well formed. Cattle with horns are preferred but not a requisite.

2. Health: The animal should be healthy, i.e. actively eating, with good vision, hearing and breathing and free from ticks and diseases. There should be no major physical injuries and no limping.

3. Age: Young bulls of 18-36 months are preferred because of their well-developed physique, the fact they grow faster and have a longer working life and the fact they are more likely to easily accept commands. In practice, their age can be determined by the number of front teeth on their lower jaw:

   Determining the age of cattle using their dental formula

4. Weight: An average weight of 150-300 kg is desirable. Animals that are too heavy are not easy to control, while those that are too light cannot cope with heavy tasks. The ideal selection is of moderately heavy animals with the potential to gain weight.

5. Conformation: A good bull should have straight legs, a humped back, narrow chased and closed hooves.

6. Temperament: Bulls that are docile (castrated animals) and responsive are good for traction. Do not use lazy animals or animals that are easily frightened by people.

2.2. Steps involved in training oxen for ploughing

The following are the recommended steps for the training of oxen following the selection process. The draught animal's efficiency and performance will depend on the trainer's ability. The trainer should be well versed in the training procedures and their approach to the bulls should be firm, calm and patient.

The reasons for training draught animals are:

1. Trained animals do more work in a shorter time;

2. Trained animals hear and respond more quickly to vocal command;

3. Trained animals pull better and work as a team with well-coordinated movements;
4. They are easier to control;
5. They are able to pull heavy loads for longer periods.

2.3. Draught animal (Oxen and donkeys) training calendar

While the training of animals for ploughing could be carried out between October and November in most parts of South Sudan, it is recommended that animals be trained closer to the time of land preparation (between April and May). If animals are trained too early or too late in the year, the need may arise for refresher training. Most oxen are trained for 3-4 weeks.

Table 2: Draught animal training calendar in different States of South Sudan

States in South Sudan	J	F	M	A	M	J	J	A	S	O	N	D
Lakes			X	X	X							
Warrap			X	X	X							
Northern Bahr-el-Ghazal			X	X	X							
Western Bahr-el-Ghazal			X	X	X							
Equatorial States			X	X	X							
Upper Nile, Jonglei and Unity States			X	X	X							

Factors to consider when training draught animals

1. The approach must be simple (calm, patient and persistent). The trainer should be firm and should not show fear of the animals;
2. There should always be a structure to the training steps, including repetition so the animal adopts the new behaviour;
3. Spoken commands should be few, such as “Go”, “Turn”, “Reverse” or “Stop”. Remember to always use the same language during and after the training.
4. Train either early in the morning or late in the evening so as to avoid the heat of the day.
5. Reward the animal for any positive behaviour. Correct bad behaviour immediately and be sure not to reward it. Ways to reward the animal include patting him on the back, using encouraging names, grooming the animal or giving some food.
6. The training ground should have:
   a. Sandy/loamy soil;
   b. Water; and
   c. Pasture.
7. Be observant of the animal and respond to any unusual behaviour appropriately.
8. Complete every step in the training programme before moving on to the next. Do not move to the next step until the animals have clearly understood the one before.
9. To carry out the training, you need:
   a. Trained animals;
   b. A proper kraal;

c. A good pegged training field and tools including ropes, yokes of different types, a plough, weeders, loads and sledges.

2.4. Training stages

Step 1: Roping and walking

- This creates a friendly relationship between the animal and the trainer;
- It should take around 2-4 hours per day for 3-5 days depending on the speed of learning. The timing of the training should be maintained and should not change;
- The rope should be placed at the base of the 2 horns;
- The bull (this also goes for donkeys) should learn such commands as walk, stop and turn;
- To tie the animals, make a simple halter with 2 nodes (diagram), put the central loop on the mount of the animals and tie the string behind the ear;
- Use a nose-punched animal for the halter. Nose-punched animals must be given at least 2 weeks to recover before being used for traction. The punching must be done by an expert.

Step 2: Harnessing (yoking) and walking the animals

- Yoking is done in the kraal and then the animals are moved to the field. Normally the bulls are still nervous at this stage; hence care should be taken;
- The trainer should walk and control the bulls through commands such as walk, stop and turn;
- This stage should take 3-4 hours per day for a period of 5-10 days;
- Remember to pass the rope on the outside of the animals.

Step 3: Pulling (dragging loads)

- This step is meant to train the muscles of the animals and increase their strength to pull heavy loads. Various loads are introduced systematically, (e.g. 20, then 30, then 40, then 50 kg per log);
- The exercise is done in the field and should take 2 hours per day for 7-14 days. There should be short breaks of 15 minutes during the 2-hour training. The trainer should continue to command the bulls to follow the instructions of go, stop, turn etc.;
- At this stage the bulls learn the command to follow straight lines.

Step 4: Pulling implements

Pulled implements such as ploughs, weeders, harrows, planters, rippers, etc. are introduced at this stage. The animals are trained to pull them and commands are given by the trainer for specific tasks as required. This can be done for 3-4 hours per day every 3 days over a total period of 2 weeks.

2.5. Care and management of oxen for ploughing

1. Provide sufficient veterinary care (vaccinations and treatment);
2. Provide access to sufficient water and pasture;
3. Provide access to good shelter (kraals);
4. Ensure animals are castrated for easy handling;
5. Provide supplementary feeding to boost their energy;
6. Brand traction animals if possible and give them extra attention.

3. Implements

3.1. The yoke

The standard length of a yoke for ploughing bulls should be 100-150 cm for a pair of animals. It should be strong enough to avoid easy breakage. Similarly, it should be of medium weight (as a heavy yoke can add extra weight to the working bulls, thus affecting their pulling potential). A young bull requires a slightly shorter and lighter yoke with a shaft of about 4 feet (120cm).

The length of the shaft from both edges to the outer pair of skiers should be 2 inches. The distance between the pair of skiers should be 20-32 cm. This distance is also determined by the thickness of the bull's neck, which can vary, the trainer should therefore be in a position to judge and make the yoke appropriately.

The swinging wooden bar at the back should be 50 cm long (for a single animal) and 100-120 cm long for a pair of animals.

3.2. Parts of a yoke

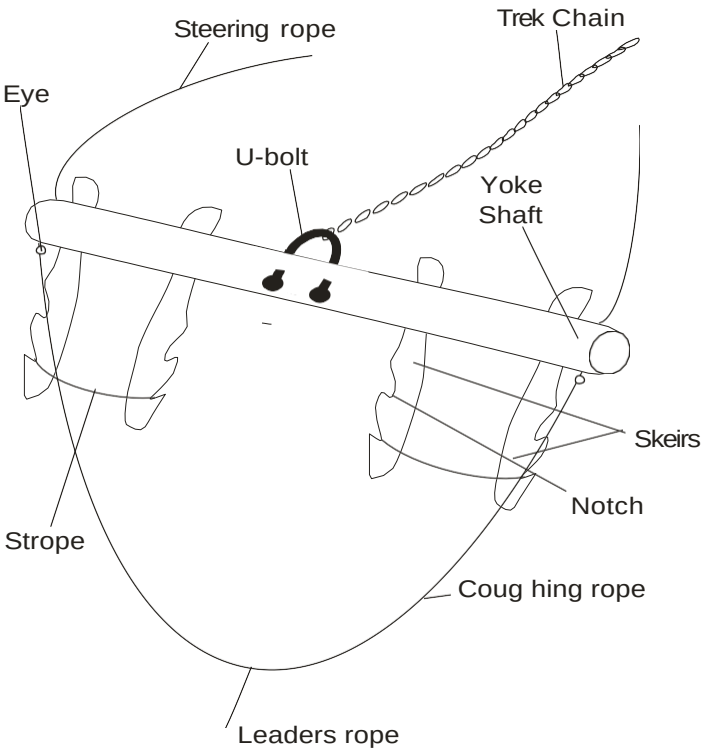

Figure 1. Parts of a yoke

Shaft: This is a shaped pole with 4 holes into which the skiers that hold the animal's legs are inserted. It should be strong enough to withstand breakage during work.

Skiers: These are pieces of wood shaped to fit into slots in the shaft. They keep the bulls at specified distances from each other and prevent the yoke shaft from moving sideways. They are notched on the outer edge to hold the looped ends of the strops.

Strops: These are short strings made of twisted animal skin or sisal rope. They fit around the draught bull's neck and hook the notches on the outer edge of the skiers. They also prevent the yoke from slipping over the animal's hump when pulling the load.

U-bolt: This is a curved metal rod with nuts at both edges. It is set in the middle of the shaft to connect the trek chain to the load. It also serves as a load equaliser.

Eyes: These are metal rings fitted to the end of the yoke shaft to hold the steering rope of the harness.

Trek chain: This links the draught animals to the working implement. It should be relatively long and strong enough to prevent the implement from injuring the animals' back legs.

3.3. How to build a yoke based on South Sudanese experience

Yokes are used to hold two ploughing animals together; hence, the implement should be straight, strong, of medium weight and durable. The yoke also serves as a link between a draught animal and the working implement. It transmits the force for draught while the harness helps to control and direct the bulls doing the work.

Some trees used for making yokes are: Croton (magalocarpus spp, Dinka language: Piok), Tamarind (Dinka language: Cuei) Teak and Biar.

The following steps explain how a yoke is built:

a. Select the yoke pole. The chosen pole should be straight and free of too many knots. The length of the pole should be longer than the required length of the yoke to be used;

b. Seasoning of the timber. The timber to be used for the yoke should be seasoned to increase its strength and durability. This can be done by placing the pole in water for a week or burying it under soil or manure for at least 2 weeks;

c. Drying. The pole should be dried after seasoning and before making the yoke. If possible, the bark should be peeled off;

d. Shaping. The pole is then well shaped by removing the excess knots (if any) in order to prevent injury to the animals. The diameter of the pole should be reduced to 8 cm;

e. Pole dimension. Draw a centre line along the length of the pole and put a mark in the middle. From the centre, measure

45 cm from both side and mark. These two marks should sit precisely on the animals' shoulders. The distance between them is known as the 'yoke length'. The actual length of the yoke pole will be longer than this.

3.4. Ploughs

The selection of a plough will depend on various factors including soil type and nature, the user, the type of animal intended to draw it and the cost of the plough.

Ploughs are categorised based on their weight and origin. The weight of a plough should be 25-35 kg (for animals aged 1-2 years) and 50kg (for animals aged 3 years and above). Origins include the Ethiopian Maresha plough, the Mouldboard plough, the Hybrid plough and the Donkey plough.

3.5. Components of a plough

Of all the tools a farmer possesses, the plough is one of the most important. For most ploughs designed to be drawn by oxen or donkeys, there are a few wearing parts which will need periodic replacement. These parts include the share, the landslide and to a lesser extent the wheel and wheel arms.

Point 3.6 describes the functions of the essential parts of a plough.

3.6. Parts of a plough and their function

Beam: This is a strong piece of metal that is curved at one end. It is a crucial part of the tool because nearly all other parts of the plough are attached to it.

Spreader bars: These are two metal bars attached to each arm and joined to the beam. They prevent the arms from slipping upward or downward.

Cross- bars: These are (usually two or three) metal bars that join the arms at particular points and hold both arms firmly.

Arms/Handle: These are two long, strong metal bars which the farmer holds while ploughing. They are joined together at the curved end of the beam.

Share: This is a strong flat piece of metal in the form of a blade. It penetrates and then undercuts the soil horizontally during ploughing operations. It wears out faster than the rest of the plough as it is always in contact with the soil, but it can be easily fabricated by local blacksmiths and should therefore be replaced regularly.

Landslide: This is a strong piece of steel about 25 mm in width that runs against the wall of the furrow. As it pushes against the furrow it resists the sideways thrust of the plough, thus helping to stabilise the plough and prevent it from moving sideways when ploughing.

Wheel and wheel arms: These control the depth of tillage of the plough. For deeper tillage, the wheel is raised while for shallow tillage, it is lowered.

U-bolt: This is a D-shaped metal rod joined to another piece of metal and nuts. It holds the wheel arms firmly to the beam.

Mould board: This is a slightly curved sheet of metal. It overturns the soil cut by the share and fills in the furrows to cover the seeds.

Link: This is a metal ring that is fixes the chain to the plough at the end of the beam.

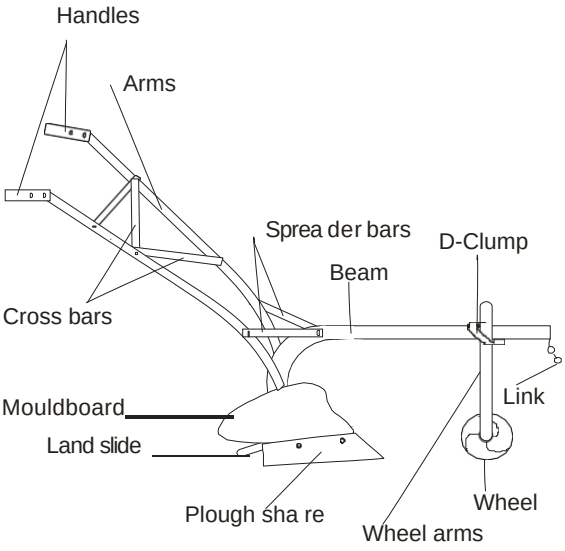

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Figure 2: Parts of a plough

3.7. Sources and cost of ox ploughs in selected markets

The following table documents the different types of ox and donkey plough available in South Sudan per location and cost, as well as their place of origin.

	Location	Sources		Estimated price of ploughs 2015
		Ox Plough	*Spare Parts (except for beam and mould board)*	
1	Western Bahr-el-Ghazal (WBG)	Wau, Sudan, Juba, Kenya and Uganda	NBG, Mabui Ox Plough Production Unit (NPA), Blacksmith market in Kwajok, Lietnolm GEC, Aweil (Marial Bai), Rumbek, Kajokeji	Wau: 1200-1500 SSP Juba: 800-1000 SSP Kampala: 100 USD Nairobi: 67 USD*3.7=207 SSP
2	Warrap	Wau, Juba, Sudan, Kenya and Uganda	Gogrial East (Luonyaker/ Lietnolm), Gogrial Town, Kwajok Town	Kuajok: 1000-1200 SSP Juba: 800-1000 SSP Kampala: 100 USD Nairobi: 67 USD*3.7=207 SSP
3	Northern Bahr-el-Ghazal (NBG)	Wau, Juba, Sudan, Kenya and Uganda	Aweil, Marial Bai (Aweil West), Nyamlel, Gok Machar	Juba: 800-1000 SSP Kampala: 100 USD Nairobi: 67 USD*3.7=207 SSP
4	Lakes	Rumbek, Juba, Kenya and Uganda	Yirol	Rumbek: 1000-1200 SSP Juba: 800-1000 SSP Kampala: 100 SSP Nairobi: 67 USD*3.1=207 SSP
5	Equatoria		Kajokeji	Kajokeji: 600-1200 SSP
Donkey Plough				
1	Warrap	Use the same plough for the oxen	None	None
2	NBG	Aweil, Marial Bai, Gok Machar	Marial Bai, Gok Machar, Elden (Sudan)	400-450 SSP
3	Lakes	Use the same plough for the oxen		None

Maintenance of an ox plough

1. Before beginning any ox plough operations, it should be ensured that all nuts and bolts are well fixed in order to minimise the chances of losing them during operation;
2. Worn-out parts such as the share or landslide should be replaced regularly;
3. Prior to storage at the end of the cultivation season, the plough must be cleaned to avoid rusting;
4. All moving parts (i.e. nuts, bolts and wheels) must be greased to avoid rusting;
5. The plough should then be stored in a dry place.

4. Ploughing techniques

4.1. Timely ploughing

Ploughing should be done just before or at the onset of the rains, when the soil is neither too dry nor too wet, in order to avoid compaction. It should be noted that delayed planting affects maturing time and yield. Planting early benefits the farmer as his/her crops mature earlier and fetch high prices before the market becomes flooded with similar commodities. Early planting also enables the crops to fully utilise the available moisture to maximum benefit. When planting is done at the right time, crops are likely to become established faster than weeds. Sometimes, crops planted early escape attacks by both pests and diseases.

4.2. Depth of ploughing

An ox-drawn plough is capable of digging to a depth of 8 inches or more depending on the type of soil. Deep tillage enables the roots to penetrate the soil more deeply without much obstruction. However, a depth of 5-8 inches is advisable for most field crops. It also enables the seeds to obtain enough moisture for germination. Ploughing depth depends on moisture content and on the spacing and size of the seeds.

