SET
Skills for Employment Tanzania

Trainer Guide

Vegetable Farming

2025

Funded by:

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Embassy of Switzerland in Tanzania

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DISCLAIMER

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Swisscontact

Swisscontact works in Tanzania as a facilitator in skills development to complement government efforts in youth empowerment.

Economic, social, and academically disadvantaged youth are supported through tailor-made vocational skills development opportunities to increase their employment chances and entrepreneurship opportunities. Projects are guided by a unique youth and market-driven learning group model, which is focused on sub-sectors and jobs which have a potential to offer (self-)employment opportunities. These are agriculture/agribusiness, and other rural trades or services.

Swisscontact projects in Tanzania employ an Inclusive Markets system approach which considers the limits and opportunities of the existing vocational skills development system. Projects seeks to improve the prospects of self-employment among the youth through a sustainable and systemic contribution to improved access, relevance, and quality of vocational skills development. Since ownership is critical for sustainability, our projects apply a participatory approach which involves joint action planning with partners.

Introduction for Trainers

This training course is designed to help participants gain the skills needed to grow, harvest, and sell vegetable crops. It focuses on simple, practical, and low-cost methods that are suitable for smallholder farmers in rural and peri-urban areas of Tanzania.

The course targets young people who may have limited formal education or work experience, especially those who have not had access to skills training. It is designed to equip them with knowledge and hands-on farming experience so they can start farming vegetables for income, food security, or employment on other farms.

The course covers all stages of vegetable farming—from site selection and land preparation to planting, crop management, harvesting, and marketing. It includes training on five focus crops: leafy vegetables, okra, cucumber, African eggplant, and cabbage. Learners also receive guidance on planning, budgeting, recordkeeping, and safety.

About two-thirds of the course is practical. Training takes place in real fields or gardens using simple tools and materials that are commonly available. Trainees work in groups to grow crops from start to finish, supported by trainers and guided by the seasonal crop calendar.

This course is part of Swisscontact's commitment to helping young people improve their livelihoods through relevant, hands-on, and market-oriented training.

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Course information

Training Objectives

This training will equip participants to grow, harvest, and market vegetables using simple, practical, and affordable methods. Participants may also explore related opportunities such as:

- Supplying farm inputs (seeds, compost, tools)
- Offering labour or services to other farms
- Selling produce in local markets
- Processing or packaging vegetables for added value

Learning Outcomes

By the end of the course, the learner will be able to:

- Decide to farm vegetables with an understanding of the risks and benefits
- Select appropriate farming sites based on soil, water, and climate
- Prepare land and establish crops using correct tools and techniques
- Apply effective crop management practices including irrigation, mulching, and staking
- Protect crops by controlling pests, weeds, and diseases using safe and appropriate methods
- Grow a range of vegetables including leafy vegetables, okra, cucumber, African eggplant and cabbage
- Harvest and handle produce to maintain quality and reduce losses
- Identify market opportunities and sell produce effectively
- Plan, budget, and record all farming activities
- Apply basic safety and hygiene practices in farming operations

Training Plan

Training model:	
Practical: 80%	**Theory:** 20%
Group size	Maximum 25 trainees who work in groups.

Training location	This training may be delivered in peri-urban and rural areas.
Training venue	This training must be conducted at an existing vegetable farm in good condition. Different fields (plots) will be required to conduct the different activities in the training – e.g. growing different vegetable crops.
Course duration	This course requires 12 weeks of training being 60 days (5 days a week; 6 hours per day = 36 hours) of training which includes both classroom-based and practical training delivery. It may be offered in different ways such as full time or part time.
Trainee profile	This training is open to any participants, but the content was developed with youth with low income and education levels in mind.
Attendance	80% needed for certificate of attendance.

Course Content

Course content:	Theory time	Practical time	Total
Module 1: Introduction to vegetable farming	5	7	**12**
Module 2: Site selection	5	3.5	**8.5**
Module 3: Crop establishment	6.5	10.5	**17**
Module 4: Crop management	6	63	**69**
Module 5: Crop protection	4	3	**7**
Module 6: Harvesting	6	6	**12**
Module 7: Marketing and sales	3	1	**4**
Module 8: Leafy vegetables	7	38	**45**

Course content:	Theory time	Practical time	Total
Module 9: Okra	7.5	40	**47.5**
Module 10: Cucumber	8	46	**54**
Module 11: African Eggplant	7	35	**42**
Module 12: Cabbage	6	31	**37**
Assessment (formative and summative)	1	4	**5**
Total hours	**72**	**288**	**360**

Note: the theory time includes demonstrations and explanations of equipment, materials, etc. before doing the practical training for growing vegetables in the field.

Assessment

Optional Assessment: There may be two assessment points, being at the middle of the training (at the end of Week 6) and at the end of the training (during Week 12), consisting of both classroom and practical checkpoints:

1. **Assessment 1**: Short progress test questions (may be verbal); practical test e.g. how to check for pests and diseases; how to sow seeds using different methods).

2. **Final assessment**: during Week 12
   - **Theory**: final, short theory test questions to test knowledge and understanding, may be verbal or written
   - **Practical**: harvesting and post harvesting handling of vegetable crops.

The emphasis is on practical assessment to ensure that trainees acquire practical needed to conduct vegetable farming.

Training Programme

Guidance for trainers on crop cycles in training:

The different crop cycles and growing times for each of the crops makes the planning of this training unexpected. The programme cannot be followed from Module 1 through to Module 12 as crops need to be sown and grown in time for them to be harvested during the course of this training.

It will not be possible to start all crops at the very beginning of training because some will not be ready for harvesting during the training period. For this reason, there should already be some vegetable crops (okra and cabbage) in the field, planted by earlier trainees.

- The current trainees can use these crops to practise crop management for these crops (Modules 4 and 5: fertilising, watering, pest and disease control).
- They can then harvest these crops (Module 6).
- After harvesting, learners can clear the land and prepare it again for new planting (Module 3), and sow and look after the new, young crops which the next group of learners will continue to manage and then harvest.

Because of this, the modules do not have to be taught in order.

- For **longer crops** (cabbage and African eggplant – 12 to 16 weeks), it is practical to use existing crops already in the field, then harvest and replant during the training.
- For **shorter crops** (leafy vegetables, okra, cucumber – less than 12 weeks), trainers can guide learners to plant them at the start of training. These will then be managed and harvested during the training period.

Crop cycles: from sowing to harvesting

- Leafy vegetables: 8 – 12 weeks
- Okra: 8 – 10 weeks
- Cucumber: 8 – 12 weeks
- African eggplant: 12 – 16 weeks
- Cabbage: 12 – 16 weeks

Training Programme

The following training programme is recommended to take into consideration the crop cycles for the specific crops that are taught in this course.

Suggestion: Be flexible about timetabling and planning the lessons, keeping the field conditions and practical activities in mind. Practical *may* take place in the morning when it is cool in the fields, and theory lessons to follow towards midday and afternoon when it is too hot for farming activities.

Interactive 'theory' based lessons with product and equipment demonstrations and activities	**Practical lessons:** Demonstration and practice of conducting vegetable farming

Week	Modules: Theory lessons	Practical Application
1	**Mod 1: Introduction to vegetable farming** **Mod 2: Site Selection** **Mod 3: Crop Establishment (begin)** • Crop selection • Land preparation • Soil preparation	**Land preparation** **Soil preparation for:** leafy vegetables, okra and cucumber (start)
2	**Mod 3: Crop Establishment** (continue) **Mod 4: Crop Management:** mulching and irrigation **Mod 8: Leafy Vegetables** (soil prep and sowing) **Mod 9: Okra** (soil prep and sowing) **Mod 10: Cucumber** (soil prep and sowing)	**Soil preparation for**: leafy vegetables, okra and cucumber (complete) **Sowing**: leafy vegetables, okra and cucumber **Mulching** **Irrigation/watering**
3	**Mod 4: Crop Management:** • Plant nutrition and fertilizers • Soil Management • Waste Management **Mod 5: Crop Protection:** (start) • Weeding • Pest control	**Crop management and protection activities**: all crops: • New crops: leafy vegetables, okra, cucumber • Existing crops: African eggplant, cabbage
4	**Mod 5: Crop Protection**: (continue) • Weeding • Pest control (spraying) • Diseases	**Crop management and protection activities**: all crops: • New crops: leafy vegetables, okra, cucumber

Week	Modules: Theory lessons	Practical Application
	• Application to all crops **Mod 8: Leafy veg** (intro, varieties, growing conditions, specific protection)	• Existing crops: African eggplant, cabbage
5	**Mod 4: Crop Management:** • Staking and pruning **Mod 9: Okra** (intro, varieties, growing conditions, specific protection)	**Crop management and protection activities**: all crops: • New crops: leafy vegetables, okra, cucumber • Existing crops: African eggplant, cabbage **Staking and pruning**: cucumber
6	**Mod 10: Cucumber** (intro, varieties, growing conditions, specific protection) **Mod 11: African eggplant** (intro, varieties, growing conditions, specific protection) **Assessment**: theory concepts to date	**Crop management and protection activities**: all crops: • New crops: leafy vegetables, okra, cucumber • Existing crops: African eggplant, cabbage **Staking and pruning**: cucumber **Assessment**: practical on crop management and protection activities
7	**Mod 12: Cabbage** (intro, varieties, growing conditions, specific protection) **Mod 7: Marketing and Sales**	**Crop management and protection activities**: all crops: • New crops: leafy vegetables, okra, cucumber • Existing crops: African eggplant, cabbage **Marketing and Sales**
8	**Module 6: Harvesting and Post Harvesting** **Mod 8: Leafy vegetables**: harvesting & transport	**Harvesting**: leafy vegetables

Week	Modules: Theory lessons	Practical Application
9	**Mod 8: Okra:** harvesting & transport **Mod 11: African eggplant**: harvesting & transport	**Harvesting and post-harvest procedures; transport:** leafy veg, okra, African eggplant
10	**Mod 12: Cabbage:** harvesting & transport	**Harvesting and post-harvest procedures; transport:** leafy veg, okra, African eggplant, cabbage
11	**Mod 10: Cucumber:** harvesting and transport **Mod 12: Cabbage:** land and soil prep and sowing	**Harvesting and post-harvest procedures; transport:** leafy veg, okra, cucumber, African eggplant **Land and soil preparation and sowing**: Cabbage
12	**Mod 11: African eggplant:** land and soil prep and sowing **Final Assessment:** theory	**Harvesting and post-harvest procedures; transport:** okra, cucumber **Land and soil preparation and sowing**: African eggplant **Final assessment:** practical

Note: the time allocation for each topic in the training instructions below includes all theory time, as well as the practical time that that learners will spend in the fields conducting the different activities for vegetable farming. Smaller times are indicated in minutes, and larger times are indicated in hours.

Module 1: Introduction to Vegetable Farming

Topic	Time	Training Instructions	Resources
1.1 The business of vegetable farming	30 min	Ask: "*Why do you think people grow vegetables?*" Explain that *vegetable farming means growing vegetables for food or for selling*. vegetables can be grown in small gardens, in big fields, or on farms. **Activity 1: Vegetable Farming Activities** 1. Write the seven steps on strips of paper (or print/copy from Training Resources section): • Site selection • Land preparation • Sowing and planting • Looking after crops • Harvesting • Post-harvest handling • Getting crops to market 2. Make 5 or 6 sets of cards. 3. Shuffle each set so the order is mixed. 4. Divide the class into small groups (4–6 learners each).	Small cards or pieces of paper with each farming step written (one step per card) in the Training Resources section. Flip chart and markers.

Topic	Time	Training Instructions	Resources
		5. Give each group one shuffled set of farming steps. 6. Groups must **work together** to arrange the strips into the correct sequence of farming activities. 7. Once they have finished, ask one group to present their order of activities to the rest of the class and see if everyone agrees. 8. Facilitate a discussion until everyone agrees the correct order of steps.	
1.2 Opportunities and challenges	30 min	**Activity 2: Brainstorm** 1. Ask learners: "*What good things can happen if someone starts vegetable farming?*" 2. Write their answers on the board under the heading "Opportunities." 3. Ask learners: "*What problems do farmers face when growing vegetables?*" 4. Write their answers on the board under "Challenges." **Explain the four main opportunities** • **Income generation** – farmers sell vegetables to pay for food, school, or savings. • **Food for family and community** – home-grown vegetables are fresh and healthy.	Flip chart and markers.

Topic	Time	Training Instructions	Resources
		• **Self-employment or jobs** – people can start their own farm or work for others. • **Employment for others** – bigger farms give jobs to people in the community. **Explain crop risks** • **Natural disasters** – floods, drought, hail, and fire can destroy crops. • **Pests** – insects or animals eat vegetables. • **Diseases** – crops get infections, especially in warm or wet conditions. **Explain market challenges** • **Price fluctuations** – prices fall when too many farmers grow the same crop. • **Changes in demand** – buyers may stop wanting certain vegetables. • **Post-harvest losses** – vegetables spoil quickly if not stored or sold fast. **Explain physical challenges** • Farming takes **hard work** – digging, watering, weeding, harvesting, and carrying produce. **Key takeaway**: Vegetable farming has many opportunities, but they must also know the challenges so they can prepare for them.	

Topic	Time	Training Instructions	Resources

1.3 Market demand and seasonality	30 min	Ask learners: "*Where do people in your community go to buy vegetables?*"
		Let them name places (market, shops, roadside stalls/sellers, etc.).
		
		Not every market wants the same thing." **Explain with examples:**
		• **Local market** – small amounts, daily demand, fresh but not strict about size.
		• **Hotels/restaurants** – want clean, same-sized, high-quality vegetables.
		• **Big city/export** – need large quantities, carefully packed, with special size/grade.
		
		Activity 3: Group Activity: Market Research
		
		1. Divide learners into groups.
		2. Each group chooses a market type (local, hotel, or trader).
		3. They must discuss and list:
		  • What vegetables the market wants.
		  • How the farmer can find out the demand.
		4. Groups present their findings.	

