

Oxen and Plow Management Workbook

*Pre- and Post-Disbursement
Oxen and Plow Client Training*



**Santa Clara
University**



Miller Center
for Social Entrepreneurship

Introduction to Users

This workbook is meant for use both during and after a Cycle Connect relationship officer or loan officer administers an ox and plow training session. During the training session, this guide will correspond to certain activities presented in the training presentation. The Cycle Connect officer will refer you to certain sections of this workbook at the appropriate time. The tables and charts in the appendices are meant for use after the training workshop. They will be helpful for recording everyday tasks that are required to successfully utilize and manage your oxen and plow.

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Introduction to Cycle Connect

Our journey began with a single bicycle when our founder discovered the empowerment, freedom, and opportunity that a bicycle can bring. As initially a lease-to-own bicycle organization, we saw how bicycles were used to create access to critical resources, increase income, and improve rural livelihoods. The model worked so well that we decided to apply the same model to more productive assets to give our clients more opportunities to invest in their futures.

The Bicycles Against Poverty story begins with a single bicycle that our co-founder, Muyambi, encountered during his childhood in Uganda. Muyambi realised the immense potential that a bicycle could have for a rural family in a developing country. He turned that realisation into action.

Oxen and Plow

An oxen and plow loan allows our clients to till twice the amount of land in half the amount of time. Not only can a loan help save an oxen rental fees, but the client is able to rent out his fleet with a profit of \$550 per year for rental only.

Cycle Connect

In 2019, Bicycles Against Poverty rebranded to Cycle Connect with the mission of increasing income for smallholder farmers via productive asset financing and training.

Our Mission

Cycle Connect's mission is to increase income for smallholder farmers in East Africa through productive asset financing and training.

Our Vision

Cycle Connect envisions a world where everyone living in the last mile has the means to thrive, not just survive. By delivering products and services directly to rural farmers, Cycle Connect is fueling the forward progress and prosperity of entire farming communities.

Financial Inclusion For Smallholder Farmers

Our current portfolio includes bicycles, motorcycles, oxen & plough, and grinding machines. All of our products are vetted and tested for their ability to increase income for smallholder farmers. Our growing portfolio gives our clients the ability to continuously invest in their future to generate the highest level of impact. Our goal is to be a lifetime partner for our clients.

Our Values

SOLUTION ORIENTED – Roll up your sleeves.

BOLD – Challenge the status quo: new ideas fuel growth.

ACCESSIBLE – The closer to the ground, the better.

HUMILITY – Serving others first (Take your swag elsewhere).

INTEGRITY – Commitment to Honesty.

Why We Exist

Distance should not be a barrier to **Access and Opportunity**

Our Goals

Double Our Impact In 2019

To date, Cycle Connect has disbursed over 5,000 loans. We are committed to going the distance to reach even more rural farmers in 2019. Our goal is to double our impact by distributing over 2,500 loans by the end of the year.

Reach 10,000 Clients By 2021

As we prepare to scale our operations, we are strengthening our internal operations so that we can expand to new locations in Uganda, grow our team, and reach 10,000 clients by 2021.

Reach 1 Million Clients By 2028

We have a bold objective of catalyzing the movement of one million smallholder farmers out of extreme poverty, and a realistic plan to achieve this over the next ten years.

Take Our Clients Out of Poverty

Cycle Connect's ultimate goal is to move all of our clients out of extreme poverty and equip them with the necessary tools to achieve their dreams. We envision a world where everyone living in the last mile has the means to thrive, not just survive.

Loan Terms, Monitoring and Repayment Documentation (Credit Policy)

Loan Agreement (Terms & Conditions):

Repayment schedule:

Passbooks records:

Late Repayments (Fines and Penalties):

Attendance

Module	Signature
1: Selecting and Pairing Oxen	_____
2: Capturing and Calming	_____
3: Training Pen	_____
4: Making a Rope Halter & Haltering	_____
5: Signaling & Oxen Driving	_____
6: Yoking Animal	_____
7: Pulling Load	_____
8: Daily Oxen Care	_____
9: Animal Nutrition	_____
10: Health Care	_____
11: Tillage, the Plough	_____
12: Tillage, the Field	_____
13: Animal Traction	_____
14: Benefit of Owning Oxen	_____
15: Ploughing for Additional Income	_____
16: Expenses associated with Owning Oxen	_____
17: Record Keeping	_____
18: Loan Payment for Oxen	_____
19: Insurance Coverage for Oxen	_____

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Module 1: Selecting and Pairing Animals

What to Consider When Starting Animal Farm

- | | |
|---|--|
| <input checked="" type="checkbox"/> Land | <input checked="" type="checkbox"/> Water point |
| <input checked="" type="checkbox"/> Market | <input checked="" type="checkbox"/> Stockman / Herdsman |
| <input checked="" type="checkbox"/> Transport | <input checked="" type="checkbox"/> Healthy / Vaccination Card |
| <input checked="" type="checkbox"/> Breeds | <input checked="" type="checkbox"/> Security |

Selection:

Selection is making a choice that is suitable for you, based on a variety of traits that are important.

Important Traits For Selection

- **Physical Form**
 - An animal must have a build well suited for pulling, move easily in all of its joints without signs of lameness
 - It should be low to the ground, have powerful shoulders and legs, and have a broad chest that will accommodate the placement of a yoke
 - A healthy ox will stand on relatively straight legs as seen from the front, side, and rear
 - The hooves should be dark, short in the toe, high in the heel, and wide
 - The ox should be straight and level across the back and from the hip to the tail.
 - The animals should be a good size for their age:
 - Teaming up animals that are the same size will improve their ability to work together in the yoke
 - Two animals that are the same size now but of different ages may not make a good team when they finish growing

- **Age**

- This can be determined looking at its Upper Teeth
 - Lower than 1 year: All upper teeth will be intact



FIG. 1.—Internal face of incisors of the calf.

- About 1 year, the upper-middle two teeth will grow bigger than remaining teeth



FIG. 2.—Internal face of incisors at 2 years.

- Above 3 years all of the teeth will be replaced by larger ones

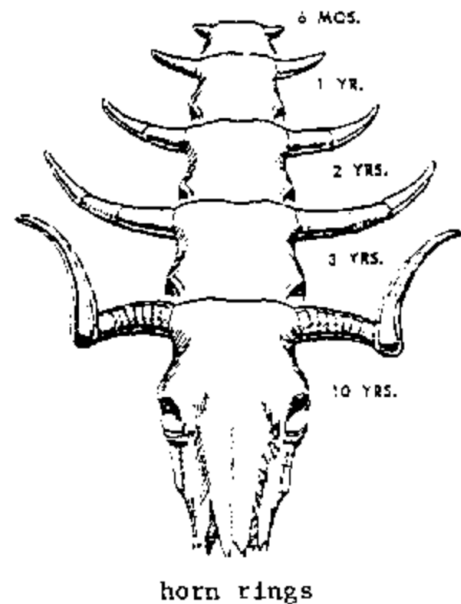


FIG. 3.—Internal face of incisors at 3 years.