Illustration Source: CEFA

4.3. Common ox plough planting methods

(i) Broadcasting method

Advantages

(a) A quick operation that saves labour

(b) Good for small seeds

(c) Can provide good ground cover if established

Disadvantages

(a) Uses more seeds to cover a given area of plot

(b) Uneven germination of seeds

(c) Difficult to mechanise, especially during weeding

(ii) Row planting method

Advantages

(a) Uniform spacing

(b) Controlled uniform depth of seed placement

(c) Facilitates the use of machinery such as plough or tractors

(d) Controls soil erosion, especially during contour farming

(e) Better resource efficiency (seeds and fertiliser)

4.4. Ploughing techniques using draught animals

1. Ploughing across a slope (following the contours of the terrain)

   This is applicable in hilly areas which are on a gentle slope. Contour ploughing is important to avoid soil erosion.

2. Inside-out ploughing technique

   Ploughing begins from the central point and expands gradually outward until either the area is complete or work can be stopped before resuming it another time.

3. Outside-in ploughing technique

   With this technique, ploughing starts from outside (in a rectangle or circle) and moves toward the centre until the marked area is completed.

4. One-point incremental ploughing technique

   Ploughing starts from one point and then moves incrementally in a single direction until the area is completely ploughed.

5. Depth of ploughing (adjustment)

   Planting depth depends on soil type, animal energy, the size of the seeds and the moisture content of the soil (which varies with the rains).

4.5. Width of cultivation

A standard ox plough cuts the soil at a width of one foot. This is achieved when the plough is held in an upright position (perpendicularly) during ploughing. It cuts a smaller area when tilted during cultivation. The farmer should therefore try if possible to maintain the plough in an upright position during ploughing activities. Row-to-row distance is determined by the type of crop being planted.

4.6. Spacing

The main objective of spacing seed planting is to obtain maximum plant population per plot. Planting at less than optimum population may lead to loss of quality. Planting to maximum will usually produce more quantity and less quality.

- Spacing depends on the growth habit of the crop or its structure. Plants that grow upward can be planted closer together than plants that grow outward;
- Spacing also depends on the moisture retention capacity of the soil. If the moisture content is higher, spacing should be closer. Spacing should be wider when the moisture content is lower;
- Fertility of the soil also influences spacing. In fertile soils, plants should be closer together than in less fertile soils.

As an example, the farmer should skip two unplanted rows for maize and one for sorghum.

4.7. Ox plough weeding

Weeds are unwanted plants that grow in a cultivated area. They are harmful to most field crops because they compete with them for water, nutrients and light and often harbour pest and diseases. Failure or delay to weed at the appropriate time could result in significant reduction in yield or complete failure of the crop.

Ox plough weeding is the most frequently applied technique in ox plough cultivation technology, but few farming communities have managed to establish it. To practise this operation the crops must be planted in rows in order to allow room for both the bulls and the plough to pass without damaging them. Good oxen control is also necessary to reduce plant and soil damage. Often, muzzle nets are used to prevent oxen from nibbling on the crops and being distracted.

Following ox plough weeding, there may still be some weeds hiding among the crops. These should be removed by hand or using a hoe, machete or maloda. Ox plough weeding has many advantages compared to weeding with a hand hoe. Firstly, it loosens the soil particles (allowing the roots to penetrate deeper into the soil with ease). The furrows that are cut by the plough act as water barriers and thus reduce soil erosion. The soil placed at the base of the plants by the plough makes them firmer. Water is thus better retained in between the furrows and soil moisture is preserved.

After planting or weeding the plough should be cleaned, grease or oil applied to all bolts and nuts and the plough stored in a dry place.

5. Other draught implements

The following implements are not currently popular in South Sudan but are considered necessary:

5.1. Ripper

A ripper is a chisel-shaped implement pulled by animals or a tractor. It breaks up surface crusts and opens a narrow furrow in the soil about 5-10 cm deep. Unlike a mouldboard plough, a ripper does not turn the soil over. Soil can be ripped during the dry season, or at planting time. If a farmer rips at planting time, seeds can be sown in the slot by hand or using a planter attached to the ripper.

5.2. Subsoiler

A subsoiler is a chisel-shaped implement that looks like a ripper but works at a greater depth and has narrower tines (up to 20 cm long). It is designed to work at a depth of about 20-30 cm, but below the level of the hardpan. It can break the hardpan and allows water to infiltrate easily into the soil. Four strong bulls are recommended to pull the subsoiler as it requires a great-

er draught force than the conventional plough. For the same reason, it is sometimes pulled by a tractor. Subsoiling is not necessary at all times of cultivation and is only needed when hardpan problems arise on the plots.

Other types of animal draught equipment include weeders, transporters (drags and carts), rippers (for groundnuts and tuber crops); seed bed makers, ridges (for potato heaping), lifters, strippers and direct seeders.

Annexes

Annex I: General outline that could be used for training by extension agents

Topic:

Clearly state the topic you intend to cover during this session. The topic should be both understandable and practical.

Objectives

List the specific objectives to be achieved during the training, e.g. 10 trainees should be able to prepare a yoke. The objectives must be related to the training topic. List what you want the trainees to learn and be aware of this throughout the session:

i)

ii)

iii)

Facilitation method

State here the type of facilitation method you intend to use. There are many methods, so be specific and choose the method that is most effective (this is not limited to lectures, demonstrations, field work or role play). Remember that you could use a combination of methods.

Duration

State the time required to carry out the training. Remember to be brief and precise and not to waste the participants' time. They may lose interest if the training takes too long and you should not end up rushing your lectures due to limited time. Pick an appropriate time for training. Remember that your trainees will usually be adults who have competing needs for their time; also leave adequate time for breaks, meals and interaction with and among the trainees.

Materials for training:

List all the required materials, training aids and possible equipment to be used in the training. Also include detailed costs of all the activities and materials. Materials should be adapted to your audience; e.g. working with farmers is very different from working with extension officers.

Content

List the specific concepts and knowledge that will be part of the training curriculum (e.g. the components of a plough).

Resources

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Guideline for Agricultural Marketing for Smallholder Farmers in South Sudan

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Ministry of Agriculture, Forestry, Cooperative and Rural Development

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Introduction

Pre-production planning

There is first and foremost a need to understand market demand in terms of crop types and quantities and suitable soil types. Climatic conditions will also determine the types of crop that can be grown in the area. Consider also the maturity period of the crop, i.e. whether it is a short- or long-season variety. Farming capital includes the cost of labour, inputs (seed and tools), harvesting, post-harvest treatment and transport. At this stage it is important to have a good understanding of the actors in the market value chain (wholesale, retail) since this can help identify customers for the produce. The farmer can sell in bulk to the wholesaler who will then provide transport to the market.

To sell at a profit, marketing needs to begin even before planting. In an ideal situation, the market should determine what is grown by farmers. Farmers need to farm the high-quality produce that customers want to buy in the right form (fresh, dried, or processed), at the right time of year, in the right quantity, in the right packaging, in the right place and at a price they are willing to pay.

Most smallholder farmers in South Sudan produce for subsistence due to insufficient inputs, information and technical knowhow. They therefore need to be supported to understand the ideal market for their produce and to start thinking beyond domestic consumption alone. Farming needs to be seen as a business. Regardless of whether a farmer is producing for home consumption or for the market, proper planning is essential. The following should be discussed:

- The size of the farm (i.e. the number of feddan) that the farmer will cultivate in a given cropping season. This will determine the input they need and the quantity of produce they will farm, including the surplus (if any) that they plan to take to market after harvest;
- The type of crop to be cultivated. This may be determined by a number of factors such as market demand, customers' preference and needs, labour requirements and the cost of production, post-harvest handling, etc.;
- Market accessibility. The farmer should consider how he/she is going to take the produce to the market, including such factors as infrastructure, roads, packaging, etc. as well as the location of the farm at which production will take place. Some produce is perishable and will thus have to be taken quickly to the market after harvest;
- Capital investment required to undertake the production of a given crop;
- The risks and opportunities involved in producing and marketing the chosen crop. This helps the farmer understand the losses or gains he/she could make by producing the selected crop;
- Seasonality. The farmer needs to understand in which season to produce which crop for which market;
- Cost-benefit analysis. For the farmer to be motivated to produce for the market, they will need to understand the gains or losses incurred by the production and marketing of the selected crop. This can be done at the outset through a cost-benefit analysis;
- Perishability. It is important to understand the characteristics of different crop types as regards marketing; e.g. vegetables and fruit are perishable and require timely market delivery.

Characteristics of agricultural (crop and livestock) produce

Market

A market can be basically defined as a physical place or platform where the buying and selling of goods and services takes place. This exchange may be physical or otherwise (i.e. through e-marketing or tele-marketing). Most agricultural and livestock products are produced seasonally depending on the location of production. Agricultural and livestock production in South Sudan is mainly rain-dependent, meaning that farmers will produce during the rainy season and therefore end up with a lot of produce at its end. In addition, some livestock products such as milk are in high supply during the rainy season as a result of the availability of pasture and water.

South Sudanese production systems are labour-intensive, requiring a lot of household labour or (where this is not available) hired labour. Farmers produce what they need at home and only sell surplus (if any) to meet immediate or short-term household needs e.g. for soap, sugar, salt, medical bills, education, etc.

Farmers currently incur huge losses both during and after harvesting due to lack of use of appropriate technologies in crop protection and post-harvest handling. Post-harvest losses can be as high as 50% of what the farmers have produced and this leaves the farmers with less surplus to take to the market. Also, poor animal management practices such as disease

control, feeding, insecurity etc. have negative effects on livestock production.

Marketing

Marketing is a series of activities involved in moving a product or service from the point of production to the point of consumption. It involves finding out what your customers want and supplying it to them at a profit. It includes all the activities and services involved in moving an agricultural product from the farm to the point where it is sold to a consumer. This is the value chain that links farmers with consumers and its smooth functioning is dependent on services provided by numerous people.

It is often thought that marketing begins only after the harvest. Again, this should not be so. The activities commonly associated with marketing include cleaning, drying, sorting, grading and storage, as well as transport, processing, packaging, advertising, buyer identification and sale of the product. As mentioned earlier, in order to sell at a profit, marketing needs to begin even before planting. Farmers need to farm the high-quality produce that customers want to buy in the right form (fresh, dried, or processed), at the right time of year, in the right quantity, in the right packaging, in the right place and at a price they are willing to pay.

There are different types of markets available for agricultural produce:

i) On-farm

This is when the farmers sell their products on the farm itself to neighbours, traders (who travel in search of goods) or local agents. In South Sudan, this is common among vegetable and poultry farmers. A benefit of this market is that the producer does not have to incur additional transaction costs such as transport, brokers fees, Government taxes, etc.

ii) Barter market

This is where people exchange goods without using money. Instead one item is exchanged for another at an agreeable exchange volume or quantity. This is common in certain locations in South Sudan, especially in the Greater Bahr-el-Ghazal region, and usually involves the exchange of sorghum, groundnuts and/or sesame (simsim) with livestock. This occurs during flooding time.

iii) Assembly market

These are markets at which farmers and small local traders convene regularly to sell their goods to larger traders and consumers. They offer good potential for farmers to sell either as individuals or collectively. They are mainly found in rural areas.

iv) Wholesale market

Wholesale markets are where traders (and a few large farmers) deliver their produce in bulk for sale. They are found in larger towns. Retailers (who sell goods to consumers) come to these markets to buy large quantities.

v) Retail markets

These are markets where consumers and small businesses (such as restaurants) buy their daily or weekly food supplies. Farmers can also sell in bulk directly to retail markets.

vi) Supermarkets

Supermarkets enable consumers to buy many different types of goods at the same time. The goods are attractively packaged and of relatively good quality. Supermarkets are located mainly in cities and bigger towns.

vii) Auctions

This is where the farmers or producers bring their produce to the market and different buyers bid for the product on sale. The buyers have the opportunity to assess the quality of the produce on offer. The auctioneer announces the goods on offer and the floor (lowest) acceptable price, after which the buyers make their offers and the one with the best offer buys the goods. This practice is common with livestock.

The importance of the market to the farmer

The market is important to the farmer for various reasons:

- Given that some crop and livestock products are perishable, the market gives the farmer a means of disposing of what they are not able to consume in the household while also reducing the losses they would have incurred and earning them an income;
- Farmers can also obtain or buy what they were not able to produce on their farms (either through barter trade or by paying cash);
- When a farmer earns good income from their produce through the sale of surplus, this motivates him or her to produce more in the coming seasons with the expectation of earning more income to support his or her household;

Consumers, especially those in towns and cities, are wholly dependent on the food with which the farmer supplies the market. During this interaction with the consumer the farmer is able to learn their tastes and preferences (such as the products they want, product characteristics, the time of year at which consumers prefer to buy, etc.).

The importance of the market to the farmer

1. Planning purposes
2. Sharing of marketing information (farmer-consumer)
3. Price setting
4. Access to potential and rightful buyers
5. Advertisement through exhibition

What are the different ways to access a market?

There are different ways that farmers can sell their produce to the market according to preference. Some of the common routes are:

i) Direct selling to the consumer

This is where the farmers sell their produce to their neighbours or other consumers who come to their farm or decide to take a little produce at a time to the nearby market. This is very common with vegetable sales in South Sudan. Using this approach, farmers are able to make more profit as few transaction costs are incurred.

ii) Direct selling to traders/retailers

In certain circumstances and locations, traders will go to the farm to buy the produce directly from the farmer. Traders usually consider market demand and supply before deciding whether to go in search of a commodity. In places where there is no road access to the farm, the farmer has to deliver the goods to the market or to other accessible areas to which traders come to buy. This is the case with sorghum, groundnuts and sesame (simsim) in South Sudan. Where a mobile network is available, the farmer and the trader can negotiate the price of the goods beforehand.

iii) Selling to wholesalers

Farmers can sell directly to wholesalers in the market. However, the large quantities of produce that the farmer is likely to have can be difficult to take to the market without prior identification of a specific buyer. As such, the farmer may have to identify the buyer beforehand.

iv) Selling through a farmers' group or cooperative

The cooperative movement is not yet vibrant in South Sudan. However, there are a number of farmers' groups who are working together to cultivate and market their produce. This helps them to benefit from economies of scale since they have a lot of produce.

v) Auction

In most regions of Greater Bahr-el-Ghazal, livestock is sold through the auction system. Livestock keepers bring their animals to the market at which the buyers are able to view them before the auctioneer starts the auction. The auctioneer sells one animal at a time at an agreed price and the bidders offer their price until the highest bidder wins the goods.

Farmers have different means and options of selling their produce to buyers. The main ways are:

- Direct sale to consumers;
- Farmer to trader;
- Farmer to wholesaler;
- Farmer to retailer;
- Farmer to processors (companies and cooperatives).

Problems and opportunities associated with the market

Problems

There are various problems and opportunities associated with the market. Some of the problems include:

i) Cartels

This is where traders who have been involved in a certain business come together to refuse the entry of a new party into the market. There are cases where traders, e.g. in a livestock auction, will unite to bar the price of an animal from exceeding a certain value;

ii) Middlemen

These are people who come between the seller and the buyer and sometimes do not own goods, but see an opportunity to make money. Sometimes they dictate prices or control the market and market information, which they use to exploit both the seller and the buyer;

iii) Hoarding of goods

This creates an artificial shortage such that the prices of commodities increase, thus leaving the buyers at the mercy of the traders:

iv) Multiple taxation

Different authorities levy different taxes on the same goods, thereby incurring huge transaction costs for both the buyer and the seller. In the case of livestock marketing, the seller pays a levy of 10 SSP to the local government just for taking the animal to the market, there is a sales tax once the animal has been sold (with 10% paid by the seller and 5% by the buyer) and in the case of traders who take the animals out of the County, there is further tax to pay;

v) Poor infrastructure

In most areas in which production takes place in South Sudan, the network of roads is not well developed and the communication network is poor. As such, farmers are unable to take their surplus to the market and if they do, they have no prior market information (which can lead to them being exploited);

vi) Low prices

Farmers experience very low prices during the harvesting period because of the high supply of goods at this time. With demand at best remaining constant and at worst decreasing (given that every household is harvesting) farmers are left with very low prices. Sometimes they are unable to recover their production costs.

Other problems include insecurity, limited market information, low levels of literacy, poor access to credit and loan facilities and high agricultural taxes.