Topic	Time	Training Instructions	Resources
		Emphasise: *"If farmers know what the market wants, they will sell easily and avoid losses."*	
1.4 Farming inputs	60 min	Begin with a simple question: *"What do farmers need before they can grow vegetables?"* Write learners' answers on the board (seeds, tools, water, people, etc.). Explain: *"These are called farming inputs. Inputs are the things needed before and during farming. All inputs cost money, so a good farmer must plan and keep track of them."* Discuss each type of input with examples.	Flipchart and markers
1.5 Tools and Equipment	120 min	Ask learners: "What tools do people in your community use when farming or gardening?" Let them name things like hoes, machetes, wheelbarrows, watering cans, or tractors. Explain: Farming needs tools and equipment. • *Tools* are usually small and used by hand. Example: hoe, rake, machete. • *Equipment* includes larger items or machines, sometimes needing fuel, water, or electricity. Example: tractor, pump, knapsack sprayer.	A range of about 15 tools, equipment and resources (e.g. polytube) that is used in vegetable farming Numbers on slips of paper Paper and pens Small prize for the winner/s

Topic	Time	Training Instructions	Resources
		Activity 4: Identification Test: Vegetable Farming Tools and Equipment 1. On a table or clean floor, lay out a selection of tools, equipment, and resources used in vegetable farming (e.g. hoe, watering can, knapsack sprayer, dibber, seed tray, planting line, irrigation equipment e.g. sprinkler, water connectors). 2. Put a small number next to each item. 3. Give each learner a sheet of paper and ask them to write numbers down the left margin. 4. Instruct them to identify each of the items laid out and write both its name and its use on their sheet of paper. 5. Give them 10 minutes to complete this task. 6. After 10 minutes, start with number 1 and ask learners what they think the item is. 7. Make it fun like a TV quiz. If they identify the tool correctly, they get 1 point; if they also know its use in vegetable farming, they get another point. 8. Go around asking and explaining, showing what each item is and how it is used. 9. Allow learners to see, touch, and handle the items to become familiar with them. 10. Learners must give themselves 1 point for each correct answer.	

Topic	Time	Training Instructions	Resources
		11. At the end, ask who got the highest number of points and give them a small prize, such as some wrapped sweets.	
1.6 Planning	90 min	Explain that a plan helps the farmer know what to plant, when to plant, when to harvest, and how to avoid planting everything at once. Discuss the principles to consider when planning vegetable production for a year. Explain: A crop calendar is a detailed plan for one crop, from planting to selling. It shows: • The stages of crop growth • The activities to do at each stage • The tools and inputs needed **Activity 5: Group activity –Year Planning** 1. Draw a year plan on the board/flipchart – and demonstrate how to fill it in – including preparation activities and main farming activities. 2. **Ask learners: "**When you grow a crop like amaranth, do you know all the steps from planting to selling?" 3. Let them list a few steps (prepare land, sow seeds, water, weed, harvest, sell).	Flipchart and markers Year plan template – in Training Resources section

Topic	Time	Training Instructions	Resources
		Emphasise: "A crop calendar helps farmers know exactly what to do each week or month, so nothing is forgotten." Explain that they will plan a crop calendar for each of the vegetables they will learn about on this training programme.	
1.7 Budgeting	30 min	Ask learners: "What things do farmers spend money on when growing vegetables?" Let learners list seeds, fertiliser, labour, water, transport, etc. Explain: Every activity in the crop calendar needs inputs, and each input has a cost. Farmers must: • List all the inputs needed. • Find the price of each input. • Write down how many are needed. • Add all costs together to make the total budget. **Activity 6: Group activity – Build a Budget** 1. Divide learners into groups. 2. Provide costs and quantities of different farming inputs, and copies of the budget template. 3. Each group fills in the budget using the information provided. 4. Groups share their total budget with the class.	Budgeting sheets from Training Resources section

Topic	Time	Training Instructions	Resources
		Explain that they also have to **manage and track the budget** – they must record exactly what they have spent under each budget item to see if it is more or less than they had planned on. If there are differences, these are called **variances**. Give them some examples of variances and explain how these affect crop costs and product prices.	
1.8 Recordkeeping	90 min	Explain the importance of keeping good records when farming with vegetables Ask learners: "What things should farmers keep record of?" Let them suggest (costs, sales, harvest amounts, workers/labour, etc.). Explain the four main types of farm records: 1. Financial and business 2. Crop production 3. Post-harvest and quality 4. Sales The different records will be covered in later modules	

<table>
<tr><th>Topic</th><th>Time</th><th>Training Instructions</th><th>Resources</th></tr>
<tr>
<td>1.9 Money management</td>
<td>150 min</td>
<td>
Explain the difference between income and expenses is either a profit or a loss and without records, it is impossible to know if the farm is making money.

Ask learners: “What things do farmers usually spend money on when growing crops?”
Let learners list items (seeds, fertiliser, labour, transport, land).

Activity 7: Group Exercise – Tracking Costs and Income

1. Trainer demonstration:
o Draw a simple cash record with two columns: Expenditure (fertiliser, polybags, labour, water, tools) and Income (vegetable sales).
o Give an example: “Spent 50,000 TZS on seeds; sold 200 cabbages at 1,000 TZS each = 200,000 TZS income.”
o Demonstrate calculating profit: Income – Expenditure = Profit.
o Use the following template for demonstrating these simple principles

<table>
<tr><th>Date</th><th>Income</th><th>Amount</th><th>Date</th><th>Expense</th><th>Amount</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Flipchart and markers

Real examples of costs</td>
</tr>
</table>

Topic	Time	Training Instructions	Resources

	Total Income			**Total Expenses**	
	Less total expenses				
	Profit/Loss				

- Prepare some additional 'income' and 'expenses' (realistic figures) for the learner practice activity.

2. **Learner practice:**
   - In groups, learners receive a short scenario with sample vegetable farm costs and sales.
   - They list expenses, record income, and calculate profit or loss.
   - Groups also suggest how to set a selling price (considering vegetable size, type, cost of production, and market demand).

Topic	Time	Training Instructions	Resources
		3. **Discussion:** o Groups present results. Trainer asks: *Why is knowing profit or loss important for a vegetable farmer?* o Reinforce that good records help in making decisions about pricing, scaling up, or cutting unnecessary costs. 4. **Key takeaway:** Money management ensures farmers keep track of **spending, income, and profits**, allowing them to set fair prices and sustain the business.	
1.10 Farming health and safety	90 min	Discuss health and safety during normal day to day vegetable farming activities. **Activity 8: Show and Tell: PPE** 1. Show and explain the different items of PPE that must be used in vegetable farming. 2. Use a volunteer learner and dress them up with the PPE, demonstrating how each item must be worn or used. Explain that accidents may happening during farming activities, and that they must be prepared to deal with these and have a first aid kit available when needed in an emergency.	**PPE items:** • Gloves • Boots • Masks • Overalls or aprons • Eye protection (goggles)

Topic	Time	Training Instructions	Resources
		Activity 9: Demonstration: First Aid Kit 1. Before the training, assemble the contents of a first aid kit to create the example you will use in the demo. 2. Buy individual items at a pharmacy and pack them into a plastic container with a lid. Mark it clearly: **First Aid Kit** 3. Contents should include: o **Cleaning & disinfection:** Antiseptic (Savlon, Dettol), alcohol swabs/cotton wool, eye bath. o **Dressings & bandages:** Sterile gauze, plasters (different sizes and shapes), crepe bandage, triangular bandage, medical tape. o **Tools:** Scissors, tweezers, safety pins. o **Medication:** pain killers e.g. paracetamol o **Protection:** Disposable gloves, face mask. 4. Using a properly stocked first aid kit, unpack it and show all the items and how to use them. 5. Emphasise how important it is to have a kit like this in an emergency. 6. They are not expensive or difficult to put together and are critical in an emergency. 7. Explain the need to regularly check and restock the kit.	Properly stocked first aid kit

Module 2: Site Selection

Topic	Time	Training Instructions	Resources
2.1 Soil	60 min	Present a lesson on soil (structure, types of soil, soil history and crop rotation) and include this activity as part of demonstration so that learners can observe, touch, and compare different soil types and organic media. **Activity 10: Soil Demonstration** **1. Soil demonstration** o Show learners each soil type (sand, clay, loam). o Show them how to test the soil type by making it into a ball in their hands – each one has different characteristics. o Ask them to touch, rub between fingers, and note characteristics: o Sandy: drains quickly, gritty, no shape. o Clay: sticky, holds water, can be rolled into a ball. o Loam: crumbly, dark, holds some water, best for vegetable plants. • Discuss: *Which soil type is best for vegetable farm media? Why?* **2. Organic components** o Show well-rotted compost and manure samples and explain their contribution to soil fertility and structure.	Samples of different soil types: • Sand • Clay • Loam Samples of organic components: compost and manure.

Topic	Time	Training Instructions	Resources
	60 min	Ask learners: "*If soil loses nutrients or is washed away, can farmers still get good harvests?*" Explain: Healthy soil = strong crops, good yields, and sustainable farming. Poor soil = weak crops and low harvests. **Activity 11: Observation: Soil Management and Conditions** 1. Take learners outside to a garden or nearby plot. 2. Ask them to look for signs of: • Erosion. • Fertility (dark soil, organic matter). • Soil structure (hard vs crumbly). • Rotation history (same crop repeated or different crops). 3. Each group notes one problem and one good practice they see. 4. Trainer notes observations on a flipchart	Garden or nearby plot Pen and paper Flipchart and markers
2.2 Water	45 min	**Water sources**: explain the potential sources of water, and how vegetable farmers need to know which one to use. Discuss legal permissions for water use **Activity 12: Water Source Mapping**	Flipchart and markers, or board and chalk

Topic	Time	Training Instructions	Resources
		1. Draw a simple map of a community on the board with a borehole, river, tap, and dam. 2. Ask learners: *If your farm is here (point to a spot), which water source would you use? Why?* 3. Discuss pros and cons (distance, cost, reliability, water quality).	
	45 min	**Water quality:** discuss the importance of water quality when sourcing and using water for a vegetable farm. Use the following activity to demonstrate how to physically observe water quality: **Activity 13: Water Quality Test: Simple Observation** 1. Fill three jars or clear plastic bottles with: o Clean clear water o Murky water with soil/sand o Smelly or coloured water (e.g. add leaves/organic matter/manure). 2. Ask learners to observe colour, smell, and clarity. **3.** Discuss why clear, clean water is needed for healthy vegetable plants. **4.** Explain that real water testing (pH, contamination) is possible, but observation is the first step.	3 glass jars/plastic bottles Water, Soil/sand Leaves organic matter or manure

Topic	Time	Training Instructions	Resources
2.3 Topography	150 min	Explain that **topography** means the physical features of the land—shape, slope, drainage, rocks, and vegetation. Discuss and explain each of these elements with relation to vegetable farming. **Activity 14: Practical Group Task** 1. Divide learners into small groups. 2. Each group inspects a small piece of land near the training site. 3. They answer these questions on paper: o Is the land steep, gentle, or flat? o Does water drain well? o Are there rocks or trees in the way? o What kind of plants are growing naturally? 4. Each group presents their findings and if they think the land is suitable for vegetable farming. 5. Trainer gives feedback	Pens and paper Access to some land near the training venue.
2.4 Climate and seasons	120 min	Guide learners through the main climate factors and their effects on farming: rainfall, temperatures, seasons, sunlight, wind and humidity. **Activity 15: Effect of Climate and Seasons on Crops**	Flipchart and markers

Topic	Time	Training Instructions	Resources
		1. Discussion starter • Ask learners: "*What is the difference between the wet season and the dry season here?*" • Write answers on the board or flipchart (rainfall, heat, crop growth, pests, etc.). **2. Group work** • Divide learners into small groups. • Give each group one topic: rainfall, temperature, sunlight, wind, or humidity. • Ask them to think of: o How it helps crops grow o How it can harm crops if too much or too little o Example from their own village **3. Report back** • Each group shares 2–3 points. Trainer adds missing key points, e.g.: o Rainfall too heavy = floods, too little = drought o Too much humidity = fungal disease o Strong wind = plants damaged o Sunlight = plants make food, but too much sun = wilting	

Topic	Time	Training Instructions	Resources
2.5 Access and communication	30 min	Explain the value of having the following when farming: • road access – bringing inputs in, and taking produce out • access to communication networks– contacting suppliers, markets, making sales, etc. **Activity 16: Practical Group Task** 1. Take learners outside to observe the access around the training site. 2. In groups, ask them to answer: o How would inputs reach this farm? o How would harvested vegetables leave? o What problems could happen during the rainy season? o Is there phone signal here? How does it help? 3. Groups present their answers to the class.	

Module 3: Crop Establishment

Topic	Time	Training Instructions	Resources
3.1 Crop Selection	90 min	Explain that **crop selection** is one of the most important decisions in farming because it affects profit, success, or failure. Discuss the various elements that contribute to the selection of particular crops. **Activity 17a: Case studies: Crop Selection** 1. Divide learners into groups. Each group receives a sheet of short case studies and copy of the Cheat Sheet. 2. Groups decide: "*Which crop should each farmer grow and why?*" 3. Each group presents their decision. **Suggested Answers**: • **Case study 1: Mariamu**: *Suggested crop:* **Leafy vegetables**. They grow well in sandy soils with enough water, are quick to mature, and do not require expensive inputs. The nearby market ensures she can sell them fresh and make quick income. • **Case study 2: Thadei:** *Suggested crop:* **African eggplant**. It tolerates heavier soils better than delicate crops, has a longer shelf life, and is less likely to spoil before reaching the market, even if transport is slow. • **Case study 3: Asha:** *Suggested crop:* **Okra**. It is hardy, grows well with limited inputs, and produces steadily over time, giving the family	Printed sheets of case studies and 'Cheat Sheet' from Training Resources section.

Topic	Time	Training Instructions	Resources
		continuous harvests. Seeds are easy to find locally, and the crop responds well to regular hand labour. • **Case study 4: Musa:** *Suggested crop:* **Cabbage**. With proper pest and disease control, cabbage can do well in high rainfall areas. It has strong market demand and can fetch good prices. Musa must focus on resistant varieties and good management to reduce losses.	

Case study 1: Mariamu

Mariamu has a small farm close to town. The soil is very light and sandy, and her land gets plenty of sunshine. She has easy access to the market where customers are looking for fresh produce every day. However, she does not have much money for fertiliser or pesticides. She wants to choose a crop that will grow well on her soil and sell quickly to local buyers.

Case study 2: Thadei

Thadei farms on heavy clay soil that often holds water for long periods after rain. His land is far from the main road, and transport to town is difficult. He has some experience growing vegetables but does not want to risk crops that spoil quickly. He is thinking carefully about which crop could survive his soil conditions and still be worth the effort of taking to market.

