

**AGGREGATION, TRANSPORTATION, STORAGE AND VALUE
ADDITION IN OIL SEEDS**

TRAINING OF TRAINERS MANUAL FOR FRONTLINE STAFF



NORWEGIAN CHURCH AID
actalliance



DRAFT MANUAL

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The content in this manual has been generated from Mwen & Associates’ past experience in value chains development. Suffice to say that some important information was gathered from the consultations with stakeholders in oil seeds value chains. This material has been fully funded by NCA-Malawi. However, the views expressed do not necessarily reflect the NCA-Malawi’s official policies.

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Regards,

Raymond Mwenitete-Mwen & Associates Team Leader

PREFACE

Norwegian Church Aid (NCA), with support from the Norwegian Agency for Development Cooperation (NORAD) is piloting a project which aims at integrating smallholder farmers into the oilseed value chains. The oilseed crops identified are Sunflower, Soya Beans, and Groundnuts. The objective of the project is to ensure that Rights Holders have increased knowledge and skills to add value to their oil seed crops and have them linked to structured markets. The expected outcome of the project is to increase profits for farmers arising from value- addition and value- chain development.

To achieve the aforementioned, NCA, through its core partner, Churches Action in Relief and Development (CARD) is implementing in Kalulu EPA, Mchinji. CARD is working with Mikonga Cooperative as the primary beneficiary of the project. The project has identified gaps along the oilseed value chain and planned strategic interventions to address the identified gaps. Among such interventions was the need to develop a training manual focusing on Transport, Aggregation and Storage of Oilseed Crops and the value addition products of the specific crops.

This training manual has been developed by Mwen & Associate with funding from the NCA to address the gap on Transport, Aggregation and Storage of Oilseed Crops and the value addition products of the specific crops.

It is NCA's belief that the manual would help equip CARD officials and other stakeholders from the Government with knowledge and skills which will later be imparted on smallholder farmers to improve their storage and value addition skills.

ACRONYMS AND ABBREVIATIONS

ACE-Agriculture Commodity Exchange

ADMARC-Agriculture Development and Marketing Corporation

AHLCX-Auction Holdings Limited Commodity Exchange

CAC-Central Aggregation Center

CARD-Churches Action in Relief and Development

DADO-District Agriculture Development Office

EEP-Economic Empowerment Project

EPA-Extension Planning Area

FLAC-Field Level Aggregation Center

MBS-Malawi Bureau of Standards

MoAIWD-Ministry of Agriculture, Irrigation and Water Development

MSAC-Main Satellite Aggregation Center

NCA-Norwegian Church Aid

NGO-Non Governmental Organisation

PP-Polypropylene

Q&A-Question and Answer

RaS-Rent a Service

SAC-Satellite Aggregation Center

SP-Service Provider

TCC-Tobacco Control Commission

ToT-Trainer of Trainers

WRS-Warehouse Receipt System

I INTRODUCTION

I.1 BACKGROUND INFORMATION TO OIL SEEDS VALUE CHAIN INITIATIVES

In many African countries, women and youth are relegated to the periphery of the decision-making ladder on important issues such as access to land and other productive resources. This traditional legacy resulted in an unequal structure of society and unequal distribution of resources. In Malawi, traditional ideas on gender roles deny women and youth full participation in decision making and social and economic development. As a result, women and youth have far less access than men to land ownership, financial services, training, and other means of increasing agricultural production and improving family income. Furthermore, women and youth (especially, children) receive little of the income from sales of produce in spite of doing most of the work in agriculture. Clearly, there are social and moral reasons for seeking to redress these disparities. Therefore, the key focus of this Oil Seeds Value Addition Manual is to integrate men, women, and youth into the decision-making and management functions of cooperative business transactions.

The Churches Action in Relief and Development(CARD) with support from the Norwegian Church Aid (NCA) is implementing an Economic Empowerment project in Mchinji. The project is piloting the cooperative approach, which focuses on farmers grouped together as opposed to individual farmers to promote product aggregation. The Rent-an-Service (RaS) Model is being piloted for smallholder farmers beyond the primary beneficiaries. RaS is a Non-Traditional Finance service, which aims at providing affordable access to machinery and equipment to the targeted farmers at a minimal fee. The RaS idea emerged to address the major challenge of limited value addition due to lack of access to value addition equipment or processing equipment. The theory of change under economic empowerment envisages that the project in Malawi will contribute to the overall goal of “securing entrepreneurial opportunities and sustainable employment for Malawian youth and women”. While the initial pathway to achieving this change was through vocational and entrepreneurial interventions, there is a paradigm shift in the project pathway whereby value chain development is a new focus for economic empowerment. It is anticipated that the focus on value chain development will lead to increase in profits for rights’ holders in Malawi and precisely smallholder farmers in Mchinji.

1.2 WHY ECONOMIC EMPOWERMENT FOR SMALLHOLDER FARMERS?

Empowerment as: “the process by which those who have been denied the ability to make strategic life choices acquire such an ability.” Those who are disempowered are either denied or have limited choices such as smallholder farmers in Mchinji. Therefore, empowerment is a process that expands farmers’ ability to make choices that result in desired outcomes. The ability to make strategic choices depends on three interrelated dimensions: agency, resources and achievements. Resources relate to physical, social and human resources and access to such resources reflects the rules and norms, which allows certain individuals authority over others. Agency relates to decision-making wherein an individual recognizes their ability to either make a decision, bargain, negotiate, reflect, manipulate, or resist to pursue their own goals and can be exercised individually or collectively. Achievements are the outcomes of making strategic choices that lead to well-being. It is therefore against this background that this manual has been developed to help build the capacity of smallholder farmers in oil seeds value addition which includes key processes like aggregation, transportation, storage and oil processing for market. The manual details key concepts in these processes in order to improve oil seeds cooperatives’ value addition efficiency and profitability. Ultimately, NCA through CARD are facilitating the smallholder farmers economic empowered through the oil seeds value chain development model.

1.3 WHO SHOULD USE THIS MANUAL?

This manual is available for use by NCA funded initiatives and any other smallholder farmers oil seeds value chain development initiatives in Malawi that have *sustainable commercial enterprises* for smallholder agriculture as their core focus. This Manual has been developed specifically for Extension Workers/Frontline Staff working as Trainers of Trainers(ToTs) who are tasked to build the smallholder farmers’ capacity in agribusiness enterprises especially oil seeds value chain development upon which issues pertaining to transport, aggregation, storage and value addition are tackled in a practical approach. The manual can also be used by agribusiness training institutions, Non-Governmental Organizations (NGOs), and independent consultants aiming at improving the planning and business management skills of smallholder producers in value addition investments.

1.4 TRAINING APPROACH

The approach in delivering the training materials is basically through open space presentation of the technical materials. Extension Workers should facilitate the trainings in plenary and allow as much as possible the farmer interactions while delivering the trainings. This manual has been designed to impart hands-on skills in Trainers on how to effectively deliver the materials to their participants hence the inclusion of; practical sessions, role plays and stories to enhance the farmer's uptake of technical information.

In order to have a better understanding of the value chain processes, facilitators must use graphics (pictures and illustrations) and real materials such as oil seeds raw materials (groundnuts, soy beans, sunflower, groundnuts stem etc.) and finished products from oil seeds such as cooking oil, peanut butter, roasted peanuts etc.

Interaction between Trainer and participants (smallholder farmers) must be fully encouraged throughout the sessions. This can be in a form of case stories presented by individual participants or asking participants to share experiences related to specific cases presented. This is the only way to allow the participants have a deeper understanding of the realities in oil seeds value chains. Remember to avoid a classroom set-up where participants only listen to their facilitator as teacher-pupil relationship.

Each module in this manual has its own design in terms of; title, general focus summary, specific objectives, minimum number of sessions, requirements, duration and focus areas for observations and lessons.

1.5 LEARNING OUTCOMES

The manual is designed to equip Frontline Staff/ Extension Workers with:

- Knowledge regarding smallholder farmers' mobilization and Organisation in agribusiness especially in oil seeds value addition projects
- Entrepreneurial skills to successfully facilitate the establishment and operation small-scale oil processing plant
- Skills for handling oil seeds value chain logistics especially on the mobilization of raw materials for oil processing i.e. aggregation and transportation
- Skills in oil seeds storage good practices
- Good operation and processing standards regarding smallholder oil seeds processing

2 MODULE 1: SMALLHOLDER FARMING AND AGRIBUSINESS

MODULE OBJECTIVES:

The module objectives are as follows:

- a. To learn the definition of a smallholder farmer
- b. To understand the smallholder farmers' characteristics and importance in agriculture value chain development
- c. To reflect on the existing challenges faced by smallholder farmers in Malawi
- d. To understand the mobilization of smallholder farmers for value chain development initiatives in Malawi.

2.1 INTRODUCTION TO THE SMALLHOLDER FARMING AND AGRIBUSINESS

Smallholder farmers are the most important players in any agro-based value chain development project. It is therefore very important to understand the roles of smallholders in oil seeds value chain. As Frontline Staff, there is need to have a good understanding of who the smallholder farmer is. Besides the understanding, Trainers involved in oil seeds value chains but working with smallholder farmers must have special skills in delivering key extension messages. In fact, some messages are too technical but it is the duty of the Extension Worker to improvise ways of cascading the messages to the smallholder farmers and their organizations. This module will orient the Front Staff on the better way of mobilizing smallholder farmers in oil seeds value chain development.

SESSION ONE: MOTIVATION TALK ON WORKING WITH SMALLHOLDER FARMERS IN AGRIBUSINESS

Content: *In this session, participants are imparted with skills on the motivation talk regarding the importance of collectivism in smallholder farmers for agribusiness investments.*

Time: *It is estimated that the motivation talk with roles will take about 30 Minutes.*

In order to impart the skills in farmer mobilization especially encouraging unity amongst the smallholders, engage the smallholder farmers through this role-play assignment. Let the smallholder farmers practice under your instructions. Make sure they observe what is happening in the role play and allow them to freely express their opinions at the end of the session.

LESSON ONE: Unity and concerted efforts in smallholder farmers' operations

Method of Lesson Delivery: *By Practice-Role Play*

Duration: *10minutes*

What needs to be done?