Opportunities

Despite the problems associated with the market, there are also a number of opportunities, including:

i) Formation of farmers' groups, associations or cooperatives

When farmers come together to form groups and sell their produce as a group, they are able to beat the cartels and negotiate for better prices for their produce. This is because they can sell their produce directly to consumers (even wholesalers) without exploitation by the middleman or the cartel;

ii) Post-harvest handling and bulking

The losses that farmers may incur from lack of proper post-harvest handling can be reduced by training them in how to take care of their produce during and after harvest. This would enable the farmers to keep their produce longer, bulk together and bargain for a better price;

iii) Value addition

With value addition, farmers are able to increase the value of their produce and to find a better market and hence a better price. Farmers often associate value addition with a very complicated process that requires complicated mechanics, when in reality it may be as simple as proper drying, sorting, grading and packaging;

iv) Market linkages

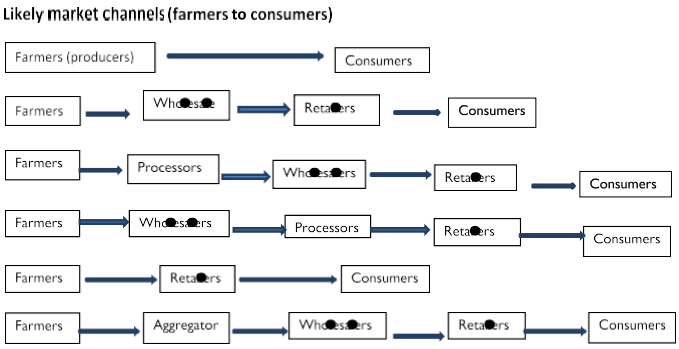
When farmers work together, they can undertake simple maintenance of rural roads, thus enabling them to take their produce to the market. Their exploitation by middlemen due to lack of market access is reduced once they can take their goods to a market they know well.

Other opportunities include:

- The presence of rich and unexploited arable land with high production potential;
- Existing Government marketing policies;
- Growing market networks and creativity;
- Existing main roads and the work being done by programmes to build more feeder roads to remote areas, thus connecting rural and urban markets.

Likely market channels (farmers to consumers)

Farmers (producers)



Market actors and their roles

There are a number of actors in the market who play different roles. These include:

i) Producers

These are farmers who produce a variety of goods and services and offer them to consumers on the market for a form of return.

ii) Consumers

These are institutions or groups of people that buy the goods and services offered by the producers on the market for their consumption.

iii) Wholesalers and retailers

These are the intermediary actors who link the producer to the consumer. They normally aggregate the products they obtain from the producers and sell them to different consumers who want to buy different quantities at a given price.

iv) Processors

Some farmers and processors add value to the produce they buy from the farmers. However, the value they add to the raw product is higher than what the producer could add at farm level. This may include milling, packaging, branding, etc.

v) Government

Various Government ministries and departments set rules and regulations that govern markets. These may include certain standards regarding seeds, veterinary drugs, meat safety and food packaging, among other regulations. This avoids the exploitation of both producers and consumers.

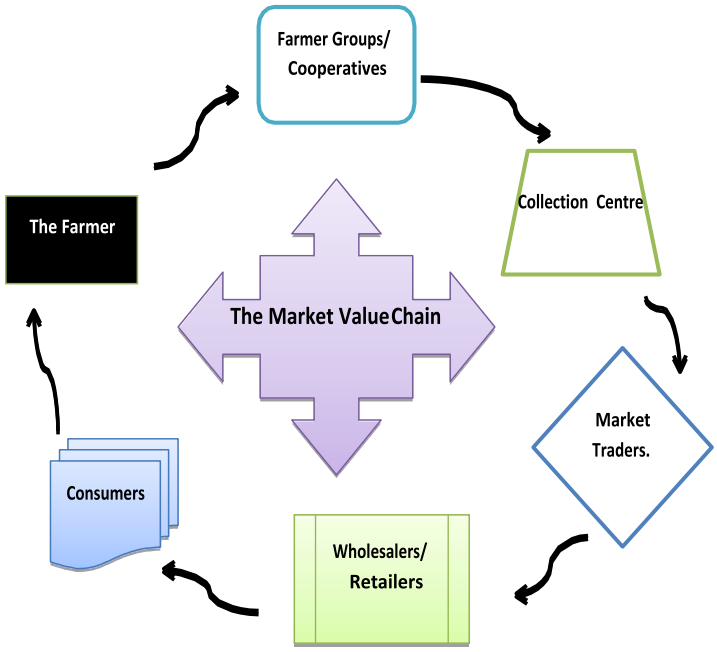
vi) Financial institutions

These provide financial services to the other players in the market, including banking, money transfers, credit facilities, foreign exchange, etc.

vii) Farmers' associations/unions

This is a group of farmers who unite toward a common goal, thus creating a critical mass for the sale of their produce. This way, farmers are able to sell their produce and bargain for a better price.

There are many active players involved in the process of facilitating market access, including the farmer themselves at the farm gate. Their main role at each level is to link the farmer to the consumer of his or her farm produce. The chain varies according to different contexts but the most commonly seen version is as follows:



a. Farmer: The farmer is the primary source of agricultural produce and represents the first step in the marketing chain.

b. Farmers' Groups: These groups conduct assembling and bulking activities to attract traders. They facilitate increased production size and access to financial services.

c. Collection centre: This is established at the main production centre with essential storage facilities such as weighing scales, silos, bins, cold rooms and others. They are the points at which the raw market products are assembled before being dispatched to the traders.

d. Market traders: The main role of market traders is to channel produce from remote rural areas to urban areas in which they are easily accessible and can be processed. Traders explore market opportunities and transfer marketing knowledge back to the farmers.

e. Wholesalers/retailers: The main role of wholesalers and retailers is to add value to the produce received from the farms. This includes processing, grading, packaging and distribution.

f. Consumers: Consumers represent the chain as the end users of the agricultural products (raw or processed).

Estimating market demand

In order for the farmer to be able to estimate market demand, he or she will need to do at least a simple market survey. This aims to gather information about the actual and potential markets for a farmer's products and aims to answer 3 main questions:

i) What is the demand for the product the farmers are interested in?

ii) What are the buying conditions for these products?

iii) What other products are in high demand or scarce supply?

To answer these questions, the farmer is likely to visit one or more markets.

The farmer needs to conduct a small market survey or other research at his/her own level in order to find out about demand. This may include the acquisition of information from fellow farmers and traders on the market trends of a given crop. The law of supply and demand also plays a key role because low supply creates high demand; hence a good supply in the market will give a good indication of demand. The farmer can also ascertain demand for the crop by studying the seasonal calendars prepared by relevant bodies (including State Ministries of Agriculture and Forestry), the UN Food and Agricultural Organisation (FAO) and non-Governmental organisations (NGOs), etc.).

Developing a market strategy for farm produce

Farmers need a market strategy to help them to make better decisions when planning to grow a particular crop for the market. The key components of a sound market strategy are:

a. Product specification such as variety, colour, size, grade, quality and packaging;

b. Price, price pattern and variations according to season, quality and supply;

c. Supply, volume, competing suppliers, seasonality;

d. Consumer preferences.

e. Opportunity for additional production to be marketed

The market strategy involves what is commonly referred to in marketing language as the 4 Ps (Product, Price, Place and Promotion).

i) Product

This is about identifying the right product to satisfy the needs of the target customer. The farmer needs to know what the key product attributes are, i.e. the variety, quality, presentation and packaging of the good to be offered to the market and how it will differ from competitors' goods (uniqueness). Apart from the physical product itself, there are elements associated with the product that may attract customers (such as the way it is packaged). Other product attributes include quality, features, options, services, warranties and brand name. Thus, the farmer might think of what he or she offers as a bundle of goods and services. The product's appearance, function and support make up what the customer actually buys. Successful managers pay close attention to the consumer needs addressed by their product bundles. Customer research is a key element in building an effective marketing mix. The farmer's knowledge of his or her target market and competitors will allow them to offer a product that will appeal to customers and avoid costly mistakes.

ii) Price

The right product should be offered at the right price. The farmer will need to know how to establish the price for the product he or she is offering to the market. To do this, he or she will need to determine an action plan toward how to achieve the price objective. Determining the price of a product price can be tricky and even frightening. Many small business owners feel they must absolutely have the lowest price on the market, and thus begin their business by creating an impression of bargain pricing. However, this may be a signal of low quality and may clash with the image the farmer wants to portray. The pricing approach should reflect the appropriate positioning of a product in the market and should result in a price that covers the cost per item and includes a profit margin. The result should neither be greedy (which will price the farmer out of the market) nor timid (which will make growth impossible).

iii) Place

The right product at the right price should be available in the right place to be bought by customers. Where is the farmer's produce going to reach the consumer? By determining this the producer will be able to ensure they get their products to the market at the right time, right price and in the right quantity. The nature of the product being sold will greatly influence how it is distributed. If the producer owns a small retail store or offers a service to his or her local community, they are at the end of

the distribution chain and thus supply directly to the customer. Businesses that create or assemble a product will have two options: selling directly to consumers or selling to a vendor.

iv) Promotion

This is about informing potential customers of the availability of the product, its price and its place. How is the farmer going to create awareness of his or her product among potential customers? A customer will only buy the farmer's produce if he or she is aware of its attributes. Promotion is the means by which the farmer lets people know what they have for sale. Its purpose is to get people to understand what the product is, what they can use it for and why they should want it. Customers who are looking for a product should know that the product satisfies their needs. To be effective, promotional efforts should contain a clear message targeted to a specific audience reached via an appropriate channel, with the target audience being those who use or influence the purchase of your product. Market research efforts should focus on identifying these individuals. The message must be consistent with the overall marketing image, attract the attention of the target audience and elicit the response the farmer desires, whether this be to purchase the product or form an opinion.

There are 4 major considerations when developing a market strategy for farm produce. These are:

Existing product in an existing market	New product in a new market
Existing product in a new market	New product in an existing market

Determining the price of farm produce (supply and demand)

Market supply

Market supply is the amount of product that a producer is able to take to the market for sale. This partly depends on its price.

Market demand

Market demand is the amount of product that consumers are willing and able to buy. This is also partly dependent on price.

When the supply to the market is very high and there is no increase in demand, the price of the goods in question goes down. For example, during the harvesting period all farmers in Greater Bahr-el-Ghazal will have grain. Thus, farmers who take their produce to market will encounter a drop in the price of sorghum.

On the other hand, when market demand is high and supply constant or low, prices go up. This happens just before the planting season during the hunger gap (June-August) when there are very limited amounts of sorghum available on the market and demand is high.

The market prices of commodities are set based on both supply and demand. If there is more supply in the market, prices go down, which eventually leads to reduced supply from the farmers. Conversely, if there is less supply, prices will rise. This process continues until the price has stabilised and there is optimum supply and demand. The farmer needs to consider the factors set out in the table below when pricing his or her commodity.

Supply is what producers are prepared to sell at a given price while demand is the amount that consumers are prepared to buy at the market price.

Demand Factors	Supply Factors
Price of the goods	Price of the goods/ products on the market
Taste and preference of the consumers	Price of the input/cost of production
Number of consumers	Technological factors
Income of the consumers	Climate
Prices of competing products	Storage possibilities

Sourcing finance for taking products to market

There are many sources of credit for farmers and producer groups in South Sudan. Commercial banks should play a major role but this is not currently the case as many are developing their credit portfolios. Farmers can also obtain financial services from their own savings, money lenders, friends, village savings and loan associations (VSLAs), farmer groups or cooperatives.

In certain situations farmers are able to obtain credit facilities from processors or large companies which have contracted them, especially in contract farming. In such scenarios, the farmers tend not to be paid in cash but instead receive inputs which they may require for production. The contractor sells the produce to the market and not to the farmer.

The farmer can obtain financial support from various sources of microfinance, including:

1. VSLAS;
2. Rotational Savings and Credit Associations;
3. Cooperatives/unions;
4. Village/community banks;

5. Grants from Government and NGOs;
6. Own/personal savings from own resources;
7. Money Lenders
8. Accumulative Savings and Credit Associations.

Markets and their location in South Sudan

Major markets and their location in Lakes State

Market name	County	Distance (km) from Rumbek	Size	Days of operation
Rumbek Town	Rumbek Centre	000	Large	Daily
Yirol Town	Yirol West	120	Large	Daily
Cueibet Town	Cueibet	50	Medium	Daily
Thon Aduel	Rumbek East	30	Medium	Daily
Nyang	Yirol East	139.2	Medium	Daily
Guolyar	Awerial	120	Medium	Daily
Wulu	Wulu	48	Small	Daily
Pacong	Rumbek East	15	Small	Daily
Atiaba	Rumbek East	40	Small	Daily
Akot	Rumbek East	50	Small	Daily
Aluakluak	Yirol West	64	Small	Daily
Mapuordit	Yirol West	83	Small	Daily
Agany	Yirol West	70	Small	Daily
Abiriu	Cueibet	30	Small	Daily
Wunthou	Yirol East	150	Small	Daily

Major Markets and their Location in Warrap State

County	Payam	Market	Distance (km) from Kuajok	Size	Days of operation
Gogrial West	Kuach North	Kuajok	0	Large	Daily
	Akon South	Akon	75	Large	Weekly (Thursdays)
	Gogrial Payam	Gogrial Town	30	Medium	Daily
	Alek South	Alek Centre	45	Small	Daily
	Kuach South	Yith-Liet	20	Small	Daily
	Akon North	Mayen-Pajok	100	Small	Weekly (Mondays)
	Riau	Panliet-Awan	50	Medium	Weekly (Wednesdays)
Twic	Wunrok	Wunrok	90	Large	Daily
	Turalei	Turalei	110	Medium	Daily
	Wunrok	Mayen-Abun	130	Medium	Daily
	Aweng	Aweng	130	Small	Daily
	Pan-Nyok-1	Akak	150	Small	Weekly
	Pan-Nyok	Pan-Nyok	150	Small	Weekly
	Akoc	Akoc	150	Small	Weekly
Gogrial East	Liethnhom	Liethnhom	90	Medium	Daily
	Pathuon West	Luonyaker	45	Medium	Daily
	Pathuon East	Malier	55	Small	Daily
	Nyang	Nyang	125	Small	Weekly
	Pathuon West	Mayen Rual	40	Small	Daily
	Pathuon East	Yik Ador	50	Small	Daily
Tonj North	Awuul	Warrap	60	Medium	Daily
	Marial Lou	Marial Lou	120	Small	Daily
	ManLor	Parasika	50	Small	Daily
	Aliek	Aliek	80	Small	Daily
	Alabek	Alabek	100	Small	Daily
	Akop	Akop	120	Small	Daily
Tonj South	Tonj	Tonj Town	150	Medium	Daily
	Thiet	Thiet Centre	130	Medium	Daily
	Jak	Jak	110	Small	Daily
	Wan-Alel	Mabior Yar	115	Small	Daily
	Manyangok	Manyangok	160	Small	Daily
Tonj East	Ngapagok	Ngapagok	200	Small	Daily
	Palal	Palal	190	Small	Daily
	Wunliet	Wunliet	220	Medium	Daily
	Paliang	Romic	230	Medium	Daily
	Makuach	Makuach	240	Small	Daily
	Paweng	Paweng	260	Small	Daily

Major Markets and their Location in Western Bahr-el-Ghazal

Market	Distance from Wau	Size	Days of operation
Suk Jaw, Wau town	0	Large	Daily
Suk Hajar, Wau town	2 km	Large	Daily
Suk Wau, Wau town	3 km	Medium	Daily
Raja Market, Raja town	210 miles	Large	Daily
Mapel Market, Jur River County	68 km	Medium	Daily
Nazereth Market, Wau town	6 km	Medium	Daily
Bahar Shierik Market, Jur River County	6 km	Medium	Daily
Lokoloko Market, Wau town	4 km	Medium	Daily
Besselia Market, Wau County	28 km	Small	Daily
Uyu-Juku market, Raja County	213 km	Small	Daily
Kuajena Market, Jur River County	28 km	Small	Daily
Suk Nahal Market, Wau town	6 km	Small	Every evening

Major Markets and their Location in Aweil and surrounding towns in Northern Bahr-el-Ghazal

