

Malawi Primary Teacher Education

Agriculture

Module 2



Malawi Institute of Education

Initial Primary Teacher Education

Agriculture

Module 2

Malawi Institute of Education

Prepared and published by

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Foreword

Education is the life blood of the nation. It is a prerequisite for individual, community and national development. Education prepares learners to play their roles effectively to promote and sustain a country's socio-economic development. Parents or guardians desire that their children develop into adults with sound minds and healthy bodies through the acquisition of appropriate knowledge, skills and desirable attitudes to enable them to live productive and happy lives.

Education should, therefore, help learners to develop high standards of conduct, attitudes, judgment and a sense of responsibility. Student teachers have to be well prepared in order to be able to take this responsibility of teaching children effectively.

The provision of quality education is based on many factors and a good quality of teachers is one of them. Teachers play a central role because they are the key source of knowledge, responsible for facilitating the learning process and act as role models for the learners.

The function of initial teacher education in Malawi is to prepare student teachers in their aspiration of becoming teachers of high quality. This is achieved by helping the student teachers to acquire the right knowledge, skills and competences to enable them to effectively teach children. In view of this, the Initial Primary Teacher Education curriculum has been reviewed to ensure that student teachers who graduate from this programme are well trained and prepared for their profession.

The process and implementation of this review is guided by the Teacher Education Philosophy which states:

'To produce a reflective, autonomous, lifelong learning teacher, able to display moral values and embrace learners' diversity.'

It is therefore hoped that Teacher Training Colleges will find this curriculum effective in helping the student teachers to build a solid foundation in their teaching profession.

Executive Director
Malawi Institute of Education

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Introduction

The purpose of primary teacher education is to produce and continually develop competent and responsive teachers who effectively deliver quality education to all learners under prevailing conditions and demands in primary schools and promote their desire for life-long learning. IPTE endeavors to educate teachers in sufficient numbers, continually develop their professionalism so that they are able to effectively and efficiently deliver quality and relevant education to primary school learners.

National goals for primary teacher education

The national goals of primary teacher education in Malawi are to produce teachers who are:

- academically well-grounded and professionally competent
- flexible and capable of adapting to the changing needs and environment of the Malawian society
- capable of adhering to and maintaining the ethics of the teaching profession
imaginative in adapting, creating and utilising locally available resources suitable for the needs of their learners.

Rationale

The role of agriculture in the economic development of Malawi necessitates an efficient agricultural education system. Initial Primary Teacher Education (IPTE) has a crucial role to play to ensure that student teachers are able to use appropriate teaching, learning and assessment methods to educate the primary school learner effectively in agricultural production with emphasis on how to adapt to climate change. This requires student teachers to acquire knowledge, appropriate skills and develop positive attitudes towards agriculture in order to prepare the primary school learner for personal and national development.

Teacher education philosophy

The process and implementation of this IPTE curriculum review is being guided by the teacher education philosophy which states:

To produce a reflective, autonomous, lifelong learning teacher, able to display moral values and embrace learners' diversity has been designed.

IPTE programme structure

The duration of the teacher education is two years. The general outlook of the two years is as follows:

Year 1			Year 2		
Term 1	Term 2	Term 3	Term 1	Term 2	Term 3
In college, learning subject content with a special focus on methods for lower classes	In college, learning subject content with special focus on methods for upper classes	Out in teaching practice schools, practising teaching mainly in the lower classes	Out in teaching practice schools, practising teaching mainly in the upper classes	In college, with special emphasis on reflection, inclusion and further practice on teaching methods	In college, with special emphasis on subject content, policies and frameworks

Unique features

The features of the reviewed curriculum are as follows:

- The curriculum design is based on reflective and practice principles.
- Early grade teaching methodologies are distinct.
- The delivery of the subject content follows the modular approach.
- Student teachers will be allowed to practise teaching both in the lower classes (Standards 1 to 4) as well as in upper classes (Standards 5-8).
- Cross cutting issues such as Assessment for Learning, Information Communication Technology, Inclusive Education and Critical Thinking are integrated.

IPTE subject matrix

The new curriculum has adopted the reflective practitioner model of teacher education which connects practice and theory and integrates content and pedagogy in teaching and learning. In this structure, student-teachers will be in college for 2 terms of year 1 and be in primary schools for teaching practice in the term 3 of year 1 and term 1 of year 2. Student teachers will be back to colleges in terms 2 and 3 of year 2 to continue learning subject content, reflecting on their experiences of teaching practice and then wind up their studies.

This curriculum is designed in a modular structure and contains eleven subjects. These are Chichewa, English, mathematics, education foundation studies, agriculture, social studies, life skills, science and technology, expressive arts, religious studies and human ecology. In this modular design, a set of topics forms a module in a subject. A module consists of 40 hours contact time.

Summary of topics for the term and time allocation

Term 3		
Topic	Allocated time in hours	Core element
Teaching of soil	5	Teaching of agricultural environment and soil science
Teaching of agricultural marketing	6	Teaching agribusiness
Teaching of farm mechanization	5	Teaching farm tools, machinery and technology
Teaching of flowers	8	Teaching crop production
Teaching of goat production	4	Teaching livestock production
Teaching of rabbit production	4	Teaching livestock production
Teaching of forestry	5	Teaching agroforestry
Teaching of agroforestry practices	6	Teaching agroforestry

TOPIC 1

Teaching of soil

Time 5 hours

Term 3

Introduction

Soil is one of the most important natural resources that affect agricultural production. The population of Malawi is increasing and this is putting more pressure on natural resources including soil.

The teaching of soils will equip you with knowledge, skills and develop attitudes towards soil conservation. This will enable you to effectively use teaching, learning and assessment methods to primary school learners on theory and practice relating to soil. The learners will use knowledge and skills gained to effectively manage soil as farmers or change agents.

In this topic, you will learn how to teach topics on soil using a variety of teaching and learning methods. You will also learn how to assess learners when doing experiments.

Success criteria

By the end of this topic, you must be able to:

- reflect on teaching practice experience
- investigate soil concepts taught in primary schools

- analyse appropriate methods that can be used to teach soils in primary schools
- apply appropriate methods in the teaching and learning of soil
- assess learners in agricultural experiments

Background information

Soil is an example of renewable natural resource. It is an important resource in crop production as well as for agricultural engineering. There are many concepts relating to soil that are taught in primary school curriculum under the core element agriculture environment and soil science.

Understanding of concepts of soil is beneficial to learners as it will help them to apply the knowledge and skills in their daily lives through farming or engineering work. It will also prepare them for further education.

Therefore, learners will acquire problem solving skills in soil conservation thereby enhancing agricultural production for sustainable development,

Teaching of soil requires use of several methods such as experimentation, project and excursion. These methods enhance learners' active participation in the lesson.

Resources for teaching and learning of soils are readily available as shown in Figure 1.1. However, teaching of soil can sometimes be challenging due to attitude of teachers and learners. They avoid the practical activities involving working with soils denying learners of understanding the concepts of soil.

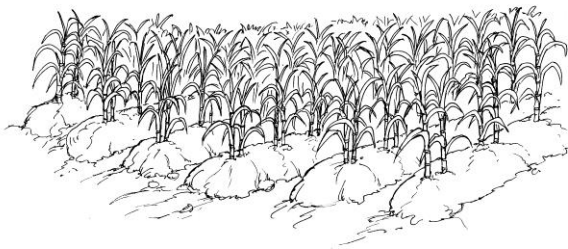


Fig 1.1 Maize crops growing on soil

Task 1 Reflecting on teaching practice experience

During teaching practice, you might have experienced some successes as well as challenges. In this task, you will identify the successes and challenges you experienced during the teaching of agriculture in primary schools. You will also discuss contributing factors to the successes and challenges and how the challenges were managed.

Activity 1 Identifying successes and challenges experienced during the teaching and learning of agriculture in primary schools

- a. Go through your teaching practice file and isolate your successes and challenges in the teaching and learning of agriculture.
- b. Analyse the successes and challenges identified in the teaching and learning of agriculture.
- c. Share the findings.

Activity 2 Discussing contributing factors to the successes and challenges

- a. Conduct a self-study on the current primary school agriculture curriculum to establish the challenges teachers experience when teaching.
- b. Discuss factors that contribute to the challenges faced during the teaching of agriculture.
- c. Compare your findings in Activity 1 and those in Activity 2a.
- d. Consolidate the challenges identified.

Activity 3 Discussing how the challenges were managed

- a. Discuss how the challenges were managed.
- b. If you were given a chance to reteach, which areas would you focus on for improvement?
- c. Share for discussion.

Tips

- You may use supervisor's, head teacher's, or class teacher's comments and your own evaluation of teaching practice for Activity 1.
- Some of the methods that can be used are pair work, author's chair, pens in the middle, gallery walk and work station.
- Ensure that the primary school agriculture syllabuses, teachers' guides, learner's books are available for Activity 2.

Task 2 Investigating soil concepts taught in primary schools

Primary school learners are taught different concepts in agriculture from Standard 4 to Standard 8. In this task, you will research on concepts related to soil, identify topics on soils in primary agriculture curriculum and identify challenging topics on soil taught in primary school.

Activity 1 Researching on concepts related to soil

- a. Conduct a book review on soil related concepts from Standard 4 to Standard 8.
- b. Compile your findings.
- c. Present your findings for discussion.