- *Ask participants if they know crab (Nkhanu in Chichewa)*
- *Ask any of the volunteer participants to illustrate or demonstrate how it the crab walks*
- *Let the participants observe the way a crab walks; obvious answers will be that a crab walks side-ways while moving towards the front direction i.e. from point A to point B*
- *Ask the participants again if they ever witness any military parade (be it armed forces, police, security company etc.)*
- *Ask any of the participants to voluntarily demonstrate the parade, repeat the process with at least 3participants doing a parade*
- *Ask each one of the participants to explain the differences in crab walk and military parading of the 3 volunteers together.*
- *Ask the first volunteer who demonstrated crab walking to perform the parade together with the 3 volunteers parading in military style. Please, remember to ask the first volunteer to maintain the walking status of the crab while performing the military parade. This volunteer must not conform to the parading soldiers but maintain parading as a crab*
- *Ask the joint parade participants (volunteer representing a crab and the other 3 volunteers representing military officials) to focus in moving from marked point A to marked point B*
- *Ask the rest of the participants to observe what is happening in terms of movements by each parading member and the progress being made as they move from point A to Point B.*

Observations:

- *The parading officials will make strides as they are well trained to move in a uniform style without trampling on each other.*
- *There is usually tremendous progress as they make strides in moving from point A towards point B*
- *The volunteer representing the crab will continue going in a different direction i.e. different from the focus of the parade*
- *The crab can conform the parading moving unless it is asked to walk side-ways while moving towards point B*
- *There is no way a crab will walk the same way parading officials are doing unless it faces the side-ways direction but walking towards point B*

Lesson(s) Learnt:

- In any group of farmers, being farmers club, cooperative or association, there must be a vision to focus. The vision is to move from point A to B. Where at point A is the current status of the farmer Organisation and its individual members while point B is where the farmers would want to be in future as an improved status.
- In any farmer organization, there will always be members who will behave like the mentioned crab or parading soldiers. Key thing is for leadership recognize those members behaving like crabs for actions accordingly. The actions could be capacity building inform of sensitization and awareness or disciplinary if the members are acting deliberately.
- It is normal to have different characters in any form of grouping or institution only that the leadership must know its membership and actions to take.

Smallholder farmers usually understand more when their cases are related to what they encounter in their daily lives. Think of a village set-up and create stories that will make them not forget the lessons learnt. In addition to the role plays, use stories that will motivate them as they make reference to specific stories.

LESSON TWO: The Dangers of Lack of Awareness and Empowerment Amongst Smallholder Farmers

Method of Lesson Delivery: Story Telling

Duration: 10 Minutes

What needs to be done?

- Ask participants if they have ever seen a cattle herder? Let them describe the sizes of the cattle herd found in their area
- Ask the participants if they have ever seen a toddler or boy herding cattle from the khola to the grazing area and back to the khola?
- Let the participants discuss if the herd of over 100 cattle can be herded by a little boy in the village?
- If possible, ask them why do you think it is possible for a little boy to herd that big size? Observe their gestures amongst the farmers
- Ask them about their opinion regarding the cattle perception? The obvious answers will be; cattle do not realize they are being herded by a toddler/little boy! The cattle are foolish! Etc

Repeat the same questions but this time around use the scenario of a trader or vendor buying oil seeds in their communities with a spring scale. Ask the following questions:

- Ask the participants to compare the number of traders/vendors to that of smallholder farmers in their area? What could be the possible ratio?
- Ask them who sets the market prices or farm gate prices?
- Observe their gesture against the participants while they are giving out their responses.
- Ask the participants who is supposed to have much powers on the pricing of oil seeds on the market?

- Ask another question to seek their opinion, let them relate the case of vendor/Trader and smallholder farmer in a community to that of a toddler/Little boy herding cattle?
- Ask them on their opinion on the similarities between the little boy herding cattle and the vendor championing the farm gate prices. Once again, observe their gesture as they are giving out responses to you.

Observations:

- The participants will make all sorts of silly and castigating comments regarding cattle being herded by a little boy
- When it comes to the issue of relating the story to that of vendor and them, there will be looking at one another and even laughing at themselves, in shock that there could do something better had it been they operative in formal groupings such as cooperatives and associations. They will realize that there is power in awareness and doing transactions regarding farm business in unison.
- Participants will claim that facilitators do not help them get organized. Others will even blame Government for lack of protection for smallholder farmers.
- Farmers understand that vendors take farmers for granted but they have limited capacity to get themselves organized hence looking forward to external service providers like CARD, FUM, CISANET, NASFAM etc.
- There will also be some participants blaming each other (blame game amongst smallholder farmers) that they do not want to work together in most circumstances.

Lesson(s) Learnt:

- There is usually limited and in some instances lack of collectivism in tackling issues affecting smallholder farmers in agribusiness which eventually exposes them to exploitation by traders
- Smallholder farmers lack not only capacity but also awareness and behavioral change for them to fully realize the potential in collectivism

SESSION TWO: UNDERSTANDING SMALLHOLDER FARMERS IN AGRIBUSINESS

Content: *The participants are given opportunity to discuss who is the smallholder farmer in the context of their own location. A list of characteristics of a smallholder farmer is produced through a discussion. Other aspects in economic empowerment such as gender mainstreaming in oil seeds value chain projects.*

Time: *Since it is more of an interaction event, the total estimated training period is 30 Minutes*

2.2 WHO IS A SMALLHOLDER FARMER?

Smallholder farmers are the drivers of many economies in Africa even though their potential is often not brought forward. Smallholder farmers are defined in various ways depending on the context, country and even ecological zone. Often the term 'smallholder' is interchangeably used with 'small-scale', 'resource poor' and sometimes 'peasant farmer'. In general terms smallholder only refers to their limited resource endowment relative to other farmers in the sector. Smallholder farmers are also defined as those farmers owning small-based plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour.

2.3 CHARACTERISTICS OF A SMALLHOLDER FARMER

One of the main characteristics of production systems of smallholder farmers are of simple, outdated technologies, low returns, high seasonal labour fluctuations and women playing a vital role in production. Smallholder farmers differ in individual characteristics, farm size, resource distribution between food and cash crops, livestock and off-farm activities, their use of external inputs and hired labour, the proportion of food crops sold and household expenditure patterns.

2.4 IMPORTANCE OF SMALLHOLDER FARMERS AND POTENTIAL IN VALUE CHAIN DEVELOPMENT

Smallholder farmers can play an important role in livelihoods creation amongst the rural poor. Even though Smallholder production is important for household food security, the productivity of this sub-sector is quite low. Poor yields may be

one of the reasons why urban and rural households either abandon or are uninterested in agricultural production. There is therefore a need to significantly increase the productivity of smallholder farmers to ensure long term food security. This can be achieved by among others encouraging smallholder farmers to pursue sustainable intensification of production through improved inputs.

2.5 SMALLHOLDER FARMER MOBILISATION FOR AGRIBUSINESS

Government has identified cooperatives as one of the central pivots to reduce poverty, unemployment and high levels of inequality and to accelerate empowerment and development for the benefit of previously disadvantaged majority. Agriculture, including farming, forestry, fisheries and livestock is the main source of employment and income in rural areas where the majority of the world's poor and hungry people live. Agriculture cooperatives have been found to play a crucial role in enhancing productivity of smallholder farmers. Being voluntary, democratic and self-controlled business associations, co-operatives offer the institutional framework through which local communities gain control over productive activities from which they derive their livelihoods. In the sector co-operatives contributes to food production and distribution, and in supporting long term food security. They offer prospects that smallholder farmers would not be able to achieve individually such as helping them to secure land rights and better market opportunities. Smallholder farmers can gain big benefits from agricultural co-operatives including bargaining power and resource sharing that lead to food security and poverty reduction for the millions.

They also help in tackling rural poverty by increasing productivity and income of smallholder farmers by helping them collectively negotiate better prices for seeds, fertilizer, transport and storage. They further help farmers expand market access and capture more of the value chain by getting involved in agro-processing activities

2.6 CONSTRAINTS FACED BY SMALLHOLDER FARMERS

Smallholder farmers in Malawi face various challenges that impede their growth and ability to effectively contribute to food security relative to the commercial farmers. Some of the constraints they face relate to lack of access to land, poor physical and institutional infrastructure. Most smallholder farmers are located in rural areas and mostly in the former homelands where lack of both physical and institutional infrastructure limits their expansions. Lack of access to proper roads, for example, limit the ability of a farmer to transport inputs, produce and also

access information. Infrastructure is very poor, markets for agricultural inputs and outputs are often missing and unreliable for smallholder farmers. This means that the acquisition of agricultural resources become different and the supply of market services also becomes limited. Lack of assets, information and access to services hinders smallholder participation in potentially lucrative markets. High transaction cost is also one of the major factors constraining growth of smallholder farmers and this is largely attributed to poor infrastructure. A poor road network, for example, and unreliable distribution will force farmers to grow their own food and less of perishable commodities causing a lower productivity. Increased cost of transport will also affect inputs used and the market strategies followed by the farmers. In most cases high transaction costs are caused by among others poor infrastructure and communication services in remote rural areas. It can also result from information inefficiencies and institutional problems such as the absence of formal markets.

Lack of reliable markets has also been found to be one of the main constraints faced by smallholder farmers. Many of these farmers receive low prices for their products by selling them at their farm gate or local markets. Lack of human capital has also been found to be a serious constraint for smallholder farmers. They are often illiterate with poor technological skills, which can be serious obstacles in accessing useful formal institutions that disseminate technological knowledge. The majority of smallholder farmers are not capacitated with produce processing, financial management and marketing skills and are unable to meet the quality standards set by fresh produce markets and food processors. Lack of production knowledge leads to lower quality in production.

As a result of low endowment in production factors, such as land, water and capital assets, the majority of smallholder farmers produce low quantities of products that are equally of poor quality, which leads to their products being neglected by output markets. Increasing concentration in the food value chain is a global trend, caused by increasingly demanding consumers and concerns about food safety, which tend to make it very difficult for smallholder farmers to enter high-value markets in light of the low quantity and poor quality of their products. Inconsistency in production coupled with lack of bargaining power is also a major challenge faced by smallholder farmers. On the one hand most smallholder farmers are not consistent in terms of producing products and supplying them to fresh produce markets and agro-processing industries. On the other hand, their

bargaining power is very low owing to poor access to market information and limited information and limited access to financial markets, which prevents them from selling their products at the most profitable time. As highlighted above, smallholder agricultural growth will not be achieved without access to support services. Increasing agricultural productivity requires addressing all problems simultaneously. Cooperative development has been found to be one of the most effective interventions through which growth in smallholder farming could be enhanced thereby creating long term food security, job opportunities and income.