Market	Distance to Aweil Town (km)	Size	Days of operation
Aweil	0	Large	Daily
Aroyo, Aweil centre	65	Medium	Daily
Nyamlel, Aweil centre	66	Medium	Wednesdays
Malek Alek, Aweil South	30	Medium	Mondays
Gok Machar, Aweil North	100	Medium	Saturdays
Wanjok, Aweil East	45	Medium	Sundays
Warawai, Aweil East	70	Medium	Mondays
Malual Kon, Aweil East	55	Small	Tuesdays
Majong Inthiep, Aweil East	61	Medium	Daily
Pamath, Aweil North	93	Small	Thursdays
Ariath, Aweil North	53	Small	
Marial Bai, Aweil West	76	Medium	Sundays
Udhum, Aweil West	30	Small	Tuesdays
Kledweil, Aweil West	40	Small	Fridays
Nyinboli, Aweil West	121	Medium	Wednesdays
Akuem, Aweil West	35	Medium	Wednesdays
Malual Bai, Aweil East	100	Small	Saturdays

Major Markets and their Location in Yei and surrounding towns in Central Equatoria State

Market name	County	Distance from Yei (km)	Size	Days of operation
Yei	Yei	0	Large	Daily
Mugwo	Yei	22	Medium	Twice a week
Mitika	Yei	25.6	Small	Twice a week
Ombasi	Yei	28.8	Small	Twice a week
Kirikwa	Yei	25.6	Small	Once a week

Cost-benefit analysis for selected livestock

Cost of raising common livestock as an enterprise as of July 2015

	Farm activities	Cattle (Bull) SSP	Cattle (Cows) SSP	Goats SSP	Sheep SSP
A1	Purchase of heifer (1 year)/kid/ lamb	1500	2000	75	75
B1	Receipt/certificate of purchase	25	25	7	7
2	Rope for tethering and lead (10 SSP x 6)	60	60	30	30
3	Deworming (40 SSP x 3/year) x 3	360	360	120	120
4	Vaccines	50	50	30	30
5	Castration	20	20	10	10
6	Labour for shepherding for grazing per month (10 SSP/head/month) x 3	360	360	72	72
7	Tagging, tattooing and horn shaping	30	30	0	0
8	Spraying against ticks/dipping x 3	135	135	135	135
9	Housing (700 SSP for 3 years or 233 SSP per year)	233	233	0	0
10	Transport (general) x 3	300	300	150	150
11	Milking	0	0	0	0
12	Marketing (transportation)/permit from County Office	10	10	10	10
13	Taxes and market dues (5% of sale) Holding Peg (Loc)	150	150	15	15
14	Interest on loan for purchase of heifer to lender i.e. Community Bank (5% of cost)	10	10	2	2
15	Loan charges for application form (Community Bank)	75	75	4	4
16	Dipping/treatment and unforeseen (2%	15	15	15	15
17	Miscellaneous for Additional feed	186	186	13.5	13.5
C	Total cost of farm operation (A+B)	3519	4019	688.5	688.5
D 1	Sale of bull/cow/kid/at 3rd year	3250	3415	300	200

2	Value of calves/kid/2 kids per year	0	600	450	120
3	Value of milk sold per month (3 litres milk/day) 10 SSP/litre (90 litres/month = 1080 litres/year @ 10 SSP/litre) Goat 0.5 litres milk/ day = 180 litres/year @ 1 SSP/litre for 2 years). Sheep milk is valued at 0.25% of goat milk production	0	10800	3600	900
4	Cost of hide and skin Cost	0	0	0	0
5	from rental as oxen	0	0	0	0
E	Total income earned from invest-ment (D1:D5)	3,250.00	14,815.00	4,350.00	1,220.00
G	Difference between sales and production	-269	10,796.00	3,661.50	531.5
	Profit mark-up (10-20%)				
	Percentage (profit or loss)	(8.28)	72.87	84.17	43.57

Cost of production for selected crops for one feddan as of July 2015

	Farm activities	Sorghum	Groundnut	Kale	Sweet potato
1	Land selection (buying or renting)	150	150	300	200
2	Tools (Cost of one ox plough divided by the number of its useful years)	200	200	200	200
3	Ploughing (labour) using ox plough	40	40	40	40
4	Ridging	0	0	0	500
5	Seed cost	50	150	250	500
6	Seed treatment	5	15	25	50
7	Planting	300	300	400	200
8	Weeding 1st	300	300	300	300
9	Weeding 2nd	0	200	300	0
10	Harvesting	100	300	1500	800
11	Transport	18	30	100	250
12	Bagging	30	50	100	250
13	Marketing (transportation)	300	300	500	3000
14	Taxes and market dues	50	100	70	80
15	Interest on loan to VSLA group	164.4	223.6	408.6	658.1
16	Storage cost	100	100	0	200
A	Total cost of farm operation	1807.4	2458.6	4493.6	7228.1
B	Total bags harvested (50 kg per bag)	5	10	100	50
C	Number of bags eaten	1	2	2	10
D	Number of bags sold	4	8	98	40
E	Price per bag	700	300	200	500
F	Total income earned from harvest	3500	3000	20000	25000
G	Mark up (10-20%)				
H	Difference between sales and pro-duction	1692.6	541.4	15506.4	17771.9

Cost of production for crops for one Feddan as of July 2015

	Farm activities	Sorghum	Cassava	Okra	Rice	
1	Land selection (buying or renting)	20	20	20	20	
2	Tools (Cost of one ox plough divided by the number of its useful years)	350	350	350	350	
3	Ploughing (labour) using ox plough	120	120	120	120	
4	Ridging	0	0	0	0	
5	Seed cost	29	480	315	140	
6	Seed treatment	0	0	0	0	
7	Planting	0	0	0	0	
8	Weeding 1st	420	420	420	0	
9	Weeding 2nd	0	0	0	420	
10	Harvesting	80	800	120	0	
11	Transport	0	0	0	0	
12	Bagging	30	50	50	0	
13	Marketing (transportation)	40	750	80	0	
14	Taxes and market dues	20	20	16	0	
15	Interest on loan to VSLA group (estimate)	100	0	0	0	
16	Storage cost	100	600	0	1	
A	Total cost of farm operation	1309	3610	1491	1051	
B	Total bags harvested (50kg each)	6	20	10	28	
C	Number of bags eaten	4	10	2		
D	Number of bags sold	2	10	8		
E	Price per bag	350	250	500	250	
F	Total income earned from harvest	2100	5000	5000	7000	
G	Difference between sales and production	791	1390	3509	5949	

Guide

Guideline for working with Agro-dealers in South Sudan

Republic of South Sudan
Ministry of Agriculture, Forestry, Cooperative and Rural Development

SORUDEV
South Sudan Rural Development Programme

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Agro-dealers: who are they?

Agro-dealers are entrepreneurs who deal in the import, purchase and sale of agricultural inputs such as seeds, tools, veterinary drugs, farm implements and other equipment to farmers in a given location. In some locations agro-dealers make agricultural tools, e.g. "malodas", axes and donkey ploughs. They also buy seed from farmers for sale in their stores. In the case of animal production, agro-dealers supply veterinary drugs and equipment and offer technical services to farmers (since they may be skilled individuals and/or have the capacity to employ skilled people).

Depending on their capacity, agro-dealers can be categorised as wholesalers and retailers. The agro-dealer with small capacity often mixes agro-inputs with the sale of other products. Agro-dealers are also expected to serve as a provider of extension services and a source of knowledge and advice to farmers. At the moment there are few specialised agro-dealers in South Sudan but there are many large sellers of building materials who are also involved in the import of farming tools and equipment such as ox ploughs and treadle pumps.

Finding an agro-dealer

In South Sudan, agro-dealers can be found in nearly all the major towns and cities. Producers of malodas, axes and donkey/ox ploughs can be found in some rural areas, e.g. Gok Machar (Aweil North County) in Northern Bahr-El-Ghazal, Yirol West County (Lakes State) and Mondikolok in Kajokeji County (Central Equatoria State). There are local seed sellers in most markets who are known to farmers. They are located in rural and urban areas and thus operate in rural and urban trading centres, stalls, shops and their own houses.

Role and importance of agro-dealers

Agro-dealers play a very important role in the cycle of crop and livestock production and thus their absence affects farmers' access to quality seeds, tools, veterinary drugs and equipment which in turn affects productivity. Some of the roles played by agro-dealers include:

- Bringing agro-inputs closer to the farmers;
- Providing after-sale services to farmers in the form of technical knowledge of the use of agro-inputs (e.g. the repair of ploughs, malodas etc.);
- Providing extension services to farmers, for instance by visiting farmers and treating their animals in the case of animal production or training farmers in agronomic practices in the case of crop production;
- Acting as a source of information to the farmers, as they are able to access information from different sources;
- Offering advice on how to use some of the agro-inputs (e.g. demonstrating how to chain an animal to a plough, tighten a loose nut, use a sprayer, etc.);
- In cases where the farmer does not have enough money to buy an item on a cash basis, assisting farmers by offering goods on the basis of a loan (which is repaid in instalments or according to whatever is agreed);
- Delivering feedback from farmers to input producers on the quality of the inputs supplied (for future improvement);
- Providing a market for agricultural produce;
- Contributing to value addition to agricultural produce;
- Acting as a source of income for the Government (through paying taxes);
- Providing employment opportunities to smallholder farmers.

In addition to these the following actors also play a very important role:

Local markets: These provides an entry point at which agro-dealers may meet with farmers.

Farmers' groups and cooperatives: These provide information to farmers about agro-inputs and also inform producers of the current demand for products.

Government and parastatals: The role of the Government is to provide information to farmers about agricultural inputs and products.

NGOs and development partners: These organise meetings and provide training in the use of the products and inputs.

Civil society organisations (CSOs): These create awareness of the demand and supply of agro-inputs among the agro-dealers.

Media: The media can provide information to farmers, as well as to agro-dealers about farmers' need for agro-inputs.

Linking agro-dealers to farmers

With a good background understanding of the crucial role played by agro-dealers in crop and animal production cycles, it is equally crucial to link them to the farmers who are often in need of their services and products. Strategies to be employed when linking agro-dealers to farmers may include

- Set up a mechanism for sharing information: Agro-dealers should be informed about the group of farmers in need of inputs. Farmers should also be informed about the presence of the nearest agro-dealer. The participation of key stakeholders such as trade unions and farmers' unions is very important since both could function as sources of statistics and background information for use by farmers or agro-dealers;
- Organise farmers into groups: This enables easy understanding of their needs as well as boosting their capacity to buy agro-inputs, especially those that may be too expensive for an individual farmer to purchase. The formation of groups also encourages collective bargaining and can provide both social and financial collateral in accessing inputs;
- Organise agricultural trade shows: This helps farmers and agro-dealers to convene and share information on recent agricultural and technological developments;
- Publish information about agro-dealers in newspapers, magazines, journals, other reports and through radio talk shows so that farmers who can read can obtain the information and share it with those who can't.

Strengthening the capacity of agro-dealers

As noted earlier, organised agro-dealership is in its infancy in South Sudan. For the capacity of existing agro-dealers to be built, the following should be considered:

- Training in business management skills: Capacity building in business management is the key to the success of an agro-dealer. Training should be provided in accounting, customer relations, promotion, branding, participation in demand creation activities and tailor-made mentoring in any specific areas identified. Other areas to be covered are business plan development, cash flow, bookkeeping and also skills in marketing and networking, management, leadership and the development of by-laws;
- Formation and strengthening of agro-dealer associations: This empowers agro-dealers to access information and services that they may not otherwise be able to access on their own. These may include information about where various inputs could be purchased, the quality of the inputs required, Government regulations, etc. An active agro-dealer will recognise these benefits and assume an active role with the association;
- Business linkage: This could be done through participation in agricultural trade fairs and other forums and may include the facilitation of access to financial services from banking institutions or other sources;
- Loan schemes: Agro-dealers receive loans to expand their businesses and enable them to procure different types of inputs. These loans could come from village savings and loans associations (VSLAs), cooperatives, etc.;
- Policy and legal framework: A legal framework should be put in place to standardise the operation of agro-dealers and regulate their activities. Once such a framework is in place, the agro-dealers should be informed about the regulations;
- Market information: Agro-dealers need to receive timely and relevant information about the demand for their products and where to find farmers;
- Infrastructure: Agro-dealers require an infrastructure that facilitates marketing and their movement with goods from one place to another;
- Exposure and exchange visits: These should link new agro-dealers with more developed agro-dealers either nationally or internationally.

Role of the Government (quality control, certification and registration)

The National Bureau of Statistics in collaboration with relevant Ministries (such as Agriculture, Animal Resources and Trade) are mandated to set standards for various tools and farm inputs, whether imported or made locally, to ensure that farmers are not exploited. In addition to these they are responsible for ensuring the following:

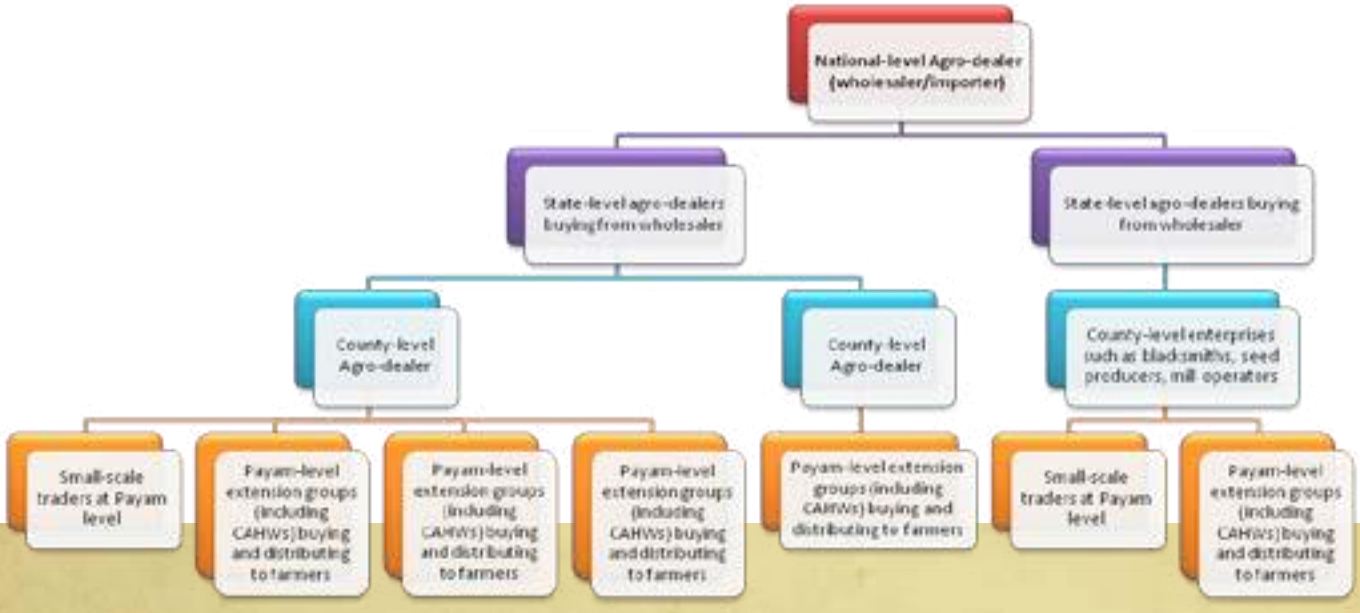
- Provision of security: It is the role of Government to provide safety and security for agro-dealers and their products;
- Quality control: Government, via the Ministry of Agriculture and Forestry (MAF), controls the movement and production of goods within the country and across the borders;
- Formulation of favourable policies: It is the responsibility of Government to set policies that govern the activities of agro-dealers within the country;
- Provision of credit facilities: Government issues loans to support agribusiness via the Agricultural Development Bank;
- Provision of information: Government and its development partners (DPs) collect and disseminate agricultural information that is crucial to agro-dealers such as market prices and updates on climatic/weather conditions;
- Infrastructure development: Government is also responsible for the provision of transport and communication facilities, a marketing structure and electricity to enable the distribution of agro-inputs.