- Look at the Rings on the Horns
 - 2 years: 1 ring on the horn
 - 3 years: 2 rings on the horn
 - 4 years: 3 rings on the horn

***Lower than 1 year the animal will be easier to train**

***Good oxen should be between 1 and a half years and 3 years**



- **Sex**
 - **Cows** can be worked but are not as strong as steers or bulls. They may need extra feed if they are pregnant or milking
 - **Bulls** make good oxen but they can be difficult or dangerous to handle when there are cows ready to breed in the area.
 - **Steers** make the best oxen. They grow bigger and stronger than bulls and are not distracted by a cow in heat

- **Temperament and Disposition**
 - When moving through a herd, a sudden movement of the hand will tell you a lot about each animal's temperament
 - **Good Temperament:**
 - Look for those that are attentive, curious, and approachable
 - The animal accepts the handling of the owner
 - The owner can pick up the animal's foot, open its mouth, lead it with a rope without having to use force or harsh measures.
 - It does not shy or kicks at other animals
 - **Bad Temperament:**
 - Look at its physical condition. Poor health may require an animal to compensate with aggressive or stubborn behavior.
 - An Animal with bad vision or hearing, an unsound leg or joint, or with a chronic respiratory or muscular weakness

Pairing:

Pairing is the action of placing two or more things together. In this case, pairing two animals that are meant to be used together.

Teams

What Makes a Good Team?

Same Size, Age, Breed

***A Local Breed takes a longer time to grow**

Determining Placement and Dominance:

- Dominant animals will be more active, push other animals away
- You want the stronger, more dominant, and intelligent ox to be placed further from the driver in the off (right) position
- Once you have decided which is the nigh-ox and the off-ox, you should always tie them in this position

***Source Locally from your community**

Module 2: Capturing and Calming

Client Engagement Activities: Module 1 Review Questions

- What traits make an animal well suited for draft purposes?
- How can an animal's age be accurately determined?
- What sex makes the best oxen and why?
- In which position should the dominant animal be placed in the pairing?

Capturing:

For an Ox to be captured, it needs to be guided into a training pen.

- When in the training pen, block the entrance and avoid heating
- The first impression always matters to the animal. Be calm and move gently
 - **Client Engagement Activity:** Why is it important to calm the animal when capturing? What happens when you do not calm the animal?
- Allowing the animal to initiate contact by smelling your hand, or taking fodder from your hand will help to establish a positive initial contact

Calming:

Flight Zone is the area in which the animal feels safe

The Point of Balance is the shoulder for your ox.

- If you stand at the shoulder the ox will standstill. When you move forward from the shoulder the ox will move backward or turn away from you. If you move back from the shoulder the ox will move forward.

Key Points to Remember:

- A calm ox responds well to touching and positive reinforcement (rubbing, grooming, and resting)
- Bad behaviors such as kicking, snorting, swinging the head, and reluctance or refusal to work make training almost impossible
 - **Client Engagement Activity:** What are some examples of positive reinforcement with the animal?
 - **Client Engagement Activity:** What are some examples of negative reinforcement with the animal?
- Traits of a Good Trainer
 - The voice is not raised higher than necessary. The touch of the stick is mild. The trainer touches the ox often and watches the actions of the ox.
 - Talk to your ox and use its name while you are making contact. Try to use names that are one syllable and do not sound alike

Module 3: Training Pen

Client Engagement Activity: Module 2 Review

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

Your first impression on the animal is the most important part T/F

An ox responds the best to negative reinforcement T/F

The name of your ox should be long T/F

You need to make sure the ox is not heated when in the training pen T/F

Rubbing, grooming, and touching are examples of positive reinforcement T/F

The Point of Balance refers to an animal standing on its hind legs T/F

A good trainer touches the ox often and watches the actions of the ox T/F

4 Main Qualities of a Training Pen:

Training Pen is the area in which the animal is groomed, trained, and kept before/after work

- A place that is shady, this is a part of the construction of the pen
- A place that is away from noise and distractions
 - Such as a road, schools
 - Away from female animals
- Close to water source
- Bare from grass to not distract the oxen

Why a Training Pen is important:

- **Client Engagement Activity:** Have clients name various ways the training pen is used to calm the animal.
 - Once examples are given, go over the review section

Review of Module 3:

- The training pen should be used consistently before beginning work and after finishing work
- You will groom your animal in the training pen and inspect its physical appearance
 - for injuries or parasites, including ticks, new wounds, or foot irritations
- This is the place where you can give the oxen water, so that they are not thirsty when they leave to work, and so that when they become thirsty during work they can be rewarded
- This is the place to put on the yoke, so that the animal understands what it is about to go and do, and the place to take off the yoke
 - This is where you make the animal get used to the yoke and environment (discussed more in next module)

Module 4: Making a Rope Halter and Haltering

Client Engagement Activity: Module 3 Review Questions

- What is a training pen?
- When constructing the training pen, what is something important to remember?
- What activities will you perform in the training pen with the animal?

Rope Haltering:

- **Client Engagement Activity:** What is a safe way to tie an ox?
 - We ask this because haltering is the practical aspect of tying, and moving the animal. It is important to take precautions in this stage.
- To safely tie the animal, you need to guide it into the training pen
- Use a Quick Release Knot
 - To make sure it is not too tight and can be easily untied

Making the Rope Halter:

- **3 Different Types of Rope**
 - Braided: this is the most common type to get locally made
 - Twisted: second most common type, Cycle Connect will show you how to make this rope
 - Woven
- When starting training, you will be holding onto the loose end of the rope halter. This is to help you until the ox knows what to do when given a command.
- **Client Engagement Activity**
 - This section is demonstrated to the clients in person
 - Distribute rope and have the clients practice making the same type of halter

Module 5: Signaling

Client Engagement Activity: Module 4 Review Questions

- What are the two most common types of rope halters?
- Why is it important to use a quick release knot?

Command Words and Signaling:

Purpose of Signaling is to develop familiarity with the command words and the use for the oxen

Remember: Because cattle don't speak human languages, any human training them needs to begin by speaking cattle.

- **3 Different Types of Signaling:**
 - **Body Positioning** is a fundamental mode of communication among cows, and therefore body position is an important place to start
 - Do not stand in front of the animal
 - Always work near the left shoulder of the left ox, except when backing up the ox
 - If you tell the ox to stop walking, you must also stop walking, until it truly knows the voice command
 - **Crop or Stick**, is necessary because commands must be given from different positions. It is important to be careful not to merely use a stick for negative reinforcement, but as an extension of the trainer's body.
 - To get your ox to start walking, tell it to come up, start moving forward, and *then* tap it near the tail with the stick
 - **Client Engagement Activity:** What makes a good stick?
 - **Vocalizations** are most effectively introduced in association with stick work and body position. The animals will learn to associate the vocal

command with the indications of the stick and the clues of the body position, and then gradually will become able to follow the voice without the stick.