2.7 GENDER IN SMALLHOLDER FARMER MOBILISATION

In some communities, women are not given equal status with men. For this reason, some female farmers in Malawi have decided to form women-only groups as their preferred way of ensuring proper trust and collaboration. Likewise, some younger farmers feel that they do not want to join a group dominated by older people who, they might feel, are too set in their traditional ways to adopt new ways of working. These young farmers may prefer to work only with other farmers of their generation.

Women-only groups and youth groups are not an ideal way of establishing community marketing groups but they may be more effective to work with than forcing farmers together of all ages and both genders. Farmers should, however, be encouraged to try to form groups that represent the whole community – but it is no use forming such a group if they find it difficult to work together.

It is very important that any group that is representative of the community (young and old, women and men) that women and younger farmers are not excluded from taking up the role of leaders for this project. No outside agency should attempt to force groups to elect certain leaders. It should be pointed out to them, however, that if young or women members do not feel that they are allowed to participate fully in the activities and decision-making processes of the group, it will seriously weaken the group as a whole.

3 MODULE 2: AGGREGATION, TRANSPORTATION AND STORAGE

MODULE OBJECTIVES:

The module objectives are as follows:

- a. To give a background of collective approach in cooperative service provision especially for crop aggregation and marketing purposes
- b. To understand the basics of agricultural produce aggregation
- c. To orient to participants on the aggregation models
- d. To understand the transportation means for farmers' produce
- e. To orient participants on the best storage practices for oil seeds

3.1 INTRODUCTION TO TRANSPORTATION, AGGREGATION AND STORAGE OF OIL SEEDS

There are many farmers in Malawi who grow different crops but they consume almost everything they produce. They may be able to produce only tiny surpluses to sell in the local market or to exchange for consumer properties such as portable radio, plates, torches, mobile phone receivers etc. or essentials like salt, sugar, soap etc.

Other farmers are capable of producing surpluses but find it difficult to transport them to a market or a roadside stall hence the need for the presence cooperatives like Mikonga. Most farmers produce small quantities for sale but find that the local trader is only prepared to pay low prices for their goods compared with the wholesale price. As individual farmers they have little bargaining power with traders and must often accept almost any price offered. The scenarios are even worst when farmers are offering below the recommended farm gate prices because of limited access to crop marketing information.

Large-scale farmers such as Exagris Africa-Malawi Ltd, Barlon Estates, and many others do not suffer from these problems. They can produce large quantities of each crop of a consistent quality standard. For this reason, they have no difficulty in attracting buyers and they receive the true market price for their output.

The only way small-scale farmers can compete with these large farms or large scale producers is to co-operate with each other to form an association or cooperative. If, say, 50 farmers are able to offer for sale their combined output and take steps to make sure that it is of a standard quality, they will be able to market their goods as successfully as a large-scale farmer.

Not long ago most agricultural markets in Malawi were controlled through state-operated marketing parastatal, the Agriculture Development and Marketing Corporation (ADMARC), which fixed prices for surplus production. For that reason, there was no strong incentive for farmers to work together to sell their goods. Now that agriculture marketing activities are fully liberalized, the system is almost entirely in the hands of private traders, farmers are obliged to make complicated marketing decisions for themselves.

The introduction of formal farmer groupings such as cooperatives and associations is a means of encouraging smallholder farmers adopt collective marketing strategies and receive the benefit of higher prices for their output. Government and agricultural development agencies are encouraging this type of activity but farmers need to be informed about the benefits of co-operation and how they go about setting up such systems. This will require farmers to acquire new skills and to develop closer relationships with their fellow farmers. Key to the collective marketing services are the provision of reliable and affordable transportation and storage services as means of reaching out to lucrative markets. In other circumstances, the smallholder farmers collectively engage themselves in value addition for increased profits of their farm businesses.

This module discusses the details of these cooperative benefits. It further elaborates on the best practices promoted in aggregation, transportation and storage of oil seeds for value addition

NOTE: Service Providers (SPs)¹, for instance CARD and Mchinji District Agriculture Development Office (DADO) in the case of Mikonga Cooperative, should understand that the process of establishing farmers' cooperative which market their produce collectively may take many years. Educating farmers to understand how markets work, how they can earn more money by collective action and how they can put these ideas into practice may require the Organisation of many group meetings, training sessions, marketing studies and opinion surveys.

Not all farmers are willing or able to form marketing groups meant to be members to the cooperative. SPs should spend some time evaluating and deciding which groups would most benefit from forming a cooperative and concentrating their efforts on those groups. This manual should help them make this choice.

¹ The Service Providers (SP) are those offering assorted services to Mikonga Cooperative. The usual SPs in this case are CARD and Government Institutions like the Ministry of Agriculture, Irrigation and Water Development; and the Ministry of Trade and Industry

Once a group has been chosen the SP should adopt a step-by-step approach making quite sure that the farmers know why they are carrying out each task. Farmers need to be motivated to form a cooperative and they should know what benefits they are likely to receive and what difficulties they are likely to incur.

Assumptions:

- This manual makes the assumption that the SP staff members working with the farmers on these projects are familiar with concepts such as competitive markets, the effect of supply and demand on prices, trading costs and the importance of market information. They should also have the skills to pass on such information, including fluency in the language spoken by the group, a full knowledge of their culture and are able to use participatory training techniques.
- It is also assumed that the aim of these SP projects is to empower farmers' groups with knowledge and training in order to enable them to organise themselves. It should not be to carry out all the functions of collective marketing on behalf of the farmers nor to make demands of them without their full agreement and participation.

It is important that participants in this trainings are well versed with oil seeds logistics whereby issues of aggregation, transportation and storage are tackled. Use the Question and Answer(Q&A) approach during the training sessions. The participants must apply the local prices regarding transportation logistics. Similarly, the potential areas of aggregation and their respective distances must be submitted by the participants in order to make this exercise more realistic and practical.

LESSON THREE: Aggregation, Transportation and Storage for Value Addition and Affordability by Smallholder Farmers

Method of Lesson Delivery: Question and Answer(Q&A)-Interactions

Duration: 30 Minutes

Materials: Flip Chart Paper& Stand, Calculator, Markers, small pieces of paper/stickers

What needs to be done?

Transportation

- Ask participants to list down all forms/modes of transportation they know for smallholder farm produce transportation
- Let the participants reflect on the pricing per unit of produce transported
- Ask the participants to discuss why is it that they do not transport their produce to the processors or big traders in the nearby main trading centers or cities and town?

- *How do vendors transport their produce from their satellite markets to their main central places or main buyers?*
- *Ask if it is possible or they have ever seen smallholder farmers transporting produce in bulk?*

Storage and Aggregation

- *Ask to learn from participants on how storage is done at individual farmers' level?*
- *Find out the resources required for storage of grains and legume crops?*
- *Find out how do vendors and traders store their aggregated farm produce?*
- *Discuss with the participants on the importance of produce pooling and individual storage?*
- *Similarly, find out what has been the trend in pricing when smallholder farmers trade as individuals as compared to collective marketing*
- *Discuss with the participants on the more trustworthy way of storing and transporting farm produce by looking at; (a) them doing it on their own under their own management; and(b) using a vendor to take away their producer for storage and transportation.*
- *Find out the reasons why smallholder farmers who usually produce low quantities do not access reliable and profitable markets as individuals?*
- *Ask if the participants ever heard of ACE and AHLGX and their products?*
- *Find out from the participants on who have ever engaged service providers (banks, warehouse operators, transporters etc.) on a specific crop marketing deal/contract?*

Observations:

- *Participants will easily mention all the forms of transport for produce transporting from one point to another*
- *Participants will mention that almost all vendors transport their procured produce through medium to big trucks*
- *Most participants do understand that commercial produce selling, aggregation and transportation only works better where collectivism is fully embraced and not only by just being in a farmer Organisation like cooperative or association*
- *Perception amongst farmers is that there is always need for cash to carry out logistical activities such as transportation, aggregation and storage.*
- *Realize that there is better market price for those who aggregate their produce*

Lesson(s) Learnt:

- *Participants never realize that there is always an increased value of produce when oil seeds are aggregated, transported and stored in large quantities without necessarily processing.*
- *Service providers are willing to get paid even after the aggregated produce is sold i.e. smallholder farmers may not be charged before transportation of their produce but rather paying for the produce transportation costs soon after deliveries are made to the buyer. The transportation and related costs can as well be included in the delivered value of the produce to the buyer hence service providers can accept payments at the end of the transportation.*
- *Produce stored by individual membership is never guaranteed as available stock ready for market by any cooperative until it is physically submitted to the central warehouse facility.*

3.2 TRANSPORTATION

SESSION ONE: TRANSPORTATION

Content: *In this session, participants are expected to share with the facilitator the most commonly used means of transport in their area. They will be given opportunity to analyze the means of transport by looking at the relationship between type of business and transport used, amount of produce and transport used, location of farmers and transport used; and finally type of farmer and affordability of the selected means of transport*

Time: *The session is estimated to take up to 15 Minutes*

As indicated in the above section, bulking up small parcels of produce into truck-loads of goods offers farmers the possibility of selling their goods outside their immediate location. Traders want to make as large a profit as possible. If farmers have access to very few traders and they do not know the true, market price, they are at a disadvantage. Traders will sometimes collaborate with each other to offer the same low price to local farmers. If farmers are in a cooperative like Mikonga Cooperative and they have a large stock of goods to sell they can hire transport for themselves and they can travel to more distant markets especially in Lilongwe to find traders who pay better prices than local traders operating in Mchinji. The key service that can be offered by Mikonga cooperative is the transportation. The transportation services from individual members to the cooperative collection point might be easier as farmers take their own individual initiatives. Usually, the supply packages are small to seek commercial transporters.