Possible structure of agro-dealership for a smallholder farmer programme

Lessons from a smallholder programme

The reality in South Sudan is that agro-dealership is young and in most cases rare. Therefore, a smallholder programme will need to devise a way to work with those present and encourage new entrants while also opening up space for competition and due diligence. It is important to refer to the procurement procedure guiding this action from the standpoint of the contractual agreement signed with the donor. To this end the following should guide the agro-dealership development process:

- The selection of agro-dealers will be subject to a competitive process;
- NGOs, in collaboration with the Ministries of Agriculture and Animal Resources, will decide on the possible items to purchase or that will be needed by the farmers. A list is developed for approval by the Ministries in terms of quality, conformity with Government regulations and compliance with procedures, including quality assurance;
- The selection process will begin with publishing of a Call for interested agro-dealers nationwide and entrepreneurs wishing to participate in the project. The Call will take place annually and will state the type of inputs required, estimated quantities and the locations at which the inputs will be needed and will be positioned. These should be the areas (States, Counties, Payams) in which Farmer Savings and Loan Association (FSLA) groups are found. The Call will state that farmers from specific areas are interested in purchasing the listed items from credible,



dependable and certified agro-dealers. The selection criteria will include registration with relevant Government institutions (the MAF, the Seed Board, Veterinary Services and so on);

- The criteria used for selection of the best agro-dealer may also include financial capacity (i.e. the presence of a bank account) and technical capacity (including a track record, logistical capability i.e. owning a truck; speed of delivery, range of products and having the right personnel);
- Only those with the best offers will be recognised as potential input sellers (agro-dealers).

This process aims to be open, transparent and to ensure that the best products and services are provided to farmers. The aim of the programme should be to support local producers and farmers must be the key beneficiaries.

Sourcing inputs from agro-dealers

- The group invites the agro-dealer to present the specification (along with samples) of the required machinery, ploughs, seeds and other inputs, including the possible time of delivery;
- The presence of representatives of NGOs and of the Payam technical committee is required to provide monitoring, protect the interests of the group members and ensure that the members are not exploited by the traders or agro-dealers. However, the committee members are not direct members of the group and may not take decisions on behalf of the group;
- The group is responsible for informing all members of how much it has saved. This should represent at least 45% of the total sum of the input.
- The money saved for this purpose will be given to the agro-dealer. At this point, each individual will own a fixed percentage of the total cost (e.g. 55%);
- On the same day, the NGO issues the farmer with a "letter of credit" or "voucher" equivalent of the remaining 55%;
- The farmers present the letter of credit to the agro-dealer;
- The agro-dealer releases the input to the farmer in the presence of all group members;
- The dealers return to the NGO's office with the letter of credit and receive a cheque for the amount specified on the voucher which they cash at the bank;
- Group members must have saved at least 50% of the cost of the input(s) they need. This should be dictated by the available budget and should be explained to beneficiaries ahead of time;
- All group members must commit themselves to continue saving and remain active members;
- In the current SORUDEV start-up situation where farmers may not be able to save more than 50% (assuming they start saving in October), implementing partners are expected to advance them the balance money required on loan (in a match fund arrangement). They will contribute this from their group savings and a group guarantee will be required. This is because farmers should be supported to farm and should not be delayed from receiving the input(s) they require;
- When the money is returned to the cash box or to a designated bank account (with six months to go until the end of the project), the group decides on an agricultural/food security-related project to be constructed in their community which will benefit all community members. This fund could be called the Community Project Fund or any other name that may be appropriate.

Guide

Guidelines for setting up Farmer Savings and Loan Associations (FSLAs): a VSLA model for Smallholder Farmers in South Sudan

Republic of South Sudan
Ministry of Agriculture, Forestry, Cooperative and Rural Development

SORUDEV
South Sudan Rural Development Programme

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What is a Farmer Savings and Loans Association (FSLA) and what is the purpose of group saving?

An FSLA is based on the same concept as the Village Savings and Loan Association (VSLA), which was started in Niger by Care International in 1991. A VSLA is a group of people who come together to save and establish a fund from which they can subsequently take small loans. The groups are autonomous, meaning their members are self-selected and the groups self-managed without outside interference.

The primary purpose of a VSLA is to provide simple savings and loan facilities to a community that does not have easy access to formal financial services. Loans provide a form of self-insurance to members that is supplemented by social fund which provides small (but important) grants to members who find themselves in need of finance during periods of distress.

Members come up with a constitution to govern the groups and decide on how much to save per meeting (minimum and maximum amounts). However, not all members have to save the same amount and the amount saved can vary from one meeting to the next. By saving more frequently in very small amounts, the poor can build their savings more easily, thus contributing to improved household financial security.

Similarities can be observed with the "merry go round" model of saving or cooperative formation popular in South Sudan; however, the VSLA methodology is a better organised and more accountable system that even the least literate, least influential member of the group can understand and trust.

What is the objective behind setting up an FSLA for smallholder farmers in South Sudan?

"FSLAs are designed to strengthen the capacity of farmers in South Sudan and to increase their economic resilience through access to sustainable credit".

Key areas	FSLA/VSLA	Formal credit institution such as a bank
Ownership and management	- Owned and managed by the members themselves - Use of money is controlled by members without any outside interference	- Owned by other shareholders and managed by an external person who is an employee of the shareholders - Use of funds is controlled by employees
Loans	There are currently no loan application forms (some form of records should be kept to track applicants). Appraisal is done by members	Many application forms must be filled in and supporting documents have to be provided. Loan appraisal is done by an officer who may not know the applicant
Collateral	No need for collateral as members guarantee each other	There is need for a form of collateral before a loan is granted
Flexibility	Flexible and provides for social funds and emergencies	No flexibility; the loan must be repaid when due and failure will result in penalties (which collateral may be seized to cover)
Profits	Profits at the end of the cycle are shared among members together with their savings	Profits are only shared with the shareholders who are not necessarily members of the institution
Interest rates	Determined by members in a way that takes account of their economic status	No consideration is made of members' economic status when determining interest rates
Duration of disbursement	Loans are processed as soon as a member requests them	Takes time for the applicant to receive the money
Accessibility	The group is located within the members' village and is therefore easy to access	Banks are based in major towns and cities which are far beyond the reach of many smallholder farmers
Social cohesion	Members are able to discuss issues affecting them and how they could improve their status	Members (customers) only have access to money. There is no other attachment to the banking institution or other customers unless you are a shareholder

In South Sudan, formal financial services are not easily accessible to smallholder farmers. It is therefore extremely difficult for them to access any form of credit facility when they find they need to increase the acreage under crop production or the number of livestock they have. Based on this premise, the main objective of establishing an FSLA is to help smallholder farmers to access some form of financial service.

What is the difference between an FSLA and other formal credit institutions such as banks?

Unlike formal credit institutions, FSLAs are member-managed and owned and a member does not have to be educated or literate to manage his or her funds. Some of the major differences between FSLAs/VSLAs and more formal credit institutions are listed in the table below:

How can an FSLA as a group secure Government recognition?

For a farmers' or savings group to be officially recognised in South Sudan, it must seek registration from Government via the Department of Cooperatives of the SMAFCRD (State Ministry of Agriculture, Forestry, Cooperatives and Rural Development). To do this, the group needs to:

- Have elected leaders;
- Have a group of by-laws or a constitution;
- Know the shareholding activities of its members;
- Have started their activities e.g. farmer field school (FFS) sessions;
- Inform the local authorities of its existence (specifically, the Departments of Agriculture and Animal Resources at County, Payam and Boma level);
- Collect, fill in and submit the application form provided by the Department of Cooperatives at State level. There is also a registration fee to be paid to the Government.

Once the application is reviewed and approved a certificate of registration as a cooperative or association is issued by the Department of Cooperatives.

Who can become a member of an FSLA?

Members of the FSLA are self-selected and must be people of a similar social and economic background. They must agree to work together as a group toward a common interest and a common goal of saving and lending (possibly in addition to other activities). The groups are open to both men and women ideally living in the same village (hence the name village saving and loans association) and they must be known to each other in order to create trust and ownership. There can be more than one group in a village and members can belong to more than one group as long as they have the financial capacity and their membership of one group does not constrain their participation in the other.

How does it work?

The groups are usually composed of 20-25 members who know each other and live in the same village. They have a common interest and agree on how much to save per meeting and how often to meet. The formation of the group is often facilitated by a member of an NGO or of the Department of Cooperatives. The activities of the group follow annual cycles, after which the accumulated savings and loan profits are distributed back to members. This is often monitored by the Department of Cooperatives at State level.

How are the saving activities organised?

The groups hold regular (usually weekly) meetings at which the members make the contribution they have saved. The amount to be contributed may or may not be annually fixed. No member is allowed to control the group, so members can only buy up to 5 shares at a price determined by the group. Groups of private veterinary pharmacists or community animal health workers (CAHWs) may meet monthly.

How is the leadership of the groups decided?

The groups usually hold annual elections at which all members are expected to nominate someone for an office and also to vote. This is to encourage the participation of all members in the operations of the group and also to protect the group from being dominated by a single individual. The leadership of the group is composed of five members (namely, the chairperson, secretary, treasurer, information officer and general assembly member) plus an additional two (or more) money counters whose responsibility is to verify the amounts

that have been contributed and issued as loans. The roles and responsibilities of the five-person management committee are clearly defined and highly decentralised.

What are the essential rules (such as by-laws) that must guide each FSLA?

It is important that basic information be available on the FSLA. This should include the name and location of the group (which should be known to all members) and what the purpose of the FSLA will be. For the latter, the FSLA's vision, mission and objectives need to be clear and this should be included in their constitution. It must also be made clear that in addition to being responsible for savings and loans, the group must use its meetings to conduct training in agricultural and enterprise development. Membership and the criteria thereof should be jointly developed and agreed, including clear statements on who may belong to the group and who may not. The group should also democratically elect a governing body (including its leaders) and allow members to exercise their right to participation, equality and to vote and be voted for. Rules on the election of leadership should be included in the by-laws. The process should also regulate how leaders will be rotated and how any who are not proving honest and transparent will be removed.

Another core principle of smallholder FSLAs is to act as a platform to bring farmers together to improve their agronomic practices within a farmer field school (FFS) setting. They should meet at least once a week, preferably close to the site of activity of the school. The constitution of the association should also include:

- How often the Association will meet;
- What procedures must be followed when a member wishes to leave the Association;
- What happens following the death of a member;
- What constitutes an offence for which members can be punished and which penalties may be imposed by the Management Committee;
- How members will save and borrow and how a Welfare Fund will be established and run.

How do members obtain loans and how do they pay?

The savings made by members are maintained in a loan fund from which members can borrow in small amounts of up to 3 times their individual savings. Members wanting to obtain loans should express their interest during a meeting at which everyone is present and this is usually done once a month. Consensus should be reached as to whether the member's interest is genuine and/or their proposal for investment is viable. Loans are granted for a maximum period of three months in the first year and may be repaid in flexible instalments at a monthly service charge determined by the group. Members should be allowed to apply for as much as 3 times the value of their individual savings.

How are the saving books and accounts kept?

In a typical FSLA, the total amount saved, the amount borrowed out and the amount remaining in the cash box are all announced at each meeting.

Who keeps the cash and where is it saved?

The materials (which include the ledger book, passbooks, calculator, ruler, pens and stamp pad), loan fund and social fund of the FSLA are maintained in a locked box, which is safeguarded between meetings by the group "box-keeper". The box has three padlocks and the keys for each padlock are held by three different members of the group who are not members of the Management Committee. This system is robust and ensures that there can be no manipulation of the group's passbooks or funds outside of group meetings. This is ensured by the fact that the box is kept by someone other than the key holders and as such, can only be opened during meetings in front of the group members.

What should be the content of the cash boxes?

The cash box should contain the following:

- Three good-quality padlocks, each with three keys;
- A Record Keeping Journal;
- 30 Member Saving Passbooks;
- A Welfare Treasurer's record;
- An ink pad and rubber stamp symbol for the Association;
- Various stationery including a ruler, two ballpoint pens; two pencils and an eraser;
- A calculator;
- 4 plastic bowls at least 30 cm in diameter; and

- Envelopes of at least 15 cm deep.

All these items should be purchased by the group.

How long does a group have to be active and exist for?

Groups operate in annual cycles of 9-12 months. At the end of each cycle, the accumulated savings plus service charge earnings are shared out among the membership according to the amount each member has saved. A set formula should be used to calculate the amount to be shared out, especially the profits owed to each member. The annual share-out resolves any outstanding issues and builds member confidence. It is an active audit that provides immediate proof to all members that their money is safe and the process is profitable. This should be done in the presence of all members.

After the share-out, members who do not wish to continue may leave the group and new members may be invited to join. Members who plan to continue to the next cycle may all agree to use some of their savings to make a contribution to the loan fund for the next cycle, thus giving the group a head start with a good amount in the loan fund. This initiates lending activities with a useful amount of money to hand.

When should the group be dissolved and is there potential to start a new one?

When a new cycle begins, members hold new elections, review their constitution and may make changes to the terms and conditions that apply to savings, lending and the social fund. They may for example agree to change the social fund contribution, the price of the shares or the monthly loan service charge. However, the value of the shares and the loan service charge may only ever be changed at the beginning of the cycle, never partway through it. After this process the group continues independently in the new cycle.

What is a social or welfare fund and why is it important for the groups to keep this money aside?

A social or welfare fund is a sum of money set aside by the group to assist their members to meet their needs during times of distress. The members pay a set amount into this fund and agree to i) allow grants (or otherwise as agreed by the group) in the case of death, sickness or other disasters as agreed by the members; and ii) set different benefits to be payable depending on what the members have agreed on. However this fund does not cover school fees or other daily expenses. This fund is kept separately within the cash box, can never be mixed with the loan fund and is never shared out.

Emergencies usually covered by a Welfare Fund include:

- Medical expenses (including drugs, medical visits and hospital bills);
- Funeral expenses;
- Educational expenses (for orphans and vulnerable children); and
- Disasters such as a house fire or a major flood.

What are the main activities to be undertaken by the group apart from saving?

Before an FSLA can be launched, proper community mobilisation needs to be done and it must be ensured that the community members understand the FSLA. For sustainability, group members can get involved in selected income-generating activities or even farming so as to raise money to be used as a contribution to the group.

What are the essential phases of a saving group?

The FSLA promotion and training programme is implemented in four phases. These are:

Preparatory phase: This three-week phase provides general information to local leaders and prospective FSLA members and must take place before the project officer, extension officer or village agent starts to train the groups.

Training phase: This phase lasts 14 weeks and starts with five consecutive training meetings that take place over a maximum of two weeks. During training, the groups self-select, elect their leaders, establish their constitution and set out the rules and procedures that will govern their financial activities. They then go on to hold meetings, at which the group members learn to manage a social fund, shares, savings and loan transactions. The project/ extension officer or village agent attends all meetings during this phase and is actively involved in the provision of guidance.

Development phase: During this phase, the project/ extension officer or village agent visits less frequently and is less active in group meetings. This phase lasts 18 weeks.

Maturity phase: This phase lasts up to 18 weeks and involves three visits by the project/extension officer or

village agent. Two of these are supervisory visits to check that the group is running without any outside help. If the FSLA requires additional training or supervision, the cycle can be extended. If the group is ready to become independent, the officer or agent makes a third visit at the time of the last meeting of the cycle in order to facilitate share-out procedures and celebrate the group's independence from the Implementing Organisation.

What topics should be covered by training?

- Session 1: Group formation and General Assembly;
- Session 2: FSLA concept and leadership;
- Session 3: Election of the Management Committee;
- Session 4: Development of by-laws and internal regulations;
- Session 5: Introduction to record keeping;
- Session 6: Meeting procedures;
- Session 7: Conflict resolution and active audit.

These should be interspersed with a Farmer Field School theme that is agricultural or pastoralist-related.

Guide

Farmer Field School Guide for Smallholder Farmers in South Sudan

Republic of South Sudan
Ministry of Agriculture, Forestry, Cooperative and Rural Development

SORUDEV
South Sudan Rural Development Programme

CONTENTS

Introduction

The Farmer Field School (FFS) concept was developed by a project funded by the Food and Agricultural Organisation (FAO) in South East Asia as a means for small-scale rice farmers to independently learn the benefits to be obtained from adopting on-farm practices in their paddy fields and the skills required to do so. The term "Farmer Field Schools" comes from the Indonesian Sekolah Lampangan meaning simply "field school". This name reflects the educational goals. The course takes place in the field and field conditions define the majority of the curriculum, but real field problems are observed and analysed from planting to harvesting.

The first FFS were established in 1986 in Central Java during the pilot phase of the FAO-assisted National integrated pest management (IPM) programme prompted by the devastating insecticide-induced outbreaks of brown plant hopper (Nilaparvata Lugens) that are estimated to have destroyed 20,000 hectares of rice in Java alone.