Case study 3: Asha

Asha and her family have just started farming. They do not have much money to buy inputs, but they can provide plenty of family labour. They want a crop that is not too expensive to manage, can be planted with seeds available locally, and still brings some income. They are also thinking about how long the crop will take before it is ready to sell.

Case study 4: Musa

Musa farms in a valley where the rainfall is high and pests are a common problem. He has access to water and labour, but in the past he has lost crops to disease. The nearest market is not far, and buyers are willing to pay well for good-quality vegetables. Musa needs to decide which crop will give him the best chance of a healthy harvest and steady income.

Topic	Time	Training Instructions	Resources
3.2 Land preparation	240 min	Explain that land preparation means getting the soil ready so crops can grow well. Discus the reasons for and methods of soil conservation and protecting soil structure. Emphasise the goals of land preparation: loosen the soil, reduce weeds and pests, improve water flow, and make planting easier. **Activity 18: Demonstration and Practical** 1. Take the group to a demo plot and demonstrate the different elements of land preparation. 2. Divide learners into small groups. 3. Allocate each group a section of land to prepare with the appropriate tools. 4. Oversee their work and guide them on techniques and the correct outcome from their efforts.	Demo plot Clearing and tilling tools and equipment. Sticks, string, and a field.

Topic	Time	Training Instructions	Resources
		Note: this activity may be conducted over some time e.g. a few days if there is a lot of land preparation to do.	

3.3 Soil preparation	240 min	Explain that soil preparation makes the soil healthy, soft, and balanced so that vegetables can grow well.
		
		• Healthy soil = good structure, right nutrients, balanced water.
		• Preparation steps: test soil (if possible), add compost/manure, plan watering, ensure drainage, and improve poor soils.
		
		Activity 19: Soil preparation for vegetable farming
		
		Note to trainer: This activity comes after land preparation. Do not repeat land clearing, tilling, or levelling. The focus here is on improving the soil's fertility, structure, and water balance.
		
		1. **Demonstration – adding compost or manure**
		  ○ Show learners how to spread well-rotted manure or compost evenly over a prepared plot.
		  ○ Demonstrate mixing it lightly into the topsoil with a hoe or fork.
			Tools
			• Hoes
			• Forks or spades
			• Buckets or basins
			• Watering cans
			• Small hand tools (trowels)
			
			Materials
			• Well-rotted manure or compost
			• Sand (for improving clay soil)
			• Agricultural lime (for acidic soil, if available)

Topic	Time	Training Instructions	Resources
		○ Explain that compost adds nutrients, improves soil structure, and helps soil hold water. 2. **Improving soil condition** ○ Discuss what to do if soil has problems. For example, add sand to clay soil for drainage, add extra compost to sandy soil to hold water, or add agricultural lime to acidic soils. ○ If possible, show samples of these amendments. 3. **Water planning and drainage check** ○ Walk around the plot with learners. Point out low spots where water could collect and demonstrate digging small drainage channels. ○ Also show how simple irrigation (watering cans, buckets, or drip lines if available) should be arranged before planting. 4. **Learner practice** ○ Divide learners into small groups. Give each group a section of prepared land. ○ Ask them to spread compost or manure, suggest what improvements might be needed for that soil, and check how water will drain from the plot. 5. **Review and discussion** ○ Bring the groups together to compare their work.	• Water (for testing drainage or irrigation setup)

Topic	Time	Training Instructions	Resources
		○ Ask questions such as: “Why do we add manure or compost? What happens if soil is too sandy or too clayey? Why is drainage important?” ○ Summarise that healthy, improved soil supports strong root growth, provides nutrients, and balances water for good vegetable harvests.	
3.4 Sowing and planting	360 min	Explain the concept and basic principles of sowing seeds, then deliver the activity so that learners understand the basic principles of sowing, compare direct vs indirect methods, and practise sowing in both containers and seedbeds. **Activity 20: Demonstration and Practice: Sowing seeds** 1. **Trainer demonstration: General principles** • Show learners a large seed (bean) and a small seed (tomato). • Ask: “Should these be planted the same way?” → Discuss differences. • Demonstrate the rule of thumb: plant at a depth of 2–3 times the size of the seed. • Show how container size and planting holes change for large vs small seeds. 2. **Methods of sowing demo**	**Tools** • Hoes • Rakes • Dibbers or stick) • Watering cans • Rope or string (• Small containers, tins, or trays (for sowing in containers) **Materials** • Different seed types (large seeds e.g. beans; small seeds

Topic	Time	Training Instructions	Resources
		• **Seed trays:** Demonstrate sowing small seeds (e.g. cabbage) into trays, covering lightly. • **Line sowing (drilling):** Using a stick, make shallow drills in a seedbed, sow seeds in lines, then cover. • **Dibbing:** Show how to make a hole with a dibber and drop in a large seed (e.g. bean). • **Broadcasting:** Demonstrate scattering amaranth or mustard seeds evenly. Show how mixing fine seeds with sand helps spread them better. 3. **Planting depth and spacing** • Demonstrate measuring the correct depth for large and small seeds. • Use a rope or stick to guide even row spacing. • Ask learners: "What happens if seeds are planted too deep or too close together?" 4. **Watering and mulching** • Demonstrate watering immediately after sowing so that seeds have enough moisture to germinate. • Explain and show how to keep soil moist but not waterlogged. • Demonstrate applying a thin mulch (e.g. dry grass, banana leaves, or light compost cover) over seedbeds. • Explain that mulch reduces water loss, protects seeds from heavy rain, and helps control weeds.	e.g. cabbage, tomato, amaranth) • Seed trays or pots • Prepared soil mix (soil, sand, compost/ manure) for containers • Dry grass, banana leaves, or light compost (for mulching seedbeds) • Clean water

Topic	Time	Training Instructions	Resources
		5. **Learner practice** • Divide learners into small groups and give each group a seed type (e.g. beans, cabbage, amaranth). • Ask them to practise two methods of sowing: one in a container (tray or pot) and one in a seedbed. • Each group should measure depth, keep correct spacing, water their seeds, and apply a light mulch. • Trainer observes and corrects mistakes, ensuring learners handle seeds carefully and follow the principles demonstrated. 6. **Transplanting** • Show vegetable plants (10–15 cm tall) ready for transplanting. • Demonstrate: water before and after transplanting, lift vegetable plants gently, plant at the correct depth, and firm soil around roots. • Explain why transplanting is best in early morning or late afternoon.	
3.5 Gap filling and replanting	90 min	Explain that empty spaces = fewer crops, lower yield, wasted water, fertiliser, and labour. Introduce gap filling as replacing missing or dead plants to make the field full and productive. **Activity 21: Demonstration and Practice: Gap Filling**	**Tools** • Hoes • Small hand tools or dibbers • Watering cans

Topic	Time	Training Instructions	Resources
		1. **Trainer demonstration: Inspecting the field** • Take learners to a seedbed or field 3–14 days after sowing. • Show how to walk along the rows and look for gaps where seeds have not germinated or where vegetable plants have died. • Explain that gaps reduce yield because empty spaces are wasted and weeds can grow there. 2. **Identifying gaps** • Demonstrate how to mark the gaps with a stick or small stone so they can be replanted. • Ask learners: "Why do you think these gaps appeared?" → Discuss possible reasons (poor germination, pests, water stress). 3. **Resowing seeds** • In rows with missing plants, demonstrate sowing new seeds at the correct depth and spacing. • Show careful covering and light watering. • Explain that the new plants may be slightly behind the others but will still help improve overall yield. 4. **Replanting vegetable plants** • Demonstrate how to lift healthy extra vegetable plants from a vegetable farm bed or crowded area.	• Sticks or small markers **Materials** • Seeds • Healthy vegetable plants • Water

Topic	Time	Training Instructions	Resources
		• Show how to handle vegetable plants gently, keep soil on their roots, and replant them in the marked gaps. • Water immediately after replanting and firm the soil around the roots. 5. **Learner practice** • Divide learners into small groups and assign each group a row or section of the plot. • Ask them to inspect the plants, mark the gaps, and either resow seeds or replant vegetable plants to fill those spaces. • Trainer observes and corrects, checking that depth, spacing, and watering are done correctly. 6. **Review and discussion** • Gather the learners to compare their work. • Ask: “Which method was easier — resowing or replanting?” “What can farmers do to reduce gaps in the first place?” • Summarise that filling gaps quickly ensures full crop stands, better weed control, and higher yields.	

Module 4: Crop Management

Topic	Time	Training Instructions	Resources
4.1 Plant nutrition and fertilisers	180 min	**Nutrition concept**: Explain the need for nutrients for all living things and how this relates to plants. Use the following activity to illustrate the concept. **Activity 22: Illustration of Macro and Micro-nutrients** 1. Ask learners what they typically eat at one meal 2. From their answers, draw a plate of traditional food on the board/flipchart. Use colours for different items. Make sure to draw in a starch (e.g. ugali or rice), a protein (e.g. meat, chicken or fish) and side/veg dishes and condiments (e.g. chili). 3. Explain that for people, we need to eat a variety of foods in a meal, in different quantities, to get the nutrition we need for energy and for general health. 4. Explain that some nutrients are needed in large quantities – like the starch that forms a big part of the plate, and others are needed in smaller quantities – like the side dishes. These are equivalent to macro (big) and micro (small) nutrients – both of which are needed in a healthy diet. 5. Explain the concept of macro and micro-nutrients, and how this relates to plant nutrition.	Flipchart and markers (different colours)

Topic	Time	Training Instructions	Resources
		6. Using another colour, write NPK on the starch and meat to indicate these are the equivalent of macronutrients for plants. Indicate the rest are micro-nutrients and explain what these are and what they do. Give a short lesson on what each of the macro and micro-nutrients contribute to plants, and what happens if plants do not get these nutrients (deficiency diseases and symptoms).	
	240 min	**Fertilisers**: explain what fertilisers are and the types of fertilisers: organic and inorganic. **Activity 23: Show and Tell: Organic vs Inorganic Fertiliser** 1. Bring samples of chicken manure or compost (organic) and a small bag of NPK or Urea (inorganic). 2. Present them all at a main table so they can be seen by everyone in the group. 3. Explain each one and pass them around so learners can see and smell the difference. 4. Ask: *Which one is cheaper? Which one is faster acting? Which one lasts longer in the soil?* Summarise: organics = slow release, improve soil; inorganics = quick action, more precise.	Samples of organic and inorganic fertilisers: manure, compost, NPK, Urea

Topic	Time	Training Instructions	Resources
	480 min	Fertiliser application: explain that there are different ways to apply fertilisers to plants/ vegetable plants, and the principles and pros and cons of each. Demonstrate this with the following activity. **Activity 24: Demonstration: Fertiliser Application** 1. In the field, show **granular application**: sprinkle a tiny, measured amount of fertiliser on the soil around a seedling or vegetable plant (avoid touching stem/roots). 2. Show **foliar application**: spray water onto a leaf with a hand sprayer (use plain water in training to demonstrate). 3. Demonstrate how to use organic fertiliser (manure and compost). Discuss advantages and risks of each.	Small sample of granular fertiliser Water sprayer Sample of manure and compost
	480 min	**Timing and dosage**: discuss when to apply fertiliser, and how much to apply. **Activity 25: Application Exercise** 1. On the board, write three examples – do not add the writing in brackets – just the fertiliser name: • Chicken manure (→ before watering)	Flipchart and markers

Topic	Time	Training Instructions	Resources
		• Urea (→ after watering). • NPK (→ after watering). 2. For each of the examples, ask learners when the fertiliser should be applied in relation to watering the vegetable crop. The answers are in the brackets next to each example above. Show how overuse can "burn" plants (draw a vegetable plant wilting with too much fertiliser).	
	180 min	**Activity 26: Observation Practice** 1. Give learners pictures (or simple drawings) of vegetable plants showing nutrient deficiency (yellow leaves = lack of N, purple/weak roots = lack of P, leaf edge burn = lack of K). 2. Ask: *What nutrient is missing?* 3. Emphasise: fertilising frequency should be based on daily checking in the field and the schedule (e.g. 2.5 g per plant after 21 days, then every 4 weeks).	Pictures or drawings of vegetable plants with nutrition deficiencies, or actual samples from a vegetable farm
4.2 Irrigation	1560 min (26hrs)	Vegetables need regular, balanced watering — not too little and not too much. Explain five common methods: watering can, bucket, drip irrigation, sprinklers, and surface canals/furrows and discuss the advantages and disadvantages of each.	Flipchart and markers. Watering cans Field plots for practice

Topic	Time	Training Instructions	Resources
		Activity 27: Irrigation 1. Divide learners into small groups (3–5 per group). 2. Each group should: • Choose one irrigation method they could use. • List one advantage of using it (e.g. cheap, easy, saves water). • List one challenge (e.g. expensive, labour-intensive, needs maintenance). 3. Each group presents their chosen method, the advantage, and the challenge. 4. Trainer notes key points on a board or flipchart under two columns: *Advantages* and *Challenges*. Practical: take learners to the field and demonstrate irrigation methods. Learners will practice irrigating the vegetable fields throughout the training programme.	
4.3 Mulching	390 min	Explain the concept and benefits of mulching, then run the activity so that learners understand the purpose of mulching, different mulch materials, and when to apply mulch in a vegetable farm.	Seedbeds – 1 mulched, 1 not mulched

Topic	Time	Training Instructions	Resources

		Activity 28: Demonstration and Practice: Mulching
		
		1. Trainer Demonstration
		• Show one uncovered seedbed and one mulched with dry grass.
		• Water both and ask learners to observe:
		  ○ Water on uncovered soil runs off or splashes.
		  ○ Water on mulched soil soaks in gently and keeps soil moist.
		• Explain functions of mulch:
		  ○ Keeps moisture in soil.
		  ○ Protects vegetable plants from heavy rain, sun, or weeds.
		  ○ Reduces soil temperature extremes.
		2. Group Practice
		• Divide learners into small groups.
		• Each group applies mulch to a small part of a bed or tray using dry grass.
		• Show plastic sheeting as another option but explain it is less common and can heat soil too much if not used carefully.
		3. Discussion
		• Ask: *When should mulch be applied?*
		  ○ After sowing seeds (light cover to protect).
			Dry grass, leaves or other mulch materials
			
			Watering can with water
			
			Plastic mulching sheet

Topic	Time	Training Instructions	Resources
		○ After transplanting vegetable plants (to reduce stress). ○ During the growing phase of vegetable to keep moisture in the ground around their roots, and to inhibit weed growth. • Ask learners which materials are available locally for mulching.	
4.4 Staking and pruning	240 min	Explain the reasons why some vegetables are staked and pruned, and how this is done. **Activity 29: Demonstration and Practice: Staking and Pruning** 1. Demonstrate staking and pruning techniques with the correct equipment, materials and plants. 2. Divide learners into groups. Each group receives: • A few vegetable plants that require staking. • Stakes and tying material. • Scissors or knives for pruning. 3. Tasks: • Stake each plant correctly. • Identify and prune unwanted suckers and damaged leaves. • Water plants after completing the task.	Vegetable plants, stakes and tying material, scissors or knives for pruning.