In terms of transportation; at field level, farmers can transport their produce to aggregation centers through bicycles, oxcart and those that can afford carrying on their heads

From the aggregation center to the central warehouse at the factor, farmers must work together with cooperative executive committee (which appoints a relevant sub-committee) to facilitate the collection of stocks in the satellite warehouses/temporary receiving warehouses to the central warehouses where stocking and processing takes place. Since the quantity at aggregation center is quite significant, there is need to use a vehicle with bigger carrying capacity say at least 3tons.



Figure 1: Smallholder farmers, cooperative members, transporting their oil seeds to the nearby aggregation center

Each transportation lot must be supported with consignment details e.g. Number of bags, estimated weight of each bag, total weigh of the consignment, collection point details and details of the crop being transported (name of crop, variety and year of produce).

3.3 AGGREGATION

SESSION TWO: AGGREGATION

Content: *Aggregation is the most important element in collectivism. Smallholders are helped to consolidate their oil seeds in readiness for market or delivery to the processing unit of their cooperative. There are usually structured processes to track the commodity flow from individual member to the nearest aggregation point. There are temporary points for receiving from farmers before they are temporarily stored for delivery to the main market or cooperative factor.*

Time: *This session is covered in an estimated duration of 30 Minutes*

The term aggregation describes the process of working with groups of smallholder farmers rather than individual farmers. When discussing farmer aggregation, this handbook uses the term farmer groups as per Mikonga Cooperative membership as aggregation encourages participating farmers to bulk their produce in clusters/groups established through the Cooperative.

Aggregating smallholder farmers into groups is both critical and challenging for agribusinesses building efficient supply chains. Aggregation is critical because Cooperatives cannot deal one-on-one with thousands of dispersed members, each producing small volumes. It is challenging because farmer groups are sparsely located in the cooperative catchment areas, and those that exist close to each other often have limited capacity. Building new groups and raising capacity tends to be expensive and time consuming. However, aggregation presents numerous cost-saving opportunities, including:

- a. Information dissemination: Aggregation reduces the cost of collecting and disseminating information for Cooperatives seeking certified crops or increased supplier productivity.
- b. Logistical support: Aggregation reduces logistical costs and may be a tool for improving quality. Participating farmers through their groups can also add value to crops through sorting, drying, storing, and other functions, depending on their capacity. However, groups that lack transport may be unable to procure crops from a broad geographic area. Firms may need to combine purchasing from groups with other procurement methods to ensure comprehensive supply from an area.

- c. Marketing and distribution: Aggregation can reduce marketing, distribution, loan making, and servicing costs for cooperative marketing inputs or financial services to smallholders.

As a matter of practice, Mikonga Cooperative has about 74 members who are individual farmers. Assuming each farm harvested an averaged of 3bags of soy beans, it means there will be $(3*74) = 222$ bags of soy beans. This is slightly above 15tons quantity of soy bean. Assuming this was supposed to be delivered to Kamwendo Trading Center, the farmers would pay more on transportation as individuals unlike hiring a truck to ferry the bags at once. In fact, the established transporters at times accept long term services contract on transportation.

3.3.1 Satellite Aggregation Center(SAC)

The satellite aggregation centers are temporary storage centers that are usually located in the remote areas for easy access by the members. These are established as collection points for farmers' harvest and these harvests are voluntarily delivered to these satellite points using modest means of transportation. The aggregated volumes are meant to be transferred to the main storage places. The satellite aggregation centers are also used for quality checks. Once the quality of produce is strictly checked at the aggregation center, the main storage warehouse, central warehouse is guaranteed of good quality produce. The satellite aggregation centers can be categorized into two types as follows:

- a. **Field Level Aggregation Centre(FLAC)**

This is an aggregation center run by individual members sharing a common location within farming village. It can be established at village person level. Usually, farmers aggregate from their farms using traditional transportation such as bicycles, oxcart and carrying on their heads. The aggregated quantities are from the farmer fields within the village/location say group village head area coverage.



Figure 2: Smallholder farmers depositing their small quantities of oil seeds at Field Level Aggregation Center. The Cooperative officials are recording the details of every farmer depositing the stocks.

It is important for the leadership to ensure good quality of oil seeds right at the first point of receiving. If this first point of receiving accepts anything (mixture of good and bad quality produce) it means the next type of aggregation center will inherit the mixed quality of produce. It is almost impossible to clean out the bad quality produce at the next stage.

b. Main Satellite Aggregation Center(MSAC)

This is a large produce collection center receiving quantities from the Field Level Aggregation Centers. This is basically a properly constructed warehouse or rented warehouse with fulltime security guards. In most cases, this must service the entire EPA. Where the quantities are huge, it is possible to have more than one Main Satellite Aggregation Centers. This must not be used as storage center as the produce only stay for not more than 24hours. The member clubs that are closer to the MSAC can delivery directly to the nearby MSAC but with the required quality of produce checked by the leadership.



Figure 3: An illustration of a small truck picking up stocks at Main Satellite Aggregation Center in the field ferrying the stocks to the central warehouse at the factory premises.

Since there more number of deliveries from many FLACs, it is strongly recommended that a warehouse clerk is recruited for recording keeping and logistics. The same records are used by the Cooperative Main Office for sharing of dividends with farmers who are members through the cooperative. The warehouse management protocols are properly adhered to here. This is a temporary storage unit for the cooperative as the main warehouse or Central Aggregation Center(CAC) cannot keep beyond its storage capacity.

3.3.2 Central Aggregation Center(CAC)

This is the central warehouse unit that is located within the processing unit complex. The oil seeds stored in this warehouse are meant for supply direct to the oil processing unit. As the stock (which is raw material) is being depleted in this storage, more stocks move from MSAC to replenish the stocks. Likewise, the stock management at this stage is highly professional and follows the standards of warehouse management. In fact, this is where the Cooperative leadership will monitor which areas are bringing better quality oil seeds and significant volumes for rewarding the areas accordingly.

3.4 STORAGE

SESSION THREE: STORAGE

Content: *In this sessions, participants will be taken through oil seeds storage practices. Key topics to be covered in this session are the storage management, re-handling of stocks, checking moisture content for the oil seeds, stacking of bags and storage structure basic design principles.*

Time: *The session is estimated to take up to 45 Minutes*

Smallholder farmers face considerable challenges accessing commercial markets and earning the best possible prices for their commodities. This is due to the fact that smallholder production is characterized by low volumes and poor (inconsistent) quality that are the result of weak post-harvest handling practices and insufficient/inadequate storage. Proper storage and handling can significantly reduce crop losses that in some cases can be as high as 40 percent.

Most storage facilities in African poor countries often suffer from poor management and weak controls. Consequently, farmers are even reluctant to trust storage facilities of their own farmer organizations. Where some commercial storage services like those from ACE, are available, the smallholder farmers are skeptical of the value of these facilities, which often charge a lot while delivering very little. As a result, many farmers sell immediately after harvest when prices are at their lowest. The cooperatives such as Mikonga are therefore supposed to take over the role of commercial storage operators as the membership have trust in their own institution. In fact, periodically, they can inspect their own oil seeds whenever they feel like doing it since it is within their proximity.

Long term storage of oilseeds allows seeds to be harvested, stored and pressed for oil as the oil is needed. Stored grains that are at proper moisture content for storage need to be monitored as temperatures and outside moisture affect the storage conditions and quality of the grain. Not paying attention to storage can result in seeds that are not fit for pressing into good quality oil.

This is a missed opportunity for both farmers and potential small-scale storage operators like Mikonga Cooperative. To truly benefit smallholders and improve market access, storage facilities must be cost-effective, well-managed operations that represent an attractive alternative to quick, easy sales. This manual outlines

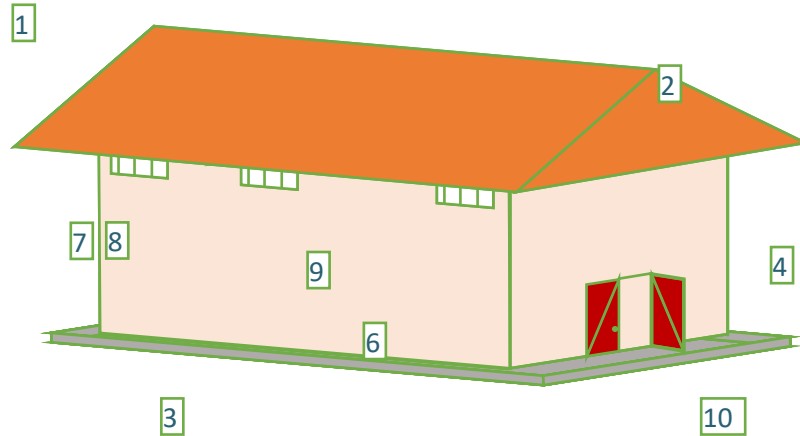
the basics of oil seeds storage and warehouse management. This could be one of the services to be offered by Mikonga Cooperative to the smallholder farmers who are its members or non-members but a reasonable fee.

3.4.1 Basic Storage Requirements

A successful store operator provides clients with a safe, clean and well-managed place to keep their commodities until they are ready to sell. The best store is not necessarily the fanciest store; it is the best-kept store. Storage operators should make sure their facilities are clean, well-lighted and well-managed. This will ensure a quality product at the highest price.

This section details the best types of storage structures for small operators. Mid-range stores are defined as those between 10 tons and 100 tons. Mikonga Cooperative can ably manage a storage business service of this range.

This diagram illustrates basic store



BASIC STORE REQUIREMENTS

1. Well-maintained and clean site that is easily accessible but not too close to livestock pens and living quarters
2. Well-drained site preferably away from the flood plain, with leak-proof roof that is well-guttered
3. Enough room for vehicles (either motorized or man-powered) to turn around in a loading zone
4. Raised foundation to avoid flooding or runoff seeping through the floor
5. Floors should be concrete and reinforced to bear heavy weight
6. Good, natural light and well-ventilated walls below eaves
7. Plastered surface to seal cracks and make it more difficult for pests to find hiding spots
8. Ample room to cover stacks properly during fumigation
9. Clean area outside the store and make sure that it is clear of any rubbish and grass to remove possible hiding places for rodents and other pests
10. Easily available accurate weighing, logging and inventory verification processes
11. Well-organized to allow for multiple commodities being stored in same facility.

3.4.2.1 Bags

Bags are the most important product in a store because they keep grain free from contamination.