Activity 2 Identifying topics on soil in primary agriculture curriculum

- a. Isolate topics related to soil found in the primary agriculture curriculum.

- b. Identify the topics covered in each class as shown in Figure 1.2.
- c. Examine the order and coverage in each class.
- d. Suggest an alternative order and depth of coverage of topics on soil with reasons.

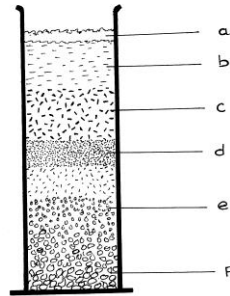


Figure 1.2: Soil composition

Activity 3 Identifying challenging topics on soil taught in primary schools

- a. Identify misconceptions related to the concept of soil.
- b. Clarify the misconceptions.
- c. Isolate topics you think are challenging to teach in each class based on your experiences from teaching practice.
- d. Give reasons why you think that they are challenging.
- e. Suggest appropriate strategies that would be used to teach the challenging topics.
- f. Share your findings.

Tips

- You must make sure that the primary agriculture syllabus, teacher's guides and learners' books are available.
- Consider using library, internet and interviews.
- Misconceptions on soil may include plant food comes from soil, air-dried soil does not contain moisture not contain moisture.
- For Activity 3, you may consider own experience or from experienced teachers.

Task 3 Analysing appropriate methods that can be used to teach soil in primary schools

For primary school learners to clearly understand concepts related to soil, there is need for a teacher to identify, select and use appropriate methods of teaching. In this task, you will evaluate and select appropriate methods that can be used to teach soil related concepts.

Activity 1 Discussing methods that can be used to teach soil

- a. Brainstorm methods that can be used to teach concepts related to soil.
- b. Discuss appropriate methods that can be used to teach concepts related to soil.
- c. Share your findings.

Activity 2 Selecting appropriate method to teach soil

- a. Identify methods for teaching and learning specific concepts related to soil.

- b. Prepare micro-lessons and demonstrate how to teach using the identified methods.

Activity 3 Evaluating the methods used to teach soil

- a. Discuss the strengths and weaknesses of the methods of teaching soil used in Activity 2.
- b. Practice to teach now that you think you can do better using microteaching or peer teaching

Tip

Refer to your foundation studies module for teaching and learning methods.

Task 4 Applying appropriate methods in teaching and learning soil

After selection of appropriate teaching and learning methods, they must be applied in a lesson. In this task, you will design an experiment, organise resources, trial-test and teach using the experiment method.

Activity 1 Designing an experiment on teaching of soil

- a. Discuss factors to consider when designing an experiment.
- b. Identify possible topics on soil that can be taught using experimentation.
- c. Design an experiment on any of the topics identified.

Activity 2 Trial testing the experiment

Case study

Mr Zangaphe was a Standard 6 class teacher at Masambabise primary school. In one of his agriculture lessons on the topic soil, he prepared an experiment. As he was teaching, it was observed that he did not have enough resources for the experiment. The available resources were also disorganised. He was unsure of the results of the experiment and did not achieve the expected results. In addition, some of the learners would not handle the resources and gave priority to boys to do most of the activities.

- a. Using your experience from teaching practice, isolate issues that went wrong in teaching the topic using experiment.
- b. If it were you to teach this lesson, what would you have done different from this teacher in order to have successful results?
- c. Explain how the teacher would have made the lesson inclusive in event that there was a learner with visual impairment.
- d. How did the teacher violate gender balance?
- e. What pieces of advice would you give Mr Zangaphe to improve teaching and learning using experiment as a method in agriculture lessons?

Activity 3 Teaching using experiment method

- a. Using your teaching practice experience, explain the procedure you followed when teaching using experiment method.
- b. Identify challenges you faced when using the method.
- c. Explain how you managed the challenges.
- d. Discuss how you could manage the challenges when teaching using the method.
- e. Conduct micro-lessons using experiment method.

Tip

You may consider aims of the experiment, materials, procedure when designing an experiment.

Task 5 Assessing learners' work in agricultural experiments

As a teacher, there is need for you to be familiar with designing and development of assessment tools for agricultural experiments and also be able to use the developed assessment tools to assess learners' performance. In this task, you will design, develop and use tools for assessing learners in an experiment.

Activity 1 Designing tools for assessing learners in an experiment

- a. Reflect on the lessons presented in task 4, Activity 3 and identify skills that learners acquired.

- b. Discuss type of tools that can be used to assess the skills identified in a) above
- c. Design a tool(s) that can be used to assess learner's level of performance based on the skills that you want learners to acquire.
- d. Share your work.

Activity 2 Developing tools for assessing learners in an experiment

- a. Choose one topic you suggested in task 4, Activity 1.
- b. Select an appropriate tool for assessing the skills.
- c. Produce tools for assessing learners in the experiment.
- d. Present the developed tools for discussion.

Activity 3 Using the tools for assessing learners

- a. Prepare a practical lesson plan on the topic you selected.
- b. Present the practical lesson.
- c. Use the tool(s) developed in Activity 2 to assess skills in the experiment.

Tips

You may consider consulting the primary school curriculum, syllabuses, textbooks of all classes and other relevant materials including the internet for the Activities.

- Tools for assessment may be rubric, checklist or portfolio.

Summary

In this topic you had a reflection on successes and challenges in the teaching of agriculture experienced during teaching practice. You also explored soil related concepts taught in primary school such as importance of soil, soil composition, soil texture, structure and profile, soil erosion and conservation, soil fertility, improving soil fertility and soil nutrients. You also covered different methods that can be used to teach soil. The methods include experimentation, demonstration, inquiry, projects and research.

Furthermore, you practised teaching topics on soil through experimentation. You assessed different skills using rubric, checklist and portfolio.

Reflection and assessment

1. What life-changing skills am I going to acquire from the teaching of soil?
2. Analyse any five methods that are used to teach soil in primary schools
3. In Standard 7, there is a topic "soil texture" using experimentation method:
 - a. Prepare a practical lesson plan on the topic
 - b. Develop appropriate tools for assessing learners when conducting the experiment

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TOPIC 2

Teaching of agricultural marketing

Time 6 hours

Term 3

Introduction

Farming is a business as such farmers need to make profits. Farm products may undergo several processes before they reach the final consumer. Such processes are referred to as marketing functions. Marketing itself is a broad term that covers all processes carried out in the transformation of raw agricultural products from the farm to the consumer.

For effective teaching and learning of the topic, a wide range of methods and resources should be used to cater for diverse educational needs of learners.

In this topic, you will reflect on how agricultural marketing is taught in primary schools. You will further create appropriate resources, apply appropriate methods when teaching agricultural marketing and use appropriate tools to assess learners in a theory lesson.

Success criteria

By the end of this topic, you must be able to:

- reflect on agricultural marketing as taught in primary schools

- create appropriate resources for teaching agricultural marketing
- apply appropriate methods when teaching agricultural marketing
- use appropriate tools in assessing learners

Background information

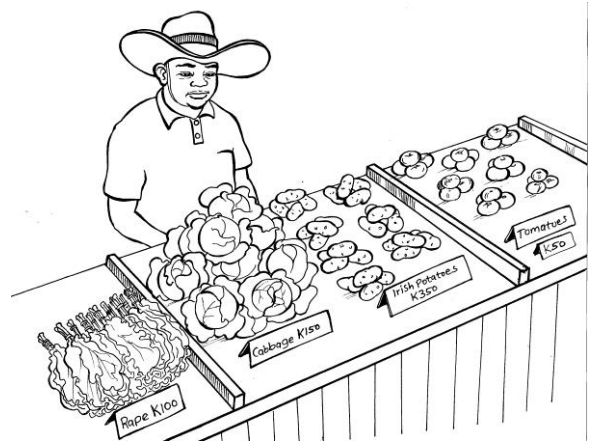
Agriculture production as a business aims at generating income for the farmer. Agricultural products are transferred from a point of production (farm) to a point of consumption (consumer). Many activities take place during the transfer of these products. These activities may include market research, financing, risk taking, storage, grading, transporting, processing, advertising, buying and selling and distribution.

Examples of markets include Export Trading Group (ETG), Farmers World, National Smallholder Farmers' Association of Malawi (NASFAM), RAB Processors Malawi Limited, Agricultural Development and Marketing Cooperation (ADMARC), city or town or district market, local or village markets, cattle markets, poultry markets, sheep or goat market and dairy

markets. Figure 2.1 is an example of an agricultural marketing.



A woman selling



A man selling



A woman making and selling jam

Figure 2.1: Agricultural marketing

The teaching of agricultural marketing is beneficial to learners as it equips them with relevant knowledge of farm management and value addition. It will also equip them with knowledge and skills to address challenges in agribusiness. Learners are able to understand concepts related to agricultural marketing easily because

most of the concepts related to their daily experiences.

Teaching and learning becomes exciting if a variety of methods are used. Field trips, role plays and case studies are some of the approaches that are used to improve the teaching and learning process.

One of the challenges related to teaching and learning of agricultural marketing is failure to understand and link the concepts with real life experiences. This makes the topic appear abstract. Academic achievement cannot be known unless an appropriate form of assessment is applied. Similarly the effectiveness of the teaching methods can be known through the use of appropriate assessment tools.