Topic	Time	Training Instructions	Resources
4.5 Waste Management	390 min	• Ask: "What kinds of waste do you find on a vegetable farm?" • Write answers up on the board/flipchart answers (e.g. weeds, plastic bags, fertiliser sacks, chemical containers, spoiled vegetables, old sticks, etc.). • Explain: Good waste management keeps the farm clean, protects water and air, improves soil, and prevents sickness. **Activity 30: Demonstration and Practice – Waste management** 1. **Group sorting activity** • Give learners a mix of waste items (real items or picture cards). Examples: ○ Organic waste: weeds, spoiled vegetables, stalks, leaves. ○ Reusable waste: sacks, ropes, wooden stakes. ○ Hazardous waste: fertiliser bags, pesticide bottles. • In groups, learners sort the items into categories: **compost**, **reuse/recycle**, or **safe disposal**. 2. **Trainer demonstration – composting** • Show learners a compost pile or pit (or describe if not available). • Demonstrate how organic waste (leaves, stalks, vegetable remains) is layered to make compost.	Flipchart and markers Waste items found on a vegetable farm e.g. fertiliser bags (real or picture cards) Compost pile or pit Examples of waste that cannot be composted

Topic	Time	Training Instructions	Resources
		• Explain that compost adds nutrients back into the soil and reduces waste. 3. **Safe disposal discussion** • Show examples of waste that cannot be composted, such as fertiliser bags or chemical containers. • Explain why these must not be burned in the open field or left on the soil. • Demonstrate or explain safe disposal methods, e.g. collection for recycling, return to agro-dealers, or safe burial away from water sources. 4. **Learner practice** • Divide learners into small groups. • Each group takes a pile of mixed waste and decides what should be composted, reused, or disposed of safely. • Groups explain their decisions. Trainer corrects and adds missing points. 5. **Review and summary** • Bring learners together and ask: "Why is it important to separate waste? How does composting help the farm? What is the danger of throwing chemical containers in the field?" • Summarise: Separate waste, compost organics, and dispose of plastics/chemicals safely to protect crops, people, and the environment.	

Module 5: Crop Protection

Topic	Time	Training Instructions	Resources
5.1 Weed control	120 min	Define weeds and explain: weeds compete for water, nutrients, and sunlight, reduce yield, hide pests, and make harvesting harder. **Activity 31: Show and Tell: Weeds** **Show and tell:** 1. Bring simple pictures or real examples of weeds (e.g. nut grass, blackjack, pigweed, star grass). Include samples pulled from a nearby plot if possible. 2. Ask learners: "*What do you see? Is this a crop or a weed? Why?*" 3. Define weeds simply: *Any unwanted plant that grows among crops and competes for water, nutrients, and sunlight.* 4. Show vegetable plants (or pictures) with weed problems: examples could include crops shaded by tall weeds, stunted growth next to weeds, or rows overgrown. 5. Ask learners to describe the problem – what do the weeds do to the vegetables? (e.g. take water, cover crops, hide pests, reduce yield). 6. Discuss: "*What happens if weeds are not controlled?*" (stunted crops, smaller harvests, harder to harvest, more pests and diseases).	Samples of common weeds found in and around vegetable farms. Vegetable plants (or pictures) with weed problems Manual weeding equipment: hoe, rake Chemical spraying equipment: selective herbicide, sprayer, PPE

Topic	Time	Training Instructions	Resources
		Activity 32: Demonstration and Practice: Weed Control 1. Explain the different ways of controlling weeds: manual, mechanical, chemical, and the advantages and disadvantage of each. 2. Go to the field and demonstrate each one. 3. Explain when weeding should be done. 4. Explain how often weeding should be conducted. 5. Allow learners to practice the different methods of weed control. 6. **Note**: they will conduct ongoing weed control during the course of their training in vegetable farming.	
5.2 Pest control	30 min	Present a lesson on pests and pest control. Include the following activities to give practical application to the content. **Activity 33: Pests: Show and Tell** 1. Bring simple pictures or real examples (e.g. aphids on leaves, chewed leaves from insects, rodents). 2. Ask learners: *What do you see? Is this good for vegetables or bad? Why?* 3. Define pests simply: *any animal or insect that damages vegetable plants.*	Samples of evidence of pests (e.g. half eaten leaves), or pests themselves e.g. aphids.

Topic	Time	Training Instructions	Resources
		4. Show vegetable plants (or pictures) with pest damage: holes in leaves, yellow leaves, wilted vegetable plants, chewed stems. 5. Ask learners to describe the damage and link it to pest attack. 6. Discuss: *What happens if pests are not controlled?* (stunted vegetable plants, losses, weak plants)	
	30 min	**Activity 34: Types of Pests** 1. Prepare cards with pictures of different pests: insects (aphids), rodents (mice), etc. 2. Learners sort them into categories: **insects, rodents, slugs and snails.** 3. Trainer explains how each causes damage (chewing leaves, sucking sap, damaging roots). 4. How pests spread: On the board, write: *Flying*, *Soil*, *Contaminated tools*, *Carried by people*. Explain each of these, with examples. 5. Ask learners for examples (aphids = flying, nematodes = soil, dirty pruning knife = equipment).	Make cards or printout from the content supplied in the Activity Resources section.
	60 min	**Activity 35: Demonstration: Prevention and Control** 1. Demonstrate different methods: • **Sanitation** – show cleaning tools.	Traps, sprayer, PPE (gloves, masks) Scenario cards with examples of plant

Topic	Time	Training Instructions	Resources
		• **Physical removal** – pick off a caterpillar (use a stone or object to represent it). • **Traps** – show a sticky card for flying insects or a rat trap. • **Spraying/drenching** – demonstrate using a hand sprayer (with water). 2. Emphasise **safety**: always use gloves, masks, avoid spraying in the wind, and wash after handling chemicals. 3. Give learners scenario cards: e.g. "*Leaves have small holes*" "*Roots have knots*" or "*Mice eating vegetables.*" 4. Groups decide: What type of pest? What control method would you use? 5. Groups present their answers.	damage caused by pests
5.3 Disease control	120 min	Ask: "*When people get sick, they can't work well. What do you think happens when plants get sick?*" Define: A plant disease is any condition that makes a plant unhealthy and reduces its growth or harvest. **Activity 36: Disease Control Case Studies** 1. Divide learners into groups (3 – 5 per group). 2. Give each group one case study card. 3. Groups discuss and answer three key questions:	Case studies about crops being affected by disease found in Training Resources section

Topic	Time	Training Instructions	Resources
		• What type of disease is it? • How did it spread or what caused it? • What action should the farmer take? 4. Group presentations: Each group presents their case and solution. Trainer corrects or expands where needed. 5. Wrap-up discussion: Highlight that not all plant problems are contagious — some are nutrient deficiencies — and stress prevention as the best approach.	

Case Study 1: Bahati's Leafy Vegetables

Bahati planted leafy vegetables on his plot. After two weeks, some plants are stunted, with curled leaves showing unusual yellow patterns. The plants look weak, and a few small insects can be seen underneath the leaves.

Case Study 2: Sandan's African Eggplants

Sadan grows African eggplant. A number of his plants have started to wilt even though the soil is damp. When he cut one stem to check inside, he noticed a sticky liquid coming out. Within a few days, several plants collapsed completely.

Case Study 3: Nasra's Cucumbers

Nasra is producing cucumbers during the rainy season. After continuous rain, she observes white powdery patches on the leaves. Some leaves are drying at the edges, and the problem seems to spread quickly to neighbouring plants.

Case Study 4: Fanuel's Cabbages

Fanuel planted cabbage on his farm. After a month, the lower leaves of many cabbages turned yellow while the top leaves stayed pale green. The heads are forming slowly, and the plants look thin and weak, but there are no insect holes or spots.

Topic	Time	Training Instructions	Resources
5.4 Crop Rotation	30 min	**Explain**: Crop rotation = planting different/unrelated crops in the same plot across different seasons. Contrast with **monocropping** = planting the same crop repeatedly, which leads to poor soil health and pest/disease build-up **Activity 37: Crop Rotation Exercise** 1. Divide learners into small groups. 2. Each group is given: • A "farm map" with 3 plots. • A set of crop cards (leafy vegetables, okra, cucumber, etc). 3. Task: Plan a rotation for 3 seasons. 4. Groups present their rotation plans. 5. Trainer gives feedback and highlights strong points and corrections.	Farm 'map' and crop cards found in Training Resources section

Topic	Time	Training Instructions	Resources
5.5 Crop Security	30 min	Discuss the importance of basic security on a vegetable farm, and what the potential security risks are. **Activity 38: Discussion and Security Checklist Walk** 1. Ask: "*What has happened in your community when a farm was not secure?*" 2. Let learners share real stories of goats breaking in, or tools being stolen. 3. Then connect these experiences to the need for farm security. 4. Give learners the simple checklist with items: fence, gate, lock, store, guard. 5. Take them outside to the vegetable farm and ask them to "inspect" the area. 6. They tick what is present and discuss what is missing.	Copies of checklist in Training Resources section

Module 6: Harvesting

Topic	Time	Training Instructions	Resources
6.1 Crop maturity	60 min	• Begin with a question: "*What happens if a farmer harvests too early? What if they wait too long?*" • Collect a few answers to show that timing affects quality, shelf life, and price. • Explain: All crops have signs that show when they are ready. Farmers must learn to look, feel, and count days. **Activity 39: Understanding basic principles of Crop Maturity** **1. Demonstration with examples (general, not crop-specific)** • Use a mix of real items (if possible, different fruits or vegetables at different stages) or picture cards. • Show how colour can change from unripe → mature → overripe. • Show small vs. full-size vs. oversized vegetables. • Show firm vs. soft produce (e.g. a firm green fruit vs. a soft overripe one). **2. Teaching the time principle** • Draw a simple timeline on the board: *Planting → Flowering → Harvest.*	Samples of produce in different stages of maturity – underripe, ripe, overripe, small, full size, oversize, Flipchart and markers

Topic	Time	Training Instructions	Resources

		• Indicate how many days a crop usually needs after planting or flowering.
		• Emphasise: Farmers must know the average time for their crops, but still check physical signs (colour, size, firmness).
		3. Group discussion – too early vs. too late
		• Divide learners into small groups.
		• Each group discusses:
		  ○ *"What happens if you harvest too early?"*
		  ○ *"What happens if you harvest too late?"*
		• Groups share answers, trainer adds points: loss of quality, lower yield, rejection by buyers, shorter shelf life, etc.
		4. Review and summary
		• Reinforce the three basic checks: **colour, size, and firmness**.
		• Add that time after planting or flowering is also important.
		• Wrap up: Harvesting at the right time means better quality, longer shelf life, and higher income.	

6.2 Harvesting resources	120 min	• Ask: "Can we harvest crops with our bare hands and no plan?" • Lead learners to agree that harvesting requires the right tools, people, and transport to avoid losses and damage. • Explain that planning ahead ensures crops are harvested safely, quickly, and in good condition.	**Tools and equipment**: • Cutting instruments • Containers • PPE: gloves, boots, overalls

Topic	Time	Training Instructions	Resources
		• Discuss each one of the following, using Activity 40. 1. **Tools and equipment**: o Cutting instruments o Containers o PPE: gloves, boots, overalls 2. **Labour**: number; skill, number of hours 3. **Transport**: from field to sorting/storage **Activity 40: Demonstration and Practice: Harvesting Resources** **1. Demonstration of tools and equipment** • Show common harvesting tools: knives, pangas, scissors, or sickles. • Show suitable containers: baskets, crates, sacks, or buckets. • Show examples of PPE: gloves, gumboots, aprons/overalls. • Discuss why each is important (sharp cuts prevent plant damage, containers protect produce, PPE keeps workers safe and clean). • **Note**: a first aid kit should be stocked and available in case of any accidents. **2. Labour planning discussion** • Ask learners: "If you have one acre of cabbage ready, how many workers would you need? For how many hours?"	• First aid kit

Topic	Time	Training Instructions	Resources
		• Discuss how skilled labour is needed to harvest without damaging crops, and how labour must be matched to crop size and timing. **3. Transport planning demonstration** • Show learners a wheelbarrow, cart, bicycle, or pickup (or use pictures if not available). • Explain how harvested crops must be moved carefully from the field to storage or market. • Ask learners to think about what happens if transport is late, rough, or too small. **4. Learner practice** • Divide learners into groups. • Give each group a set of items (mix of tools, containers, PPE, and transport pictures). • Ask them to plan a harvest for one hectare of one crop (e.g. leafy vegetables, okra, cabbage). They should: o Choose the right tools and containers. o Decide how many workers are needed. o Choose the transport method. • Groups present their plans to the class. **5. Review and discussion** • Trainer reviews group plans and highlights good choices and missing points.	