- Bags should be stitched so that their hems are touching. Do not overfill bags. Overfilled bags that are sewed tightly may burst once they are stacked together.
- Before storing, store operators should inspect their bags for wear and tear, as well as for signs of insects and mold. Bags used in previous seasons should be washed and disinfected, then thoroughly dried.
- There are two common types of bags: natural fiber bags normally woven from sisal and polypropylene/plastic bags, known as PP bags.



Table 1: Shows the advantages and disadvantages of sisal bags and polypropylene(PP) backs used for storage. Above this table is the appearance of each bag whereby on the left side is the sisal bag and on the right side is the PP bag.

Natural Fiber/ Sisal	Polypropylene/PP
+Allows aeration	-Limited aeration
+Allows fumigants to penetrate	-Limited fumigants can penetrate
+No damage from sampling spikes	-Can be damaged by sampling spikes
- More expensive	+Less expensive
+Reusable	+Reusable
+Good for long- and short-term storage	-/+Good for short-term storage

3.4.2.2 Pallets

Grain is better stored on pallets than on the floor. By lifting bags off the floor, it allows better fumigation and has also been shown to reduce the risk of aflatoxin. Pallet storage also allows for easier cleaning and sweeping around the stacks, and allows air to circulate through the stack. Pallets should be checked for nails and splinters to make sure there is nothing that can tear bags. All pallets should be the same height so that stacks can be secure. Round poles like eucalyptus laid side-by-side can serve as a makeshift pallet. Make sure the poles are roughly the same diameter.



Picture 1: Shows pallets in use in a warehouse. The pallets are the wooden platforms laid on the floor before the actual stack.

3.4.2.3 Scales

Every storage facility must have a weighing platform scale; a 250 kg size is ideal. Many roadside brokers have spring type scales, but these can be easily manipulated. Weighing scales should be inspected and calibrated annually by the Malawi Bureau of Standards(MBS). Those annual inspections come with a certificate, which should be posted prominently on the wall of the storage facility. This helps build the trust of depositors.



Picture 2: On the right side is a spring scale used for recording weight of farm deliveries at a satellite aggregation center while on the right is the platform scale recommended for warehouse usage.

3.4.2.4 Sampling equipment

Every trader or processor or warehouse operator must have a device to take samples of bagged grains and to be able to assess quality. Samplers do not necessarily need to be fancy; they can be as simple as a clean tin that can hold up

to 100g of grain and a mesh strainer that the grain can be poured into and looked at piece by piece. Storage facilities should also have a selection of sampling spikes to maintain quality controls within stored, bagged grains. These are inexpensive spikes that can easily penetrate sisal bags to take small samples to ensure there has been no rot, mold or insect damage to stored grains.



Picture 3: A commercial canular for sampling oil seeds and grain stocks upon receiving them at a storage facility

3.4.2.5 Sieving Platform

Sieve platforms are made from coffee wire mesh with square holes of 5mm. The wire mesh is mounted on a wooden or metal frame, supported by a wooden stand. Grain is poured onto the platform and spread slowly towards a tapering end or spout where the clean grain is bagged. Dust, broken grain and other foreign matter will drop down through the holes. Larger pieces, stones, metal, broken cobs and other foreign objects can be picked from the sieve as the grain is being spread out.



Picture 4: Sieving platform made of wooden materials being used for cleaning soy beans

3.4.3 Storage Management

Effort, not expense, is what makes a store management institution successful. Effort includes attention to detail, attention to hygiene and attention to quality.

Managing a storage facility can be a complex process but it doesn't have to be a complicated or expensive one. Cleanliness, good recordkeeping and quality control are the major responsibilities of a good store operator.

This section details the processes involved in achieving those responsibilities, including the steps in the intake to discharge process. It provides templates for goods received notes, a logbook and a discharge note. How to stack commodities properly is also included in this section. Sampling, testing and grading must be done in line with warehouse management standards as prepared by ACE. These standards should be posted in a visible position in every managed store. For more information about ACE standards, storage operators should consult their local agricultural extension worker or representative from the Ministry of Agriculture, Irrigation and Water Development.

The key processes under stock management are:

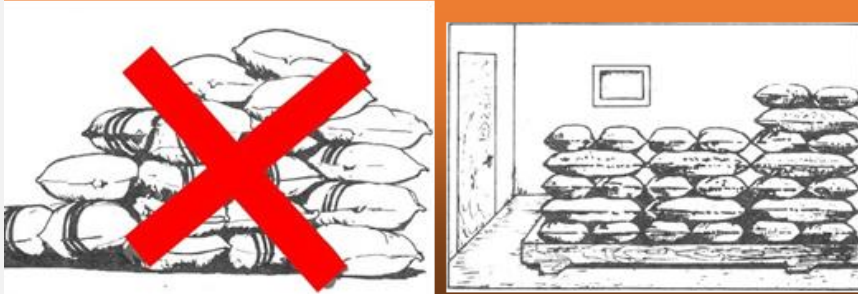
3.4.3.1 Stacking

Stacking is done so that commodities can be used at a later date. A 'good' stack is one that makes sure the grain remains as close to its original condition as possible. It makes effective use of space, can be inspected without a problem and provides for easy pest control and pest management.

Commodities must be laid out and stacked in a way that makes sense to storage facility operators and their staff. Space for emergency and normal stacking must be set aside, but all stacks must be constructed as if they are permanent stacks. Grain stacks should be grouped by type and a diagram of the stacks should be placed in a visible place in the store so that there are no questions about where new deliveries should be located.

A stack plan should take these things into consideration:

- How much grain is coming in?
- Different types of grain?
- Different grades of grain?
- How popular each type is, at different times of year?
- How tall the stacks should be?
- How big the facility is?
- What kind of pests will need to be controlled and managed?



Picture 5: Wrongly arranged stack of oil seeds with a red cancel check on the left and a well prepared stack in a storage room on the right side.

Every stack plan must follow these rules:

- 1-meter distance between walls and stack
- 1.5 meters' distance between roof and top of stack
- 1-meter distance between pillars and stack
- A stack must never be higher than its width
- Access space must allow easy loading and unloading

Do's of Storage Management

- Make sure there are no dark areas in the store that will attract pests
- Make sure that the store is well-lit.
- Natural light is the best
- Make sure that only grain of the same quality fills any one bag
- Make sure that grains meet set quality standards
- Store bags on pallets or some sort of floor covering such as a tarpaulin
- Stack bags properly to help good air circulation.
- Stacks should be even to help with fumigation
- Keep doors and windows open during the day to help air circulation
- Check for "heat spots" in the grain as this can be a sign of pest infestation
- Keep the store clean all the time to get rid of food sources for insects
- Clean all equipment and storage areas before use
- Seal any cracks or crevices
- Eliminate resting and hiding places
- Clean to a schedule which is designed to break insect life cycles
- Inspect the stacks regularly for signs of pests Keep good records
- Place copy of set standards in prominent place inside store
- Check for any areas of damp in the walls or on the floor
- Dust the storage area before accepting goods for storage
- Deprive insects of the things they need: food, water and favorable conditions
- Search for evidence of infestation: trails in dust, webbing, damaged grain kernels, droppings

- Collect samples and share them with experts to find best solutions for management
- Recognize sources of possible future problems:
 - ✓ Storage area and equipment needs to be thoroughly cleaned before use
 - ✓ Moisture issues in the store and any structural problems

3.4.3.2 Moisture Content

Usually, the recommended average moisture content is 7-9% for sunflower and 9-11% for soy beans. Oilseeds that will be stored need to be kept at a moisture content that does not encourage heating within the seed pile or the growth of molds, bacteria or fungi. Growth of mold or bacteria may make the oil pressed from these seeds unfit for human consumption. The oil may still be tolerable for processing into biofuel, but the handling of moldy or dusty seed presents an airborne respiratory hazard. If the seed is to be sold, contaminated seed will have a lower economic value than good seed.

Moisture meters are a more expensive (about \$750) but still simple and accurate way to test moisture in grains. They must be calibrated before use to make sure they are accurate. Generally speaking, meters are accurate to within $\pm 0.5\%$ in the middle of the moisture range (12% to 17%) moisture content for grains.



Picture 6: A commercial moisture meter being used to test moisture content for the oil seeds in stock

Moisture content determination is one of the most important and critical tasks to carry out when storing oil seeds. It is a must that the moisture content is known at every stage of oil seeds handling before storage. It is also regularly checked when the oil seeds are in store.

LESSON FOUR: The Salt Test (Practical)

Materials

You will need:

- A clean dry glass bottle with an airtight cap
- A cup of salt
- Enough grain to fill the bottle 1/3 of the way up

Methodology/Procedure

How to do it:

- Dry the salt on plastic sheeting in the hot sun for 3-4 hours
- When it is hard, seal the salt in a tight container
- Fill the bottle 1/3 of the way with grain
- Add 2-3 soup spoons of dry salt
- Close bottle tightly
- Shake it and leave to rest for 15 minutes

Results

How to tell if it worked:

- If the salt sticks to the bottle, moisture content is above 15% and is not yet safe for storage
- If the salt does not stick, moisture is below 15% and is safe for storage

4 MODULE 3: VALUE ADDITION

MODULE OBJECTIVES:

The module objectives are as follows:

- a. To introduce the value chain concept
- b. To learn about basic value addition processes and requirements
- c. To learn about the selected oil seeds value chains cases e.g. soy bean, sunflower and groundnuts
- d. To understand the requirements for oil seeds business venture for a cooperative

4.1 INTRODUCTION TO OIL SEEDS VALUE ADDITION

Most Malawian farmers work comparatively on small plots of land and cannot, therefore, produce large volumes of surplus goods for sale. Their inability to produce larger volumes of crops means that they receive much lower prices from traders who would pay for bigger quantities. This is understandable because the traders who buy these small quantities have to bear the cost of sorting and grading each parcel in order to match it with parcels of similar quality goods. They may also have to weigh and re-pack the product and transport it to another market. This initiative of collectivism and aggregation is value addition as the produce unit price is now increased as a result of aggregation.

Smallholder scale farmers through the cooperative pooling system of commodities whereby grades and standards are enforced have the value of their commodities added as the price will significantly increase from the original lower price.