- Loudness of your voice matters, a deeper voice, not the high pitch of your voice
- Maintain a calm, authoritative, and directed tone
- **Client Engagement Activity:** What types of words should be used for basic voice commands? Ask the clients to give examples.

Tips for Training Your Oxen:

- Training the ox to respond well to these three types of commands will take 7 – 10 days
- Work with the ox twice a day for 1 hour: Consistency builds Trust.
- You should be the only person giving commands. Train your ox when there are few people around
- A one-word command is best and is the easiest for your animal to understand

Methods for Moving Oxen in a Direction:

Client Engagement Activity

- Ask the clients to finish this sentence:
A correct, complete command includes _____, _____, and _____ signals
Answer: body position, voice signal, and stick
- Moving Forward
 - Stand calmly in position at the shoulder of the nigh ox. Say the name of the ox or oxen, begin indicating forward movement with your body, give the command, tap the animal on the rear with the stick, and walk forward at the same time
- Stop your Oxen
 - Say the names of the oxen and give the command, place the stick a few inches in front of the muzzle, and stop walking at the same time

- Signals for Right Turn
 - From the starting position near the nigh ox shoulder, take a step forward towards the animal's muzzle while saying the name of the nigh (left) ox and give the command. Tap the nigh ox in the rear and bring the stick down past the eye of the off (right) ox
- Signals for Left Turn
 - From the starting position near the nigh ox shoulder, take a step backward toward the animal's tail while saying the name of the off (right) ox and give the command. Tap the soft tissue near the tail of the off (right) ox and bring the stick down past the eye of the nigh (left) ox.
- Moving Backwards
 - Face the oxen from the left side or the front, say their names and give the vocal command, tap the top of the hoof at the hair line and step in the direction you want the animal to move
- Step in Towards the Tongue or Chain
 - This can be practiced while the ox is being groomed and is tied up. Push on the side of the tail-head opposite from the direction you want the ox to move, and give the command
- Step Out Away from Tongue or Chain
 - Repeat the actions described above, but move the ox the opposite direction

Client Engagement Activity: Act It Out (2 group members per movement)

- Ask the clients to demonstrate the above movements
- One will be the trainer
- The other will be the animal
 - Have the 2 members go through each movement using the correct signaling (body positioning, vocalization, stick) in front of the group
 - Next two different members should act out the next movement

Module 6: Yoking Animals

Client Engagement Activity: Module 5 Review Questions

- What qualities make an effective voice command?
- How should the stick be used when signaling?
- When is it time to end a training session?
- How quickly should an ox respond to a command?

Remember: Before putting the yoke on the animals, it is a good idea to always inspect it for signs of wear or damage that might injure the oxen or cause the yoke to break during use

- **Client Engagement Activity:** How should the animal be introduced to the bow?

Yoke:

3 types of Yoke

- Local Yoke Improved Yoke Conservation Farming Yoke

Good Wood for Yoke Making

- Hard Dry Light Wood Should Not Crack

Recommended Tree Species

- Pine Olam Sambia Oduru Obwolo

Introducing the Animal to the Yoke:

- Once the oxen are used to the feel of the bow, tie them close together and place the yoke beam across their necks. Stand on the left side of the nigh (left) ox and lower the beam onto the neck of the off (right) ox and then onto the nigh ox
 - Continue grooming while the oxen get used to the feel of the yoke
 - Once comfortable, slip the bows through the yoke beam and attach them securely.

Fitting the Yoke:

- The bow should not contact the shoulders, be too low on the brisket, nor be so high it causes the animal to choke or cough
 - You should be able to place your hand between the bow and the neck of the animal when it is forward.
- Signs of Discomfort
 - They may throw their heads up and down, drop them, or twist them back and forth. They may be reluctant to pull, or show signs of strain even under a light load
- Proper way to Remove Yoke
 - Retie the oxen to the hitching post.
 - Remove the yoke by first taking off the bows and placing them over the neck of the ox.
 - Then step between the oxen and lift up the yoke beam.
 - Back out from between the oxen with the yoke, put the bows back in the yoke, and finish grooming the oxen.
- Move the Team in the Yoke
 - Once the oxen are accustomed and comfortable being yoked, untie them and take them for short walks to let them get used to the feel of moving together. All of the signals are the same for teams as they are for individuals except turning right and left.

Client Engagement Activity: How should the animal be introduced to the bow?

Module 7: Pulling Light Loads

Client Engagement Activity: Module 6 Review

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

Put the Yoke on the animals before inspecting it for signs of wear or damage T/F

As a team grows in size it is important to keep checking to make sure the yoke fits properly T/F

Good wood for Yoking is very flexible and has cracks T/F

When introducing the animal to the yoke it is important to continue grooming it T/F

Pull Light Loads:

Remember: increase weight of the load incrementally. Big increases will be discouraging for the animal while it is learning

- Teaching oxen to pull requires getting them used to the sound and feel of different equipment and loads
 - takes 7 – 10 days, working 2 – 4 hours per day
 - Work as long as you have the oxen's attention
- Start the oxen walking with a pole or chain attached to the yoke and dragging on the ground
 - A pole is better because it will not wrap around the animals leg and frighten them, as a chain might
- Gradually work up from the chain to a light load and then heavier loads. You must learn how to turn the team while they are pulling a load
 - Be sure that the chain is long enough that the load doesn't hit the back feet of the oxen.

- **Client Engagement Question:** What happens when the animal stops pulling the load, what do you do?
- **Build Up Draft:**
 - Begin by attaching a light log (roughly 20kg) to the chain. When the team is working well with this weight, increase the load size. During this time, only require the team to pull short distances, and give them frequent rests

Pulling Various Tools

- Working in a Furrow
 - Prepare a furrow ahead of time, either by hand digging or with a trained team. The ideal length will be around 100 meters, but a minimum of 50 meters will work
 - Walk the team with the off (right) ox in the furrow without a log the first few times. When the oxen do this easily, drag a light log in the furrow and then work up to a heavier log
 - A team ploughs about ½ acre per day with an 8 inch (20cm) plough. That means they need to develop the endurance to walk about 10km per day.
- Pulling a Sled or Stoneboat
 - Once the oxen are used to pulling a chain and a light load, you can advance to a sled
 - It is important to place the load on the sled evenly. If all the weight is at the front of the sled it may dig into the ground and will not cross ditches well.

- Pulling a Cart
 - Give the oxen time to get used to the sound and feel of a cart. Turning with a tongue is different than turning with a chain
 - Begin with an empty cart and only add loads when the animals are consistently comfortable and responsive to your commands while pulling the empty cart
- **Client Engagement Question:** What do all of these steps have in common?
- **Client Engagement Question:** Why is it important to start off with a pole and gradually increase to a cart?