Tasks 1 Reflecting on agricultural marketing as taught in primary schools

Teachers need to have good knowledge of the concepts on agricultural marketing covered in primary schools. In this task, you will conduct research on topics that are related to agricultural marketing and their level of coverage in the primary school curriculum.

Activity 1 Researching on concepts related to agricultural marketing

- a. Conduct a research on the topics related to agricultural marketing taught in primary school.
- b. Summarise the topics.
- c. Share your findings.

Activity 2 Establishing level of coverage of agriculture marketing concepts in primary school curriculum

- a. Using the primary school teachers guides and learners books, find the classes in which the topics about agricultural marketing are taught and its level of coverage.

- b. Summarise the results in form of a table as below.

Class	Topic/sub-topic	Coverage
5		
6		
7		
8		

- c. Share your findings.

Activity 3 Discussing marketing functions

- a. Brainstorm the meaning of marketing functions.
- b. Discuss the meaning of marketing functions.
- c. Identify marketing functions that can be performed on tomatoes.
- d. Discuss the importance of the marketing functions performed on tomatoes.
- e. Describe the marketing functions performed in respect to the following:
 - perishability of agricultural produce
 - bulkiness of agricultural produce
 - seasonality of products
- f. Organise a role play depicting a market scenario.
- g. Conduct the role play.
- h. Discuss the marketing concepts depicted.

Tip
Ensure that primary school syllabus, teachers' guides and learners' books are available for the activities.

Task 2 Creating appropriate resources for teaching and learning of agricultural marketing

In this task, you will reflect on the resources used in the teaching and learning of agriculture during teaching practice. You will also develop appropriate resources for teaching and learning of marketing functions. You will further evaluate the resources developed for teaching agricultural marketing.

Activity 1 Reflecting on the resources used during teaching practice

- a. List the teaching and learning resources that you used when teaching agriculture during teaching practice.
- b. Discuss the resources which were used during the lessons.
- c. Discuss ways in which resources were used to accommodate learners with diverse needs.
- d. Suggest other resources you would have used when teaching the same lessons.

Activity 2 Developing appropriate resources for teaching marketing functions

- a. List resources that you can use to teach marketing functions.
- b. Develop the resources for the teaching and learning of marketing functions of your choice.
- c. Display the resources and let other groups appreciate.

Activity 3 Evaluating resources for teaching marketing functions

- a. Develop a lesson plan on any concept of agricultural marketing function.
- b. Gather the resources you developed in Activity 2.
- c. Conduct micro-teaching
- d. Isolate the strengths and weaknesses or challenges encountered when using the resources.

Tips

- You may consider using group work in some of the activities.
- You can use gallery walk, bus stop and restaurant method when sharing findings.

Task 3 Applying appropriate teaching and learning methods in the teaching of agricultural marketing

Teachers must apply methods of teaching and learning agricultural marketing concepts. In this task, you will discuss different methods that can be used in teaching and learning of agricultural marketing. You will also peer teach using workstation, role-play and case studies.

Activity 1 Reflecting on methods of teaching and learning agricultural marketing

- a. Review methods used in the teaching and learning of agriculture.
- b. Identify the methods that could be appropriate for the teaching and learning agricultural marketing.

- c. Share your findings.

Activity 2 Peer-teaching marketing functions using work station

- a. Prepare micro lessons on marketing functions using work station method.
- b. Present the lessons to peers.

Activity 3 Using role play method to teach marketing functions

- a. Prepare micro lessons on marketing functions using role play method.
- b. Present the lesson to peers.

Activity 4 Using a case study to teach marketing function

- a. Discuss on how case studies can be used in teaching and learning of agricultural marketing concepts.
- b. Develop a case study that can be used to teach marketing function.
- c. Present your case study for discussion.
- d. Prepare a lesson on advertising as a marketing function using case studies.
- e. Peer-teach the lesson.

Activity 5 Critiquing micro lessons on agricultural marketing

- a. Discuss strengths and weaknesses of the teaching and learning methods used.
- b. Describe the methods you have enjoyed using.
- c. Discuss ways in which you would have prepared and presented the lesson differently.

- d. Share your ideas with the rest of the class.

Tips

- Some of the methods that can be used in Activity 1 are gallery walk, case study, role play, mix freeze pair, KWL, project, work station, give one take one.
- For Activity 4, include use of ICT in the case study on marketing functions
- Video clips of lesson presentations may also be used for critiquing in Activity 5.

Task 4 Using appropriate tools in assessing learners

Assessment of learners' performance during and after the lesson helps teachers know the progress of learners and effectiveness of their teaching and learning methods. In this task, you will analyse and develop tools to be used when assessing learners. You will also assess learners using a rubric.

Activity 1 Analysing tools that can be used to assess learners when teaching marketing functions

- a. List tools that can be used to assess learners when teaching agricultural marketing
- b. Select those tools that are appropriate to use when teaching marketing functions.
- c. For each appropriate tool, discuss strengths and weaknesses.
- d. Select the most appropriate methods.
- e. Present your results for discussion.

Activity 2 Developing a rubric to assess learners when teaching marketing functions.

- a. Recall how a rubric is used.
- b. Identify areas in which learners will be assessed.
- c. Develop a rubric to be used to assess learners when teaching marketing functions.
- d. Discuss the rubric with the rest of the class.

Activity 3 Assessing learners using rubric when teaching marketing functions

- a. Prepare a lesson on agricultural marketing functions.
- b. Conduct micro- teaching and assess learners using the rubric.
- c. Discuss ways in which the rubric helped to check learners' attainment of skills on agricultural marketing.
- d. Identify the successes, challenges and possible solutions on the use of the rubric.

Tip

You may have noticed that a rubric works better when assessing skills in a practical lesson.

Summary

In this topic, you reviewed concepts taught in primary school on agricultural marketing. The concepts taught are marketing functions and problems of agricultural marketing and possible solutions. You have also learnt that the functions of markets include buying,

selling, grading, transporting, processing, assembling and storage. The teaching of agricultural marketing can be meaningful if appropriate teaching, learning and assessment methods are employed. The methods you studied in this topic include case studies, work station and role play. Appropriate resources also need to be used and these may include sample adverts, video or audio clips, raw and processed agricultural products, nearby market, learners' experiences, checklists and pictures depicting market scenes. You also learnt how to develop and use a rubric to assess learners and used it to assess learners' performance in marketing functions.

Reflection and assessment

1. Why should we teach the importance of each of the following marketing functions:
 - a. transportation
 - b. grading
 - c. advertising
2. Describe how the following teaching and learning methods are used to teach primary school learners:
 - a. work station
 - b. case study
 - c. role play
3. How would you teach agricultural marketing to make it inclusive?

Glossary

Perishability: subject to decay, ruin or destruction.

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TOPIC 3

Teaching of farm mechanisation

Time 5 hours

Term 3

Introduction

In topic 2, you learnt about the teaching of agricultural marketing. Fast and easier production of agricultural produce is facilitated by farm mechanisation. Primary school curricula cover different crop and animal husbandry practices. Such activities include land preparation, seeding, fertiliser application and pesticide application and transportation. These activities involve the use of various machineries. As a teacher at a primary school, you will be required to teach such topics.

The teaching of farm mechanisation will enable you to acquire knowledge, skills and develop positive attitudes towards farm mechanisation. This will help you in handling topics on farm mechanisation in primary school curriculum effectively and assist in building your creativity and that of learners for proper use of farm machines.

In this topic you will explore concepts related to farm mechanisation. You will also develop resources and use appropriate teaching, learning and

assessment methods when teaching concepts on farm mechanisation.

Success criteria

By the end of this topic, you must be able to:

- evaluate concepts related to farm mechanisation taught in primary schools
- develop appropriate resources for teaching farm mechanisation
- apply innovative methods when teaching farm mechanisation
- apply appropriate assessment methods in the teaching of farm mechanization

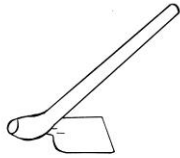
Background information

Agriculture is one of the major contributing sectors to economic development of the nation. For the farmers to effectively succeed in their farming, they have to mechanise their farms other than relying on hand tools like hoes. Figure 3.1 provides some examples of farm tools and machinery.

The teaching and learning of farm mechanisation will enable teachers and learners to appreciate effective use of farm machinery as well as put them to appropriate use in their everyday life.

The teaching and learning of farm mechanisation is, however, faced with a number of challenges such as lack of appropriate machinery, lack of creativity, use of inappropriate methods of teaching as well as poor planning.

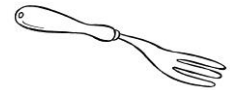
Use of a variety of teaching, learning and assessment methods and resources can facilitate acquisition of knowledge, skills, and attitudes in learners on farm mechanisation.