It must be noted that most people refer to value addition and a complex process yet there are other value chain processes that are simple to demonstrate to farmers. Frontline Staff will therefore be trained on how to demonstrate simple value addition processes. In terms of products from oil seeds, the participants will have the opportunity to appreciate the assorted products and by-products of oil seeds value addition enterprises. Besides this, the Frontline Staff will be given a platform to discuss key players in oil seeds value chain.

LESSON THREE: Agriculture Value Addition Made Simple: The case of groundnuts

Method of Lesson Delivery: *By Demonstration*

Duration: *30 Minutes*

What needs to be done?

Materials for lessons

- Procure any packaged groundnuts products e.g. raw groundnuts (graded and ungraded), cooking oil, packaged groundnuts grain, nsinjiro and peanut butter
- Bring the above mentioned products in a training room but do not show them to participants

Value Chain Practical-understanding the key players and stakeholders

- Put a clean flipchart paper and ask the participants to list down all the stakeholders involved in the groundnuts value chain i.e. production, marketing, processing, consumption, service provision etc. If possible, allow the participants to mention even the actual/specific names of the stakeholders as per their knowledge in Malawi
- Expound more on processing and ask them what do they know about value addition? Make it a plenary question. List down all the suggestions and responses coming from the participants.
- Ask the participants to categorize those stakeholders/players that are critical i.e. if removed from the system, the chain will be incomplete. Similarly, ask them to indicate that do not really have a critical role but important in the system.

Value Addition

- Let the participants list all the products that are prepared for sale on the markets from the raw groundnuts?
- Let the participants exhaust all what they think are the products
- Observe the types of products or by-products that are being presented by the participants

Observations:

- Participants will easily recognize producers/farmers, processors and consumers. Very few or none will mention service providers like transporters, extension staff, commodity grading agents, private warehouse operators etc.
- On value addition, participants will only recognize raw products transformation such as manufacturing of cooking oil, peanut butter, nsinjiro etc. as value addition

Lesson(s) Learnt:

- Value chain has main actors like those that most participants recognized e.g. producers, processors and consumer. But there are also equally important players especially service providers who help in improving the commodity value along the chain
- Value addition is not necessarily raw material transformation only but also aggregating or grading or packaging. In fact, the simplest value addition that

farmers would easily achieve is the one that has nothing to do with the transformation of the raw material.

4.2 VALUE CHAIN

SESSION ONE: VALUE CHAIN

Content: *In this session, participants will be taken through the value chain concept and key technical terms in oil seeds value chain development.*

Time: *It is estimated to cover a period of up to 20Minutes*

4.2.1 Value chain

A value chain refers to the entire system of production, processing and marketing of a particular product, from inception to the finished product. A value chain consists of a series of chain actors, linked together by flows of products, finance, information and services. At each stage of the chain the value of the product goes up, because the product becomes more convenient for the consumer besides value, costs are added at each stage in the chain.

The value chain in agriculture refers to the addition of value to preliminary agricultural products by combining them with other resources such as tools, manpower, knowledge, skills, other raw materials or other preliminary products. As the product passes through several stages of this chain, the product's value increases. A key contribution of value chain analysis lies in the notion of upgrading, the acquisition of technological, institutional and market capabilities for greater competitiveness or movement into higher value activities.

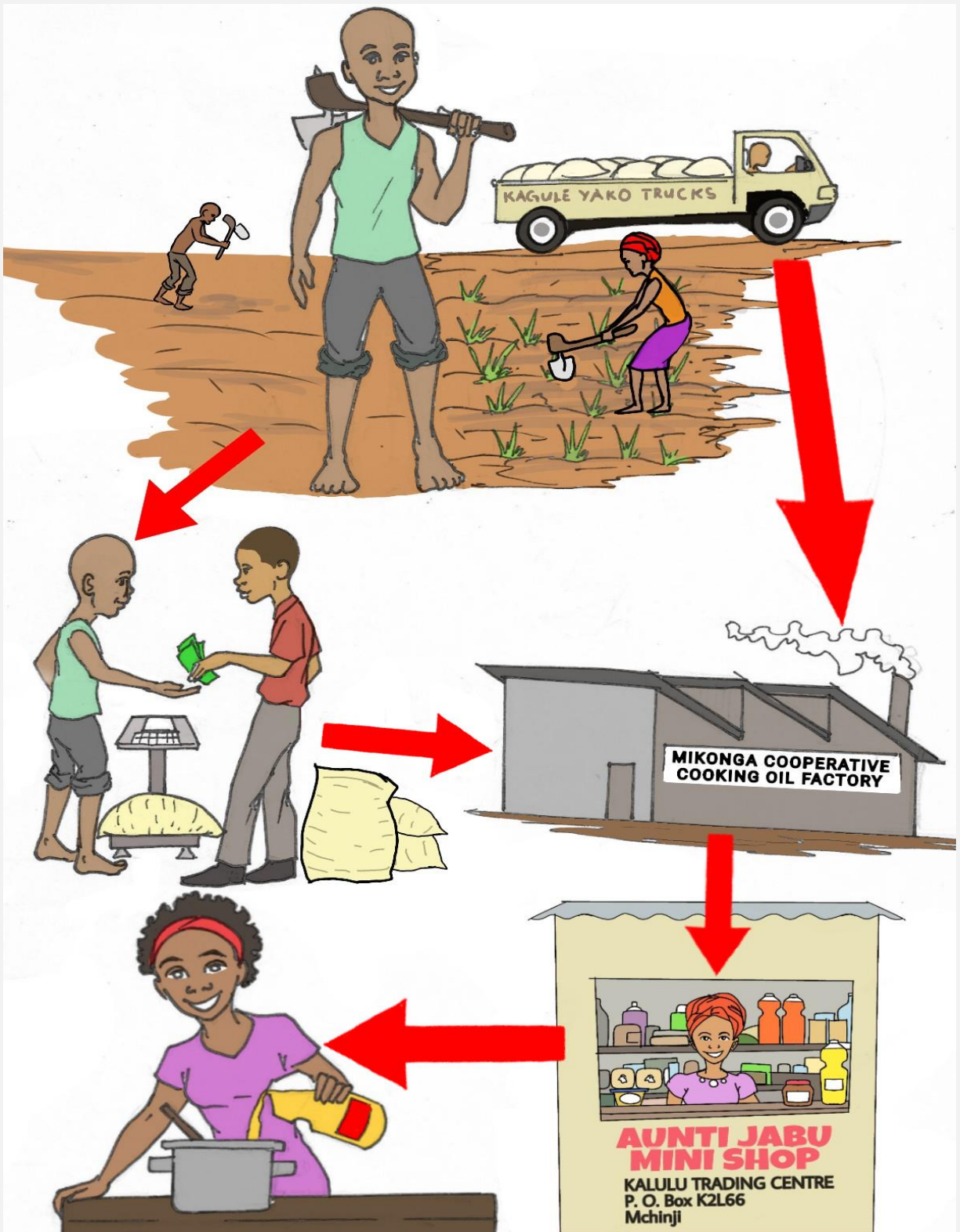


Figure 4: Value chain process for oil seeds from the smallholder farmer through processor to the consumer

4.2.2 Key Terms in Oil Seeds Value Chain

4.2.2.1 Chain Actors

The chain actors are the individuals or organizations that produce the product, or buy and sell it.

When a farmer sells a product to a trader, two things change hands: the product goes in one direction, and money goes in the other. This exchange is repeated at each stage in the chain, forming two parallel flows, of produce and money.

In addition, each of the actors may be prepared to invest in the chain and to support the other actors to make sure that it functions smoothly. This gives rise to additional flows of finance between the different actors in the chain. These flows may go in either direction. In addition, the farmer and trader exchange information and provide services to each other.

4.2.2.2 Value Added

The term “Value added” means adding value to a raw product by taking it to, at least, the next stage of production. This can be as simple as retaining ownership of your high quality harvested oil seeds from the individual farm. The fact that the oil seeds have been harvested from the farmers’ field the value has been added. The grading and sorting further adds values to the oil seeds. Value can be added through membership in a cooperative that processes your products, such as a aggregated oil seeds by Mikonga Cooperative. Or, adding value may be as elaborate as going all the way to the consumer with a “case-ready” food product such as oil produced by Mikonga Cooperative. If you are considering a value-added enterprise, there are two key questions to answer and these are:

- a. What is customer value? and
- b. What creates a value-added product?

4.2.2.3 Customer Value

The term “Customer value” reflects the relationship between the benefits customers receive from and the price they pay for a product. The more benefits relative to the price, the higher the customer value. This does not necessarily mean that greater value results from a low price. The price of a particular product may be high, but if the associated benefits are high as well, the customers perceive value in the product. This interaction creates customer value and, thus, the opportunity to add value to your product. Creating customer value is critical in

building a profitable and substantial business. However, one must bear in mind that it is the customers' perception of value, not the producers', that is critical.

4.2.2.4 Oil Seeds

Oilseeds are seeds from various plant species which contain significant quantities of oil. The oil is used in the production of cooking oils and a wide range of other products.

4.2.2.5 Vegetable/Edible Oil

Edible vegetable oil is oil produced from any of the edible oil bearing seeds that exist in nature. Many of these seeds are produced in large quantities by both smallholder and large scale farmers in most parts of Africa. Amongst them are: groundnut, oil palm fruit, soybeans, cotton seed, sesame seed, sunflower seed, etc.