Since then, the approach has been replicated in a variety of settings beyond IPM. For example, the FFS approach has been applied when tackling problems related to Integrated Soil Fertility Management. FFS has become an accepted extension tool in South Sudan and effort is being made by Government Ministries and development practitioners in the country to popularise the approach and build the capacity of more farmers and extension workers to effectively deliver the FFS methodology.

Understanding the Farmer Field School approach and concept[1]

What is a Farmer Field School?

A Farmer Field School is defined as a "School without walls" that aims to serve as a platform for improving decision-making capacity among farming communities and stimulating local innovation for sustainable agriculture. It is a participatory approach to extension whereby farmers are given the opportunity to choose their own methods of production through a discovery-based approach.

A Farmer Field School is a Group Extension Method based on adult education methods. It aims to teach basic skills in agro-ecology and management that make farmers experts in their own farms. It is composed of groups of farmers who meet regularly during the course of the growing season to experiment as a group with new production options. Typically, FFS groups consist of 25-30 farmers. After closure of the training period, farmers continue to meet and share information but have less contact with the extensionist.

The FFS approach aims to increase the capacity of groups

of farmers to test new technologies in their own fields,

assess results and their relevance to their particular circumstances and interact on a more

these for help where they are unable to solve a specific demand-driven basis with researchers and extensionists, looking to problem among themselves.

In summary a Farmer Field School (FFS) is a forum at which farmers and trainers debate observations, apply previous experiences and present new information from outside the community. The results of the meetings are management decisions on the action to be taken.

Objectives of Farmer Field School Broad Objectives Farmer Field Schools aim to bring farmers together in order to carry out collective and collaborative inquiry with the purpose of initiating community action toward solving community problems.

Specific Objectives

- To empower farmers with knowledge and skills to make them experts in their own fields;
- To sharpen farmers' ability to make critical and informed decisions that help make their farming more profitable and sustainable;
- To sensitise farmers to new ways of thinking and problem solving; and
- To help farmers learn how to organise themselves and their communities.

Principles of Farmer Field Schools

In the field school, emphasis is placed on growing crops or raising livestock with minimal disruption to the agricultural ecosystem. The training methodology is based on "learning by doing" via discovery, comparison

[1] This technical guide is a simplified version based on the FAO South Sudan/NRC ToT training conducted in Kuajok, Warrap State, reviewed and adapted by a larger group of SORUDEV, FSTP, Government and ZEAT-BEAD partners for smallholder farmers.

and a non-hierarchical relationship among the learners and trainers and is carried out almost entirely in the field.

The four major principles within the Farmer Field School/ Pastoralist Field School process are:

- Grow healthy crops and/or livestock;
- Observe fields regularly;
- Conserve the natural enemies of crop pests; and
- Help farmers understand ecology and become experts in their own field.

It is equally important to note that most farmers in South Sudan are adults who have not been formally educated. As a result, it is important that facilitators work with farmers on the basis that:

- Adults have wide experience and have learnt much from life. They learn best from their peers. As such, facilitators must help them to share their own dialogue with one another;
- Adults are interested in learning quickly about things that are relevant to their lives. The facilitator therefore needs to create a situation in which the farmers can form part of the planning process, choose the training topics and participate in regular evaluation of what they are doing;
- Adults have a sense of personal dignity. They must be treated with respect at all times and never made to feel humiliated or mocked in front of others;
- As adults grow older, their memories may weaken but their powers of observation and reasoning often grow stronger.

Characteristics of the Farmer Field School approach

Farmers as Experts: Farmers "learn by doing", i.e. they like to carry out for themselves the various activities related to the particular farming/forestry practice they want to study and learn about. This could be related to annual cropping or livestock/fodder production.

Application and practitioner understanding of FFS

The basic principle of Farmer Field Schools (FFS) is to provide an opportunity for farmers to test new varieties and methods under local conditions without risking their food security. Extension options can be visualised as a continuum from prescriptive top-down approaches (e.g. a seed company demonstration plot) to farmer-led research and farmer-to-farmer approaches. In short, FFS are Extension-led, Farmer-led or something in between. Extension-led FFS are more top-down, with farmers following a syllabus designed by extension staff based on seasonal activities.

Farmer-led FFS are intended to help farmers run their own trials and research projects to develop solutions to their local problems, for example Participatory Variety Selection trials. NGOs and Governments tend to prefer Extension-led FFS as these provide greater control over the crops and methods taught, and also fit better with logical frameworks and annual work plans.

Top-down	Bottom-up
Extension-Led Farmer Field Schools	**Farmer-Led Farmer Field Schools**
Highly prescriptive	Free, open, demand-driven and unpredictable
Delivery of an extension "package" Technology dissemination	Farmer-led research
Seed/fertiliser company, Government and NGO demonstration plots and farms	Farmer-to-Farmer

A defining characteristic of the FFS approach is that farmers conduct their own field studies. Their training is based on the comparison of different models and on field studies that they, not the extension/research staff, conduct. In so doing the farmers become experts in the particular practice they are investigating.

The field as the place of learning: All learning is based in the field. The sorghum or groundnut field or the vegetable farm or grazing area is where farmers learn.

Extension workers as facilitators, not teachers: The role of the extension worker is that of a facilitator rather than a conventional teacher. Once the farmers know what it is they have to do and what they can expect to observe in the field, the extension worker takes a back-seat role, only offering help and guidance when asked to do so.

The presentations made during group meetings are the work of the farmers (not the extension worker), with the members of each working group assuming responsibility for presenting their findings in turn to their fellow farmers. The extension worker may take part in the subsequent discussion but as a contributor rather than a leader, with the aim of reaching an agreed consensus on the action to be taken at that time.

Integration of the curriculum: Crop, animal and land husbandry and horticulture are considered together with ecology, economics, sociology and education to form a holistic approach. Integration is based on the problems confronted in the field.

Training as a seasonal activity: Training is related to the seasonal cycle of the practice being investigated. For annual crops this extends from land preparation to harvesting. Fodder production should include the dry season in order to evaluate quantity and quality at a time of year when livestock feeds are commonly in short supply. For tree production and conservation measures, training will need to continue over several years in order for farmers to see for themselves the full range of costs and benefits.

Regular group meetings: Farmers meet at agreed regular intervals. For annual crops such meetings may be held every 1 or 2 weeks during the cropping season. For other farm/forestry management practices the frequency of meetings depends on what specific activities need to be done, or can relate to critical periods of the year when there are key issues to observe and discuss in the field.

Learner-generated learning materials: Farmers generate their own learning materials, from drawings of what they observe, to the field trials themselves. The materials are always consistent with local conditions, are less expensive to develop, are controlled by the learners and can thus be discussed by the learners with others. Learners know the meaning of the materials because they created them. Even illiterate farmers can prepare and use simple diagrams to illustrate the points they want to make.

Group dynamics and team building: Training includes the building of communication and negotiation skills, problem solving, leadership and discussion, all of which are necessary to farmers.

Farmer Field Schools are conducted for the purpose of creating a learning environment in which farmers can master and apply specific land management skills. Emphasis should be placed on empowering farmers to implement their own decisions in their own fields.

Comparison between FFS and the conventional Train and Visit (T&V) system

PARAMETER	FARMER FIELD SCHOOL	CONVENTIONAL T&V
1. Learning method	By doing, experimenting, participating and discovering	By listening (experimentation and discovery are absent)
2. Training venue	Subject of learning (field, crop, animal etc.)	In the shade or under a tree
3. Duration	Complete study (season-long cycle)	One or two sessions
4. Extension Agent and their role	*Trained expert.* Spends most of their time assisting farmers to convince themselves of the benefits of a given technology	*Jack of all trades.* Spends most of their time trying to convince farmers of such benefits
5. Farmer and his/her role	*Participator, contributor and decision-maker*. It is assumed that the farmer is a cup full of knowledge but needs guiding	*Listener*. Management decisions are usually prescribed. It is assumed that the farmer is an empty cup that needs to be filled
6. Qualification to participate	Non-discriminatory	Literacy and experience of Master farmer training required
7. Programme Planning	Done and agreed upon by/with farmers. Extension agent commits themselves	Office-based work. Extension commitment not guaranteed
8. Evaluation and adoption	Done together with farmers. Adoption is the choice of the farmer	Office-based work. Usually done through persuasion/force

Steps involved in establishing an FFS (Classic approach)

There are 8 key classical steps involved in establishing and running an FFS:

8. Follow-up by facilitators
7. Farmer-run FFS
6. Graduation
5. Field days
4. Evaluation of PTDs
3. Regular FFS meetings
2. Training of facilitators
1. Groundwork activities

The details of each step are explained below:

1. Conduct groundwork activities
   - Identify focus enterprises
   - Identify priority problems
   - Identify solutions to the identified problems
   - Establish farmers' practices
   - Identify field school participants

Identify field school sites

Activities	• Collect baseline information using a checklist • Identify key production constraints • Discuss the kind of activities to be implemented to overcome the problems identified (action plan) • Sensitise villagers to the purpose and approach of the FFS • Introduce the role of the FFS facilitators • Discuss how farmers can help the facilitators and clarify their roles • Suggest the location of the FFS • Recruit farmers willing to join the FFS
Time	• Half a day for the village meeting and half a day for transect walk and second village meeting.
Resources required	• Flip chart and markers • Flip chart stand • Notebooks and pencils • Small budget for refreshments (water and tea)
Expected output	• Endorsement of locations for FFS by County and State officials and village chiefs • • Information on the villages collected • Preliminary list of farmers interested in the FFS • Date set for launching the FFS Identification of sites where the FFS are to be established

Criteria for selection of participants	Criteria for selection of the learning site	Grouping of participants
Active farmer	Accessible	All learning is done in sub-groups
Willing to participate	Suitable to the particular enterprise (problem area, technology to be addressed)	Each group is responsible for testing a model or series of models for comparison purposes
Ready to work in a group	Accessible to all farmers (democratically selected)	Models are tried out at the learning site
Socially acceptable	Should include a data processing site at which information is analysed and relevant decisions proposed	No single model is replicated in the same school
Must share a common interest with other farmers	Provision for security	Each group plays host on the day of FFS activities
Must come from the same locality		Each sub-group includes officials; thus the FFS has several leaders at different levels
Willing to follow the norms set by the group		
Willing to share experiences		

Willing to share financial and material costs and gains		
Open to both genders		

2. Training of facilitators in:
   - Crop and livestock production and protection technologies;
   - The use of field guides on how to effectively deliver crop and livestock production and protection techniques using non-formal education (NFE) methods; and
   - Participatory technology development (PTD).
3. Establishment and running of an FFS

With the guidance of facilitators, the group meets regularly throughout the season to conduct experiments and field trials related to the selected enterprise. This includes:

- The implementation of PTD (testing and validation);
- Conducting of Agro-Ecosystem Analysis (AESA) and morphology (including collection of data);
- Processing and presentation of data;
- Group dynamics;
- Special topics.

Activities	• Presentation of findings from the transect walk and village meeting (including the completion of missing information) • Preliminary identification and registration of members interested in joining FFS groups • Provision of assistance to farmers to develop the terms and conditions of becoming a member of the FFS group • Confirmation of the technologies and models that the members would like to pursue • Preparation of a list of inputs and where to source them • Selection of the host farm or venue of the FFS
Time	• 1 FFS day (3 hours)
Venue	• Village
Participants	• Farmers and facilitators
Resources required	• Flip chart, stand and markers • Findings of the transect walk • Notebooks and pencils/pens • Budget for refreshments (tea and water)

Expected outcome	• FFS group formed • FFS technologies and models identified • Objectives of the FFS clearly stated • List of required inputs produced • Host farm identified • Terms and conditions of membership of an FFS group agreed by all members

4. Evaluation of PTD activities

This should include analysis and presentation of the collected data.

5. Field days
   - Throughout the running of the FFS, field visit days are organised to which the rest of the farming community is invited to share what the group has learnt through the FFS;
   - One or two field days should take place per season;
   - The farmers themselves run these days (i.e. not extension workers);
   - Farmers participate in the selection of varieties and/or technologies.

6. Graduations
   - This activity marks the end of the season-long FFS and is usually organised by the farmers, together with facilitators and the coordinating office;
   - Farmers are awarded certificates if they have successfully completed the season-long process.

7. Farmer-run FFS

FFS farmer graduates now have the knowledge and confidence to run their own FFS.

8. Follow-up by facilitators
   - Occasionally the core facilitators will conduct follow-up of schools that have graduated, preferably on a monthly basis. The core facilitators also backstop on-going farmer-run FFS.

Organisation and management of a Farmer Field School

Facilitators must:

- Accept farmers as equal partners;
- Be familiar with the FFS concept and relevant procedures;
- Have the required technical, facilitation and communication skills.

Farmers should ensure:

- Commitment of resources;
- Voluntary provision of an FFS site;
- Provision of inputs (labour);
- An organisational structure and governing rules.

A successful FFS will have:

- Well trained facilitators;
- Well defined priority issues;
- An organised community that is committed and willing;
- Clear understanding of the FFS concept and relevant procedures by all stakeholders;
- The support and goodwill of the authorities at various levels;
- Adequate resources and logistical support;
- Proper identification of sites/areas;
- Proper identification and selection of participants;
- A flexible and dynamic farmer group that is well organised and structured;
- Farmers with a common interest;
- Proper and guaranteed supervision, monitoring and evaluation of the activities.

Farmer Field School *C*urriculum

Farmer Field Schools are based on a solid, tested curriculum which covers the entire crop and livestock cycle. The FFS curriculum is based on field guides, field studies and a collection of group dynamic exercises. These materials are used according to relevance.

Training at the FFS is experiential and based on discovery. The training activities are designed to have participants learn by doing. Most of the training time is spent in the field. Exchange of information and generation of knowledge are facilitated through the sharing of observations, brainstorming and discussion.

A cornerstone of the FFS methodology is the agro-ecosystem analysis (AESA), which is the establishment by observation of the interaction between a crop or animal and other biotic and abiotic factors co-existing in the field. This involves regular (usually weekly) observations of the crop. Participants work in sub-groups of 4 or 5 people and learn how to make and record detailed observations, including:

- Crop growth stages;
- Numbers of pests and beneficial insects;
- Numbers of weeds and levels of disease;
- Weather conditions;
- Soil conditions;
- Overall plant health.

The farmers then take management decisions based on these observations.

An important aspect of the FFS is to help and encourage farmers to conduct their own experiments and test ecological crop management methods. There are no standard recommendations or packages of technology offered. Farmer groups take collective decisions on which methods or aspects of crop management should be studied and undertake action based on their own findings. In this way, farmers become active learners and independent decision makers through a process of learning by doing.

The above, together with a group dynamic activity and a special topic (which concerns what is happening in the field), forms the core of the field school curriculum.

A day at the FFS is divided into:

- The AESA and its relevance to crop growth stages;
- Group dynamic activity;
- A special topic related to specific village-level conditions or problems.

Farmer Field School schedule

FFS meet for half a day on the prescribed days. A typical day consists of:

- The following broad steps have been suggested for the formation and upkeep of an FFS. Prayers
- Roll call
- Review of previous activities
- Briefing on the day's activities

- AESA processing and presentation to larger groups by sub-groups for decision making
- Group dynamic activity in small or large groups
- Special topic activity
- Review of the day's activities
- Planning for next session
- Announcements
- Roll call
- Closing prayers

In the case of the SORUDEV, FSTP and ZEAT-BEAD programmes the remaining half-day is reserved for FSLA activities.

The role of group dynamics in the formation of an FFS

A group is a collection of people with a common interest. It is therefore normal that a group is started by a person(s) with a vision. This is followed by an explanation of the vision, which will frequently lead to the establishment of a commonly felt need. Next comes the recruitment of willing members, an election of interim officials by the initial members and proper registration of members. Constitutions, regulations and by-laws will be drafted and finally, officials elected. In order to formalise the group as a legal entity an application is submitted to the appropriate Government institutions for registration, after which savings and loan activities are introduced (or where commercial banks are available, a bank account is opened).

The principal emphasis is on the creation of an environment in which both individuals and the group as a whole feel free to experience, reflect and change. Games and exercises are particularly valuable. It is also important to remember as a group, an FFS will go through the four basic group formation stages:

Stages of group formation

(1) Forming stage
- Group cohesiveness is low;
- Participants may be unwilling to assist in group activities;
- Leaders play a big role and do most of the work;
- Participants respect group norms;
- Suspicions may arise as to the members and motives of the group.