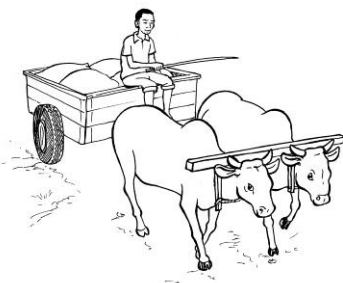
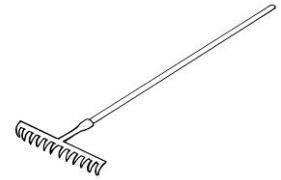
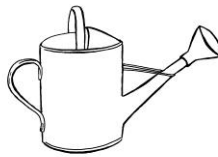
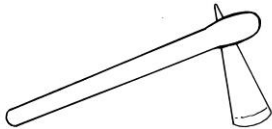
A Hoe ,An axe



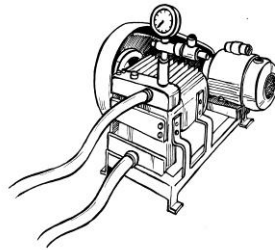
A panga knife, a watering
cane



Hand folk, a rake



Ox cart carrying farm
produce



Motorised pump



Tractor pulling a plough



A ridger

Figure. 3.1: Some farm tools and machinery

Task 1 Evaluating concepts related to farm mechanisation taught in primary schools

There are different tools and machines that farmers use in their day to day farm operations. In this task, you will explore and discuss concepts related to farm tools and machinery. You will also identify farm tools and machinery taught in primary schools.

Activity 1 Exploring concepts related to farm tools and machinery

Case study

Mrs Lima grows different types of crops on her large piece of land. The crops include maize, groundnuts and beans. Despite having a large piece of land, Mrs Lima rarely makes any profit from the produce. One of the reasons is that she fails to cultivate the whole piece of land since she uses simple tools such as hoes, pangas and axes. Due to unavailability of a sprayer, she does not apply chemicals to control pests and diseases.

- From the case study, isolate concepts related to teaching of farm mechanisation.
- Research on other concepts on teaching of farm mechanization not reflected in the case study.
- Based on your experience, how would you use Mrs Lima's farm in teaching and learning of farm mechanisation?

- What advice can you give to Mrs Lima in order for her to increase productivity of her farm?
- Share your work.

Activity 2 Identifying farm tools and machinery taught in primary schools

- Plan a visit to a farm to observe different farm tools and machinery.
- Visit the farm and inquire how the tools and machinery are used.
- List the tools and machinery.
- Isolate farm tools and machinery found in primary school curriculum.
- Compile them.
- Compare your findings with some of the farm tools and machinery shown in Figure 3.1.
- Present your work.

Activity 3 Discussing concepts related to farm tools and machinery taught in primary school

- Isolate concepts of farm tools and machinery found in primary school curriculum.
- Discuss the concepts you have isolated.
- Share your work.

Tips

- You may use any ICT tools and agriculture books to search for information on concepts on farm tools and machinery for Activity 1.
- Refer to primary agriculture teacher's guides and learners' books for primary curriculum, agriculture tutors book and IPTE agriculture ODL module 2 for Activity 2.
- Select appropriate strategies when presenting your findings for both Activities 1 and 2 e.g. Author's chair, gallery walk, power point, charts.

Task 2 Developing resources for teaching and learning farm mechanisation

Thorough preparation and use of teaching and learning resources promotes effective teaching and learning. In this task, you will develop, display and evaluate resources for teaching and learning concepts related to farm mechanisation.

Activity 1 Collecting materials from local environment

- a. Reflect on farm tools and machinery you used during teaching practice.
- b. Identify farm tools and machinery that you can model.
- c. List materials that are required to produce the model.
- d. Walk around the school environment to collect materials for modelling of resources for teaching and learning the any concept on the topic "farm mechanization."

- e. Share with the class what you have collected.

Activity 2 Modelling farm tools and machinery

- a. Assemble the resources collected in Activity 1.
- b. Model farm tools and machinery using the materials..
- c. Present the models you developed.

Activity 3 Drawing and labelling of farm tools and machinery

- a. Identify different farm tools and machinery that you can draw on a specific concept.
- b. Draw some farm tools and machinery.
- c. Make some modifications in the drawing in order to suit learners with special educational needs.
- d. Label the drawings appropriately.
- e. Share your work.

Activity 4 Displaying samples, models and drawings of farm tools and machinery

- a. Assemble samples collected in Activity 1, models made in Activity 2 and drawings done in Activity 3.
- b. Display your samples, models and drawings.

Activity 5 Evaluating samples, models and drawings displayed

- a. Develop criteria for evaluating the resources developed
- b. Evaluate samples, models and drawings displayed.
- c. Prepare micro lessons.

- d. Teach using the evaluated samples, models and drawings.

Tips

- You may consider modeling and drawing farm tools and machinery such as wheelbarrow, watering can, farm cart, sickle, panga knife, garden fork, rake, sheller, plough and sprayer for Activities 2 and 3.
- Ensure that appropriate materials are used in the models of farm tools and machinery for activity 2.
- Realia may as well be used in these activities.
- You may make some modifications on the models and drawings for example raised diagrams to accommodate learners with special education needs for Activity 2.
- Consider involving everyone including those with special educational needs in the production of the resources. You may consider evaluating resources based on realistic, clarity and artistic.

Task 3 Applying innovative methods when teaching farm mechanisation

Effective teaching and learning requires variation in terms of teaching and learning methods. In this task, you will discuss different methods of teaching any topic on “farm mechanisation”,

identify appropriate methods and use problem tree method to present a micro-lesson on the topic.

Activity 1 Discussing different methods for teaching and learning farm mechanisation

- a. Quick write on different methods you would use to teach any topic on farm mechanization based on your experience.
- b. Discuss different methods for teaching the topic.
- c. Share your findings.

Activity 2 Identifying appropriate methods for teaching farm mechanisation

- a. Analyse methods discussed in Activity 1.
- b. Identify appropriate methods for teaching any topic of ‘farm mechanization.’
- c. Share your work.

Activity 3 Using appropriate resources when teaching farm mechanisation

- a. Refer to Task 2 Activity 2. Choose resources you can use to teach any topic of your choice in “farm mechanisation”.
- b. Identify the appropriate resources for teaching the topic.
- c. Share your findings.

Activity 4 Practising teaching a topic in farm mechanisation using problem tree

- a. Prepare a micro lesson on the topic selected using resources identified in Activity 3. Use a “ problem tree method” to teach the topic.
- b. Discuss with peers the strengths and weaknesses of the micro- lesson.
- c. Share how best the micro-lesson would have being presented using problem-tree method.
- d. Re-teach micro-lessons that have been improved.

Tips

- You may consider methods like think-pair share, work station, futures’ wheel, mind mapping, quick write, case study, give one take one for Activity 1.
- Consider reviewing problem tree method for Activity 3 using your foundation studies knowledge.
- You may use teaching and learning methods such as card collecting and clustering futures’ wheel, mind mapping, case study, Think ink pair share.

Task4 Applying appropriate assessment methods in teaching farm mechanisation

Assessing learners gives true picture on how teaching and learning is going on. It also helps in evaluating the methods and resources used in teaching and learning. In this task, you will discuss, select and use appropriate assessment

methods to assess learners’ performance on farm mechanisation.

Activity 1 Discussing appropriate assessment methods when teaching farm mechanisation

- a. Review methods you would use to assess learners’ progress when teaching any topic on farm mechanisation
- b. Discuss the methods for assessing learners on farm mechanisation.
- c. Share your findings.

Activity 2 Selecting appropriate assessment methods on farm mechanisation

- a. Evaluate the different assessment methods you discussed in Activity 1.
- b. Select appropriate methods for assessing learners on farm mechanization.
- c. Share your findings.

Activity 3 Practising to assess learners’ performance in farm mechanisation

- a. Use selected methods to assess learners’ performance on any topic of your choice in farm mechanization.
- b. Discuss how each method was used.
- c. Draw lessons from the activity.

Tips

- You may consider the following assessment methods: questionnaire, report writing, self-assessment, quiz, observation, peer assessment for the activities.
- Ensure that a variety of assessment methods are used for Activity 3.

Summary

In this topic, you have evaluated different concepts related to farm mechanisation taught in primary schools. You also developed resources for teaching concepts related to farm mechanisation. You further developed teaching and learning resources like models and diagrams of farm tools and machinery. You also used innovative methods of teaching farm mechanisation such as problem tree. Finally, you assessed learners' performance using appropriate assessment methods.

Reflection and assessment

1. a) What challenges did I face when I was teaching using problem tree method?
b) Apart from problem tree method, what are alternative teaching and learning methods suitable to teach farm mechanisation?
2. How will the knowledge of farm mechanisation change the way I have been using farm tools and machinery at home?

3. How does assessing learners promote teaching and learning?
4. Identify the farm tools or machinery used for
 - a. trimming flowers
 - b. lifting seedlings with soil around it
 - c. making ridges
 - d. pumping water for irrigation

Glossary

Farm machinery: large equipment with complicated parts and usually operated by animal power or engine power

Farm tools: simple implements used on the farm and operated by hand

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Further reading

www.photosearch.com/photo-images/mechanized.html

TOPIC 4

Teaching of flowers

Time 8 hours

Term 3

Introduction

Flower production is practised in most areas including the school surroundings. In urban areas, it is a source of income for some families. In future, some of the learners may engage in flower production, hence the inclusion of the topic in the primary school curriculum. As an agriculture teacher, you will be required to teach and assess learners in flower production. This topic will help you to have adequate knowledge and skills of teaching and assessing learners in flower production.

In this topic, you will learn about theories and practices of flower production. You will also use suitable methods and resources in assessing learners when teaching flower production.