Topic	Time	Training Instructions	Resources
		• Summarise: Proper harvesting needs **the right tools, enough labour, and suitable transport** to protect both the crop and the farmer's income.	
6.3 Harvesting procedures	120 min	• Ask learners: "*What can go wrong if we harvest carelessly?*" • Collect answers (crop damage, reduced quality, spoilage, lower price). • Explain: Proper harvesting procedures protect the crop and keep quality high for the market. **Activity 41: Demonstration and Practice: Harvesting procedures** **1. Trainer demonstration** • Show the correct use of sharp, clean tools (knife, scissors, or secateurs). • Demonstrate safe cutting of the crop at the correct point (e.g. stem or base), without bruising or tearing. • Place the harvested crop directly into a **clean container** (crate, basket, or bucket). • Show poor examples too (dirty sack, rough handling) and explain why these reduce quality. • Demonstrate how harvested containers should be kept **in the shade**, not in the sun, to keep produce fresh.	• Harvesting tools: sharp knives, scissors, or secateurs • PPE: gloves, boots, overalls (if available), hats • Containers: baskets, crates, sacks, buckets (both good and poor examples if possible) • Sample vegetables (real crops from a training plot) • First Aid Kit

Topic	Time	Training Instructions	Resources

		2. Learner practice
		• Provide groups with sample crops (from the training plot, or substitutes like fruits/vegetables if needed).
		• Each learner practises harvesting:
		  ○ Wearing PPE (gloves, boots, overalls if available).
		  ○ Using sharp, clean tools.
		  ○ Placing crops correctly into a container.
		• Trainer observes carefully, correcting errors such as cutting too roughly, dropping crops, or mixing dirty and clean containers.
		3. Review and discussion
		• Gather the group to review their harvesting.
		• Ask: "*What did you notice when using sharp tools compared to blunt tools?*"
		• Discuss how safe cutting, clean containers, and shading improve the shelf life and price of crops.
		• Summarise: Good harvesting = clean cut, safe handling, clean containers, shade protection.	

6.4 Post-harvest handling	120 min	• Ask: "*If vegetables are bruised or wilted after harvest, will the buyer still pay a good price?*"	• Mixed basket of vegetables (different sizes, shapes, qualities)

Topic	Time	Training Instructions	Resources
		• Collect responses, then explain: Proper post-harvest handling keeps vegetables fresh, improves shelf life, and increases income. Poor handling reduces quality and lowers prices. • Emphasise: Damaged or diseased vegetables must be removed, as they can spoil the rest. **Activity 42: Demonstration and Practice – Post-harvest handling** **1. Trainer demonstration** • Show learners a basket with mixed vegetables of different sizes, shapes, and qualities. • Demonstrate the three categories: ○ **Grade 1:** Best quality, uniform size and shape, no damage. ○ **Grade 2–3:** Some defects (small spots, slightly misshapen), acceptable but sold at a lower price. ○ **Rejects:** Rotten, diseased, bruised, or too small; best used for compost or animal feed. • Explain how grading protects the reputation of the farmer and helps them target different markets (e.g. premium buyers vs. local markets). **2. Learner practice** • Divide learners into small groups.	• Baskets or containers for sorting into Grade 1, Grade 2–3, and Rejects

Topic	Time	Training Instructions	Resources
		• Give each group a mixed basket of vegetables (or substitute with fruits/market vegetables if training crops are not available). • Each group sorts the items into Grade 1, Grade 2 – 3, and Rejects. • Groups record or discuss the reasons for their decisions. **3. Group presentations** • Each group presents how they graded their basket and explains why. • Trainer checks accuracy and clarifies where needed, emphasising consistent standards. **4. Review and discussion** • Ask: "*What happens if you sell everything as Grade 1, even the poor-quality produce?*" • Summarise: Grading and proper handling = better market trust, higher income, and less waste.	
6.5 Transport	120 min	**Activity 43: Group Brainstorm and Discussion – Transporting vegetables** 1. **Group work – identify modes of transporting vegetable produce/crops** • Learners list the transport methods used in their community (e.g. wheelbarrows, bicycles, motorcycles, pickups, trucks).	Flipchart and markers or board and chalk Different containers (baskets, crates, sacks, buckets).

Topic	Time	Training Instructions	Resources
		• For each, they discuss: *What is good for quality? What risks for damage?* 2. **Trainer notes – advantages and risks** • Trainer writes group responses on the board under two columns: "*Good for quality*" and "*Risk for damage.*" 3. **Containers and handling** • Show or discuss different containers (baskets, crates, sacks, buckets). • Groups suggest which container best protects vegetables and why. • Trainer demonstrates poor vs. good handling (e.g. overfilling sacks vs. neat packing in crates). 4. **Protection during transport** • Ask: "*What happens if vegetables are left in the sun or rain?*" • Groups suggest simple ways to protect crops: covering with tarpaulins, using shade nets, avoiding rough roads if possible. 5. **Time of day** • Discuss why transporting in the early morning or late afternoon is better than in the midday heat. 6. **Improvement ideas** • Each group suggests one simple improvement for the most common transport method in their area (e.g. line crates with leaves, don't overload, transport in cooler hours).	

Topic	Time	Training Instructions	Resources
6.6 Recordkeeping	180 min	Explain: Without records, farmers forget details. With records, they can plan better, sell better, and earn more. **Activity 44: Filling in Records** 1. Divide learners into groups. 2. Write up the following 'harvest scenarios' on the board or use your own data from your own vegetable farming experience. o Spinach (Plot A1): Grade 1 – 60 bunches; Grade 2 – 25 bunches; Grade 3 – 10 bunches; Rejects – 5 bunches. o Cabbage (Plot B2): Grade 1 – 80 heads; Grade 2 – 30 heads; Grade 3 – 5 heads; Rejects – 5 heads. 3. Groups fill in the template with the information. Use your own template if you are more comfortable with your record. 4. Groups present their records, trainer checks for accuracy. 5. Tell learners that they can have a harvest book – it does not have to be separate pages like you have provided them with – they can draw columns in a school exercise book.	Harvest recording template in Activity Resources Section

Module 7: Marketing and Sales

Topic	Time	Training Instructions	Resources
7.1 Buyers and markets	150 min	• Ask: "*What happens if you harvest a big crop but don't know who will buy it?*" • Explain: Buyers and markets are just as important as planting and harvesting. The right buyer = better income, less waste, and stronger business. **Key points to explain** • **Types of buyers:** neighbours, market traders, wholesalers, shops, hotels, schools, contracts. • **What buyers want:** quality, quantity, consistency, fair price, timely delivery. • **Building good relationships:** honesty, reliability, clear communication, delivering as promised. **Activity 45: Group discussion – Buyers and markets** 1. **Trainer examples** o *Farmer A* sells small amounts at the farm gate to neighbours. o *Farmer B* delivers regularly to hotels with a supply agreement. o Ask: "*Who will earn more? Who has more risk?*"	

Topic	Time	Training Instructions	Resources
		2. **Group work** ○ Learners list possible buyers in their area (farm gate, village market, traders, shops, schools, hotels, wholesalers). ○ For each buyer type, discuss: ▪ What does this buyer want most? ▪ What are the advantages and disadvantages of selling to them? ▪ How can farmers build a good relationship with them? 3. **Group presentations** ○ Each group shares their buyer list and discussion points. ○ Trainer adds missing points and emphasises that different buyers suit different crops and situations. **Wrap-up** ○ Remind learners: *"Growing is only half the job — finding the right buyer and keeping a good relationship is what brings profit."*	
7.2 Marketing and sales activities	60 min	• Ask: *"If you harvest a lot of vegetables but don't sell them on time, what happens?"* • Collect answers (loss, waste, lower prices). • Explain: Marketing means selling at the **right time, place, and price** using the **right tools**. Good marketing helps farmers reach more buyers and earn more.	Paper and markers • Flipchart paper • Drawing materials: wax crayons, marker pens

Topic	Time	Training Instructions	Resources

		Key points to explain
		• **Fair pricing:** Know your production costs and check market prices.
		• **Timing and place:** Sell when demand is high and at markets where buyers are ready.
		• **Advertising:** Spread the word through neighbours, mobile phones, WhatsApp, posters, or social media.
		• **Simple tools:**
		  o Business cards with name and contact
		  o Simple farm logo or name
		  o Clear sign at farm gate or market stall
		  o Uniform packaging or labels to build trust
		• **Recordkeeping:** Write down all sales (crop, amount, buyer, price) to track income and plan better.
		
		Activity 46: Poster and message design
		
		1. **Group task – design advertising**
		  o Each small group designs either:
		  ▪ A simple **poster** for the market, or
		  ▪ A short **WhatsApp message** to advertise a crop.	

Topic	Time	Training Instructions	Resources
		○ Poster/message must include: **product, price, contact details** (and optional logo or sign idea). 2. **Sharing** ○ Groups present their poster/message to the class. ○ Trainer highlights clarity, honesty, and simplicity as the most important features. 3. **Wrap-up discussion** ○ Ask: "*Which tools would work best in your area – posters, phone messages, or packaging?*" ○ Emphasise: The goal is to make it **easy for buyers to find and trust the farmer**.	
Sales	30 min	• Remind learners: "*Selling is not finished until it is written down. Without records, farmers forget; with records, they can plan and earn more.*" • Show an empty **Sales Record Sheet** and explain each column (Date, Buyer/Market, Crop, Grade, Quantity, Price, Income, Remarks). **Activity 47: Practice – Filling in a Sales Record** **1. Group task – sales scenarios**	Sales Record Sheet found in Training Resources section

Topic	Time	Training Instructions	Resources
		○ Give each group a short scenario (e.g. “Sold 40 Grade 1 cabbages to the town market at TZS 1,500 each; 20 Grade 2 at TZS 1,000 each; 10 Grade 3 at TZS 600 each”). ○ Each group fills in the sales record sheet with the correct entries. **2. Group sharing** ○ Groups present their completed sheets. ○ Trainer checks for accuracy: correct calculations, correct placement of data under the right headings. **3. Wrap-up discussion** ○ Ask: “*Why is it important to record every sale, even small ones?*” ○ Emphasise: Recordkeeping helps farmers know income, compare prices, and plan for the next season.	

Module 8: Leafy Vegetables

Topic	Time	Training Instructions	Resources
8.1 Introduction	60 min	• Start with discussion: "*Who eats leafy vegetables at home?*" *Which are your favourites? Why do you like them?* • Explain importance: nutrition, income, quick harvest cycles. • Small group brainstorm: Opportunities vs. Challenges → list on board. • Show concept of *seasonal planning* with a simple yearly calendar. **Activity 48: Crop calendar for Leafy Vegetables** 1. Introduce a *blank crop calendar*. 2. Give each learner a copy. 3. They must fill in the crop name at the top. 4. Explain and work with the learners how to fill in the calendar for leafy vegetable production, explaining each step of production and how long it takes.	Blank crop calendar from Training Resources section
8.2 Growing conditions	60 min	Present a lesson on the growing conditions required for leafy vegetables, including soil, water and irrigation, topography, and climate and season. Highlight how the right conditions lead to strong plants, reduced risk of pests and diseases, and higher yields.	• Flipchart paper • Drawing materials: wax crayons, marker pens

Topic	Time	Training Instructions	Resources
		Activity 49: Poster Activity: Growing Conditions 1. Divide learners into groups of 5. 2. Provide each group with a sheet of flipchart paper and drawing materials. 3. Each group must draw a poster showing the ideal growing conditions for leafy vegetables. 4. Once done, they must present to the class. 5. The other group members may give inputs, corrections, or feedback. 6. Trainer can also give feedback or inputs to ensure all content is correct. 7. The class can vote for the best (most informative, colourful, accurate) poster and that group wins a small prize e.g. a packet of sweets to share.	• Small group prize.

8.3 Varieties, yield and market needs	12 min	**Activity 50: Show and Tell: Varieties of leafy vegetables**
		
		• Bring samples (fresh leaves if possible, or pictures).
		• Show the main varieties:
		  ○ Amaranth
		  ○ African nightshade
		  ○ Ethiopian mustard
			Samples of different types of common/ popular leafy vegetables

Topic	Time	Training Instructions	Resources
		○ Sweet potato leaves ○ Pumpkin leaves • Learners identify each type of leafy vegetables and share how they are cooked at home. • Trainer explains that different varieties have different growth cycles, yields, and market values – ask what the local market prices for the different greens are. Are they the same or different from each other?	
	12 min	**Activity 51: Group Work: Market demand and seasonality** 1. Each group discusses: ○ Which leafy vegetables are most popular in their community? ○ When are they cheap? When are they expensive? Why? ○ Who buys them (neighbours, traders, hotels, schools, markets)? 2. Groups present; trainer adds points: ○ Prices go down in rainy season (too much supply). ○ Prices go up in dry season (less supply, high demand). ○ Different buyers want different qualities and quantities.	
	12 min	**Activity 52: Yield of Leafy Green Crops**	Flipchart and markers

Topic	Time	Training Instructions	Resources
		1. Ask: "*If two farmers both grow Amaranth why might one harvest more than the other?*" 2. Collect answers, then explain that yield depends on various factors: ○ **Growing conditions** (soil, water, climate). ○ **Farming practices** (spacing, weeding, compost use). ○ **Timing and harvesting** (harvesting too late reduces yield). ○ **Type of vegetable** (Amaranth grows fast, cabbage takes longer). 3. Write these on a flipchart as lesson content.	
	12 min	**Activity 53: Discussion: Pricing and selling** 1. Give learners two short scenarios: 1. *Farmer A sells Amaranth to neighbours at TZS 500 per bunch.* 2. *Farmer B sells to a hotel at TZS 800 per bunch but must deliver on time.* 2. Ask: "*Who earns more? Who has more risk?*" 3. Explain: Fair prices come from knowing production costs + checking market demand. Selling at the right time and place helps farmers avoid losses. 4. Do a simple costing exercise using real input costs, yields and how to calculate a fair selling price for the produce.	Prices of farming inputs

Topic	Time	Training Instructions	Resources
	12 min	**Activity 54: Summary Discussion** 1. Divide learners into small groups 2. Each group discusses the following: • "Which leafy vegetable grows best in your area?" (Think about soil, water, and climate). • "Which one gives the best price?" (Think about market demand, season, and buyers). • "What can farmers do to earn more from leafy greens?" (Think about quality, timing, packaging, or marketing). 3. Highlight similarities and differences between groups. 4. End with the key message: "*Different areas and markets have different opportunities. Farmers must match their crop choice, timing, and quality to market needs.*"	
8.4 Land and soil preparation	360 min	Explain the options for sowing and planting: either direct in field, in nursery seedbeds, or by cuttings. Emphasise the key points for leafy veg soil preparation: • Fine tilth: (no clods) so small seeds can germinate easily • **plenty of compost or manure** to support fast leaf growth. • Keep soil **moist but well drained** — raised beds help in wet areas.	**Tools** • Hoes • Rakes or small forks • Buckets or basins • Watering cans

