



ZIMBABWE

MINISTRY OF PRIMARY AND SECONDARY EDUCATION

CURRICULUM DEVELOPMENT AND TECHNICAL SERVICES

AGRICULTURE

FORMS 1 - 4

2015-2022

TEACHER'S GUIDE

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ACKNOWLEDGEMENTS

The Ministry of Primary and Secondary Education would like to acknowledge the following:

- Curriculum Development and Technical Services (CDTS)
- United Nation Children's Fund (UNICEF) for funding

ORGANISATION OF THE TEACHER'S GUIDE

The guide is divided into 2 parts:

- Part A: Critical Documents
- Part B: Curriculum Delivery (Content, Objectives, Methodology, Instructional Material, Assessment and Evaluation)

It is important for you to constantly refer to critical documents to enhance your effectiveness and efficiency as a teacher.

PART A: CRITICAL DOCUMENTS

INTRODUCTION

This teacher's guide was created to guide you, the teacher in the teaching of the new Agriculture syllabus. It is hoped that it will make your undertaking easier and clarify most aspects of the syllabus.

RATIONALE

This teacher's guide has been produced in order to guide you the teacher in interpreting the new curriculum syllabus to satisfy its objective of producing learners with the requisite agricultural skills. It helps you to unpack the topics into teachable units and how to scheme and plan for the new curriculum. You should stimulate in learners, the responsibility to care for the local and global environment and to adopt sustainable agricultural systems. Be advised that at end of each learning phase, the learners should be able to value the dignity of labour and food sovereignty.

Learners are expected to develop the following skills:

- Problem solving
- Critical thinking
- Decision making
- Conflict management
- Leadership
- Self-management
- Information and Communication Technology (ICT) and innovation
- Enterprise development

As a teacher you need to familiarise with the critical documents you should have in order to deliver the curriculum effectively. The following documents should be at your disposal:

- Curriculum Framework
- National Syllabus
- School syllabus
- Schemes of Work/Scheme Cum Plan
- Lesson Plans
- Learner Profile Guide
- Records

OBJECTIVES

By the end of this part, you should be:

- familiar with the critical documents
- describe the contents of each critical document
- interpret the secondary school 2015-2022 Agriculture syllabus

UNIT 1:

CURRICULUM FRAMEWORK FOR ZIMBABWE PRIMARY AND SECONDARY EDUCATION: 2015-2022

INTRODUCTION

This is a policy document that outlines underpinning principles, national philosophy, learning areas, the description and expectations of Ministry of Primary and Secondary Education (MoPSE) at policy level. It prescribes what the government expects you to deliver as you go about your duties. You should therefore be familiar with the document. It also informs you where Agriculture as a Learning Area is placed.

It is important for you to familiarize yourselves with the curriculum framework for Zimbabwe Primary and Secondary Education 2015-2022.

Objectives

By the end of this unit, you should be able to:

- familiarise with the updated curriculum framework
- use the goals of the curriculum framework to produce the desired learners

N.B It is mandatory for you to be in possession of the updated Curriculum Framework.

Key Elements of the Curriculum

- Vision
- Mission
- Principles underpinning the curriculum
- Pillars of the Curriculum
- Aims of the curriculum
- Organisation of the Curriculum
- Learner exit profiles
- Learning Areas for the New Learning Levels
- Life-skills Orientation Programme

For details on these key elements of the curriculum you are referred to the New Curriculum Framework

UNIT 2: SYLLABUS INTERPRETATION

Introduction

Syllabuses are key documents to you. A syllabus is a plan that states exactly what learners should acquire at a school in a particular learning area. You are required to teach from the syllabus. Examinations are set from the syllabus content and cross-cutting issues related to Agriculture as enshrined in the syllabus.

Objectives

By the end of this unit you should be able to:

- interpret the syllabus as expected by the new curriculum
- teach as expected by the curriculum
- articulate the parameters of each topic
- break down the national syllabus into a school syllabus

Syllabus Interpretation is the process of making sense of the syllabus, finding meaning, unpacking the syllabus, analysing it and synthesising it. As a professional teacher you need to learn how to interpret the syllabus correctly. While syllabuses were developed in consultation with several teachers and experts, not every teacher is privy to what the developers intended. Syllabus interpretation therefore helps you the teacher, to share the same meaning with the developers. It also attempts to put all of you teachers at the same level since you hold different kinds of qualifications from different training institutions.