(2) Storming stage
- Members may start challenging the group leaders;
- Sub-group members may become suspicious of their leaders;
- Some members may start breaking group norms;
- Some members may become rebellious and/or drop out.

(3) Norming stage
- The group is more cohesive;
- Most members observe and respect group norms;
- There is good member participation in group activities;
- Members participate in problem identification.

(4) Performing stage
- Leaders are more democratic;
- Members make good suggestions/field good ideas for solving their problems;
- Group work is shared well among members.

Conditions for a successful FFS

Having this in mind, not all FFS will mature at the same time. The following could be considered as an indication of success:
- Well trained facilitators
- Well defined priority issues;
- An organised community that is committed and willing;
- Clear understanding of the FFS concept and relevant procedures by all stakeholders;
- The support and goodwill of the authorities at various levels;
- Availability of appropriate technology;
- Adequate resources and logistical support.

Integrating FFS with VSLAs (adopted to a smallholder component)

Despite the commendable objectives of extension approaches and methods (including Farmer Field Schools) and the good intentions underpinning their design, overall and over the years, the adoption of new practices by poor smallholder farmers has been limited. It has become a norm in agricultural programmes to ascribe failure to poor dissemination or lack of motivation on part of extensionists. While both reasons have their place, there is also every reason to believe that an approach that offers both higher economic returns to farmers and the finance they require during the production cycle and the post-production period stand a better chance of survival.

The integration of agricultural extension with VSLA activities should therefore be based on money, especially as one of the core fundamental teachings of extension is to recognise that farmers have daily and periodic financial needs. The integration of Farmer Field Schools with VSLAs should provide rural dwellers with freedom, flexibility, independence and a social status that empowers.

It is a considered opinion that for any system to be successfully integrated with agricultural advisory and extension services it should already be in place (and have been tested) and should have a strong element of ownership and impact. The VSLA method meets all of these criteria. For more details on Farmers' Savings and Loans please refer to the section on VSLA methodology.

FFS Field Guide

The following are the primary concepts and techniques used by Farmer Field Schools:

Ecosystems

Definition: Entails both living and non-living things found in an area and their environment.

Learning objectives:

- Facilitate learning by discovery in the FFS;
- Guide farmers to critically analyse their field problems and make better relevant decisions;
- Build awareness of the relationships that exist between the living and non-living things that are found in our environment;
- Help farmers appreciate that if one thing in this network of interaction is changed, this can influence all components of the ecosystem;
- Increase awareness of the elements and interactions that make up the ecosystem that is our field (the "Agro-Ecosystem");
- Start using existing understanding and observation of the agro-ecosystem as a basis for making decisions about crop/livestock management.

The agro-ecosystem consists of the following:

Living things	Non-living things
Grasses	Soil
Crops (maize, coffee, kale, onion, napier)	Sun
Weeds	Buildings
Insects (grasshoppers, moths, spiders, wasps)	Clothes
Birds	Dead leaves
Human beings	Dead branches
Trees	

Steps

- Go to the field, making sure that you have a notebook and pen. Each group will look around as far and as close as they can see and list all the living and non-living things they can find. It should then be discussed how these are connected and how they affect each other;
- After 20 minutes of observation, the groups should return to the session hall for discussion and note-taking;
- Each group should draw a picture showing all the things they have observed, including lines that show which things are connected to or affect each other;
- Each group should give a presentation explaining what they have drawn to the larger group.

Concept of "What is this/that?"

Definition: This is a discovery-based form of learning in which the learner is led to the answer to a question by asking further questions.

Purpose

- To promote learning by discovery and lead learners toward their own analysis;
- To help farmers to critically analyse and make better decisions about their own fields.

This methodology of learning is very important to achieving the goal of education. One important method is to ask the participants questions that lead them to their own analysis and understanding.

When a participant asks the question: "What is this?" or "What is that?" the best way to answer it is with another question:

- Where did you find it?
- What was it doing?
- Were there many of them?
- Have you seen this before?

NB/It is always better to do this than to answer the question directly. Asking the participants further questions helps them to learn.

Example of an FFS Field Guide

Time	Activity	Objectives	Materials	Responsible persons
8.00- 8.05 am	Prayer	Commit the day's activity to the Lord	Bible	Host team
8.05-8.10 am	Roll call, brief and recap	To check who is present and	Register, previous AESA	Host team
8.10- 9.00 am	Field monitoring AESA	To check the progress of the FFS summarise previous activities	Books, pens, ruler, pencils, scales	All
9.00- 10.00 am	Processing of AESA and presentation	To synthesise and analyse the data by collecting data and present it to the larger group for collective decision on the management action to be taken (if any)	Flip charts, books, felt pens, board pens, ruler, masking tape	Facilitator/ host team
10.00- 10.30 am	Group dynamics	Energise (revitalise) the group, - enhance participation and educate on group activities		Facilitator/ host team
10.30- 11.30 am	Special topic	Select a special topic which will widen the participants' scope of knowledge/skills	Books, pens, pencils	Facilitator
11.30- 11.40 am	Review of the day's	Evaluate achievements	AESA materials	Facilitator
11.40- 11.50 am	Planning for next session activities	Prepare adequately for the next session	Flip charts, felt pens	Host team
11.50- 11.55 am	Roll call and announcements	Note latecomers and absentees	Register	Host team
11.55- 12 noon	Prayer	Thank God for the day	Bible	Host team

Field Days

Given that the FFS usually comprises a small group of 25-30 farmers, the need arises to share lessons learnt with other members of the community. During the period of visiting by the host team, up to two FFS field days should be organised. This is sometimes combined with graduation. A definitive aspect of field days is the fact that farmers themselves facilitate the activities.

A field day is an occasion when farmers and facilitators show other members of the community what they have learnt and the results obtained from their Participatory Technology Development (PTD) activities. It should be held when a crop is nearing maturity. Where there are two field days, one is sometimes combined with graduation.

Activities to be carried out during the field day

- Assembling of field day attendants;
- Registration;
- Presentation of the objectives of both the group and the FFS;
- Presentation of the problems being addressed by the FFS;
- Visits to various plots/stations
- Gathering:
    - Prayer
    - Introduction
    - Folk media
    - Farmer impressions
    - Speeches
    - Guest of honour
    - Closure

The facilitators of the day are the farmer participants.

Graduation

- This activity marks the end of the FFS and is usually organised by the farmers, facilitators and coordinating office;
- The occasion is used to recognise the time put into the FFS by the farmers and facilitators;
- It is also a forum at which i) lessons learnt at the FFS can be conveyed to administrators and the wider public; and ii) interest can be generated among more farmers to join upcoming FFS in the locality;
- The results of PTD activities are displayed and FFS participants dramatise (using folk media) all lessons learnt at the FFS.

Certificates are awarded to all successful participants in the FFS.

Agro-ecosystem analysis (AESA)

Definition: AESA is the establishment by observation of the interaction between a crop/livestock and other biotic and abiotic factors co-existing in the field. This involves regular observations of the crop and/or animal(s).

AESA represents a means of summarising what is being learnt in the FFS and integrating it into a process that is useful for decision making and based on a range of factors.

Purpose of AESA

- To promote learning by discovery and guide learners toward their own analysis;
- To enable farmers to critically analyse and make better decisions about their own fields.
- To improve decision-making skills through the observation and discussion of a field situation analysis;
- To improve decision-making skills by presenting decisions made by small groups for critique and analysis by the larger group.

How to conduct AESA

AESA is an approach used by farmers to analyse situations observed in their fields with regard to pests (and their natural enemies), soil conditions, plant health, the influence of climatic factors and the effect of their interrelationship on the growing of healthy crops. Such a critical analysis of the field situation will help farmers to make appropriate decisions on management practices.

The basic components of an agro-ecosystem analysis are:

- Plant health at different stages;
- The built-in compensation abilities of plants;
- Populations of pests and their natural enemies;

- Soil conditions;
- Climatic factors;
- Farmers' past experience.

The AESA Methodology

A) Field observations

- Enter the field to at least 5 feet from the edge and select a site at random with a dimension of one square metre;
- Make and record visual observations using the following sequence:
    - Flying insects (both pests and their natural enemies);
    - Close observation of any pests or beneficial insects that remain on the plants;
    - Observation of pests and beneficial insects by scraping back the soil around the plants;
    - Observation of intensity of disease (if disease is present);
    - Observation of insect damage and incidence of disease (%).
- Record parameters such as number of leaves, plant height, the condition of the reproductive organs of the selected plants and other agronomic parameters important to deciding what should be observed in the coming weeks;
- Record the presence of weeds (if any) and their type, size and population density in relation to crop plants;
- Record soil conditions;
- Make records of how the weather has been (sunny, partially sunny, cloudy, rainy etc.) during the preceding week.

B) Drawing

First draw the plant at the centre of a chart. Then draw pests on the left and their natural enemies (beneficial insects) on the right. Indicate the conditions of the soil, the number of weeds, etc. Colour the entire drawing with "natural" colours; e.g., draw healthy plants in green and diseased plants or leaves in yellow. While drawing the pests and beneficial insects on the chart, care should be taken to draw them on or close to the part(s) of the plant on which they were seen during observation. The common name of the pest should also be indicated alongside the diagram.

Weather conditions should be shown by drawing a sun just above the plant (if the weather has been sunny). If the weather has been cloudy, clouds may be drawn in place of the sun.

C) Group discussion and decision making

Next, the observations recorded in the previous and current charts should be discussed among the farmers. The farmers should be asked about changes in pest and beneficial insect populations, crop stages, soil conditions and weather conditions (such as rainy, cloudy, sunny, etc.). Based on these discussions the group then makes judicious decisions on specific management practices.

Participatory Technology Development (PTD)

Participatory Technology Development (PTD) is a process of collective and collaborative inquiry with the purpose of initiating community action toward solving local problems. PTD activities in FFS are implemented to empower participants (both farmers and facilitators) with the analytical skills to investigate the cause-and-effect relationship between problems observed in farming practices, thus stimulating them to learn from each other's experiences at each stage of intervention and to draw lessons for future FFS implementation strategies.

PTD involves all relevant stakeholders in work that would only usually be done by researchers. It can be seen primarily as a learning strategy for empowering participants and secondarily as a means of producing conventional research results.

The conducting of PTD at Training of Trainer (ToT) and FFS sites should follow 7 main steps:

Step 1: Conduct groundwork activities

At this stage, participants introduce themselves and their programme to local government officials (such as Chiefs, Sub-Chiefs and other local leaders) in order to build a good relationship with them. In the process, field problems, indigenous farm practices and cultural management techniques are gathered. Initial contact with local researchers is similarly established, which is useful at this stage in that it can help to determine existing technologies that may be needed to address perceived field problems.

Step 2: Conduct village immersion activities

Participants, backstopped by the facilitators, are immersed in the village identified as a possible FFS site at

the suggestion of agricultural officials. Similarly to Step 1, they introduce themselves and the programme to village leaders and farmers. During this stage, participants also liaise with farmers in the community in order to validate the local field problems and current farming practices gathered by facilitators during groundwork activities.

Step 3: Prioritise field problems

Based on the data obtained during the groundwork and village immersion activities a baseline survey tool is utilised to obtain more specific details of the field problems observed at the proposed FFS sites. Field problems are then prioritised via an agricultural analysis, which will eventually form the basis of cooperation with farmers and facilitators to start the process of PTD.

Step 4: Plan and design PTD activities

Following the prioritisation of field problems, the planning and design of PTD activities starts with the identification of the most promising models in order to establish an agenda for experimentation. At this stage, the participants (facilitators and farmers) in close consultation with local researchers identify which PTD activities will be set up at the ToT and FFS sites. The PTD experiments should be simple, but capable of yielding reliable results that can be managed and evaluated by the farmers themselves.

Step 5: Implement PTD activities

Some PTD activities will be established at ToT sites and others at FFS sites. However, the participants should jointly evaluate all activities. The participants in/facilitators of both ToT and FFS should agree jointly as to what PTD activities should be set up at the FFS sites. Usually, the problems established at FFS sites are those that need to be addressed immediately using demonstration technologies (that may either be indigenous or developed through research). As the participants conduct, measure and access PTD experiments, they build up experimental skills and strengthen their capacity to conduct and monitor their own tests.

Step 6: Collect and interpret the results of PTD activities

The participants should be able to collect and interpret their own PTD results. The general focus of FFS training on agro-ecosystem analysis (AESA) gives the participants insight into the ecological interactions in the field and enables them to i) develop innovations; and ii) discover technical gaps or new problems to be addressed by the community via further PTD activities.

Step 7: Utilise these results in subsequent PTD activities

In order to ensure that PTD becomes a sustainable means of addressing future field problems in the community, PTD results should be continuously utilised. Any innovations developed in conducting PTD activities should be used to address similar field problems in future. Similarly, technical gaps or new problems discovered via PTD experiments should be addressed using further PTD.

An example of a PTD experiment is provided below.

Problem selected: Hardpan

Test crop: Kale

Possible solutions:

- Deep tillage
- Double digging
- Manure application
- Crop rotation
- Inter-cropping

Objective of PTD: Comparison of double digging, deep tillage and normal digging

Treatments:

- Double digging
- Normal digging (>10 cm)
- Deep tillage (<20 cm)

PTD layout:

Model 1	Model 2
Model 3	Traditional practice

NB/Manure will be applied in all cases and all factors except depth of tillage will be kept constant.
Parameters to monitor

- Wetting depth
- Plant height
- Number of leaves
- Size of leaves
- Stem thickness

AESA Sheet

General information

- Crop

- Date of planting
- Depth of digging (double or normal)
- Double digging + manure
- Normal digging + manure
- Deep tillage + manure

- Type of soil
- Irrigation system
- Weather

Parameters

- Wetting depth
- Plant height
- Number of leaves
- Size of leaves
- Stem thickness

Observations and recommendations

Example of a (1-hour) exercise in PTD development

Each group should identify a problem that needs to be solved by the FFS, including the following:

- Possible solutions;
- Objectives of the PTD activity;
- Models to be tested;
- PTD design/layout;
- Development of an AESA sheet.

Organisation and Management of a Farmer Field School

Grouping of participants

- All learning is done in sub-groups;
- Each group is responsible for testing a model or series of models to enable comparison;
- Models are tested at the learning site;
- No one model is replicated by the same school;
- Each group plays host on the day of its FFS activities;
- Each sub-group has officials, meaning the FFS has several leaders at different levels.

Report writing

A report is a summary of activities undertaken or of updates to such activities. It should be based on a set of data which has been collected and analysed and presented to the person or organisation which has requested it.

Reports are used:

- For monitoring and evaluation (M&E);
- For the purpose of presenting information for future reference;
- For disseminating information to others;
- To enable utilisation of given resources;
- To invoke action as deemed necessary by the parties concerned;
- To inform relevant authorities of on-going activities;
- To verify data/information.

Qualities of a good report

A report should follow a timeframe. It should show clear understanding of the topics and should be relevant, reflective, systematic, reliable, comprehensive and most importantly, objective.

Monthly FFS Report by Facilitator

Organization---------- Reporting Period ----------

Name of Facilitator							Enterprise	1 2 3	Date	
Name of FFS									Payam/ County	
Wk	Date	AESA No.	Attendance			Host Team	Field Activities	Special Topic	Group Dynamics	Remarks
			M	F	Total					
1										
2										
3										
4										
5										
Observation						Group Problems			Recommendations	
Concluding Remarks:										

Networking

What is networking?

Networking is a process of creating linkages between people with common interests, pursuits and goals. It is a pattern of communication or interaction between people who exchange information, contacts and experiences for professional, social and or business purposes.

Forging partnership with individuals and institutions

- For a network to exist there must be a commonality of interests, goals and pursuits;
- Networks help bind together like-minded people for contact, friendship and support.

The advantages of networking are that:

- It generates visibility;
- It fosters self-help (where this is needed);
- It helps people make new friends;
- It enables the exchange of information and the sharing of ideas;
- It enhances career development;
- It shows people how to ask for help and where to go for help when they need it;
- It creates a sense of belonging to a specific group;
- It enables the sharing of experience with experts;
- It provides high organising power;
- It encourages greater efficiency and reduces costs;
- It provides access to information on external markets;

- It enables bigger investments/pooling of resources;
- It facilitates access to external assistance.

The disadvantages of networking are that:

- It can lead to conflict, resulting in disintegration;
- It reduces the time available to make decisions or take action.