Module 8: Daily Care

Client Engagement Activity: Module 7 Review Questions

- What is the most important thing to remember about training an animal to pull loads?
- What do you start the oxen out with when training it?
- Why do the carts take time for the oxen to get used to compared to the other tools?

Daily Care:

Remember: When you greet your ox every morning you should look for the signs of a healthy animal

Client Engagement Question: What are healthy signs of an ox?

- Grooming
 - Before and After the work day
 - Brushing your ox all over to remove dirt and is a good time to look at every part of the ox for signs of sickness, parasites or injuries such as cuts, bruises, bumps, and signs of wear from poorly fitting yokes or lines
- Lift the Foot
 - It is important to train your ox to lift its feet to allow you to look for injuries, cracking or rot around the hoof. Sometimes it is also necessary to shape the bottom of the hoof so that the ox stands correctly.
 - Training it to lift its feet:
 - Begin by standing at the ox's side, facing the rear.
 - Bend over and lean against him so that he will put his weight on the other foot.
 - Run your hand down his leg several times so he will get used to you handling him there.

- When he seems comfortable with this, continue moving your hand down and squeeze his dew claws together. This will cause him to pick up his foot; however, he will probably kick or try to put his foot back down immediately

Client Engagement Questions:

- What are the oxen's water and grazing needs?
- When should the oxen be worked?
- Why do Oxen need housing?

Module 8 Review:

- Oxen should be allowed to drink their fill of clean water in the morning, evening and at the end of each work period
 - Needs at least 6 hours of grazing every day
- Work should be done during the cooler parts of the day, early in the morning and late in the afternoon
- It is important that you oxen have a clean place to rest where they are sheltered from the sun, wind and rain. Dung and bedding should be removed every day

Module 9: Nutrition

Client Engagement Activity: Module 8 Review Questions

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

Working oxen are a valuable asset and they need good care T/F

Cattle like to have their feet lifted, therefore you do not need to train them to do this action T/F

When grooming the ox, to establish a strong relationship use its name T/F

If you are giving extra feed and/or supplements to your ox, it should be done only in the evening T/F

Daily Care and Feeding:

Maintenance Feeding is meeting basic daily needs to maintain body weight, including proper feed, water and care to remain healthy.

- **Client Engagement Question:** As a client, how do you ensure the feeding is maintained?
- **Condition:** Always look at the condition of your oxen. It is OK for your oxen to gain and lose weight with grazing quality but consider giving extra fodder during times of poor grazing
 - **Client Engagement Question:** How does the season(s) affects the feeding requirements?
 - *Emphasize in Northern Uganda the animal eats more September-October*

- **Common Feed Sources**

- Grazing Forage Trees Household & Milling Residue
- Crop Residue Hay

Feed Requirements:

- **Age and Sex**
 - A young ox, up to 4 years old, will need additional feed for growth
 - **Client Engagement Question:** Why does Cycle Connect recommend a male oxen instead of a female oxen?
 - Female when pregnant become weak and male animals are built stronger, which mean they can plough heavier loads
 - Animal that is not ploughing receives less feed
- **Nutrients Required**
 - Work requires **energy** giving feeds such as grass, stove, hay and straw
 - **Minerals** (e.g. calcium, iron and phosphorus) and **vitamins** are needed in small amounts and can be found in mixed grazing
 - **Salt** in blocks can be put out for the oxen or may need to be hand fed to replace salt lost through sweat
 - Clean **water** should always be available to the animals when they are not working.
- **Client Engagement Question:** Why is it best not to feed oxen off the ground?

Module 10: Health Care

Client Engagement Activity: Module 9 Review Questions

- What are some examples of common feed sources?
- How does work affect feeding requirements?
- What is the age where your oxen will need extra feed?
- Why is it important to maintain a feeding schedule?

Health of the Oxen:

- **Client Engagement: Is this statement True or False, and why?**
 - Money spent on keeping animals healthy is money well spent
- **Routine Health Care**
 - includes deworming, vaccinations, and tick control
 - Antibiotics are sometimes needed to treat wounds and certain illnesses

Client Engagement Activity:

- Split the clients into two groups
 - Ask one group to think of **indications of a healthy animal**
 - Ask the other group to think of **indications of a sick animal**
 - Have each group share their answers with everyone
 - If any are missed, go over the remaining indications once everyone is done sharing
-
- **Medication**
 - Talk to the veterinarian to be sure you understand how a medication is to be given to the animal
 - **Oral:** Medications given in the mouth.
 - **Bolus:** A pill placed far back in the mouth or given with a “balling gun.”
 - **Paste:** Given with a syringe or a “caulking gun.”
 - **Drench:** A liquid given in a syringe, bottle, or tube put down the throat.
 - **Injectable:** Medication shot into the animal with a syringe and needle

- ***Subcutaneous:*** Medication given under the skin but not into the muscle. These are usually given in the neck region
- ***Intramuscular:*** Medication given in the muscle layer. Use a longer needle 1-1 1/2 inches long at a steeper angle. Usually given in the rump
- ***Topical Medications:*** Medications applied to the skin. Usually powders or creams

- **Client Engagement Question:** What are parasites?
 - Treatment
 - Internal: Animals should be dewormed once or twice a year, before the rains and all new animals coming into the herd
 - External: Tick control - Sometimes ticks can be picked off. Always crush them or burn them but do not drop them back on the ground

- **Client Engagement Question:** What are 3 common examples of lameness?
 - **Remember:** It is important to vaccinate regularly and routinely for diseases that are common in your area. Consult with a local veterinarian about disease prevention.

Other Common Diseases:

- | | | | |
|---|--|---|---|
| <input checked="" type="checkbox"/> Anthrax | <input checked="" type="checkbox"/> Foot and mouth disease | <input checked="" type="checkbox"/> Brucellosis | <input checked="" type="checkbox"/> Black Leg |
| <input checked="" type="checkbox"/> Contagious Bovine Pleuropneumonia | <input checked="" type="checkbox"/> Tetanus | <input checked="" type="checkbox"/> Brucellosis | |

Module 11: Tillage, The Plough

Client Engagement Activity: Module 10 Review Questions

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

As a client you should be willing to spend any amount of money on your oxen to get it back to good health T/F

An oxen who stays by itself, has diarrhea, and breathes rapidly is healthy T/F

Hoof abscesses, swollen joints, and foot rot are the most common causes of parasites T/F

Local veterinarians can help by providing medicines, vaccines, and diagnostic skills T/F

Parasites live in or on the host animal. They take food from the animal in the form of blood or nutrients. T/F

Tillage

Tillage is preparing the soil for planting and maintaining the seed bed

- **Benefits of Ploughing**

- stimulates plant growth
- turns under weeds and organic material that becomes valuable fertilizer
- tilts the furrow slice so that decaying material is spread evenly through the loose soil
- Oxygen and water penetrate the soil, weed roots dry in the sun and decay, adding nutrients to the soil for the future crop

- **Well Cut Furrow**

- Furrow slices are lying flat with no air flow to allow breakdown. Shallow ploughing.
- Too much contact between the furrow slices. The bed stays rigid longer. It does not settle.
- Upper edge of the furrow slices can be readily worked down into a seedbed without the interference of plant material.
- Later packing and preparation should break down the lower edge of the furrow slice and bring topsoil into contact with subsoil.