Syllabus interpretation prepares you the teacher, for effective syllabus implementation.

Syllabus interpretation focuses on the following:

- The national philosophy/vision as spelt out in the curriculum framework.
- The syllabus aims and objectives, what the syllabus intends to achieve within the learners
- The content, knowledge, skills and attitudes i.e. competences. Content constitutes the heart of the syllabus. Syllabus interpretation facilitates breaking down of content into teachable units.
- The nature and scope of the content

Types of Syllabuses

There are two types of Syllabuses that you should be in possession of which are the National Syllabus and the School Syllabus.

2.1: National Syllabus for Agriculture

The national syllabus is a major curriculum document which prescribes what government would like to see taught in all schools as spelt out in the curriculum framework. It is a policy document that outlines and specifies the learning area philosophy, aims and objectives, learning/teaching concepts and content, suggested methodology and assessment criteria at every level. It outlines the experiences that learners should undergo in a particular course of study for example, Infant, Junior and Secondary. The national syllabus is developed centrally by the Ministry to give direction to the learning process. Every teacher must have it to make sure that the national goals on education are uniformly achieved. Examinations are based on the national syllabus. Therefore, you are strongly advised to have it and avoid scheming from the text books.

Presentation of the syllabus

This is a description of how the Agriculture syllabus is presented.

- Preamble
- Aims
- Syllabus objectives
- Methodology
- Time allocation
- Topics
- Scope and sequence
- Competence matrix
- Assessment
- Glossary/Appendices

2.2 School Syllabus

This is the breakdown of the national syllabus drafted at the school and derived from the national syllabus. Each school is expected to break down the national syllabus into a school based syllabus.

It is influenced by the following factors:

- level of learner performance
- facilities and funds available
- time allocation in the official syllabus
- local conditions that affect choice and sequencing of topics
- supply of textbooks and other teaching materials
- educational technology
- community influence

The components of the school syllabus are similar to those of the National Syllabus. As a teacher you should make sure that you have a school syllabus from which you derive your schemes of work.

A comprehensive understanding of the syllabus is mandatory so that you facilitate learning and teaching process effectively for the achievement of the syllabus objectives as well as learner competencies.

UNIT 3: SCHEME OF WORK

A scheme of work is derived from the school syllabus. Your scheme of work is therefore, a plan of action which should enable you to organize teaching activities ahead of time. It is a summarized forecast of work which you consider adequate and appropriate for the class to cover within a given period from those topics which are already set in the syllabus. The scheme should be done in a form that allows for adjustments and should be drawn for at least two weeks in advance.

Objectives

By the end of this unit you should be able to:

- familiarise with the components of the scheme of work
- break down syllabus topics into teachable units
- draw up a detailed scheme of work
- scheme according to the level of learners
- scheme according to locally available resources

Components of a scheme of work:

These include the following:

- **Level of learners:** state the level (grade/ form) of learners you are scheming for
- **Subject:** indicate the learning area you are scheming for
- **Week/cycle ending:** clearly indicate the forecast date
- **Topic/ Content:** topics should follow the order they are supposed to be taught- from simple to complex
- **Aims:** each topic should have aims which pinpoint the anticipated learning behaviour.
- **Competencies:** indicate the competencies (skills, knowledge, values and attitudes) that are expected to be achieved at the end of the topic under focus.
- **Methods and activities:** you should state activities that learners and you the teacher will perform while inside and outside the classroom as well as homework and assignments, for example, answering theory questions and demonstrate psycho-motor (practical) skills.
- **Sources/ References/ Media:** this is where the teaching-learning material is derived from. It should complement the syllabus expectations. A dedicated teacher will use more than one source to broaden learners' horizon and understanding of the concept.
- **Evaluation:** this should be done immediately after the lesson. You are supposed to indicate whether what was planned for has been achieved, whether there was over planning, under planning or failure of a lesson and reasons for either case to help you in future planning. Make use of constructive comments and avoid meaningless comments.