Topic	Time	Training Instructions	Resources
		• Remove weeds, stones, and sticks so seedlings don't compete or get blocked **Activity 55: Demonstration & Practice: Soil Preparation for Leafy Vegetables** 1. **Trainer demonstration** • Show how to prepare a **fine seedbed** by breaking soil well and removing lumps. • Add compost or manure and mix into the topsoil. • Demonstrate two options: ○ **Direct sowing plot:** prepare rows or raised beds with fine soil. ○ **Nursery seedbed:** prepare a small plot (about 1 m wide), add extra compost, make it fine and level. 2. **Learner practice** • Divide learners into groups. • Half prepare a **direct sowing plot**; half prepare a **nursery seedbed**. • Trainer checks soil fineness, compost use, and bed shape.	**Materials** • Well-rotted manure or compost • Water
8.5 Sowing and planting	360 min	**Explain**:	**Tools**

Topic	Time	Training Instructions	Resources
		• Leafy vegetables can be sown directly or started in nurseries and transplanted. The method depends on the crop, seed size, and market needs. • Planting depth, spacing, watering, mulching and transplanting seedlings for leafy vegetables. • Methods of sowing: line sowing, broadcasting **Activity 56: Demonstration and Practice – Sowing and planting leafy vegetables** **1. Trainer demonstration** • Show examples of **small seeds** (amaranth) and **larger seedlings** (African nightshade) • Demonstrate: o Shallow sowing of tiny seeds in rows (line sowing). o Broadcasting fine seeds mixed with sand for even spread. o Planting of seedlings from a nursery bed into the field, at correct spacing. o Watering lightly after sowing or transplanting. o Applying a thin mulch to keep soil moist. **2. Learner practice** • Divide learners into groups.	• Hoes or sticks for making rows • Watering cans • Buckets/basins • Mulching materials (dry grass, leaves) **Materials** • Seeds of amaranth, African nightshade, (or locally used varieties) • Seedlings from a nursery (if available)

Topic	Time	Training Instructions	Resources

		• Each group prepares a section of the allocated planting field for leafy vegetables and practices:
		  ○ Direct sowing small seeds.
		  ○ Broadcasting method.
		  ○ Transplanting seedlings into rows at correct spacing.
		• All groups apply a thin layer of dry grass or crop residues around the planted area.
		• **Watering practice**: Using watering cans with a fine rose, learners water their plots lightly.
		• Learners compare the difference: shallow watering for seeds vs deeper watering for transplanted vegetable plants.
		3. Observation and Correction
		• Trainer walks between groups, correcting mistakes such as planting too deep, planting too close, or covering vegetable plants incorrectly.
		• Learners repeat steps if needed until they get the technique right**.**	

8.6 Crop Protection	1140 min (19hrs)	Referring to what they have learned in Module 5, give a lesson on the key pests and diseases that attack leaf vegetables, and how to identify, prevent and control them. Explain the weeds most likely to affect leavy vegetable fields and how to identify and control them.	

Topic	Time	Training Instructions	Resources
		Activity 57: Field inspection – Pests, Diseases and Weeds 1. Divide learners into small groups. 2. Each group inspects a section of the garden or a set of plants. They must look carefully for: • Weeds – competing for water and nutrients. • Insects – look for damage like holes, curling, or sticky honeydew. • Diseases – look for signs like yellow patches, spots, or mould. 3. Each group notes their findings and presents: • What problem they found (weed, insect, or disease). • What symptoms they observed. • One method they would use to control it.	
8.7 Harvesting	90 min	**Crop Maturity:** explain that leafy vegetables are harvested while still tender, before they get tough or bitter. • **Amaranth:** ready 3–4 weeks after sowing; cut young shoots 15–20 cm tall. • **African nightshade:** pick leaves from 4–6 weeks; avoid over-picking so plant regrows. • **Ethiopian mustard:** harvest outer leaves from 8 weeks, leave the centre to keep growing.	Leafy vegetables about 7 – 8 weeks after planting

Topic	Time	Training Instructions	Resources
		• **Sweet potato leaves:** harvest by cutting young vines and tender leaves. • **Pumpkin leaves:** pick young leaves and tips regularly.	

	90 min	**Harvesting procedures**
		
		Trainer explanation
		• **Timing:** Harvest in the **cool hours** (early morning or late afternoon) to keep leaves fresh.
		• **Tools:** Use clean knives or scissors to avoid tearing and bruising.
		• **Handling:** Handle gently; do not squeeze or throw leaves. Place directly into clean baskets or crates.
		• **Process:**
		  ○ Cut or pick carefully.
		  ○ Keep harvested leaves in shade.
		  ○ Move quickly to storage or market.	

	90 min	**Post-harvest handling** **Trainer explanation:** Good handling keeps leaves fresh, improves price, and reduces waste.	

Topic	Time	Training Instructions	Resources

		• **Sorting and grading:**
		  ○ Grade 1 → Young, fresh, clean leaves.
		  ○ Grade 2 → Slightly damaged but usable.
		  ○ Rejects → Yellow, old, or diseased leaves (use for compost or animal feed).
		• **Cleaning:** Wash lightly with clean water if needed; shake off excess to avoid rotting.
		• **Storage:** Keep in shade, cover with damp cloth or keep in cool place until sold.	

	240 min	**Activity 58: Demonstration and Practice: Harvesting leafy vegetables** **1. Trainer demonstration** • Show how to identify which leaves are mature for harvesting. • Show how to cut/pick leafy vegetables correctly using clean tools. • Demonstrate placing in clean containers and keeping in shade. • Show a mixed basket and demonstrate sorting into Grade 1, Grade 2, and Rejects. **2. Learner practice** • Groups harvest from allocated sections of the leafy vegetable training field over a period of 4 – 6 weeks. • Each group:	**Tools** • Sharp knives, scissors, or secateurs • Clean baskets, crates, or buckets • Damp cloths or shade covering **Materials** • Sample leafy vegetable crops

Topic	Time	Training Instructions	Resources
		○ Harvests at the correct stage. ○ Handles crops gently into containers. ○ Sorts and grades their harvest. • Groups discuss how to keep the leaves fresh before sale. **3. Review and wrap-up** • Groups present what they harvested and how they graded.	(from training plot or substitutes)
8.8 Transport	150 min	Present a lesson on the best transport options for leafy vegetables, taking into consideration their perishability. Discuss the appropriate containers for transport, protection from the elements (especially sun and wind), and the best time of day for transporting them. **Activity 59: Packaging comparison** 1. **Show packaging options:** Bring or show pictures of plastic crates, bamboo baskets, and wooden boxes. 2. Learners handle the containers, discuss advantages and disadvantages (weight, cost, protection). 3. **Discussion:** Which is best for short trips? Which is best for long trips?	One crate, one bamboo basket, and one wooden box (or pictures if real items are not available).

Module 9: Okra

Topic	Time	Training Instructions	Resources
9.1 Introduction	60 min	• Show learners fresh okra pods, or pictures if not available. • Ask who has grown okra before. Let them describe any challenges or successes they had with growing okra. • Explain importance: nutrition, income, harvest cycles. • Small group brainstorm: Opportunities vs. Challenges → list on board. **Activity 60: Crop calendar for Okra** 1. Introduce a *blank crop calendar*. 2. Give each learner a copy. 3. They must fill in the crop name at the top. 4. Explain and work with the learners how to fill in the calendar for okra production, explaining each step of production and how long it takes.	Flipchart and markers Blank crop calendars
9.2 Growing conditions	60 min	Present a lesson on the growing conditions required for okra, including soil, water and irrigation, topography, and climate and season. Highlight how the right conditions lead to strong plants, reduced risk of pests and diseases, and higher yields.	Access to a farm plot or potential site for growing okra. If not available or accessible – show

Topic	Time	Training Instructions	Resources

		Activity 61: Field Walk – Spotting Good Conditions for Okra
		
		1. Take learners outside to a nearby plot or field (or use the training plot)
		2. Ask learners to observe and answer:
		  ○ *What type of soil do we see here?* (sandy, clay, loam)
		  ○ *Is the land flat, sloping, or waterlogged?*
		  ○ *How much sun reaches this place?*
		  ○ *Would okra grow well here? Why or why not?*
		3. Groups share their observations.
		  • Trainer links answers back to okra's needs: full sun, sandy loam soil, good drainage, warm temperatures.
		4. **Wrap-up question**
		  • *"If this site was not good for okra, what changes could make it better?"* (examples: add compost, improve drainage, select sunnier site).
			pictures of different landscapes, including e.g. muddy area next to a river, etc.

9.3 Varieties, yield and market needs	60 min	Briefly introduce the three common varieties: **Ex-Busia (local Tanzanian), and Lady's Finger (African types), Kiboko F1**. Show samples and explain the differences between the varieties. Explain that yield depends on: type of okra, growing conditions, farming practices, and harvest timing.	Flipchart paper or large sheets Marker pens / crayons

Topic	Time	Training Instructions	Resources

		Activity 62: Group Poster – Okra Varieties, Yield and Market Needs
		
		1. Group task
		• Divide learners into 3 – 4 groups.
		• Each group makes a simple poster (on flipchart paper or a large sheet) with drawings and words to show:
		  ○ One or two okra varieties (local name if possible).
		  ○ What affects yield for okra.
		  ○ Who buys okra in their community, and when prices are high or low.
		  ○ What prices to pay for okra
		2. Presentations
		• Groups present their posters to the class.
		• Other groups can ask questions or add comments.
		3. Trainer wrap-up
		• Reinforce: Choice of variety, good farming practices, and understanding buyers and seasons = better income.	

9.4 Land and soil preparation	420 min	Explain the principles and reasons for specific land preparation for okra, taking into consideration the deep taproot.	**Tools**: • Hoes • Spades

Topic	Time	Training Instructions	Resources

		Activity 63: Demonstration and Practice – Okra Soil Prep
		
		1. Trainer demonstration
		• Show deep tilling/loosening to support taproots.
		• Add and mix compost into planting rows or ridges.
		• Demonstrate shaping ridges/raised beds where drainage is poor.
		2. Learner practice
		• Groups prepare small plots for okra, focusing on:
		  ○ Deep tilling,
		  ○ Compost addition,
		  ○ Ridges/raised beds where needed.
		3. Review and discussion
		• Groups explain what they did differently for okra compared to leafy vegetables.
		• Trainer asks:
		  ○ *"Why does okra need deeper tillage?"*
		  ○ *"Why is drainage so important for okra?"*
		  ○ *"Why must compost be applied generously?"*
		• Summarise: Okra soil prep is about **deep loosening, good drainage, high fertility, and weed-free land.**
			• Rakes
			• Buckets or basins
			
			Materials:
			• Well-rotted compost or manure
			• Sand
			• Water

Topic	Time	Training Instructions	Resources
9.5 Sowing and planting	420 min	Explain that okra is usually **direct sown** in the field because it has large seeds and a deep root system. Transplanting is less common but can be done in small nurseries if seed is expensive or limited. Explain the planting depth and spacing for sowing okra seeds. **Activity 64: Demonstration and Practice – Okra Sowing and Planting** 1. **Trainer demonstration** • Show okra seeds and explain soaking (overnight in water) to improve germination. • Demonstrate direct sowing in rows: ○ Measure spacing using a rope or stick. ○ Make holes 2–3 cm deep with a stick or dibber. ○ Place 2–3 seeds per hole, then cover lightly with soil. • Show how to apply light mulch after sowing. • If seedlings are available, demonstrate correct transplanting at the right height. 2. **Learner practice** • Groups prepare a section of the allocated okra planting field. • Each group sows okra seeds with correct depth and spacing. • Apply a light mulch.	**Tools** • Hoes (for opening rows) • Sticks/dibbers (for making planting holes) • Rope/string (for measuring spacing) • Watering cans **Materials** • Okra seeds • Mulching material (dry grass, leaves) • Water (for seed soaking and watering after sowing/transplanting) • Seedlings (optional, if trainer has nursery prepared)

Topic	Time	Training Instructions	Resources
		• If seedlings are available: practice transplanting with gentle handling and watering.	
9.6 Crop protection	1140 min (19hrs)	Referring to what they have learned in Module 5, give a lesson on the key pests and diseases that attack okra, and how to identify, prevent and control them. Explain the weeds most likely to affect okra fields and how to identify and control them. **Activity 65: Field inspection – Pests, Diseases and Weeds** 1. Divide learners into small groups. 2. Each group inspects a section of the garden or a set of plants. They must look carefully for: • Weeds – competing for water and nutrients. • Insects – look for damage like holes, curling, or sticky honeydew. • Diseases – look for signs like yellow patches, spots, or mould. 3. Each group notes their findings and presents: • What problem they found (weed, insect, or disease). • What symptoms they observed. • One method they would use to control it.	Section of the garden or a set of plants (if not available then use images of weeds, insects, and diseases in a crop of okra)

Topic	Time	Training Instructions	Resources
9.7 Harvesting	540 min	• **Crop maturity:** when okra pods are ready **5 – 7 days after flowering** when still tender and 6–10 cm long. Over-mature pods become tough, fibrous, and unsellable. • **Harvesting procedures:** when to harvest, tools to use, how to pick, how often to harvest • **Post-harvest handling:** explain sorting and grading, cleaning, storage, and containers **Activity 66: Demonstration and Practice – Harvesting Okra** **1. Trainer demonstration** • Show learners okra pods at different stages (tender, just right, over-mature). • Demonstrate correct picking using hands/gloves or scissors. • Show proper handling: place pods carefully into clean crates, not sacks. • Demonstrate sorting into Grade 1, Grade 2, and Rejects. **2. Learner practice** • In groups, learners harvest from a section of the okra training field over a period of 4 weeks. • Each group: o Identifies pods ready for harvest.	**Tools** • Scissors, knives, or secateurs • Gloves (optional, okra pods can irritate skin) • Clean crates or ventilated baskets **Materials** • Okra plants or substitute vegetables for practice • Labels or baskets for grading (Grade 1, Grade 2, Rejects)

Topic	Time	Training Instructions	Resources
		○ Picks them correctly. ○ Sorts and grades the pods. ○ Places them into appropriate containers.	
9.8 Transport	150 min	Explain the packing and transport of okra to maintain freshness and quality and to minimise damage and losses. Okra is delicate and spoils quickly. Using the right packaging protects pods, keeps them fresh, and increases selling price. **Activity 67: Packaging Comparison – Okra** 1. Bring or show pictures of: • Plastic crates – stackable, ventilated, protect pods from crushing. • Bamboo baskets – traditional, cheap, widely available, but less protective. • Wooden boxes – durable, good for long-distance transport, but heavy. 2. Learners handle the containers (or study pictures) and discuss: • Which keeps okra fresh and prevents bruising? • Which is easiest to carry? • Which is cheapest and most available locally?	Plastic crates, bamboo baskets, wooden boxes (or pictures if not available)

Topic	Time	Training Instructions	Resources
		3. **Discussion questions:** • Which packaging is best for short trips to local markets? • Which is best for long trips to town or city markets? • Why are sacks not recommended for okra? (pods get crushed, heat builds up, poor ventilation).	