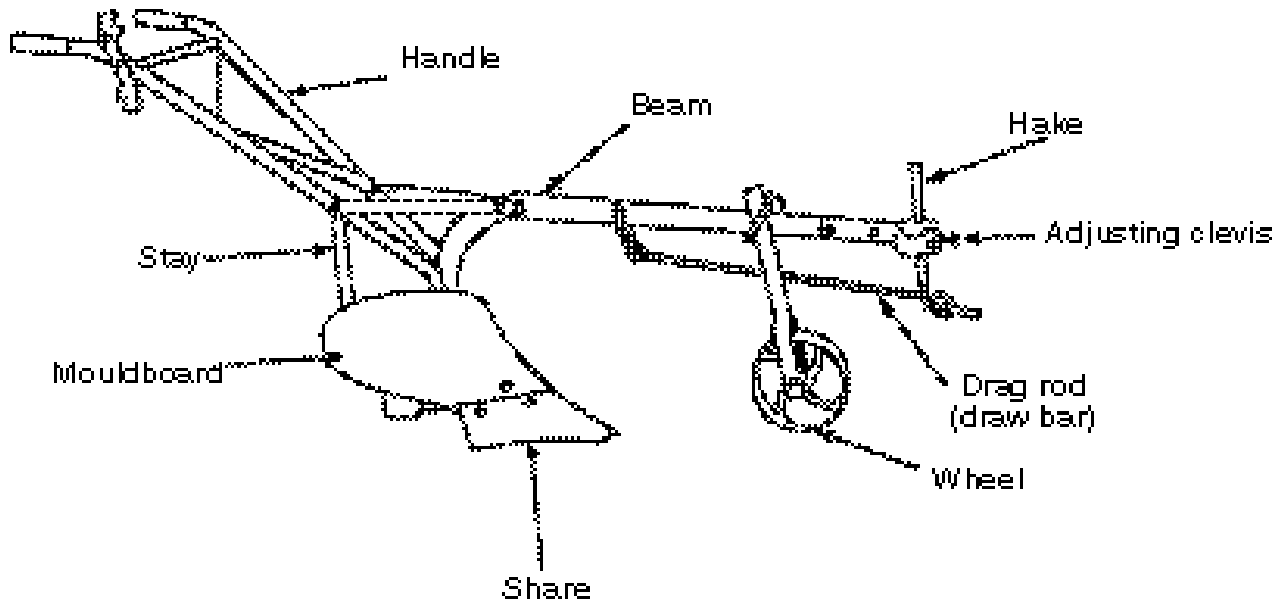
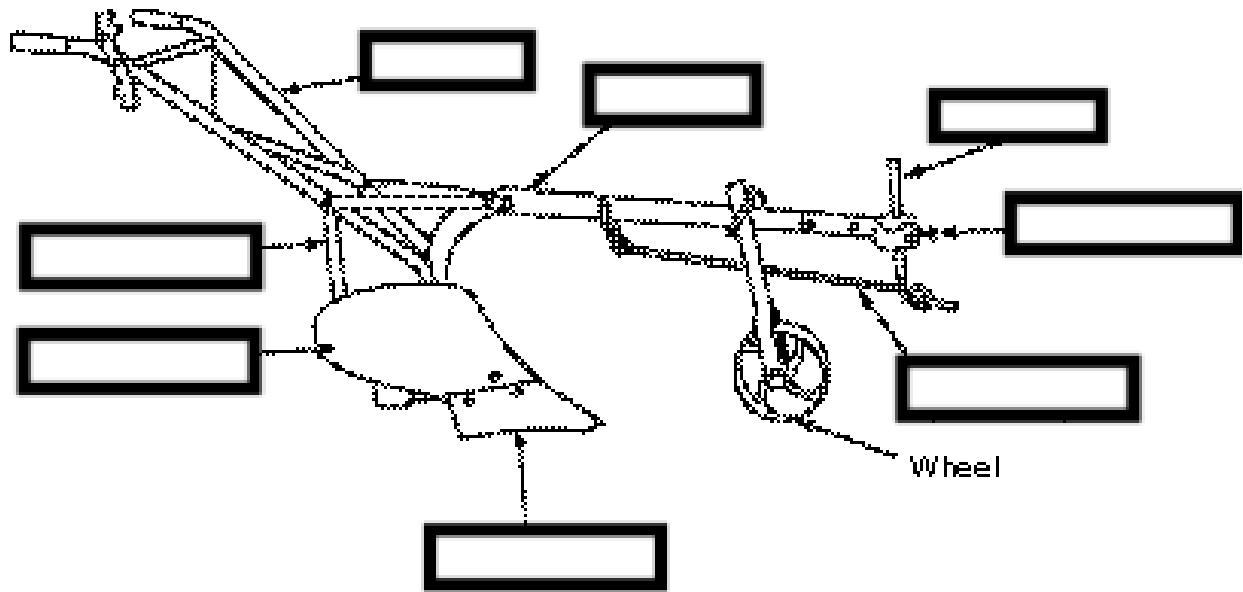
Client Engagement Activity:

Use a plough, or an image of plough to ask group members what the name of that part is, and how each part is used. Identify the following parts/activities:

- Mould Board
- Share
- Furrow
- Furrow Slice

Then, ask the following questions after the activity:

- What happens to the furrow slice when the moisture level of the soil is just right?
- What adjustments can be made to produce a good furrow?



Module 11 Review:

- When a plough is cutting correctly, it works flat on the furrow bottom: the point of the share and the bottom of the heel piece are level
- Ploughs and sweeps break up and loosen the soil to allow planting.
- The cut made by a plough is called a furrow and the soil thrown is called a furrow slice

Module 12: Tillage, The Field

Client Engagement Activity: Module 11 Review Questions

- What does tillage mean?
- What are examples for the benefits of ploughing?
- What adjustments can be made that produce good furrow?