9 **EXAMPLE OF A SCHEME OF WORK**

Layout is usually horizontal and comprises the following columns:

Week ending	Topic/ Content	Objectives: By the end of the week, learners should be able to:	Methods/ Activities	Sources/ References/ Media	Evaluation
20/01/17	Broiler Production: -importance -breeds -housing requirements Broiler Production -brooder house	<ul style="list-style-type: none"> ● Identify the different types of chickens in Agriculture ● explain the importance of rearing broilers ● state the breeds of broilers ● identify the different housing systems for broilers ● describe the housing requirements for broilers <ul style="list-style-type: none"> - name types of brooder houses - collect the required material for constructing a hay box brooder. - construct a hay box brooder for 50 chicks. 	<ul style="list-style-type: none"> - Debating on the advantages of keeping broiler chickens - Comparing the characteristics of different breeds - learners to identify different housing systems for broilers. - class to make a tour of the housing systems within the school premises. - discussion of housing requirements for broilers - discussion on brooder houses. - collection of hay box brooder material - construction of hay box brooder. 	National syllabus page 20 School syllabus page---- - text books - pictures - broilers - broiler houses National syllabus page 20 School syllabus page----- - grass - chick guard - feeding equipment	

N/B-THE TOPIC SCHEMED FOR WAS DERIVED FROM FORM ONE CONTENT

1.3.1 LESSON PLANS

This is a written account of the preparation for a lesson that shows in summary form, how your lesson is going to proceed. It is your immediate translation of the scheme of work into action, showing us what you are going to teach, for how many minutes, to whom, how and why.

EXAMPLE OF A LESSON PLAN

Level of learners:	Form 1
Date:	15 January 2017
Time:	0900-1020hrs
Learning Area :	Agriculture
Topic and Content:	Introduction to Broiler Production
Class:	1A
Source of material/ Instructional media:	National syllabus page 20, School syllabus page-
Text books:	J.C Agriculture Today ICT tools/jaw software

Animals

Assumed knowledge: Learners have knowledge of different types of chickens from their locality

Lesson objective(s): by the end of the lesson, learners should be able to:

- Identify the different types of chickens in Agriculture
- explain the importance of rearing broilers
- state the breeds of broilers

Competences

- Critical analysis
- Observing

Introduction [5mins]

The teacher to introduce lesson using recap of previous lesson covered.

Lesson Development

Stage	Activities	Time (mins)
1	-Teacher to use the question and answer session to probe learners on different types of poultry found in their local communities -Learners to give responses as they discuss different types of poultry found in their local communities.	20 mins
2	-in groups learners to explain the importance of broilers to the family and nation. -learners to view pictures of healthy and ill-healthy animals.	20 mins
3	-class to state the different breeds of broilers. -in small groups learners to compare characteristics of different breeds of broilers.	20 mins

Conclusion [5 mins]

The teacher to use the question and answer session to conclude the lesson.

Task

Evaluation

1.3.2 SCHEME CUM PLAN

You might opt for a scheme-cum-plan, which is a combination of the scheme of work and a lesson plan. Here is a sample of a scheme-cum-plan.

Layout is usually horizontal and comprises the following columns:

Week ending	Topic and Content	Objectives:	Competencies	Methods and Activities	Sources/ References/ Media	Evaluation
1 20/01/17	<p>SMALL LIVESTOCK PRODUCTION Broiler Production:</p> <p>Lesson 1 & 2 -importance of broilers -breeds of broilers</p> <p>Lesson 3 & 4 -housing requirements</p> <p>Lesson 5 -8 -brooder house</p>	<p>By the end of the lesson, learners should be able to:</p> <ul style="list-style-type: none"> • identify the different types of chickens in Agriculture • explain the importance of rearing broilers • state the breeds of broilers • identify the different housing systems for broilers • describe the housing requirements for broilers • name types of brooder houses • collect the required material for constructing a hay box brooder. • construct a hay box brooder for 50 chicks. 	<ul style="list-style-type: none"> -debating -comparing breeds -identifying -describing -naming -constructing 	<ul style="list-style-type: none"> -Debating on the advantages of keeping broiler chickens Discussion -Comparing the characteristics of different breeds Field tour -learners to identify different housing systems for broilers. -class to make a tour of the housing systems with in the school premises. -discussion of housing requirements for broilers. -discussion on brooder houses. Practical methods -collection of hay box brooder material -construction of hay box brooder. 	<p>National syllabus page 20 School syllabus page---</p> <ul style="list-style-type: none"> -text books -pictures -broilers -broiler houses -grass -chick guard -feeding equipment 	