4.2.2.6 Other Important Key Terms

There are other terms that the Extension Works are supposed to be fully conversant with. Such terms include:

- **Producers-** Associations, cooperatives, clubs, estates, individual farmers'/smallholder farmers etc.
- **Processors-** those who process raw materials into something different from the initial raw materials-it can be consumable or intermediary
- **Brokerage-** trading on behalf of producers and buyers/processors at a commission.
- **Warehouse Receipt System-** Prior release of cash for commodity sales as a result of having a certified warehouse in which the commodities in question are properly stored/stocked
- **Contract Farming-** producing and marketing of agriculture commodities under legally bound agreement. It involves provision of inputs and related services to the producers
- **Contract Marketing-** Marketing of commodities under a legally bound agreement
- **Integrated Production System(WRS)-** Newly introduced in the tobacco industry. A contract farming arrangement that details the mode of production, transportation, labour issues etc
- **Traders-** value chain players involved in direct purchasing of commodities at local levels e.g. vendors. Usually they are referred to as "middle-men"

- **Regulators-** stakeholders in the value chain that facilitate and/or enforce rules and regulations of the chains e.g. Tobacco Control Commission(TCC), Government, MBS
- **Competition-** the ability to survive the market forces while producing the best products and services for the consumers
- **Demand-** consumer appetite for goods and services on the market
- **Supply-**volumes of services and products on the market
- **Customer-**all person or firm interested to buy or who buys are our commodities
- **Packaging-** processing of good and services for offer to the consumers or customer
- **Grading-** classification of goods and services according to levels of quality and standards
- **Seasonality-**the frequency of availability of some commodities on the markets
- **Side-selling-**the act of selling commodities to other customers/traders other than those committed to under the contract farming arrangements
- **Out-grower Scheme-** A production system that takes on board smallholder producers surrounding a particular estate/farm in a bid to increase commodity out/production for a certain market demand

4.3 CREATING A VALUE-ADDED PRODUCT

To take advantage of value-added opportunities, one must know and understand customers. What consumer segments might want your product? What are the benefits desired by these potential customers? What criteria are they looking for when purchasing? Writing these down as part of a business plan is an important first step in beginning a value-added business. In the case of Mikonga Cooperative, it is likely to start with the consumers surrounding Kalulu Trading Center and will keep growing reaching out many other consumers outside Kalulu community. The primary consumer shall be those that cannot afford the high quality cooking oil supplied by the large and established cooking oil manufacturing companies such as Sunseed Oil Malawi Limited. It is obvious that the consumers look for affordability of the produced cooking oil. As criteria, affordability can be in terms of bottling size as well as price. These reflect on the economic status of the consumer community.

Any business enterprise can be thought of as a value chain. Each activity that is performed should add value to the product. To do this, one must meticulously control the activities at each step in the value chain: procurement of inputs;

converting inputs into products; marketing and sales; supply chain logistics; and customer service activities. A new value-added business should focus on the product's uniqueness. The uniqueness of your product or service (the value you add) is what ultimately attracts customers. Obviously, this value-added strategy is very different from the commodity-oriented strategy with which most farmers are familiar. In a commodity strategy, a producer focuses on the costs of production with the goal of being a low-cost producer. This is, in essence, a “supply-side” focus. The value-added strategy, in contrast, involves a “demand-side” focus—determining who the customers are and what they want. Then, after assessing your resources and source of uniqueness, you provide a product or service that efficiently curbs production costs while meeting the needs of the potential market. Unlike a commodity-driven business, a value-added business cannot erode benefits or lower input specifications just to lower costs.

Building a new business is difficult and takes hard work (nothing new for farmers and ranchers). But, for all the uncertainty, there are ways to craft a successful value-added business strategy. The key factors in a detailed business plan are:

- Operations plan — flow of the business, quality and cost control
- Personnel plan — needs, skills and training
- Sales plan — including challenging but realistic goals
- Management plan — evaluate strengths, weaknesses and resources
- Investment and financial plan — cash flow planning

This module will focus much on value added products i.e. value addition. The value addition projects to be discussed in this manual shall be those to do with oil seeds.

4.4 OIL SEEDS VALUE ADDITION

SESSION TWO: OIL SEEDS VALUE ADDITION

Content: *The participants are introduced to value addition processes. The session clarifies types of value addition as most people think value addition is only transforming the raw materials into something new (as a new product). There will be oriented on other basic value addition processes such as the aggregation discussed in the above section and grading of oil seeds for packaging.*

Time: *It is estimated that the session will take an estimated duration of 30 Minutes*

The oil seeds value addition as usually perceived as complex by many simply because when the term “value addition” is applied, majority refer to it as the crashing of oil seeds into oil product. Value addition must not only be regarded as the crashing of oil seeds (raw materials) into oil. There are basic value addition processes that can be easily done by limited capacity farmers especially smallholder farmers.

4.4.1 Aggregation for Large Supply

One of the simplest value addition projects is the aggregation, grading and sorting. It must be noted that farm gate prices for oil seeds can be relatively low compared to the industry purchase price because of many factors. The traders buy from small scale farmers at relatively low prices as the purchased crops, farmer stock, have low quality. Varietal mix, mixed grades, low quantities are amongst the characteristics rendering the farmer stock poor quality.



Picture 7: Smallholder farmers bringing their small produce supplies to an aggregation center

Smallholder farmers come together by aggregating their harvests i.e. 1000 farmers each contributing around 2 bags of 50kg means 2000bags aggregated with a total weight of 100,000Kgs (100 metric tons). By aggregating the produce, the farm gate price significantly increases. For instance, if the farm gate price of soy bean was at MK150/kg, the aggregated price tag will increase to MK200/Kg. The traders will appreciate the fact that all the stocks will be sourced from one or few collection points. Besides this, by grading and sorting the stocks they will further attract a better market value.



Picture 8: Large quantities of produce aggregated in one warehouse for supply contract to oil seed processors

4.4.2 Packaging

Another simple way of value addition is the packaging. Mikonga cooperative can be buying the farm stock for re-handling at its premises. The oil seeds are graded and sorted as per standards set by your cooperative. For instance, Mikonga could venture into groundnuts packaging for supply to nearby town. The high grade groundnuts could be packed as chalimbana or CG7 products for sale. Customers especially in nearby cities and towns prefer to high grade peanuts for home roasting unlike the farmer stock peanuts that do not have a recognized source. In this case, the same unit of groundnuts is sold at more than twice the farm gate price. All what is invested in the process is the packaging material and packing process and distribution cost to the retailer shops.



Figure 5: Some of the examples of value addition projects that Mikonga Cooperative initiate

4.4.3 Value Addition by Oil Seeds Transformation

Vegetable oils are the most important source of fat in the human diet. Derived from an array of vegetable sources, oils are extracted and processed for a variety of food uses. In the demanding and competitive edible fats and oils marketplace, the product evaluation criteria are important for both customers and suppliers. In this manual, 3 types of vegetable oils have been selected for learning purposes.

In oil seeds transformation, the raw material (oil seeds) is transformed in to various products as main products or by-products. The soy bean, sunflower and groundnuts oil seeds can be transformed into assorted products through processing. Some of the key products include:

- Groundnuts flour(Nsinjiro)



- Soy bean meal



- Peanut butter



- Cooking Oil (from sunflower, groundnuts and soy beans)



Figure 6: Showing assorted products anticipated to be part of the proposed products for Mikonga Cooperative Factory

Other products that can be processed by Mikonga Cooperative are: seed cake (from sunflower, groundnuts and soy beans) and Soy bean milk

Depending on the business plan of a cooperative, the main products and/or by-products of oil seeds can be packaged for sale to assorted categories of customers. For instance, seed cake is sold to livestock feed manufacturers while products like groundnuts flour, soy bean meal, cooking oil and soy bean milk are sold to retailers or individual consumers.

The choice of each value addition enterprises is dependent on many factors and these include:

- Competition/Comparative advantage
- Size of clients/demand for the products
- Availability of raw materials
- Capacity of the producing entity i.e. equipment, technical knowledge etc.

4.5 OIL SEEDS VALUE ADDITION-COOKING OIL AND SEED CAKE PROCESSING

SESSION THREE: COOKING OIL PROCESSING

Content: *The participants are taken through value addition project involving transformation of oil seeds in raw form to products like cooking oil and by-products like seed cake. The participants learn step by step processes from oil seeds crushing to packing of finished products.*

Time: *The session takes a duration of around 45 Minutes*

Farmers and small business owners are asking if it is possible and profitable to add value to their oil seeds by extracting the oil. This is not an easy question to answer because there are so many variables, some of which are noted in the following sections of this manual.

Products of oil seeds can be of diverse in nature and used for different purposes. Some of these plant-derived oils can be used to make soap, body and hair oils, detergents and paints. Some can also be used to make industrial lubricants. A wide range of oilseeds and other oil-producing plants are high-quality feed stocks for biodiesel.

Most oil processing in main cities and towns are done on a large industrial scale. Small-scale oil extraction is more commonly placed in remoted areas for obvious reasons that is run by smallholder farmers or farmer organisations that are in their infancy stages like Mikonga Cooperative. However, interest in small- to intermediate-scale oilseed processing on the part of farmers and others are growing dramatically due to high demand for raw oil that is affordable by many rural people in their farming communities like in Mchinji District.in the past five years.

This training manual describes the basic processes of oilseed production.

It is highly recommended that each prospective oil processor must ask the following questions before starting oil processing:

- Why do I want to start oil processing?
- Will it be a hobby or a new economic enterprise?
- How big will the operation be?
- How many different products will be made, including both oil and the press cake left after the oil is pressed out of the raw seeds or nuts?
- Do I want to target mass markets or specialty markets?
- What geographical area do I want to cover?

The first question is important because it affects the answers to all the other questions. If you crush oilseeds for biodiesel or straight vegetable oil fuel production, you need to pay special attention to several specific processing steps. In the case of Mikonga Cooperative, the focus is on vegetable oils from groundnuts, soy beans and sunflower seeds.

Small-scale oilseed processing involves many steps. Despite being simpler than the commercial equivalent, there are a number of important steps that must be taken to make the system effective. From the grain warehouse or storage facility, where the seed is stored, to the finished product, this section of the manual covers the process that the small-scale producer may employ when processing oil from oilseed.

4.5.1 Basic Processing Steps

4.5.1.1 Raw Material Preparation/Seed Conditioning

Preparation of the raw material often includes removing husks or seed coats from the seeds and separating the seeds from the chaff. Information about seed cleaners designed for small-scale operations is often available from agricultural research stations doing small plot research with various crops.

For successful pressing, the seed must be:

- **Clean.** Fine dust in the seed may clog the oil press hardware. Chaff left in the seed will absorb some of the oil and keep it from getting squeezed out of the expeller. Sand in the seed will wear out the press. Stones damage the oil press screw or piston.
- **Dry.** Moist seed leads to low yields and clogs the screw or cage, a part of the press. Moist seed may also get moldy, as mold spores are present in all

crops. A rule of thumb is that the moisture content of the seed should be close to 10 percent. The number varies considerably for specific oilseeds. For example, sunflower to 8.5 percent while soybean is safe for storage and processing at 12 percent.