Ploughing the Field

The Field is a place prepared by a farmer to be able to plant crops

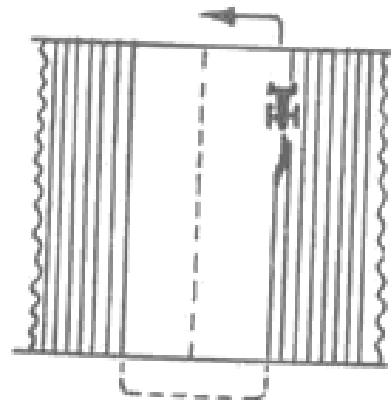
- Steps in Preparing the Field for Ploughing:
 - 1) Remove as many obstacles as practical, fill holes and clear away surface trash
 - 2) A large, irregular area, big enough for two fields, should be laid out (*Show the clients a picture of this as an example*)
 - 3) Place a stake at the central position between the two fields at the widest end
 - 4) Place a second stake at the other end so that one of the fields has parallel sides

Client Engagement Questions:

- What is a correctly ploughed field?
- What does poor ploughing result in?

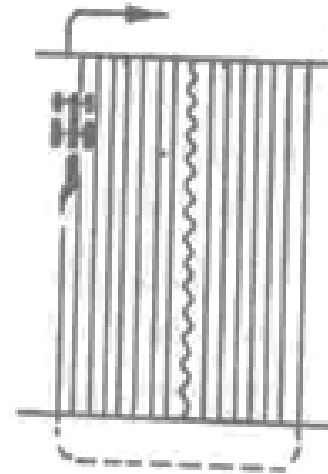
Two Patterns for Ploughing

- **Casting Pattern: Square**
 - Starts on the right hand edge of the field and continues from both sides toward the center where a narrow and shallow finishing furrow is made



- **Gathering Pattern: Rectangular**

- Requires that the center line of the field be marked with a stake at each end. An opening furrow is made down this center line and then the field is ploughed out from the center toward the edges.



***Important:** To keep the field level, you should switch between the gathering and casting patterns each year.

***Demonstrate to the clients how to do each of these ploughing patterns in the field**

Client Engagement Activity:

- Show the clients how to correctly maintain the plough
- If possible, ask the clients to perform these activities while you tell them the steps that need to be taken:
 - Scrape all soil off of the plough in the field
 - Tighten all nuts and bolts
 - Make sure those needed for adjustments can still be loosened
 - Check all parts for wear and replace those that need replacing
- **Important:** Never oil the wheel axle
- **Client Engagement Question:** Where is the best place to store and keep your plough when you are not using it?

Module 13: Animal Traction Safety

Client Engagement Activity: Module 12 Review Questions

- What are the steps in preparing the field for ploughing?
- Which ploughing pattern starts on the right hand edge of the field and continues from both sides toward the center?
- How do you make a Gathering Pattern?
- Why is it important to maintain your plough?

Safety

Animal Traction is a way to help you in planting, weeding, ploughing

- **Dangers from the Animals:**
 - If you are working with haltered oxen, Do Not wrap the rope around your hand
 - Do Not walk in front of a team going downhill with a load
 - **Client Engagement Question:** What are ways to minimize these dangers?
- **Dangers from the Equipment:**
 - If you have loaded a cart or sled be sure the load will not shift.
 - Check for broken or damaged parts
 - Be aware of where you are standing and approaching objects. Do Not let the oxen pinch you between them and a tree or building
 - **Client Engagement Question:** What are ways to minimize these dangers?
- **Dangers from the Environment:**
 - Traffic, Gravel, Downhill slopes
 - Space between the trees or buildings
 - **Client Engagement Question:** What are ways to minimize these dangers?

Module 14: Benefits of Owning an Oxen

Client Engagement Activity: Module 13 Review

- Ask the group to name some examples of the dangers from:
 - Animals
 - Equipment
 - Environment
- What does animal traction mean?

Benefits:

- **Client Engagement Activity:**
 - **Objective: to promote class discussion on the benefits of owning and working with oxen**
 - Gather everyone in a circle and ask each member to give an example of a benefit of owning an oxen
 - If any are in-correct, bring it up while members are naming benefits
- **Key Benefits:** (these might have been mentioned, still go over as a review)
 - A team of oxen can help a family break the poverty cycle
 - They can move Jerry cans of water all year round
 - They can haul firewood, building materials, produce and sick people just to name a few
 - Anyone can train your oxen. They must be calm and caring so that you have well trained animals. This is a very good job for older youth
 - Your ox can keep working until it is unable to do the work or until its teeth wear down and it cannot eat enough to stay healthy (around 16 years)

Good Management Practices:

- Dipping Housing Feeding and Watering Vaccination
- Deworming Castration Dehorning Grooming

Identification/Branding

Module 15: Ploughing for Additional Income

Client Engagement Activity: Module 15 Review Questions

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

A team of oxen can help break the poverty cycle T/F

You are the only person who can train your oxen, not anyone else T/F

Oxen can haul firewood, building materials, produce, and jerry cans T/F

If you keep your oxen in a shed and bring them food, they will be healthier and there will be the added benefit of their dung for fertilizer T/F

Good Management practices include bad quality housing and not giving the animal attention T/F

Important Notes on Additional Income:

*Note that this additional income is not guaranteed

- To earn additional income, clients can hire the oxen out to other people
 - Depends on various factors:
 - The number of farmers willing to hire
 - If the owner is done ploughing
 - How fast the oxen is able to work
 - The owner must ensure the person hired know proper feeding, water, rest period, and care of oxen, as well as how to safely plough with them so the animal is not injured

How to Calculate Additional Income

- How to keep track of the additional income the clients can potentially earn
 - Charge per Acre: **82,000 UGX**

- Acres per Week: **1.8 Acres - 2.8 Acres**
- Weeks Worked: **24 Weeks**

Client Engagement Activity: Calculating Additional Income

- Give the clients whiteboards/bookkeeping template to do the following calculations
 - Do #1 together and show them how to calculate the answer
 - Ask them to do #2, then #3 by themselves
 - After go over the answers to #2 and #3
 - Check to see if there are any questions from the group
- #1 Calculate how much additional income they could earn by ploughing 3 extra acres per month for five months
 - Method: $(82,000 \text{ UGX}) \times (3 \text{ acres}) \times (5 \text{ months})$
 - Answer: 1,230,000 UGX
- #2 Calculate how much additional income they could earn by ploughing 4 extra acres per month for four months
 - Method: $(82,000 \text{ UGX}) \times (4 \text{ acres}) \times (4 \text{ months})$
 - Answer: 1,312,000 UGX
- #3 Calculate how much additional income they could earn by ploughing 6 extra acres per month for five months
 - Method: $(82,000 \text{ UGX}) \times (6 \text{ acres}) \times (5 \text{ months})$
 - Answer: 2,460,000 UGX
- **Ask the group:**
 - What are the benefits of loaning out the animal?
 - When are the busiest months for ploughing and how does this relate to loaning out the animal for additional income?