Module 10: Cucumber

Topic	Time	Training Instructions	Resources
10.1 Introduction	60 min	• Show learners fresh cucumbers, or pictures if not available. Ask who has grown cucumbers before and what the results were. • Explain importance: nutrition, income, harvest cycles. • Small group brainstorm: Opportunities vs. Challenges → list on board. **Activity 68: Crop calendar for Cucumber** 1. Introduce a *blank crop calendar*. 2. Give each learner a copy. 3. They must fill in the crop name at the top. 4. Explain and work with the learners how to fill in the calendar for o Cucumber production, explaining each step of production and how long it takes.	Fresh cucumbers, or pictures of cucumbers Flipchart and markers Blank crop calendars
10.2 Growing conditions	60 min	Explain that cucumber grows best when soil, water, land, and climate conditions are all suitable. Poor conditions cause weak vines, low yield, bitter fruits, and high pest or disease problems. Present a lesson on the growing conditions required for cucumber, including soil, water and irrigation, topography, and climate and season. **Activity 69: Poster Activity: Growing Conditions for Cucumber**	Flipchart paper Drawing materials: wax crayons, marker pens Small group prize.

Topic	Time	Training Instructions	Resources
		1. Divide learners into groups of 5. 2. Provide each group with a sheet of flipchart paper and drawing materials. 3. Each group must draw a poster showing the ideal growing conditions for cucumber. 4. Once done, they must present to the class. 5. The other group members may give inputs, corrections, or feedback. 6. Trainer can also give feedback or inputs to ensure all content is correct. 7. The class can vote for the best (most informative, colourful, accurate) poster and that group wins a small prize e.g. a packet of sweets to share.	
10.3 Varieties, yield and market needs	60 min	Show learners cucumber fruits of different varietals. Explain the differences between the main three: Poinsett 76, Ashely and Market more. Ask: "*Which one do you think sells for a higher price? Why?*" **Activity 70: Group Activity** 1. Divide learners into small groups. Each group discusses:	Seed packets or pictures of three different common varieties of cucumber

Topic	Time	Training Instructions	Resources
		○ Which cucumber varieties are grown in their area? ○ What factors increase or reduce yield? ○ Who are the main buyers in their area, and when do they pay best prices? 2. Groups present their answers. 3. Trainer adds missing points, especially about seasonality and differences between local and improved/hybrid varieties. 4. **Wrap-up:** Emphasise: The right variety + good practices + good timing = higher yields and better income.	
10.4 Land and soil preparation	360 min	Explain specific preparation of land for growing cucumber, including the need for ridges/raised beds for good drainage on heavy soils or during the rainy season. **Activity 71: Group Task: Soil Preparation** 1. **Divide learners into groups.** Give each group a different "farm situation," for example: • Heavy rainfall area with clay soil • Dry sandy soil with low fertility • Flat land prone to waterlogging • Sloped land at risk of erosion	Pens and paper

Topic	Time	Training Instructions	Resources
		2. **Group task – design a land-preparation plan:** • How will they **clear and till the land** for cucumber? • Will they use **raised beds, ridges, furrows, or contour planting** to manage drainage and water flow? • How will they **improve soil fertility and structure** (e.g., adding compost or manure, avoiding compaction)? 3. Each group presents its plan to the class. Trainer highlights good practices and fills in missing points.	
10.5 Sowing and planting	360 min	**Explain propagation:** Cucumbers are usually *direct seeded* (planted straight into the soil). Transplanting is possible but requires care. Explain planting depth and distance, mulching and transplanting if needed. **Activity 72: Practice: Sowing Cucumber** 1. Divide learners into groups. Each group is allocated an area of the planting field. 2. Groups must: • Sow cucumber seeds at correct depth and spacing. • Apply mulch around rows. • Plan how to water after planting.	Small plot or seedbed Cucumber seeds Mulch Water Dibber

Topic	Time	Training Instructions	Resources
		3. Trainer observes technique and corrects mistakes.	
10.6 Crop Management	420 min	Discuss how staking and pruning are needed and conducted for Cucumber production. **Activity 73: Demonstration and Practice: Staking and Pruning** 1. Demonstrate how to stake and prune cucumber plants. 2. Divide learners into groups. Each group receives a small plot or seedbed. 3. Groups must: • Sow cucumber seeds at correct depth and spacing. • Apply mulch around rows. • Plan how to water after planting. Trainer observes technique and corrects mistakes.	Stakes Pruning scissors or secateurs Cucumber plants
10.7 Crop Protection	480 min (8hrs)	Explain that weeds, pests, and diseases reduce cucumber yields, quality, and income. Early prevention is cheaper than late treatment. Referring to what they have learned in Module 5, give a lesson on the key pests and diseases that attack cucumber, and how to identify, prevent and control them.	Cards describing weed, pest, or disease problems – found in Training Resources section.

Topic	Time	Training Instructions	Resources
		Explain the weeds most likely to affect cucumber fields and how to identify and control them. **Activity 74: Identify the Problem: Flashcards** 1. Divide learners into groups. Give each group a “problem card” 2. Groups must identify: • Is it a weed, pest, or disease problem? • What symptoms they observed. • One prevention method and one treatment method. 3. Groups present solutions. Trainer fills gaps.	
	780 min (13hrs)	**Activity 75: Field inspection – Pests, Diseases and Weeds** 1. Divide learners into small groups. 2. Each group inspects a section of the garden or a set of plants. They must look carefully for: • Weeds – competing for water and nutrients. • Insects – look for damage like holes, curling, or sticky honeydew. • Diseases – look for signs like yellow patches, spots, or mould. 3. Each group notes their findings and presents:	

Topic	Time	Training Instructions	Resources
		• What problem they found (weed, insect, or disease). • What symptoms they observed. • One method they would use to control it.	
10.8 Harvesting	510 min	Explain that harvesting cucumbers at the right time affects taste, market price, and storage life. Overripe cucumbers are bitter and full of seeds; underripe ones are small and soft. Discuss crop maturity, harvesting procedures and post-harvest handling of cucumbers. **Activity 76: Harvesting and Grading Cucumbers** 1. **Trainer demonstration** • Show ready cucumbers (green, firm, 15–20 cm). • Demonstrate correct harvesting with knife/secateurs and gentle handling into a crate. • Show grading: ○ **Grade A:** Green, firm, uniform size. ○ **Grade B:** Oversized, bent, or with minor scratches. ○ **Rejects:** Yellow, soft, pest-damaged. 2. **Learner practice**	**Tools** • Sharp knives • Secateurs • Baskets • Crates • Buckets **Materials** • Fresh cucumbers (mixed quality) • Labels for baskets (Grade A, Grade B, Rejects)

Topic	Time	Training Instructions	Resources
		• Groups harvest cucumbers from the allocated cucumber training field over a period of 4 weeks. • Sort into Grade A and B baskets; place rejects aside. 3. **Review** • Each group explains their choices. • Trainer gives feedback and highlights why frequent, careful harvesting and grading improve quality and price.	
10.9 Transport	150 min	Cucumbers are soft and spoil quickly. Careful transport keeps them fresh and marketable. Discuss key points: containers, protection from elements, time of day. **Activity 77: Group Brainstorm: Transport Solutions** 1. In groups, learners discuss: • What containers are commonly used for cucumber transport in their community? • What problems can happen (bruising, heat damage, rotting)? • How to improve transport with simple methods (lining baskets, using covers, choosing cooler times). 2. Groups share their answers.	

Topic	Time	Training Instructions	Resources
		3. Trainer summarises best practices: ventilated crates, shading, cool times of day.	

Module 11: African Eggplant

Topic	Time	Training Instructions	Resources
11.1 Introduction	60 min	• Show fresh African eggplant fruits (garden eggs) or pictures. Ask learners if they grow it and with what results. • Explain importance: nutrition, income, harvest cycles. • Small group brainstorm: Opportunities vs. Challenges → list on board. **Activity 78: Crop calendar for African Eggplant** 1. Introduce a *blank crop calendar*. 2. Give each learner a copy. 3. They must fill in the crop name at the top. 4. Explain and work with the learners how to fill in the calendar for African Eggplant production, explaining each step of production and how long it takes.	Fresh African eggplant examples or pictures Blank crop calendar
11.2 Growing conditions	60 min	Ask learners: "*What kind of land and climate does African eggplant need to grow well?*" Collect answers before presenting key points. Present a lesson on the growing conditions required for African eggplant, including soil, water and irrigation, topography, and climate and season.	

Topic	Time	Training Instructions	Resources
		Highlight how the right conditions lead to strong plants, reduced risk of pests and diseases, and higher yields. **Activity 79: Growing Conditions** 1. Divide learners into groups. Each group gets a "farm situation," e.g.: • Heavy clay soil with poor drainage. • Very dry area with sandy soil. • Steep sloping land. • Warm area with plenty of sun but heavy rains in April. 2. Groups discuss: • Is this land suitable for African eggplant? • What problems might arise? • How would they prepare the land, water, and manage the crop? 3. Groups present. Trainer adds missing points.	
11.3 Varieties, yield and market needs	60 min	Show learners seed packets or pictures of different African eggplant varieties Discuss the varieties, yield factors and market demand and seasonality of African eggplant.	Seed packets or pictures of different African eggplant varieties

Topic	Time	Training Instructions	Resources
		Activity 80: Market Mapping: African Eggplant 1. **Group work** • Each group discusses and writes/draws on a flipchart: o Which African eggplant varieties are common in their area? o Who buys them (households, traders, markets, restaurants)? o When are prices high or low? 2. **Presentations** • Groups present their market maps. • Trainer adds missing points, especially about seasonal price changes. 3. **Wrap-up** • Emphasise: Choosing the right variety + good farming + selling at the right time = higher income and less waste.	
11.4 Land and soil preparation	360 min	Discuss and explain any specific land and soil preparation for African Eggplant. **Activity 81: Soil Preparation and Management for African Eggplant**	**Tools** • Hoes, spades, forks • Buckets or basins

Topic	Time	Training Instructions	Resources

		1. **Trainer demonstration**
		• Show how to enrich planting holes or beds with compost/manure.
		• Demonstrate adjusting soil:
		  ○ Adding compost to sandy soils.
		  ○ Adding sand/organic matter to heavy clay.
		• Discuss rotation: why not plant African eggplant after tomato or pepper.
		2. **Learner practice**
		• Groups prepare a few planting holes or a short row, mixing in manure/compost.
		• Each group suggests one soil management practice to keep the soil fertile during the season (e.g. mulching, top-dressing with compost, weeding, drainage).
			Materials
			• Compost/manure
			• Sand (for clay soils)
			• Mulching materials (dry grass/leaves)

11.5 Sowing and planting	360 min	Explain propagation for African eggplant, including planting depth and spacing, and initial planting in nursery seedbeds then transplanting. **Activity 82: Demonstration and Practice – Sowing and Planting African Eggplant** 1. **Trainer demonstration** • Show sowing in a nursery bed at correct depth.	**Tools** • Hoes • Watering cans • Ropes/sticks for spacing • Buckets/basins **Materials**

Topic	Time	Training Instructions	Resources
		• Show how to cover with light mulch until germination. • Demonstrate transplanting seedlings into a prepared plot, with correct spacing, watering, and mulching. 2. **Learner practice** • Groups sow a few lines in a nursery bed. • Groups transplant seedlings into the field with correct spacing and mulching.	• African eggplant seed • Seedlings (4–6 weeks old) • Mulching material (dry grass/leaves)
11.6 Crop Protection	1140 min (19hrs)	Referring to what they have learned in Module 5, give a lesson on the key pests and diseases that attack African eggplant, and how to identify, prevent and control them. Explain the weeds most likely to affect African eggplant fields and how to identify and control them. **Activity 83: Field inspection – Pests, Diseases and Weeds** 1. Divide learners into small groups. 2. Each group inspects a section of the garden or a set of plants. They must look carefully for: • Weeds – competing for water and nutrients. • Insects – look for damage like holes, curling, or sticky honeydew. • Diseases – look for signs like yellow patches, spots, or mould.	

Topic	Time	Training Instructions	Resources
		3. Each group notes their findings and presents: • What problem they found (weed, insect, or disease). • What symptoms they observed. • One method they would use to control it.	
11.7 Harvesting	450 min	Explain that harvesting at the right time keeps fruits tender, marketable, and encourages the plant to keep producing. Delayed harvesting makes fruits bitter, hard, and reduces yields. Discuss crop maturity, harvesting procedures and post-harvest handling of African eggplant. **Activity 84: Demonstration and Practice – Harvesting African Eggplant** 1. **Trainer demonstration** • Show fruits at different stages (immature, ready, overripe). • Demonstrate correct harvesting with clean hands or tools. • Show sorting into Grade 1, Grade 2, and Rejects. 2. **Learner practice** • Groups harvest African eggplants from the training field over a period of 2–3 weeks. Each group sorts and grades their harvest. • Groups discuss how to keep fruits fresh before market.	**Tools** • Scissors/secateurs • Baskets or crates **Materials** • Fresh African eggplant fruits (training plot or market samples) • Labels or baskets for grading (Grade 1, Grade 2, Rejects)

Topic	Time	Training Instructions	Resources
11.8 Transport	150 min	African eggplants bruise easily and lose freshness quickly. Careful transport keeps them firm, attractive, and marketable. Discuss key points: containers, protection from elements, time of day. **Activity 85: Group Brainstorm – Transport Practices** 1. **Small group task** • Groups list how African eggplants are usually transported in their community. • Identify risks: bruising, overheating, rain damage, delays. • Suggest one simple improvement for each method. 2. **Sharing and review** • Groups present ideas. • Trainer highlights best practices: ventilated containers, shading, cool transport times.	**Tools/Materials** • Sample containers (basket, crate, sack) • Covering materials (cloth, leaves, tarpaulin)

Module 12: Cabbage

Topic	Time	Training Instructions	Resources
12.1 Introduction	60 min	• Ask learners if they or their families grow cabbage. • Explain importance: nutrition, income, harvest cycles. • Small group brainstorm: Opportunities vs. Challenges → list on board. **Activity 86: Crop calendar for Cabbage** 1. Introduce a *blank crop calendar*. 2. Give each learner a copy. 3. They must fill in the crop name at the top. 4. Explain and work with the learners how to fill in the calendar for cabbage production, explaining each step of production and how long it takes.	Flipchart and markers Blank crop calendars
12.2 Growing conditions	60 min	Present a lesson on the growing conditions required for cabbage, including soil, water and irrigation, topography, and climate and season. Highlight how the right conditions lead to strong plants, reduced risk of pests and diseases, and higher yields. **Activity 87: Poster Activity: Growing Conditions**	• Flipchart paper • Drawing materials: wax crayons, marker pens • Small group prize.