Success criteria

By the end of this topic, you must be able to:

- summarise flower production practices in primary curriculum
- use suitable resources for teaching and learning flower production

- apply effective assessment method for teaching and learning of flower production
- evaluate micro-lessons in flower production

Background information

Flower production in the primary school curriculum is taught under the core element, crop production. It covers a number of areas that include importance, types and management practices. It is important for learners to acquire the relevant knowledge and skills in flower production as it is a potential source of employment for some learners after completing their education apart from making their homes beautiful. In this case, teachers must use suitable resources for teaching and assessing learners on flower production such as the school environment. This is a readily available resource to enhance the understanding of the flower production theories (Figure 4.1).

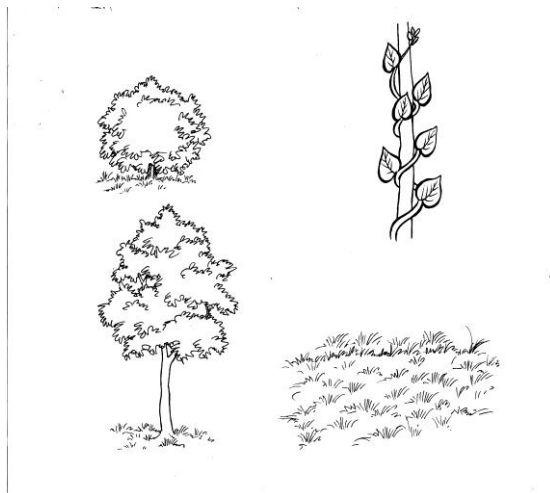


Figure 4.1 Different types of flowers

Task 1 Summarising flower production practices in primary curriculum

To effectively teach flower production, you need to understand its contents. In this task, you will carry out a self-study on the theories of flower production practices.

Activity 1 Conducting self-study on flower production

- Reflect on areas of flower production you know.
- Discuss areas of flower production
- Conduct self-study on flower production.
- Share your findings.

Activity 2 Isolating flower production practices taught in primary schools

- Study the primary syllabus, teachers' guides and learners' books.
- Isolate topics on flower production covered.

- Compare your knowledge on flower production with content in the primary curriculum.
- Share your work.

Tips

- You may find information from the library, internet and flower producers for Activity 1.
- In the review of flower production in Activity 1, you may consider the following areas: types, importance, cultural practices, and factors to consider when establishing a nursery, factors to consider when growing flowers, marketing and ways of preserving flowers.
- Ensure that the syllabuses and agriculture teachers' guides are available for Activity 2.

Task 2 Using suitable resources for teaching and learning flower production

In Task 1, you learnt the content of flower production. To effectively teach this content to learners, you need to use suitable resources. In this task, you will discuss and identify suitable resources for teaching flower production. You will further prepare lessons and use the environment as a resource to present the lessons.

Activity 1 Discussing suitable resources for teaching flower production

- a. Based on your experience discuss the suitable resources for teaching flower production.
- b. Share your findings.

Activity 2 Identifying suitable resources for teaching flower production

- a. Walk around the college premises and identify available resources that you can use to teach flower production.
- b. Explain how each of the resources can be used in the lesson.
- c. Present your work.

Activity 3 Preparing lessons using school environment as a teaching resource

- a. Prepare lessons on a topic of your choice under flower production.
- b. Use a variety of resources from the school/college environment.
- c. Present the lesson plans for comment in a gallery walk
- d. Make corrections based on the comments.

Activity 4 Presenting lessons on flower production using school environment as a resource

- a. Use the resources from the college environment.
- b. Peer-teach the lesson you prepared in Activity 3.

Activity 5 Identifying strengths and challenges in using school environment as a resource for teaching flower production

- a. Identify strengths in the use of the school/college environment in the teaching of flower production.
- b. Identify challenges in the use of the school/college environment in the teaching of flower production.
- c. Discuss how the strengths could be maintained and challenges could be solved.
- d. Share your findings.
- e. Practise using micro teaching or peer teaching.

Tips

- You may use card collecting, clustering, think-pair-share and ball game for Activity 1.
- Ensure that all students are given opportunity to practise the skills.
- In the discussion of the suitable resources, you may establish how each resource can be used, its advantages and disadvantages.
- You may use the primary school syllabus and teachers' guide to isolate resources for flower production for Activities 1 and 3.

Task 3 Applying effective assessment methods for teaching and learning of flower production

The performance of learners in acquisition of knowledge and skills in flower production can be assessed using various tools. In this task, you

will analyse, develop and use various assessment tools in the teaching of flower production.

Activity 1 Analysing tools for assessing learners when teaching flower production

- a. Reflect on various methods of assessing learners using focus ball.
- b. Review how each assessment method works.
- c. Identify assessment tools used in each method.
- d. Analyse the assessment tools.
- e. Identify most suitable tools for assessing learners' work in the topic of your choice under flower production.
- f. Share your work.

Activity 2 Developing assessment tools for a field trip on flower production

- a. Review the procedure for developing the assessment tools you identified in Activity 1.
- b. Develop assessment tools for a field trip on flower production.
- c. Share your work for comments.
- d. Make corrections.

Activity 3 Assessing learners on flower production

- a. Plan a field trip to learn flower production.
- b. Review the procedures for a field trip.
- c. Assess learners using the tools you developed in Activity 2.
- d. Evaluate the effectiveness of the tool in assessing the acquisition of skills.

Tips

- Use your knowledge of foundations studies for the activities.
- You may use rubric, checklist, assessment items or report writing to assess learners.

Task 4 Evaluating micro-lessons in flower production

Observing micro-lessons forms a platform for learning how to teach effectively. It is important for you to always identify successes, challenges and way forward on the observation. In this task, you will observe, evaluate and explore solutions to challenges identified in micro-lessons.

Activity 1 Observing model lessons on flower production

- a. Prepare video clips from micro-lessons or model lessons shot at the demonstration school.
- b. Watch the video clips of the micro-lessons.
- c. Take notes as basis for discussion.

Activity 2 Evaluating model lesson to identify strengths and challenges

- a. Identify strengths and challenges in the micro-lessons.
- b. Discuss the strengths and challenges identified.
- c. Discuss solutions to the challenges
- d. Share your findings.
- e. Practise teaching using micro lessons.

Summary

In this topic, you have reviewed the areas that are covered in flower production in primary school curriculum. The areas includes types, importance, cultural practices, factors to consider when establishing a nursery, factors to consider when growing flowers, marketing and preserving flowers. In the teaching of flower production, it is important to use a variety of resources. These resources may include planting materials, hoes, learners' experiences and school flower garden. Most of these resources can be sought from within the school environment. Each resource has its own strengths and challenges. It is important for a teacher to track the performance of each learner in the process of teaching and learning. Different tools are used to track the performance of the learners as they acquire the desired knowledge and skills. These tools include reports, rubrics, checklists, test items and quizzes. In the design of these tools, it is important to establish the knowledge and skills that the learners are expected to acquire. The type of tool will vary with the size of the class, method of teaching and skills targeted. To enhance your professional development, you need to observe model lessons. It gives you a chance to see theory being put into practice. These lessons may be live lessons or video clips. It should be noted that no lesson is perfect. In lesson observation, you need to identify aspects in the lesson that are working and what needs to be

improved and how to improve it. This helps both teachers to improve teaching and learners to benefit from the improved teaching.

Reflection and assessment

1. Discuss any three importance of flowers.
2. Describe suitable resources for teaching and learning flower production.
3. Analyse any three assessment methods that can be effective for teaching and learning of flower production using field trip.
4. How can you create positive attitude in your learners when teaching flower production?
5. How can learners with diverse needs be involved in a field trip?
6. How can peer assessment be used in the teaching of flower production when using field trip?

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Ways of teaching and ideas for student teachers. Domasi: MIE.

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Living school for transformation
UNICEF (not published)

TOPIC 5

Teaching of goat production

Time 4 hours

Term 3

Introduction

In topic 6 of module 1, you learnt how to teach poultry production as one of the livestock raised in Malawi. Goat is the second common livestock raised by people in Malawi. Therefore, it is important for you as a teacher to have the knowledge of goat production and how best you can teach it to primary school learners. This will help them to manage goats for improved production and profitability. To do this, you need sufficient mastery of the subject material and relevant skills and attitude to teach goat production.

In this topic, you will analyse production practices for goats, review and identify suitable methods for teaching goat production. This knowledge will help you to effectively teach goat production.

Success criteria

By the end of this topic, you must be able to:

- analyze production practices for goats

- establish suitable methods for teaching and learning goat production

Background information

The teaching of goat production focuses on the management practices and teaching and learning methods. If primary school learners are effectively taught goat production, they will acquire knowledge and skills thereby helping the nation to realise high production of goats and contribute to economic development in the next generation. This is because goats multiply fast and produce milk, meat, hides and manure. The teaching of this livestock will be made relevant because goats are in multitude hence providing teaching and learning resources.

Since most learners have goats in their communities, their experience will be another teaching resource. Goat production faces a challenge of low production due to poor management which results in parasite and disease outbreak. They can sometimes cause destruction to crops when not controlled, so there is need to control

them as shown in Figure 5.1. Therefore, effective teaching and learning of goat production is important to avert the current trend.