Types of FFS Networking Groups, Organisations and Associations

1) Self-Help Groups (SHGs)

- These are groups of 15-30 members;
- They must be registered with Social Services and the Ministry of Culture;
- They do not require a license to meet;
- They can be formed by several SHGs;
- They must file regular returns;
- They must hold Annual General Meetings (AGMs);
- Their membership is not limited (unlike SHGs).
- They are not obliged to hold regular meetings.

NB/If an SHG exceeds 30 members it will no longer be recognised by law.

2) Associations

- These are groups of people with a common interest;
- They can exist at different levels (e.g. households, stockists, wholesalers, manufacturers);
- They must have standard by-laws, guided by of Memoranda of Articles of Association signed with the Office of the AG;
- Association is strong and recognised (enforced) by the laws of South Sudan
- They must be registered with the Office of the AG;

Example of FFS (Association) networks

Cluster FFS Associations
FFS SHGs at community level

Record keeping

Record keeping involves keeping track of what is happening to enable effective monitoring. Records serve as a reference basis that assists the keeper to analyse strengths and weaknesses and make any necessary adjustments.

Efficiently kept records should:

- Be simple to use;
- Be easy to understand;
- Be accurate;
- Be reliable;
- Be consistent;
- Be adequate;
- Provide timely information.

Type of record	Function
Inventory	List of assets owned by the FFS
Correspondence file	Contains copies of letters sent and received
Meeting minutes	Keep track of what has been discussed and decided
Constitution	Provides a guide for governance of the FFS
Register of members	Provides a profile of each member
Registration certificate	A legal document that validates the existence of the FFS
Receipt book.	Traces financial transactions
Cash book	Shows levels of income and expenditure
Visitors book	Monitors who has visited the FFS
Project documents	Contain the original proposals to be filed for future reference

Facilitators must:

- Accept farmers as equal partners;
- Be familiar with the FFS concept and relevant procedures;
- Have the desired technical, facilitation and communication skills.

Farmers must ensure:

- Commitment of resources;
- Voluntary provision of an FFS site;
- Provision of inputs (labour);
- An organisational structure and governing rules.

Participants must:

- Be active and practicing farmers;
- Show willingness to participate (volunteer);
- Be ready to work in a group;
- Be socially acceptable;
- Have a good relationship with others;
- Be willing to learn for their own development;
- Have a common interest;
- Come from the same locality (area);
- Be willing to follow the norms set by the group;
- Be willing to share experiences.

The site must:

- Be accessible;
- Be suited to the specific activities to be carried out;
- Be located within or next to the community;
- Be acceptable to all farmers (i.e. all members of the group agree on it);
- Be centrally located among the farmers;
- Have a data processing site;
- Be secure.

Guide

Guidelines on selection and mobilization of smallholder farmers

Republic of South Sudan
Ministry of Agriculture, Forestry, Cooperative and Rural Development

SORUDEV
South Sudan Rural Development Programme

CONTENTS

Introduction

These guidelines begin with the processes required to set up a successful agricultural programme at State level. They seek to answer the following questions: "What should an organisation do to start a new agricultural Programme in a State in South Sudan?" and "How should the smallholder farmers be selected or targeted and farming groups properly mobilised?"

A. Entry points for starting a programme in a State

Meeting with State-level officials

- This meeting will aim on one hand to inform State-level authorities of the project and on the other, to enable the organisation to understand the cluster system and to coordinate with other partners working in the same areas/sectors;
- The meeting will involve i) the Ministries of Agriculture, Forestry, Animal Resources and Fisheries; and ii) County Commissioners;
- Topics of the meeting will include:
  - Introduction to the project;
  - Project objectives;
  - Proposed areas of implementation;
  - Target and number of beneficiaries;
  - Logical framework (logframe);
  - Budget for implementation;
  - Implementation approach.

Meeting with County-level officials

- The meeting will involve: i) County Commissioners; ii) the Executive Director; iii) Heads of Departments of Agriculture, Livestock and Fisheries; iv) Payam Administrators; and v) Representatives of Agriculture, Livestock and Fisheries Extension Officers.
- Topics of the meeting will include:
  - Introduction to the project;
  - Project objectives;
  - Proposed areas of implementation;
  - Target and number of beneficiaries;
  - Logical framework (logframe);
  - Budget for implementation;
  - Implementation approach
  - Identification of Payam/Boma selection criteria;
  - Selection of Payams in which the project will be implemented;
  - Identification of beneficiary selection criteria;
  - Tentative plan of activities;
  - Monitoring and evaluation (M&E) plan.

Meeting at Payam level

- The meeting will involve i) Payam Administrators; ii) representatives of Agriculture, Livestock and Fisheries Extension Officers; and iii) Boma Chiefs;
- Topics of the meeting will include:
  - Identification of Bomas;
  - Identification of beneficiaries according to the beneficiary selection criteria.
- Identified Bomas have to be verified by the implementing organisation through tools such as questionnaires for Focus Group Discussions (FGDs) and Key Informant interviews (KIIs). The questionnaires will be drafted according to the Boma selection criteria;
- Identified beneficiaries must be verified by the implementing organisation (targeting group).

Initial setup of the project

- Once the inception phase is concluded with all levels of authority, the organisation will agree on the roles and responsibilities of all stakeholders through the signature of a Memorandum of Understanding (MoU) with the State-level Government;
- In addition, in order to ensure long-term sustainability and the smooth implementation of activities, a Project Steering Committee (PSC) will be established at both State and County level. This should ensure shoulder-to-shoulder collaboration between project staff and local authorities.

The role of Government

The Government is responsible i) for maintaining the security of project staff/beneficiaries in t he a reas in which projects are being implemented; and ii) for helping to raise community awareness of the project. It must therefore:

- Assign permanent or counterpart agricultural staff to support the implementing partners and ensure these staff remain active until the end of the project;
- Ensure that designated staff receive salaries from both Government and partners;
- Collaborate with implementing partners in the identification and selection of beneficiaries in the presence of community representatives;
- Provide technical support to the project, including the assigning of quality assurance staff for training and monitoring project performance throughout its lifetime;
- Chair PSC meetings every three months and address any challenges encountered during the implementation of activities;
- Review progress reports (including financial reports on budget expenditure).

Importance of and need for collaboration

Collaboration between Government and Development Partners is crucial when planning to establish agricultural projects in South Sudan. The reasons for the need for this collaboration are as follows:

At State level:

- The project receives political support and commitment from all sectors that may influence its results;
- The project receives guidance in terms of sector policies, strategies, procedures and M&E of implementation;
- Agreements with sector Ministries can be signed to clarify objectives, activity budgets, roles and responsibilities;
- Project Technical and Steering Committees can be established to provide space for directing project implementation and the monitoring of results;
- Project Focal Points (Government staff who support the NGO with State-level issues in regards to the project) can be appointed.

At County level:

- Opportunities are provided for political support and commitment;
- Technical and supervisory support is provided to project implementation;
- Project Focal Points are identified;
- Technical Service Agreements can be signed with specific Government staff to ensure they spend some of their time on the project;
- Complaints from stakeholders pertaining to the project can be captured;
- Transparent decisions can be made on the re-alignment of project locations.

At Payam/Boma level:

- This is important to local ownership of the project as it is where activities are implemented;
- Activities can be monitored;
- Rightful targeting of individuals to participate in the implementation of project activities can be ensured;
- Space is provided for an accurate complaint and feedback mechanism and effective project implementation.

B. Formation of a Smallholder Farmers' Association

A farmers' association is an organised group of farmers with a common interest. Groups are broadly categorised into four types, namely:

- Input supply groups: These are established to reduce overall costs through sharing resources (such as machinery) or jointly purchasing inputs. These groups may be highly diversified in terms of crops and commodities;
- Service groups: These are mainly established to provide producers with improved access to credit, finance or insurance. They aim to solve specific problems with farmer support such as securing access to loans, insurance or advisory services. Numerous credit institutions and insurance companies prefer to deal with groups rather than with individual farmers. As such, individuals sometimes have limited potential

to provide collateral compared to a group of farmers that is prepared to accept joint liability;

- Marketing groups: These often specialise in one commodity, prefer value-added products and target expanding markets. Joint purchasing of equipment can help a group of farmers to "add value" to their production and thus to generate new market opportunities;
- Production groups: These agree to jointly cultivate and harvest specific varieties and types of crop (sometimes under a specific buyer contract aimed at a specialist market).

For example, if the group's common interest is in improving their production, they convene, hold meetings, plan, share ideas and mobilise resources (including labour) to enhance their agricultural production and productivity and make better marketing arrangements.

Advantages of forming an association

- Farmers' associations enable their members to pool their resources, thereby increasing their agricultural capacity in terms of inputs, knowledge and skills;
- They enable their members to easily access funding support, loans and credit services from the Government, NGOs and other financial institutions, thereby increasing their agricultural production and productivity;
- Through farmers' associations, members can share the risks and benefits of their group activities. For example, through the linkage of farmer associations to insurance agencies, the impact of risks on individual members can be reduced;
- A farmers' association serves as an important forum for members to share their experiences, skills and knowledge in order to enhance learning;
- Forming a farmers' association is a means of empowering the community to make decisions and assume ownership of and responsibility for their development initiative;
- Farmers can satisfy their social needs and wants through working as a group.

Steps involved in the formation of a smallholder farmers' association

a) Consultative meeting

This meeting aims to generate understanding among local authorities, existing farmers' groups and elders of the general structure of the farmers' group and how it functions.

b) Initial survey

This assessment studies whether the community has previously considered forming an association but faced challenges as regards how to go about doing it. During this stage, community interest in forming a farmers' association can be generated (or regenerated).

c) Awareness-raising meeting

This introduces the farmer association approach to the community, providing them with a clear and real view so that they may understand what to expect and appreciate the importance of working as an association.

d) Mobilisation of farmers

A call is made to interested farmers to register for the formation of a farmers' association. At the end of registration, the registered individuals will be asked to choose the date of the next meeting.

e) Selection of the interim leadership

The interim leaders of the association will help run the association and organise the election of the legitimate leaders.

f) Call for a general assembly

The interim leaders will call a general meeting of the registered members to elect the new leaders of the association and to discuss the objectives of the association, its main activities and the roles to be played by the leaders and the general assembly.

g) Drafting of the by-laws of the association

The interim leaders of the association will draft the constitution (by-law) of the association with the help of representatives of the Department of Cooperatives and partners.

h) General meeting to review the articles in the by-laws

Following the drafting of the by-law, the general assembly is called to a meeting to review the draft constitution before it is passed.

i) Registration of the association

The registration process begins following endorsement of the constitution. Registration is done with the Department of Cooperatives at State level.

Steps involved in the formation of a Herders' Association

Herders' Associations can be formed for the management of livestock and associated resources such as water and pasture. It is easier to request veterinary services when in a group.

There are currently no legal policies regulating herders' associations in South Sudan. Functional and effective herders' associations are therefore required do the following:

- Identify and register all cattle camps in the Boma;
- Inform them of the advantages of registering all animal herds in the area:
- Educate them on the importance of formalising their membership as an association and how it brings the following advantages:
    - It makes livestock movement control easier;
    - It facilitates livestock identification (branding);
    - It makes it easier to organise livestock health management activities such as vaccination campaigns;
    - It helps increase power to lobby Government for technical support to the improvement of the livestock industry;
    - It facilitates the resolution of conflicts;
    - It can help introduce savings and credit among herders and even enable them to obtain loans from financial institutions such as rural or commercial banks;
    - It can help herders to work like cooperatives;
    - It can help organise adult literacy sessions.
- Register all cattle owners in the camp (often they have their own laws);
- Encourage them to write down their laws and agree to abide by them;
- Identify their leaders and encourage members to rotate leadership after one or two terms;
- Allow them to assess their own capacity to manage their herds and ask them in which areas they need more knowledge and information on cattle management;
- Link them to the Department of Cooperatives of the relevant Ministry at which they can be officially recognised and certified as a herders' group or association.

C. Community Mobilisation Guidelines for Smallholder Farmer Agricultural Projects

Definition of community mobilisation

Community mobilisation is a consultation process between community members and implementing agencies (such as international NGOs, community-based organisations and other key stakeholders) that aims to increase awareness and draw the attention and interest of community members to a new project.

Community mobilisation is important because:

- It enhances community participation in the project;
- It helps implementing agencies and other development actors gain in-depth understanding of existing community problems, coping strategies and social dynamics;
- It provides a means of understanding the needs of the community (both real and felt);
- It empowers community members to solve problems, resolve conflicts and make decisions from the outset of project implementation;
- It instils a sense of ownership of development projects among community members;
- It enhances the building of trust between community members and implementing agencies so that they can work effectively toward a common objective.

Principles of community mobilisation

- Community mobilisation should be a consultative process with the wide involvement of all stakeholders including women, men, youth and other marginalised groups;
- The timing of community mobilisation should be appropriate in order to avoid interference with seasonal calendars and routine household chores;
- The community mobilisation process should be impartial and should not put community members at risk;
- Discussion should be facilitated, providing opportunities for everyone to be heard;
- Care should be taken to avoid a top-down approach whereby people in leadership positions make decisions on behalf of community members.

Steps involved in community mobilisation at Payam/Boma level

- Organisation of community meetings through local authorities (e.g. Payam administrators, executive chiefs and sub-chiefs) that unite all Bomas. All groups (farmers' groups, women's groups, youth groups, households and marginalised groups) should be represented in these meetings;
- Explanation and discussion with community members of the scope of the project (i.e. its objectives, activities, duration, target groups, implementation strategy and cross-cutting issues such as gender mainstreaming, HIV/ AIDS, environmental conservation etc.);
- Conducting of a participatory needs assessment in order to obtain in-depth understanding of community problems, needs and priorities and the extent to which the project can address them. Community needs assessment can be done using Participatory Rural Appraisal (PRA) tools and techniques that ensure the participation of the different interest groups;
- Development of a community action plan that addresses the needs of target groups, in this case smallholder farmers. The action plan should entail the following:
    - Resource mobilisation (both project and community contribution);
    - Scheduling of activities within the project duration;
    - Formation of an implementation and management committee which will be responsible for beneficiary identification, selection and screening;
    - Formulation of an M&E plan.

D. Selection (targeting) of beneficiaries for a community project activity

It is important to ensure explanation of the project to the community leaders by the group doing mobilisation.

- Community leaders include chiefs, sub-chiefs and goal leaders;
- Community leaders go on to explain the project to the community members and set a date for a meeting with the project staff;
- A meeting follows with potential beneficiaries at which project staff ask the community members a series of questions in order to ascertain if they are aware of the new project and to clarify important/pertinent issues concerning the project.

Explanation of the criteria for beneficiary selection

Often there are no specialised communities. The majority of communities in Greater Bahr-el-Ghazal are agro-pastoralists who cultivate crops and rear livestock. Assuming the community is involved in crops, livestock and fisheries, the selectio of smallholder farmers will depend on a number of factors and considerations, including their location:

- Accessibility to the project site (e.g. roads, security, etc.);
- Willingness to participate in project activities;
- Available resources and assets in the community;
- Willingness to participate in a social bond (to learn together) that has a single goal;
- Willingness to learn and share;
- Availability and accessibility of a location for regular meetings;
- Encouragement of women to participate in mixed groups or form women-only groups;

- Age of the majority of beneficiaries (productive age of up to 60 years);
- Emphasis on the number of direct beneficiaries needed from that location.

Selection of beneficiaries

- Beneficiaries that meet the criteria are registered by community leaders;
- After an agreed period (e.g. a week), project staff verify whether the registered beneficiaries meet the criteria;
- Only one beneficiary should be selected per household (which is defined as all the people eating from a specific pot).

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The guide on crop production covers crop agronomic and cultural practices for eleven selected crops namely Sorghum, Maize, Rice, Sesame, Cowpeas, Groundnut, Beans, Cassava, Sweet Potatoes, Tomatoes and Kale. In each of the guides you will find information on seed varieties, cropping seasons, land preparation, spacing, pest and diseases management, harvesting techniques and marketing. The second guide on animal production covers husbandry techniques for Cattle, Goats, Sheep and poultry. The guide provides technical information onselection, housing, feed types and feeding, diseases (including disease management) and marketing. The third guide contains a set of guidelines on Ox Ploughing, Agricultural Marketing, Agrodealership, Village Savings and Loans Association, Community Mobilization and Farmer Field School.

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