UNIT 5

RECORD KEEPING

Definition

Records are critical documents about the teaching-learning process which you must keep as a teacher. They should be accurate and up to date. They must be kept safely for continuity. The following are some of the reasons why you should keep records:

- Records help guide you on your day-to-day operations
- Help you to track learner's performance
- Planning and re-adjustment of plans
- Source documents for reference
- Basis for profiling
- Basis for counseling

Types of Records

You are expected to keep the following documents:

- Curriculum Framework for Primary and Secondary Education 2015-2022
- Syllabuses (National and School)
- Schemes of work, lesson plans/scheme cum plans
- Class attendance register
- Social record
- Progress record
- Remedial record
- Learner profile
- Asset and stock control registers
- Relevant Circulars
- Minutes
- Pass rate record
- Financial records

All these documents are equally important and you should administer them honestly and constantly. They should also be readily available for supervision. Records should be accurate and constantly be up-dated. You should also keep them safely. Record keeping is something that you cannot do without as it plays a vital role in day to day running of institutions. If well-kept and maintained they provide the required information whenever demand for it arises.

3.0 PART B: CURRICULUM DELIVERY

INTRODUCTION

This unit covers content, objectives, learning-teaching materials, methodologies, assessment /evaluation and class management.

3.1 CONTENT

It is what the syllabus prescribes you to be cover over a given time frame. It includes skills, knowledge and competences that have to be acquired by your learners.

3.2 OBJECTIVES

These are statements outlining what learners should have achieved after a taught concept. For example, by the end of the lesson, learners should be able to explain the importance of controlling pests.

3.3 METHODOLOGIES

These are the means and ways by which you deliver concepts to the learner. As a teacher it is important for you to use problem -solving and learner-centred approaches. You are the facilitator and the learner is the doer. You should select appropriate teaching methods for your lessons. They should be varied and motivating. The following methods are suggested for you and you should select one or more depending on:

The subject matter

Instructional objectives

- The learner
- The teacher
- The time
- Instructional materials
- The environment

It is advisable that the learner be exposed to more than one method in a lesson. The following methods can be used:

- Debate
- Team Teaching
- Recitation
- Field Trip/Educational tours
- Designing and modelling
- Imitation and Simulation
- Role-Playing
- Story telling
- Exploration
- Experimentation
- E-learning
- Research
- Projects
- Exhibition
- Games and quizzes
- Question and answer
- Problem solving
- Resource persons
- Drama, song, poetry
- Practicals
- Demonstration
- Discussion
- Gallery walk

3.4 TEACHING-LEARNING MATERIALS

These are materials that enhance the teaching- learning process. They assist you the teacher to achieve desired objectives while helping concretising the concepts in learners. They help you to motivate them and stimulate interest in learners thus helping them to learn faster and easier.

3.4.1 SELECTING APPROPRIATE TEACHING-LEARNING MATERIALS

When selecting teaching and learning materials, you have to consider the following;

- Topic
- Level of learners
- Available resources
- Environment
- Number of learners

These teaching and learning materials should be of good quality and user friendly considering the available resources in the school. Examples of teaching and learning materials appropriate in Agriculture teaching are;

- Charts
- ICT tools
- Textbooks
- Newspapers
- Specimens
- Samples
- Magazines
- Mobiles
- Work cards

Teaching and learning materials should be used effectively; they must serve the purpose they are meant for rather than be mere window dressing. You should design your media with the topic in mind. Charts and cards must be clearly written, with visible colours and correct size of script for the level of learners. Electronic equipment should be checked before the lesson so that it is in good working order. If using complicated technical aids, make sure you practice beforehand so that you do not embarrass yourself in front of the class.