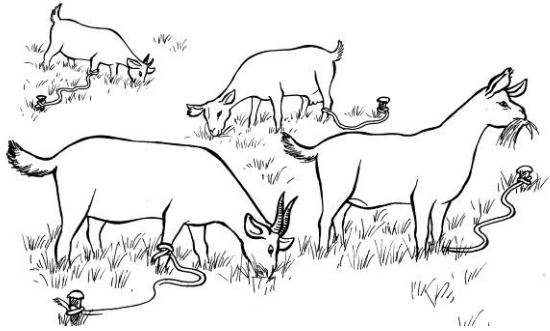


Figure 5.1: Goats grazing

Task 1 Analyzing production practices for goats

You need to master the topic material on goat production before you teach the learners. In this task, you will conduct an information search of the goat production practices, discuss the findings and identify the key concepts of goat production taught in primary school.

Activity 1 Self-studying on goat production

- Research on the concepts of goat production.
- Identify key concepts on goat production.
- Summarize your findings.
- Share your findings.

Activity 2 Discussing management practices for goat production

- Discuss the management practices in goat production.
- Summarise your work.
- Share your work in plenary.

Activity 3 Identifying concepts on goat production practices taught in primary schools

- Identify concepts on goat production practices taught in primary schools.
- Relate what is taught in primary school with your findings from Activity 1.
- Identify existing gaps.
- Present your summary in class for discussion during plenary.

Tips

- For Activity 1, you may use flash light, ball game, authors chair.
- You may search information from the library or internet for Activity 1. Another source of information is a visit to an Agricultural research station or College to observe production practices.
- Use the primary agriculture syllabus, learners' books and teachers' guide for Activity 3.
- Show some illustrations on: breeds of goats, goats' houses, goat parasites in your presentations for both Activities 1 and 2.

Task 2 Establishing suitable methods for teaching and learning goat production

Variation in terms of teaching and learning methods is a spice to teaching and learning process. You are therefore expected to research, analyse and identify appropriate methods for teaching the topic “goat production.”

Activity1 Researching on suitable methods of teaching and learning goat production

Case study

Kwathukwathu primary school is situated near Chalunda farm and veterinary office. The owner of the farm, Mr Phiri raises different livestock including goats, rabbits, cattle and chickens. There is a very good relationship between the school and the community.

Most of the time the agriculture teacher with learners visit the farm. During lessons she also encourages boys to search for any relevant information using smart phones.

Using the case study answer the following questions:

- a. Using your teaching experience, identify the methods reflected in the case study.
- b. Apart from those methods identified in (a) above, what other methods would be appropriate in the teaching and learning of goat production.
- c. Compare the methods with those suggested in the agriculture syllabus.

- d. Discuss challenges depicted from the case study.

Activity 2 Analysing methods for teaching goat production

Refer to teaching methods identified in Activity 1.

- a. Describe how each method can be used when teaching any topic in goat production.
- b. State strengths and challenges of each method.
- c. Share your findings.

Activity 3 Identifying appropriate methods for teaching goat production

- a. Select the appropriate methods for teaching and learning any topic in goat production.
- b. Share your work.
- c. Peer teacher micro-teach using appropriate methods.

Tips

- You need the primary school syllabus, learners’ books and teachers’ guides for Activity 1.
- For Activities 1 and 2 you may consider the following teaching methods jig saw, work station, excursion, demonstration, question and answer.

Summary

In this topic, you have learnt goat production practices which include proper housing, feeding, breeding, parasite and disease control. Teaching and learning of goat production can be

effectively handled if appropriate methods are used. There are different methods of teaching that can be used such as jig saw, authors' chair, ball game, brainstorming, flashlight, work station, excursion, demonstration, question and answer. These methods would assist learners to get the concepts and skills on goat production.

Reflection and assessment

1. Describe the following terms as used in goat production:
 - a. Tethering
 - b. Browsing
 - c. Grazing
2. How important are the following teaching and learning methods in goat production:
 - a. Flashlight
 - b. Ball game
 - c. Excursion
3. What challenges did you face as you were teaching using following methods during the teaching practice:
 - a. Demonstration
 - b. Workstation
 - c. Jigsaw

Glossary

Tethering: tying a goat with a rope to restrict its movement

References

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Further reading

[www.farmafrica.org>resources>farm](http://www.farmafrica.org/resources/farm)

[www.heifer.org.za>assets>attacment](http://www.heifer.org.za/assets/attacment)

[www.milkproduction.com>global>PDF](http://www.milkproduction.com/global/PDF)

TOPIC 6

Teaching of rabbit production

Time 4 hours

Term 3

Introduction

In topic 5, you learnt about goats as one of the common livestock people rear in Malawi. Rabbit production is one of the topics in the primary school curriculum that you will teach. This topic will equip you with necessary skills to enable you effectively teach learners so that they attain basic knowledge and skills in rabbit production as shown in Figure 6.1. This will in turn help the learners to engage in rabbit production during and after their education and contribute to national development.

In this topic, you will learn the concepts and production practices of rabbits. You will also learn teaching, learning and assessment methods in rabbit production using appropriate tools. The knowledge and skills will help you and learners both at school and at home to develop entrepreneurial skills in rearing rabbits.



Figure 6.1: A boy and a girl feeding rabbits

Success criteria

By the end of this topic, you must be able to:

- reflect on theory and practice of rabbit production
- apply appropriate methods when teaching and learning rabbit production
- use appropriate tools to assess learners in rabbit production

Background information

The teaching of rabbit production focuses on concepts like importance, breeds and management practices in rabbit production; teaching and learning methods and use of appropriate tools for assessment. Understanding of these concepts will help you teach learners

effectively as rabbits are small animals and easy to rear at school level.

Due to their small size, rabbits can be raised and slaughtered at family level to improve nutrition as well as source of income. Attainment of the knowledge and skills in rabbit production will help them to be better prepared in their role as industrious citizens and contribute to economic development in their families and the nation at large. The teaching of rabbit production is faced with some challenges such as poor management practices and resource availability which contribute to low production. Some schools may not have enough land to raise different types of livestock including rabbits. Teachers may also have no interest in raising rabbits at school.

Task 1 Reflecting on theory and practices of rabbit production

Teachers need to have good knowledge of the theories and management practices of rabbits. In this task, you will discuss concepts related to rabbit production and management practices and then isolate those concepts and practices taught in primary schools.

Activity 1 Exploring rabbit production concepts

- a. Discuss the concepts on rabbit production you experienced during teaching practice (TP).
- b. Relate the concepts you experienced during TP with what you learnt in primary school.

- c. Summarise the concepts.
- d. Share your work.

Activity 2 Isolating rabbit production concepts taught in primary schools

- a. List rabbit production concepts that you know.
- b. Research on the rabbit production concepts taught in primary schools.
- c. Compare the concepts taught in primary schools and those that you know.
- d. Share your findings.

Activity 3 Discussing rabbit production practices

- a. Discuss the rabbit production practices taught in primary schools.
- b. Discuss challenges learners may face when teaching the rabbit production practices.
- c. Discuss the solutions to the challenges learners found when teaching the rabbit production practices.
- d. Summarise the discussions.
- e. Share your findings.

Tips

- You must ensure that primary school agriculture syllabuses, learners' books and teachers' guides are available for Activity 2.
- You may use ICT tools such as smart phones, computers and other library books for research in Activity 2.
- On concepts, you may include illustrations, characteristics, country of origin of rabbit breeds, importance and husbandry practices.
- In the discussion of husbandry practices, you may include rabbit housing and qualities of rabbit house; feeding and types of feeds, breeding and selection of rabbits for breeding and parasites, diseases and their control for Activity 3.
- You may modify some concepts e.g. illustrations, to adapt learners with special educational needs.

Task 2 Applying appropriate methods when teaching and learning rabbit production practices

Effective teaching and learning demands using variety of methods to suit learners with different learning styles. In this task, you will explore and evaluate different methods for teaching and learning the topic "rabbit production". You will further plan for a

rabbit project that could be used for teaching and learning rabbit production.

Activity 1 Discussing different methods used to teach and learn rabbit production

- a. Identify methods that can be used in the teaching and learning of concepts on rabbit production.
- b. Discuss how the identified methods can be used when teaching and learning any rabbit production concepts.
- c. Compile your findings.
- d. Prepare micro lessons.
- e. Using identified methods peer teach or micro teaching.

Activity 2 Evaluating different methods for teaching and learning rabbit production

- a. Discuss the strengths and challenges teachers and learners may experience when teaching and learning rabbit production using the methods identified in Activity 1.
- b. Identify which methods would work better for each concept.
- c. Share your findings.
- d. Peer teach or micro teach.

Activity 3 Planning a project for teaching and learning rabbit production

- a. Review on factors to consider when planning and conducting a project in agriculture.
- b. Plan a project on raising rabbits in a primary school.
- c. Share your work.
- d.

Tips

- You may use knowledge from foundations studies on methods for teaching in Activity 1.
- You may refer to books in the library or on the internet for procedures for planning a project for Activity 3.
- You may consider issues of management, availability of resources and time when planning the project in Activity 3.
- You may include the following teaching methods in the discussion for Activity 2: jig saw, one stay three astray, project, self-study, research.