Record Keeping: Additional Income

Record/Bookkeeping is the process of recording data relating to business transaction in the books of account

- This is discussed on Module 18 in further detail
- Mention that it is important for clients to record this income on their method of choice

Module 16: Expenses Associated with Owning an Oxen

Client Engagement Activity: Module 15 Review

- How many UGX can you charge per acre when loaning your oxen?
- What is Record Keeping? Why is this important?
- Is Additional Income guaranteed?
- What was the most important thing you learned in the last module (“Ploughing for Additional Income”)?

Expenses:

An Expense is the cost required for something or money you spend

- Your expenses may be higher or lower than our estimates below
- You should be saving for these expenses throughout the year, as they may come up at any time, and the need to be ready to pay for them

Expense Item	Cost	Timeline
Plough Maintenance	67,000 UGX	Per Year
Vet Costs / Vaccinations	150,000 UGX	Per Year
Parasite Control	5,000 UGX to 16,000 UGX	Every 4-6 Weeks
Labor (hiring someone)	12,500 UGX per Acre	Average is 2 acres ploughed per week

Client Engagement Activity: Calculating Average Monthly Expense

- Give the clients whiteboards/bookkeeping template to do the following calculation
 - #1 What is the average monthly cost of owning an oxen and plough?
 - Do the calculations with the clients to show how you got the answer
 - Method:

- Divide 67,000 UGX by 12 = 5,583 UGX
 - Divide 150,000 UGX by 12 = 12,500 UGX
 - $16,000 - 5,000 = 11,000$ UGX divided by 2 = 5,500 every 4-5 weeks
 - (8 acres per month) multiplied by (12,500) = 100,000 UGX
 - Add all of the expenses together:
 - $5,583 + 12,500 + 5,500 + 100,000 =$
 - **123,583 UGX per Month**
-
- **Client Engagement Question:** What can you do if your expenses exceed these amounts?

Module 17: Record Keeping Recommendations

Client Engagement Activity: Module 16 Review

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

If your budget exceeds the average monthly amount, you need to look into your expenses and make a plan T/F

An expense is the additional income you receive from loaning out your oxen T/F

You should be saving for your expenses throughout the year, as they may come up at any time T/F

Best Practices of Record Keeping

- **Importance of Bookkeeping**
 - It helps to manage stock and raw materials
 - Helps in calculating and monitoring profit and loss
 - Helps in planning for the future
 - Helps in filing tax returns
 - Helps to meet deadlines and timely repayment of loans
 - Helps in cash flow management
 - Helps to evaluate the performance of the business
 - Helps to forecast the future of the business and set objectives and goals for the business
- **Consequences of Poor Record Keeping**
 - You will not know how much money you are earning from the business
 - You will not know whether you are making profits or losses in the business
 - Leads to mistrust and accusation between employees

- You will not know how much you owe the suppliers and customers owe the business
- Leads to failure of the business

Client Engagement Activity:

- **Objective: to promote class discussion on the benefits of Record Keeping**
- Gather everyone in a circle
 - Ask each member to give an example of the importance of bookkeeping that you previously went over
 - Ask each member to give an example of consequences with poor record keeping that you previously went over

What to Keep Track of:

**Encourage them to purchase a separate manuscript book they save only for their oxen record keeping*

- Number of acres ploughed, and the amount of time taken to plough
- The amount of income earned each month and year from hiring out oxen and plough to others
- Expenses paid each month and year related to the oxen and plough (vet, plough shares, etc.)
- Additional crop yields from additional ploughed land
- Additional income earned from extra yields

Method for Record Keeping:

-
- Show clients both templates
 - Explain how to use each by adding one or two sales and one or two expenses into each template
 - [Simple Bookkeeping Template](#)
 - Add rows as necessary. Total each week, and add to track monthly and annual totals
 - [Profit and Loss Template](#)
 - More complicated

- For the total of each month, Subtract the Expenses from the Income to see if it is positive or negative

- **Client Engagement Activity:** Ask each member to select the template that best meets their needs and abilities.
 - Once they have selected one, take them through the following process to ensure they know how to use it
 - Add the ploughing for additional income line items in Module 15
 - Add the expected expenses listed in Module 16
 - Total the income and expenses to see if the total is positive or negative
 - Discuss how much additional ploughing they will need to do to cover the cost of annual plough maintenance and vet costs
 - Discuss how much additional crops they would need to grow and sell to cover those same costs

Review Principles of Record Keeping:

- **Client Engagement Activity:**
 - **Objective: Ensure understanding for tracking and maintaining records to improve their financial situation**
 - Ask the clients if each statement is true or false. Be sure to ask clients why an answer is either true or false.
 - You should be maintaining your records every time you have an oxen and plough related expense – adding it to your book the same day T/F
 - You should **not** be maintaining your records every time you have an oxen and plough related income – adding it to their book the same day T/F
 - You should **not** collect or save receipts to refer back to because it is a waste of time T/F

Weekly Total				

17.B Profit and Loss Template

Sales	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total

Expenses													Total
Owner's pay													
Hired labour													
Plough Maintenance													
Vet Costs													
Parasite Control													
Loan payments													

Total (Sales-Expenses)														
----------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Module 18: Loan Payments for Oxen

Client Engagement Activity: Module 17 Review Questions

- What are the two methods for bookkeeping?
- What are examples of things to keep track of in your oxen and plough book?
- What are examples for the consequences of poor record keeping?
- Why is it important to plan in advance and keep track of your income and expenses?

Loan Payments via Mobile Money

A loan is borrowing money or a good and paying it back with interest over time

- **Oxen payment: monthly for clients**
- Confirm that the client has MTN mobile money set up. If not, assist them with the setup
 - They may need to come to a MTN Service Center to set up mobile money if they have never used it before

Client Engagement Activity:

Use chart paper to show the interest rate of Cycle Connect and two competitors (BRAC, Talanta, Pride, etc.).

- What additional costs come with loans?
- Some lending institutions may charge other fees in addition to interest, so it's important to ask about all additional fees.

- Examples of these fees include application fees, or fees for late payments, or fees for early payment.
- Cycle Connect charges different fees (depending on the loan product) for its application and administration fees, paid in advance of receiving the loan.

Instructions for sending loan payments to BAP

Note: There is a small charge for sending mobile money payments. This is cheaper than other methods of making payment like coming to town

- Dial *165#
- Select Payments (4)
- Enter BAP for the merchant code
- Enter your name “full name – oxen loan payment” for the payment reference
 - i.e. Ojok Joseph – oxen loan payment
- Send the amount to BAP after entering your mobile money PIN
 - confirmation number from MTN in loan repayment passbook **Insurance Coverage**
- **Client Engagement Questions:**
 - What do you do if the battery is spoiled on your phone the day the payment is due?
 - What do you do if there is no network signal where you are on the day you need to send payment?