Topic	Time	Training Instructions	Resources
		1. Divide learners into groups of 5. 2. Provide each group with a sheet of flipchart paper and drawing materials. 3. Each group must draw a poster showing the ideal growing conditions for cabbage. 4. Once done, they must present to the class. 5. The other group members may give inputs, corrections, or feedback. 6. Trainer can also give feedback or inputs to ensure all content is correct. 7. The class can vote for the best (most informative, colourful, accurate) poster and that group wins a small prize e.g. a packet of sweets to share.	
12.3 Varieties, yield and market needs	60 min	Briefly introduce the three common varieties: **Gloria F1, Green Coronet F1, Copenhagen Market, Pruktor F1, Blue Dynasty F1, Rancho F1**. Show samples or pictures and explain the differences between the varieties. Explain that yield depends on: type of cabbage, growing conditions, farming practices, and harvest timing. **Activity 88: Group Market Mapping – Cabbage**	Samples or pictures of varieties Flipchart paper or board Marker pens

Topic	Time	Training Instructions	Resources

		1. **Group work**
		• Each group lists:
		  ○ Which cabbage varieties are most common locally.
		  ○ Who the main buyers are (traders, institutions, hotels, neighbours).
		  ○ When prices are high and when they are low.
		2. **Sharing**
		• Groups present findings. Trainer writes key points on the board.
		3. **Wrap-up**
		• Trainer emphasises: Right variety + good practices + selling at the right time = better income.	

12.4 Land and soil preparation	360 min	Discuss and explain any specific land and soil preparation for cabbage production. **Activity 89: Group Practice – Preparing Soil for Cabbage** 1. **Trainer demonstration** • Show preparing a short bed or row: add manure/compost, break soil fine, shape rows/beds.	**Tools** • Hoes, forks, rakes • Spades • Buckets or basins **Materials** • Compost or manure • Sand (for heavy soils)

Topic	Time	Training Instructions	Resources
		• Demonstrate marking proper spacing lines. 2. **Learner practice** • Groups prepare small plots: mix in compost, shape rows/beds, mark spacing.	• Mulching material (dry grass/leaves)
12.5 Sowing and planting	360 min	Explain propagation for cabbage with initial planting in nursery seedbeds then transplanting. Discuss planting depth, spacing, watering, mulching and transplanting seedlings to the field. **Activity 90: Demonstration and Practice – Sowing and Planting Cabbage** 1. **Trainer demonstration** • Show how to sow cabbage seed shallowly in a seedbed and cover lightly. • Demonstrate transplanting seedlings into the main field with correct spacing, watering, and mulching. 2. **Learner practice** • Groups practise sowing seeds in a nursery bed. • Other groups practise transplanting seedlings in a prepared plot, spacing correctly and applying mulch.	**Tools** • Hoes or sticks (for making holes and rows) • Watering cans • Buckets or basins **Materials** • Cabbage seeds • Seedlings (4–6 weeks old) • Mulching material (dry grass/leaves)

Topic	Time	Training Instructions	Resources
12.6 Crop protection	1140 min (19hrs)	Referring to what they have learned in Module 5, give a lesson on the key pests and diseases that attack cabbage, and how to identify, prevent and control them. Explain the weeds most likely to affect cabbage fields and how to identify and control them. **Activity 91: Field inspection – Pests, Diseases and Weeds** 1. Divide learners into small groups. 2. Each group inspects a section of the garden or a set of plants. They must look carefully for: • Weeds – competing for water and nutrients. • Insects – look for damage like holes, curling, or sticky honeydew. • Diseases – look for signs like yellow patches, spots, or mould. 3. Each group notes their findings and presents: • What problem they found (weed, insect, or disease). • What symptoms they observed. • One method they would use to control it.	
12.7 Harvesting	210 min	Explain that harvesting cabbage at the right time keeps quality high and reduces losses.	**Tools** • Sharp knives

Topic	Time	Training Instructions	Resources
		Discuss crop maturity, harvesting procedures and post-harvest handling of cabbage. **Activity 92: Demonstration and Practice – Harvesting Cabbage** 1. **Trainer demonstration** • Show how to check if heads are firm and ready. • Demonstrate correct cutting, handling, and grading. 2. **Learner practice** • Groups practise harvesting the cabbage crop. • Sort into Grade 1, Grade 2, and Rejects.	• Baskets or crates **Materials** • Fresh cabbages (from field or market) • Labels for Grade 1, Grade 2, Rejects
12.8 Transport	150 min	Discuss: cabbage heads are bulky and bruise or rot if handled poorly. Good transport keeps them fresh, attractive, and market-ready. Explain the best containers, protection from elements and time of day for transporting cabbage. **Activity 93: Group Brainstorm – Transporting Cabbage** 1. **Group work**	**Tools/Materials** • Sample containers (basket, crate, sack) • Covering material (cloth, tarpaulin, leaves)

Topic	Time	Training Instructions	Resources
		• Learners list how cabbages are usually transported in their community. • Identify risks (bruising, heat, rot). • Suggest simple improvements (lining crates, using shade covers, carrying during cool times). 2. **Sharing** • Groups present ideas. • Trainer highlights the best practices for quality and longer shelf life.	

Training Resources

Activity 1: Vegetable Farming Activity Cards

Site selection
Land preparation
Sowing and planting
Looking after crops
Harvesting
Post-harvest handling
Getting crops to market

Activity 5: Year Planning Template

Activities / Crops	J	F	M	A	M	J	J	A	S	O	N	D

Activity 6: Crop Budget Template

Input/Item	Quantity	Unit cost	Total cost
TOTAL			

Activity 17a: Crop Selection Case Studies

Case study 1: Mariamu

Mariamu has a small farm close to town. The soil is very light and sandy, and her land gets plenty of sunshine. She has easy access to the market where customers are looking for fresh produce every day. However, she does not have much money for fertiliser or pesticides. She wants to choose a crop that will grow well on her soil and sell quickly to local buyers.

Case study 2: Thadei

Thadei farms on heavy clay soil that often holds water for long periods after rain. His land is far from the main road, and transport to town is difficult. He has some experience growing vegetables but does not want to risk crops that spoil quickly. He is thinking carefully about which crop could survive his soil conditions and still be worth the effort of taking to market.

Case study 3: Asha

Asha and her family have just started farming. They do not have much money to buy inputs, but they can provide plenty of family labour. They want a crop that is not too expensive to manage, can be planted with seeds available locally, and still brings some income. They are also thinking about how long the crop will take before it is ready to sell.

Case study 4: Musa

Musa farms in a valley where the rainfall is high and pests are a common problem. He has access to water and labour, but in the past he has lost crops to disease. The nearest market is not far, and buyers are willing to pay well for good-quality vegetables. Musa needs to decide which crop will give him the best chance of a healthy harvest and steady income.

Activity 17b: Cheat Sheet for Vegetable Growing conditions

Leafy vegetables

- Grow fast: ready in 8–12 weeks
- Like well-drained soil with compost/manure
- Can grow in many places, but need enough water
- Harvest many times from the same plant

Okra

- Grows well in warm areas
- Needs well-drained, fertile soil
- First harvest after 8–10 weeks
- Keep harvesting often to get more pods

Cucumber

- Needs a lot of water and regular care
- Likes fertile, well-drained soil
- First fruits in 8–12 weeks
- Does best if supported on stakes or trellis

African eggplant

- Takes longer: 12–16 weeks to harvest
- Needs fertile soil and regular watering
- Strong plant, can resist some poor conditions
- Produces fruits for a long time

Cabbage

- Takes 12–16 weeks to harvest
- Likes cool weather and good rainfall or irrigation
- Needs fertile soil with compost or manure
- Must be weeded and managed carefully to get good heads

Activity 34: Pests Pictures

Insect	Damage	Identification
Whiteflies	Suck sap from leaves, weakening the plant	 
Beetles	Leaf, root, stem damage, defoliation, fruit feeding, and disease transmission	 *Blister beetle*  *Cucumber beetle*  *Flea Beetle*
Aphids	Small soft-bodied insects that feed on sap and spread disease	 
Caterpillars	Eat large parts of leaves and can destroy young plants	 *African bollworm*  *Cabbage looper*  *Cabbage cluster caterpillar*
Locusts	Move in groups and can destroy whole fields quickly	

Slugs and Snails

	Damage	Appearance
Giant African Land Snail	Feeds on a wide variety of plants, including vegetables and seedlings	
Slugs	Feeds on leaves and stems of vegetables	

Rodents

	Damage	Appearance
Multimammate rat	Eats seeds, seedlings, and sometimes gnaws on stems and roots of vegetables.	
Grass rats	Feed on stems, leaves, and young shoots of many vegetables.	

Activity 36: Case Studies: Disease Control

Case Study 1: Bahati's Leafy Vegetables

Bahati planted leafy vegetables on his plot. After two weeks, some plants are stunted, with curled leaves showing unusual yellow patterns. The plants look weak, and a few small insects can be seen underneath the leaves.

Questions:

1. What type of disease is it?
2. How did it spread or what caused it?
3. What action should Bahati take?

Case Study 2: Sandan's African Eggplants

Sadan grows African eggplant. A number of his plants have started to wilt even though the soil is damp. When he cut one stem to check inside, he noticed a sticky liquid coming out. Within a few days, several plants collapsed completely.

Questions:

1. What type of disease is it?
2. How did it spread or what caused it?
3. What action should Sandan take?

Case Study 3: Nasra's Cucumbers

Nasra is producing cucumbers during the rainy season. After continuous rain, she observes white powdery patches on the leaves. Some leaves are drying at the edges, and the problem seems to spread quickly to neighbouring plants.

Questions:

1. What type of disease is it?
2. How did it spread or what caused it?
3. What action should Nasra take?

Case Study 4: Fanuel's Cabbages

Fanuel planted cabbage on his farm. After a month, the lower leaves of many cabbages turned yellow while the top leaves stayed pale green. The heads are forming slowly, and the plants look thin and weak, but there are no insect holes or spots.

Questions:

1. What type of disease is it?
2. How did it spread or what caused it?
3. What action should Fanuel take?

Activity 37: Crop Rotation Exercise

Farm Map	Field 1
Field 2	Field 3

Okra	Leafy Veg
Cucumber	Cabbage

Activity 38: Farm Security Checklist



Activity 44: Harvest Recording Sheet

Harvest Record						
Date	**Plot /Field**	**Crop**	**Grade**	**Quantity**	**Unit: (Kg, bundles, heads)**	**Remarks**

Activity 47: Sales Record Sheet

Date	Buyer/Market	Crop Sold	Grade	Quantity	Unit (Kg, bundles, heads)	Unit Price (TZS)	Total Income (TZS)	Remarks

Activity 48: Blank Crop Calendar

Crop: | Activities	J	F	M	A	M	J	J	A	S	O	N	D

Activity 74: Flashcards: Identify the Problem: Cucumber crop protection

Yellow leaves with mosaic patterns and small, twisted fruits
White powdery coating covering both sides of leaves
Small green insects sucking sap from tender shoots
Fruits with tiny holes and maggots inside
Plants suddenly wilting; when cut, stems ooze sticky liquid
Leaves turning yellow from bottom upwards, weak growth
Weeds growing fast between rows, competing for water
Tiny spider-like pests on the underside of leaves, causing yellow speckles
Black spots on leaves that spread in wet conditions
Overripe fruits left on the plant, stopping new fruiting

Answer key: **Trainer's Answer Key – Cucumber Problem Cards**

1. Yellow leaves with mosaic patterns and small, twisted fruits

- **Type:** Viral disease (Cucumber Mosaic Virus)
- **Prevention:** Use clean seed and resistant varieties; control sap-sucking insects.
- **Treatment:** No cure → remove and destroy infected plants.

2. White powdery coating covering both sides of leaves

- **Type:** Fungal disease (Powdery mildew)
- **Prevention:** Avoid overcrowding; ensure good airflow.
- **Treatment:** Apply recommended fungicide or sulphur spray.

3. Small green insects sucking sap from tender shoots

- **Type:** Pest (Aphids)
- **Prevention:** Encourage natural enemies (ladybirds); avoid planting too close.
- **Treatment:** Spray with neem extract or soapy water.

4. Fruits with tiny holes and maggots inside

- **Type:** Pest (Fruit fly)
- **Prevention:** Collect and destroy fallen/damaged fruits; use bait traps.
- **Treatment:** Bury or burn affected fruits; apply recommended bait sprays.

5. Plants suddenly wilting; when cut, stems ooze sticky liquid

- **Type:** Bacterial disease (Bacterial wilt)
- **Prevention:** Rotate crops; avoid planting cucumbers after other cucurbits.
- **Treatment:** Remove and destroy infected plants immediately.

6. Leaves turning yellow from bottom upwards, weak growth

- **Type:** Deficiency problem (Nitrogen deficiency)
- **Prevention:** Apply compost or manure before planting.
- **Treatment:** Apply nitrogen-rich fertiliser (e.g. urea, compost tea).

7. Weeds growing fast between rows, competing for water

- **Type:** Weed problem
- **Prevention:** Mulching between rows.

- **Treatment:** Hand weeding or shallow hoeing.

8. Tiny spider-like pests on the underside of leaves, causing yellow speckles

- **Type:** Pest (Spider mites)
- **Prevention:** Keep field moist; avoid water stress.
- **Treatment:** Spray with neem or recommended miticide.

9. Black spots on leaves that spread in wet conditions

- **Type:** Fungal disease (Leaf spot)
- **Prevention:** Avoid overhead irrigation; rotate crops.
- **Treatment:** Remove affected leaves; apply recommended fungicide.

10. Overripe fruits left on the plant, stopping new fruiting

- **Type:** Management problem (not harvesting on time)
- **Prevention:** Harvest every 2–3 days at correct size.
- **Treatment:** Remove old fruits to allow new ones to form.