Task 3 Using appropriate tools to assess learners' performance in rabbit production

Rearing rabbits at a school as a project facilitates acquisition of knowledge and skills. The knowledge and skills attained can be assessed using different tools and methods. In this task, you will review, evaluate and use assessment tools to assess learners' performance in a project work.

Activity 1 Reviewing tools for assessing learners in project work

- a. Review tools for assessing learners' performance in a project.
- b. Identify skills that learners can be assessed on in a rabbit project.
- c. Share your findings.

Activity 2 Evaluating appropriate tools for assessing learners in a rabbit project

- a. Identify strengths and weaknesses of each of the assessment tools reviewed in Activity 1.
- b. Discuss the areas where each tool in (a) may be used in the project work involving rabbits.
- c. Identify appropriate tools that can assess the skills identified in Activity 1.

Activity 3 Assessing learners using appropriate tools in a rabbit project

- a. Develop assessment tools you identified in Activity 2.
- b. Use the assessment tools to assess learners' progress in a rabbit project.
- c. Keep records of the assessment results.
- d. Improve your work based on assessment.

Tips

- For Activity 1, focus ball method, flashlight may be used.
- Develop as many assessment tools as possible for Activity 2.
- You may consider using the following assessment tools: rubric, checklist, quiz, portfolio, questionnaire and interview guide for assessing your learners for Activity 3.

Summary

In this topic, you have reviewed different concepts and production practices in rabbit production. You reviewed concepts like housing, feeding, breeding and parasite and disease control.

You have also discussed and applied appropriate methods of teaching, learning and assessing learners' on concepts related to rabbit production. Teaching and learning methods discussed include project and research.

Rabbits require a small space as such they are easy to raise within a school as compared to other types of livestock. For this reason, project method can work better in teaching and learning rabbit production in primary schools. The method also gives an opportunity to learners to acquire skills in production practices since it translates theory into practice.

Finally, you have learnt how to develop and use appropriate tools to assess learners' performance in a project work. Some common ways of assessing learners' level of achievement can be checking quality of project work that the learners are involved in through the use of assessment tools such as rubric, checklist, questionnaire, interview guide.

Reflection and assessment

1. How effective is the use of a checklist as an assessment tool in project work.
2. What strategies can be used to improve participation of learners with special education needs in a project work?
3. How important is the knowledge and skills of rabbit management practices to learners?
4. Describe advantages and disadvantages of using project method of teaching and learning in rabbit production.
5. How similar are the production practices that you have learnt with what people in your area are practising on rabbit production?

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Further reading

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thesefficientliving.com/best-moa-mofa.gov.gh/site/?page_id=14081
<https://www.roysfarm.com/rabbitfarming/>

TOPIC 7

Teaching of forestry

Time 5 hours

Term 3

Introduction

During teaching practice, you may have noticed that the school has a woodlot. This practice of growing trees on their own plot is called forestry. This compliments teaching topics on “forestry” in the primary school education curriculum. A teacher must have adequate knowledge of forestry, how it can be taught and assessed. This will help learners to acquire knowledge, skills and develop desired attitudes towards care of trees for sustainable development.

In this topic, you will review concepts of forestry and forest management, use appropriate strategies for teaching and assessing learners.

Success criteria

By the end of this topic, you must be able to:

- analyse concepts and management practices of forestry
- use appropriate methods when teaching forestry management practices
- apply appropriate assessment methods when teaching forestry management practices

Background information

In the teaching of forestry, attention will be put on the concepts and practices of forest management, use of correct teaching and assessment methods. The teaching of forestry in primary schools has several opportunities in that trees as teaching resources are found in most areas and can be planted in most locations around the school (Figure 7.1). Learners should see the economic, social, environmental and anaesthetic benefits of having trees in their communities. However, the teaching of forestry may face some challenges for example lack of resources, technical know how for managing forests. This requires teachers’ proper understanding of the concepts and the appropriate teaching, learning and assessment methods so that learners realise the benefits of learning forestry management in schools.

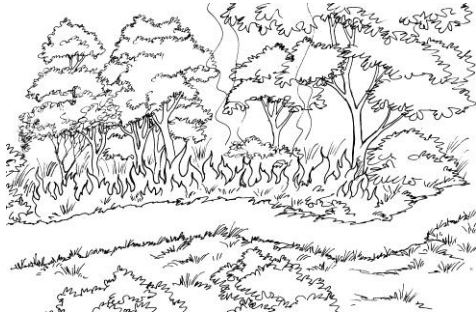


Figure 7.1: A forest with a fire break

Task 1 Analysing concepts and management practices of forestry

A teacher needs to be resourceful in order to have a wide knowledge of forestry concepts and forest management. In this task, you will search for more information on forestry and forest management, share the information with others and compare the concepts with the topics taught in primary school agriculture curriculum.

Activity 1 Researching on concepts and management practices of forestry

- Reflect on concepts and management practices for forest based on experiences.
- Conduct an information search on concepts and management practices for forests.
- Write a report.

Activity 2 Sharing information about the concepts and management practices of forestry

- Prepare a presentation of the concepts and management practices of forestry.

- Make a presentation on the concepts and management practices of forestry.
- Get comments.
- Improve your work based on the shared information.

Activity 3 Comparing concepts reviewed with the topics taught in primary school agriculture syllabus on forestry

- Find topics on forestry concepts and management practices taught in primary schools.
- Tabulate the results in your notebooks, see Table 7.1.

Table 7.1: Topics on forestry taught in primary schools

Class	Topics
5	
6	
7	
8	

- Identify the similarities and differences between the topics in the syllabus and the information you researched on forestry concepts and management practices.
- Share your work.

Tips

- You may use college library books, internet (computers/mobile phones) for Activity 1.
- In the discussion on forestry and forest concepts for Activity 1, you may consider types, importance and management practices for forests.
- In Activity 2, you may consider using the following ways of sharing the findings: sharing in a pair, small groups, plenary session for the whole class, gallery walk, bus stop, walk around, talk around, ball bearing.
- You may need the primary school syllabuses, teachers' guides and learners' books for Activity 3.
- You may need to top up your notes if you have less information about forestry compared to what is prescribed in the curriculum.

Task 2 Using appropriate methods for teaching forestry management practices

Teaching should result in learning. It is the duty of the teacher to use suitable methods in order to achieve the desired knowledge and skills in learners. In this task, you will discuss, analyse, plan, present and evaluate lessons on forestry management practices.

Activity 1 Discussing appropriate methods for teaching forestry management practices

- a. Generate ideas on appropriate methods for teaching forestry and forest management practices.
- b. Discuss the appropriate methods for teaching forestry and forest management practices.
- c. Share your work.

Activity 2 Analysing topics on forestry which can be taught using practical methods

- a. Identify the topics in forest management practices that can be taught using practical methods.
- b. Break the topics into teachable units for practical sessions.
- c. Share your work.

Activity 3 Planning practical lessons on forestry management practices

- a. Select topics you want to teach in practical sessions.
- b. Identify skills that you want learners to acquire in each lesson.
- c. Develop practical lesson plans for the selected topics.

Activity 4 Presenting practical lessons on forest management practices

- a. Review the procedures for conducting a practical lesson.
- b. Conduct micro-teaching.

Activity 5 Evaluating the lessons

- a. Identify strengths in your lesson presented.
- b. Identify areas that need improvement in the lesson
- c. Share the observations.
- d. Take note of the observations for improvement in the next lessons.
- e. Peer-teach or micro-teaching.

Task 3 Applying appropriate assessment methods when teaching forest management practices

A teacher must assess the learners using appropriate methods to check if the desired knowledge and skills have been acquired. In this task, you will analyse, select, design, develop and use appropriate assessment methods.

Activity 1 Analysing assessment methods in the teaching of forest management practices

- a. Identify the different assessment methods suggested in the primary school agriculture teaching syllabus.
- b. Which assessment methods are fit in the teaching of practical lessons in forest management.
- c. Make an analysis (strengths and weaknesses) of each of these methods.
- d. Share your work.

Activity 2 Selecting appropriate methods for assessing learners' performance in practical lesson on forest management

- a. Select some practical lessons in the teaching of forest management in the primary school curriculum.
- b. Identify the appropriate assessment methods for the selected practical lessons.
- c. Share your work.

Activity 3 Designing appropriate tools for assessing learners' performance in forest management

- a. Review the tools for assessing learners during practical lessons.
- b. Discuss factors to consider when developing tools for assessing learners' performance in practical lessons.
- c. Isolate all the skills you want the learners to acquire from the practical lessons in forest management.
- d. Design appropriate tools for assessing learners' performance in forest management.
- e. Develop the assessment tools
- f. Display the developed tools for comments.

Activity 4 Using tools to assess learners in a practical lesson on forest management practices

- a. Prepare a practical lesson on forest management.
- b. Present the practical lesson on forestry management.

- c. Use the tools you developed in Activity 3 to assess learners in the lesson.

Tips

- You may need the primary school teaching syllabus for agriculture, teachers' guides and learners' books for Activity 1.
- Use your knowledge of assessment methods and assessment tools from foundation studies and the primary school teaching syllabus for agriculture.
- Activity 5, Task 2 may be carried out together with Activity 4, Task 3.

Forests are important to local communities and the nation as a whole. Some areas of importance include research and training resources in the field of silviculture, agroforestry; controlling soil erosion and improving soil fertility. They provide products such as timber, fruits and home for wild animals.