Insurance Coverage Instructions

Discussed Further in Next Module

- Contact BAP immediately in the event of any death or theft of oxen. The oxen are insured by UAP
- Notify the LC1 to serve as a witness/ make a statement for insurance.
- Notify the police in the event of theft

- The insurance company will send a certified vet doctor in the event of death to do an examination. Do not disturb the animal until after the inspection
- Seek immediate vet doctor care for any sickness or injury.

Module 19: Insurance Coverage for Oxen

Client Engagement Activity: Module 18 Review Questions

- How often do you have to pay the oxen loan (weekly, annually or monthly)?
- What service do we use to submit the payments?
- What happens if you do not submit the payment on-time?
 - Is this still a consequence even if your phone battery is spoiled the day payment is due?

Insurance through ICEA

- **Requirements to maintain coverage:**
 - Coverage is only for 12 months
 - Loan term is 12-24 months
 - Renewing insurance in second year is their responsibility, but required for the loan (for loans over 12 months)
 - Notifying Cycle Connect immediately of any issues – the insurance company will send a certified vet doctor to do an examination.
 - Note: They have our contact information on the quick reference sheet and in the “Attendance” section of this workbook, but they should also be saving Loan Officer’s number in their phone
 - Ear tags are required for identification
- **What is included by insurance:**

- Accident
- Disease
- Fire
- Storm death
- Flood death
- Lightning death
- **What is not covered by insurance:**
 - Willful misconduct - poor treatment
 - Famine or malnutrition - lack of feed
 - Feed poisoning – bad feed
 - Medication from an unqualified vet officer
 - Nuclear pollution
 - Culling – deliberately killing unproductive animals
 - War or terrorism
 - Political risks
- **Client Engagement Activity:**
 - Objective: Ensure understanding for submitting insurance coverage and making a statement
 - Ask the clients to form a circle, choose a member to begin with the first step in the following scenario:
 - You just discovered that your Oxen Died, what do you do?
 - Ask the member to the right to list the next step
 - Continue going around the circle until the instructions are complete
 - If at any point the members need help or a review, give the clients a hint or assistance in listing the instructions

Module 20: Financial Literacy

Client Engagement Activity: Module 19 Review Questions

Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false.

You do not need to have ear tags on your animal to receive insurance coverage T/F

Willful misconduct, poor nutrition, and political risks are not covered by insurance T/F

To submit an insurance statement, notify Cycle Connect immediately T/F

Storm death, Disease, Fire, and Accident are covered by insurance T/F

Renewing insurance in the second year is Cycle Connects responsibility, not the clients T/F

Savings

Savings is setting aside part of what you are earning to use at a future point. Savings often means having less today, but a higher return in the future.

- **Setting Savings Goals**
 - **Client Engagement Question:**
 - How long have you been saving for?
 - **Client Engagement Activity: The What, Why, and How of Saving**
 - What are you saving for?
 - Why are you saving for this (expense)?

 - **Client Engagement Activity:**
 - Create a fictional savings scenario of your choice (ex. Saving for school fees, saving for motorcycle maintenance, saving for an oxen).
 - Have clients come up with a savings target that fits your hypothetical scenario. (amount of money needed and the time period)
 - Have clients to set up a savings plan (account for monthly income, # of months it will take to reach target, any additional expenses)
 - Throw in obstacles like unexpected expenses or circumstances (veterinary fees, medical fees, bad harvest) if clients are understanding the basics

- **Keys to Successful Saving:**
 - Have a Savings Goal
 - Start Saving Immediately
 - Keep Savings in a Safe Place
 - Mobile Money
 - Have Emergency Savings
 - **Client Engagement Questions:**
 - What is a short term savings goal?
 - What is a long term savings goal?

Personal Savings Goal Worksheet:

Establish your own savings goal. Think of where you want to be financially in a year and make a plan to reach that goal.

In _____ year(s), I want to have saved enough money to . . .

In order to meet my savings goal, I must save. . .

_____ **Shillings per week**

For

_____ **Months**

I will keep my savings . . .
Via Mobile Money
In a Traditional Bank account

Client Signature	Officer Signature
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Budgeting

*A **Budget** is a calculation of all the money you earn minus all the money you spend in a specific period of time (a week).*

***Budgeting** is also used when referring to limiting spending to a particular amount each month (equal to or less than what you earn) so you can save for a specific purpose (school fees.)*

***Budgeting** also implies that you may not purchase something you want, and only purchase things you need, so you can reach your savings goal.*

Client Engagement Activity: Are the Following Statements True or False?

Be sure to ask clients why an answer is either true or false. Wants and needs are subjective in some cases.

A Smartphone is a need T/F

Soap is a need T/F

Medicine is a want T/F

Graduation party is a need T/F

A Sofa is a need T/F

Food is a need T/F

A Car is a want T/F

Jewelry is a want T/F

- **Budget Killers** are expenses that prevent you from reaching your savings goals
 - **Client Engagement Activity**
 - Have clients name as many budget killers as they can.
 - After the clients have named some budget killers, explain how this money could be saved or spent in more productive ways. (school fees, savings, food, etc.)

Investing

*An **Investment** is the purchasing of a good that will help you earn money or a good that may be more valuable to you in the future than it was at the time of purchase.*

- **There is no guarantee that investments will increase in value, but most times they do**

Examples of Investments:

- Buying two pigs which will produce piglets.
- Buying an ox which will earn money plowing fields for years to come.
- Paying school fees for a child who will become independent and will take care of you in your aging days.
- Buying a plot of land in the center to build a shop. The land will be worth more in 10 years than it is now.

Client Engagement Activity

- Distribute mock shillings and two “piglets” to two clients

- Have the rest of the group members choose a side (client 1's side or client 2's side)
- Explain how the piglets are now full-grown pigs ready to produce piglets.
- Flip a coin to determine which client's pig will die
- Give the client whose pig survives 4 more "piglets"
- This is an example of the risk/reward nature of investing. Investments have varying levels of risk.

Ways to Obtain Capital Needed to Invest:

- Utilize Savings
- Sell another asset
- Take a loan from a MFI, or bank.

Examples of ways people avoid risk:

- Diversification of their risk by having multiple income sources
 - This means rather than only farming, you also own a small restaurant or shop.
- **Client Engagement Activity: Questions for Clients**
 - In what way could you diversify your risk when making an investment for a Cycle Connect bicycle?
 - Do you have any secondary sources of income?
 - What could you do if your crops don't do as well as expected to make the Cycle Connect payment?
 - How can a borrower prepare for the "hunger season" in June and July when you may also need to be paying school fees?

Module 20 Summary:

-
- Saving, budgeting and investing are all important to understand and practice for successful financial management.
 - Saving successfully means starting now, setting a savings goal for a specific amount and period of time, saving in a safe place (like on mobile money), and keeping additional emergency savings.

- Budgeting requires you to analyze what you are earning and how you are spending your money and eliminating budget killers that would prevent you from reaching your savings goals.
- Investing can help you increase your income or assets in the future, but there is a risk that you have to consider too.