Figure 7: Farmers working on the oil seeds as part of seed conditioning before oil processing

Winnowing is a low-cost way to clean the seed. On a day when there is a steady breeze, spread a cloth on the ground. Drop the seeds from a container to the cloth. The chaff and dirt will blow away. The seeds will collect on the cloth. Any stones must be picked out by hand. In large processing factories, there are mechanical bowers installed as the work on cleaning the raw materials is too tedious to be done manually.

If the sun is shining, the seed can be heated on a piece of roofing tin or some black plastic. Spread the seed thinly and evenly on the sheet. On a sunny day, it will be hot to the touch in 15 minutes. The seed should be at least 40°C, which is pleasantly warm to the touch. The yield will improve as the seed gets hotter, all the way up to 66°C, uncomfortably hot to the touch. The seed will heat faster on a black surface than on a light-colored surface. Some people also cover the seed with a sheet of clear plastic. This helps to hold heat in and make the seed hotter.

If the sun is not shining, you can also heat the seeds on a stove. Put the seeds in a shallow pan over low heat for five minutes. You will need to stir the seeds often and be careful not to scorch them. Charred seeds will give the oil a bad taste.

In terms of soy bean seed oil processing, the seeds are first cleaned, dried and dehulled prior to oil extraction. The soybean hulls need to be removed because they absorb oil and give a lower yield. This de-hulling is done by cracking the soybeans and a mechanical separation of the hulls and cracked soybeans.

Roasting has proven to be popular with soybean farmers who also raise livestock or process soy bean cake as a by-product for selling to livestock feed processors. Small portable roasting systems are available that can be used to heat process soybeans on-site, eliminating the costs of transport to a processing plant and back to the farm. Roasted soybeans also create a convenient method of increasing fat content in the diet without the need to physically handle a liquid oil product. Soybeans are typically roasted by exposure to high temperatures for a short time. This is commonly accomplished by passing the soybeans through a flame in a continuous flow system so that the beans are rapidly heated in the process.

NOTE: Soy bean is roasted before oil extraction process in order to denature the anti-nutritional factors. The anti-nutritional components contained in soybeans, like in other plant products, function presumably as a defence mechanism to prevent ingestion. The two most important and best understood are trypsin inhibitors and haemagglutinins (lectins). With proper heat processing, these anti-nutritional factors are denatured, which eliminates their negative effects on animal performance. Trypsin inhibitors are a unique class of proteins found in raw soybeans that inhibit protease enzymes in the digestive tract. They reduce trypsin activity (a protease enzyme secreted by the pancreas) and, to a lesser extent, chymotrypsin, and, therefore, impair protein digestion by monogastric animals and some young ruminant animals.

Put the kernel (without the shell) between your two thumbnails and squeeze. Did the kernel fall apart? Are there little smudges of oil on your thumbnails? If not, there may not be much oil in the kernel. (This is a very rough way of assessing seed. The manual also presents a more precise way to determine the percent of oil, but still encourages the practice of checking seeds with your fingers.) Check the different batches of seed you come across. In time you will get a feel for the differences.

For successful pressing, the seed must be:

- Dry-Moist seed will lead to low yields and clog the cage (a part of the press). Moist seed may also get moldy.
- Clean-Fine dust in the seed may clog the cage. Chaff left in the seed will absorb some of the oil and keep it from getting squeezed out of the cage. Sand in the seed will wear the press out. Stones badly damage the piston.
- Warm-Warm seed will yield the most oil for the least effort.
- Dried before it is bagged and Stored-Very damp seed will feel humid when you bury your hand in it, especially if the seed is warm. If you heat your seed in the sun under a sheet of clear plastic, you may see moisture collecting beneath the plastic if the seed is too wet.

Seed that is slightly too damp may feel dry but will not press well. If it is too damp, but not yet moldy, it can be dried in the sun. (Never press moldy seed. It is not safe for human consumption.) Spread the seed out thinly on the ground, on plastic, or on roofing tin. At the end of the day, pile the seed up to keep it from absorbing moisture in the cool night air, and spread it out again in the morning. If there is any chance of rain, or if the morning dew is heavy, you will need to bag all the seed in the evening and put it back out the following morning. After two or more sunny days, the husks will be dry. Now bag the seed and store it for a week. In that time, the moisture in the seed will be drawn into the dry husk, and the entire seed will become evenly dry.

4.5.1.2 Oil Extraction

Extraction Oil can be extracted mechanically with an oil press, an expeller, or even with a wooden mortar and pestle—a traditional method that originated in India. Presses range from small, hand-driven models that an individual can build to power-driven commercial presses. Expellers have a rotating screw inside a horizontal cylinder that is capped at one end. The screw forces the seeds through the cylinder, gradually increasing the pressure. The material is heated by friction and/or electric heaters. The oil escapes from the cylinder through small holes or slots, and the press cake emerges from the end of the cylinder, once the cap is removed. Both the pressure and temperature can be adjusted for different kinds of feedstock. The ram press uses a piston inside a cage to crush the seed and force out the oil. Oils can also be extracted with solvents, but solvent extraction is a complex operation. Experts have cautioned that “solvent extraction is not suitable for small-scale processing because of high capital and operating costs, the

risk of fire and explosions from solvents, and the complexity of the operation.” Waste management of solvents such as hexane is a problem as well.



Figure 8: An employee working on an oil expeller

The Ram presses weigh about 20Kgs and can process 45Kgs to 65Kgs of sunflower seeds per day. The extraction rate is 20 to 25 percent using the softer-shelled, high-oil-content sunflower varieties. The ram press can also be used for sesame, mustard, safflower seeds, and peanuts. Choose seed that has a soft shell and high oil content (40–45 percent oil). Most high oil-content sunflower seeds are all black. Many striped seeds have little oil. To get some idea of how the seed will work in the press, try to crack it open with your fingers. This will not be difficult with soft seed. With hard seed, you may need to use your teeth. Now look at the kernel inside the shell. It should fill the shell completely. If the seed is much smaller than the inside of the shell, it was probably harvested too early. You will not get much oil from it.

You can use a double boiler to make sure that the seeds do not burn. You will need two pots, one large and one smaller. Set the larger pot on the heat, with enough water to keep it from boiling dry. Set the smaller pot inside the big pot. The bottom of the small pot does not need to touch the water below. Put the seed in the smaller pot, stir it occasionally, and the steam from the boiling water will heat the seed without burning it. The seed should be ready in 15 minutes.

The boiler works best if the smaller pot is almost the same size as the big pot. Then there is not too much room for the steam to escape from between them. This method does not require as much attention and stirring, and you will not spoil any seed from accidental charring, but it uses more fuel.

The seed is now ready to be pressed. The pressing operation is described in detail in the manual, complete with diagrams. It has to be cautioned that knowing how to use the press is important, especially regarding pressure adjustments. Correct adjustment allows the “cake,” or meal, to come out; too much pressure may cause a jam. The sunflower oil produced is very high quality. It can be further processed, or clarified, in one of three ways. The simplest is to let it settle for a week. The oil can also be mixed with a little water and salt and boiled for 10 minutes. This changes the taste slightly. Or the oil can be filtered through paper or cloth.

Seed Cake or Meal—Valuable By-product Seed cake is a valuable by-product of pressing. Sunflower seed cake is not suitable for people, but it makes a good addition to chicken, pig, or cattle feed. Since sunflower seed cake has all the seed hulls in it, it is very fibrous. The ram press does not get all the oil out of the cake; it is oilier than most feed additives. It is quite high in crude protein, but contains very few carbohydrates. It should be used as a feed additive, not a feed by itself.



Picture 9: Oil seed cake produced alongside oil from the oil extraction process using an oil expeller

Most feed rations for commercial broiler chickens, cows, and pigs that include sunflower seed cake. Proper storage of both seed and seed cake is extremely important. Seed must be protected from moisture, rodents, and insects. Very moist seed will rot. Even if your seed is not moist enough to rot, it may be moist enough to grow mold. This is a problem for two reasons. First, moldy seed cake does not taste good to animals. They may not be willing to eat moldy feed. Worse, some kinds of mold make mycotoxins such as aflatoxin. These poisons can make people and animals sick. Some of the poisons from moldy seed will end up in the oil, but most remain in the seed cake. They can also get into the meat, eggs, and especially the milk of the animals that eat the cake.

Mold spores (seeds) are present in all crops. Molds grow best in warm, humid weather. To prevent the growth of mold, dry the seeds shortly after harvest. Even dry seed can quickly get damp by being in contact with damp earth. Once the seed is dried and bagged, it must be stored carefully to keep it from taking up moisture. The moisture content of the seed should be no higher than 10 percent. To test for moisture, weigh a sample of seed or cake, and then heat the sample in an oven at 204°C for one hour. Reweigh the sample. The weight lost in the oven is equal to the moisture content of the original sample, and the percentage can be calculated: divide the weight lost by the original weight and multiply by 100

4.5.1.3 Clarification

Clarification removes contaminants, such as fine pulp, water, and resins. You can clarify oil by allowing it to stand undisturbed for a few days and then removing the upper layer. If it needs further clarification, filter the oil through a fine filter cloth. Finally, you can heat the oil to drive off traces of water and destroy any bacteria. Having a very clean oil is very important in all uses, including biodiesel.



Picture 10: Oil clarification in the process where filtering is a key process step

4.5.1.4 Packaging and Storage

Use clean, dry containers to package and store oils and help prevent rancidity. Sealed glass or plastic bottles are adequate. Colored containers in a dark box help to increase shelf life. The shelf life of oil is usually 6 to 12 months, if it is properly packaged and kept away from heat and sunlight.



Figure 9: Sample packaged products that can be processed at Mikonga Cooperative Factory

The packaging is done according to the existing marketing strategy. In some places, especially the rural areas within Kalulu Trading Center, most customers consume cooking oil in small packing materials like tubes, sachets and/ or 1-2litres bottle sizes. Therefore, Mikonga Cooperative must have the product marketing skills. The cooperative marketing sub-committee must work together with the staff employed by Mikonga Cooperative in marketing the products produced by Mikonga Cooperative. In addition to distributing the processed products on the market, at times Cooperatives employ a strategy of allowing individuals and vendors to buy the products straight from the factory at either retail or wholesale prices. This helps in creating more space for storage of finished products at the factory.



Figure 10: Vendors buying products from Mikonga Cooperative Factory and on the right side is the Cooperative management briefing the cooperative sub-committee on marketing regarding the marketing strategy.

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