Forest management practices include nursery establishment, seed sowing, transplanting seedlings, fertilizer/manure application, construction of fire breaks, weeding, pest and disease control, pruning and harvesting.

Summary

In this topic, you have learnt forestry concepts and management practices. Forest management involves caring of trees and other vegetation. In Malawi, there are natural and man-made forests depending upon their origin and the vegetation species they carry.

You have also learnt how you can teach using a variety of methods including practical on forestry concepts and management practices. You assessed learners' performance in practical lesson on forest management using different methods and tools. Table 7.2 summarises the methods and the tools.

Table 7.2 Some assessment methods and corresponding tools

Activity(practical)	Assessment method(s)	Assessment tool(s)
• Pricking seedlings	• Practical examination	• Set of questions and instructions for the candidate to perform the practical • observation checklist
• Planting a gmelina tree seedling	• Practical work	• observation checklist • written report • rubric
• Pest and disease control in a woodlot	• Assignment • Project • Research	• set of questions or instructions whose responses must be submitted after a specific time • written report

		<ul style="list-style-type: none"> • rubric • observation checklist
<ul style="list-style-type: none"> • Experimenting 	<ul style="list-style-type: none"> • Experiment • Research • Observation 	<ul style="list-style-type: none"> • Set of questions/instructions • Questionnaire • Observation checklist • Rubric • Written report

Reflection and assessment

- 1 What are the strengths and weaknesses of using practical method when teaching and assessing forest management?
- 2 Explain the importance of teaching forestry?
- 3 Describe any three management practices in forest management.
- 4 Describe any two differences between a practical and a theory lesson?

Glossary

Pricking: transplanting seedlings from a nursery into individual pots

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TOPIC 8

Teaching of agroforestry practices

Time 6 hours

Term 3

Introduction

For a long period of time, farmers in Malawi have been growing trees, shrubs together with crops. Livestock production is also incorporated into the farming system. This system of farming is referred to as agroforestry.

Agroforestry is part of the agriculture primary school curriculum. It is therefore important for you to acquire knowledge, skills and develop positive attitudes that will help you in applying appropriate strategies in teaching, learning and assessing primary school learners. In this topic, you will reflect on agroforestry practices taught in primary schools and use appropriate teaching, learning and assessment resources and methods.

Success criteria

By the end of this topic, you must be able to:

- reflect on theory and practice in agroforestry taught in primary schools
- use appropriate resources for teaching and learning of agroforestry
- apply appropriate methods to teach agroforestry practices

- use appropriate methods to assess learners on management of agroforestry plot

Background information

In agroforestry, arable crops are purposefully grown together with trees and shrubs as shown in Figure 8.1.

Livestock may also be part of the farming system. There are different agroforestry systems practised in Malawi.



Figure 8.1 A vegetable garden with msangu trees

If learners acquire skills of agroforestry, they will help to reduce the rate of land or soil degradation, improve soil fertility by allowing the accumulation of biomass for humus, establish sustainable farming systems, provision of fuel wood and timber and fruits for people and supplying a variety of fodder and fruits for livestock.

However, teachers rarely teach agroforestry effectively. This could be due to negative attitude and lack of relevant knowledge and skills in agroforestry and pedagogy. As a result learners do not acquire appropriate knowledge and skills in agroforestry. It is important that teachers acquire and use appropriate teaching, learning and assessment methods for learners to have proper understanding of agroforestry practices.

Task 1 Reflecting on theory and practices in agroforestry taught in primary school

It is important to understand the basic concepts of agroforestry and practices for effective teaching and learning. In this task, you will explore and discuss agroforestry concepts and identify level of coverage of agroforestry topics in primary school curriculum.

Activity 1 Exploring and discussing agroforestry concepts

- a. Use your experiences to identify concepts and practices in agroforestry.

- b. Conduct an information search on agroforestry concepts and practices in Malawi.
- c. Share the research findings.

Activity 2 Identifying levels and depth of coverage of agroforestry topics at primary school

- a. Conduct an inquiry on the topics taught in primary schools.
- b. Complete Table 8.1.

Table 8.1 Level of coverage of agroforestry topics in primary schools

Class (Standard)	Coverage (Topics)
5	
6	
7	
8	

- c. Reflect on challenges experienced during teaching and learning of topics in agroforestry.
- d. Suggest possible solutions to the challenges.
- e. Share your work.

Tip
 For Activity 1, you must have library books, internet and personal contacts. Ensure that agriculture syllabuses, teachers' guides and learners' books are available for Activity 2.

Task 2 Using appropriate resources for teaching and learning “agroforestry”

Teaching of agroforestry requires making use of appropriate teaching and learning resources. In this task, you will analyse and select appropriate teaching and learning resources for teaching of agroforestry. You will also develop, assemble and display appropriate resources for teaching and learning of agroforestry.

Activity 1 Analysing appropriate resources for teaching and learning agroforestry

- a. Reflect on resources on teaching, learning and assessment that were available at your school during teaching practice.
- b. Analyse the effectiveness of the resources in the teaching, learning and assessment of agroforestry.
- c. Share your work.

Activity 2 Selecting appropriate resources for teaching and learning agroforestry

- a. Discuss criteria for selecting a teaching, learning and assessment resource.
- b. Select appropriate teaching and learning resources for a topic of your choice on agroforestry.
- c. Share your work.

Activity 3 Developing appropriate resources for teaching and learning agroforestry

- a. Identify materials for developing teaching resources in agroforestry

- b. Develop teaching and learning resources for teaching “agroforestry practices”.
- c. Share your work.
- d. Peer-teach or micro-teaching using the resources.

Activity 4 Assembling appropriate resources for teaching and learning agroforestry

- a. Use your teaching practice experiences to identify ways in which resources were assembled.
- b. Research on other ways of assembling teaching and learning resources.
- c. Share your findings.
- d. Assemble the resources developed in Activity 3.

Activity 5 Displaying appropriate resources for teaching and learning agroforestry

- a. Discuss ways in which you displayed teaching and learning resources in your class.
- b. Discuss the factors you considered when displaying the resources.
- c. Choose appropriate ways of displaying the teaching and learning resources.
- d. Display the resources using the selected way.

Tips

- For Activity 2, you may consider the following factors: attractiveness to learners, accuracy, appropriateness to learners, abilities, suitability for inclusive education system, relevance to the topic, clarity for the learner to get the message and brief and simple to use.
- Ensure that the resources are inclusive in nature, realistic, are locally available or can easily be made for Activity 5.
- For Activity 1, sharing can be done using bus stop, gallery walk, workstation.
- For Activity 2, use agriculture primary curriculum.

Task 3 Applying appropriate methods in teaching agroforestry practices

An effective lesson delivery needs thorough preparation by the teacher. In this task, you will prepare, present and evaluate practical lessons on agroforestry practices.

Activity 1 Preparing practical lessons in agroforestry

- a. Prepare a practical lesson plan on any topic in agroforestry
- b. Critique the lesson plan.

Activity 2 Presenting practical lessons on agroforestry practices

- a. Mobilise resources for the practical lesson in Activity 1.
- b. Present the practical lesson.

Activity 3 Evaluating practical lessons

- a. Prepare a checklist to be used in evaluating the lesson presented in Activity 2.
- b. Identify strengths and weaknesses in the lesson.
- c. Share your findings.

Tips

- Consider using a variety of teaching and learning methods such as demonstration, question and answer, discussion, workstation as need arises in a practical lesson.
- Ensure that tools for practical lessons are enough and appropriate.

Task 4 Using appropriate method for assessing learners on management of agroforestry plot

Assessment of learners must be done using appropriate methods. In this task, you will identify, analyse and apply various methods of assessing learners in agroforestry management practices.

Activity 1 Identifying assessment methods in agroforestry management practices

- a. Discuss assessment methods which you used in assessing learners' performance during teaching practice.
- b. List assessment methods that you think can be used in assessing learners' performance in agroforestry management practices.
- c. Discuss ways in which each method can be used in assessing learners' performance.
- d. Share your findings.

Activity 2 Analysing assessment methods in agroforestry management practices

- a. Discuss the advantages and disadvantage of each method you identified in Activity 1b.
- b. Share your work.

Activity 3 Applying appropriate methods to assess learners in agroforestry management practices

- a. Identify appropriate methods that can be used to assess learners' performance on establishing a woodlot.
- b. Use the methods to assess learners' performance in micro lessons.

Tip

You may use the following assessment methods: peer assessment, question and answer, written exercise, observation.

Summary

In this topic, you reflected on agroforestry concepts and management practices. You discussed the meaning, importance or benefits, systems, arrangement of crops and trees in each agroforestry practice and advantages and disadvantages of each system. You also developed resources and used them. You further reflected on the appropriate teaching and learning methods used in agroforestry. The methods included demonstration, question and answer, discussion, workstation, practical, excursion, resource persons, research and projects.

You finally discussed assessment methods such as tests, quizzes, peer and self-assessment, report writing and observation.

Reflection and assessment

1. Explain how you would use a tree seedling as a resource for teaching and learning in agroforestry.
2. Compare and contrast the structure of a practical and a theory lessons in agroforestry.
3. Describe any five methods that you would use to effectively teach a lesson in agroforestry.

4. Develop a checklist for assessing learners in a practical lesson on transplanting tree seedlings.

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