3.5 CLASS MANAGEMENT

This is the process by which you plan, organise, lead and control class activities to facilitate learning. Creating an effective learning environment

This covers classroom organization from:

- **Physical environment**
Clean, tidy and airy classroom and furniture arranged carefully for safety and teaching aids that are visible to learners.
- **Emotional environment**
You need to be firm yet warm and pleasant. As a teacher you must set the right tone, telling your learners what behaviour you expect from them.
- **Grouping**
You may group your learners according to needs, abilities, learning problems but never by sex. Encourage them to share ideas in groups.
- **Class control and discipline**
You must be knowledgeable of the ministry and school policy on discipline. A teacher must always be firm but fair. Good behaviour must be acknowledged and punishments must be corrective not cruel. You should create an atmosphere of trust and honesty in your class and aim for intrinsic discipline.
- **Motivation**
As a teacher you must make your learners feel important through recognizing and rewarding achievements, as encouraging those who are lagging behind. Rewards should not be food, but positive remarks, or items related to learning like stationery or even displaying their work on the wall. Calling pupils by their names creates good rapport with your class. However, you should always aim for intrinsic motivation. Always be a role model to your learners by the way you handle yourself.
- **Supervision**
You must check learners' work in order to guide and correct them in all areas from group discussions, practicals and field trips.

3.6 EVALUATION

This is the measuring of the success of teaching in terms of teacher and learner performance. It provides you with feedback on the acquisition of knowledge, skills and attitudes by learners. At forms 1-4, learners will be assessed through continuous and summative assessment.

For continuous assessment (30%), specific tasks and assignments will be administered throughout the course and the marks allocated. Assessment tasks are outlined at the end of the syllabus; it involves projects, theory and

practical tests.

Summative assessment (70%) will constitute three components. Paper 1-3 of which paper 1 is multiple choice, paper 2-structured questions, paper 3-practical coursework.

UNIT 6:

SCOPE OF THE GUIDE

The Agriculture Form 1-4 syllabus has 6 major topics for forms 1-4

TOPICS COVERED IN THE SYLLABUS

- 1 General Agriculture
- 2 Soil and water
- 3 Crop husbandry
- 4 Animal husbandry
- 5 Farm structures and machinery
- 6 Agri-business

Teaching units

The topics listed are too broad for coverage; it is therefore your responsibility to break the topics into teachable units. For example when you are teaching the topic; Crop Protection at form 3. This is how you can break it to teachable units.

These are the actual concepts which you need to cover under the topic; Crop Protection which are your teaching units.

- Pests
- Disease
- Weeds

However, these can also be further broken into smaller units. Let us take Pests and further break it to lesson unit. Under it will focus on:

- Pest control methods
- Pesticides

The table below summarises how you can break broad topics into small teachable units.

Table 6.2: Breaking topics into teachable units

TOPIC	CONCEPTS (teachable units)	OBJECTIVES	METHODS AND ACTIVITIES	RESOURCES	COMPETENCES TO BE ACHIEVED	ASSESSMENT
Pests	Pest control methods	<ul style="list-style-type: none"> -explain methods of pest control -describe the advantages and disadvantages of pest control methods -describe the significance of IPM in pest control 	<p>Methods</p> <ul style="list-style-type: none"> -Discussion -problem solving -e-learning <p>Activities</p> <ul style="list-style-type: none"> -Discussing methods of pest control -Describing the advantages and disadvantages of pest control methods -Describing the significance of IPM in pest control - watching videos/images on different methods of pest control 	<ul style="list-style-type: none"> -Recommended textbooks -ICT tools/ Braille software/JAW software -pests samples -chart showing different pests 	<ul style="list-style-type: none"> -communication -problem solving -technology and innovation -critical thinking -decision making 	-continuous assessment (theory tests)
	Pesticides	<ul style="list-style-type: none"> -identify the main groups of pesticides -describe mode of action of the main groups of the pesticides -discuss proper disposal of empty pesticides containers 	<p>Methods</p> <ul style="list-style-type: none"> -Discussion -e-learning -exhibition <p>Activities</p> <ul style="list-style-type: none"> -Identifying the main groups of pesticides -Describing the mode of action of the main groups of the pesticides -Identifying proper disposal of empty pesticides containers -exhibiting different pesticides and pesticide containers -observing images of different pesticides from ICT tools 	<ul style="list-style-type: none"> -Recommended textbooks -ICT tools/ Braille software/JAW software -pesticides -empty pesticides containers -spraying equipment -chart showing different pesticides 	<ul style="list-style-type: none"> -communication -problem solving -technology and innovation -critical thinking 	

CONCLUSION

It is hoped that this guide will help you as you deliver in the Agriculture learning area. It should guide you on interpreting the syllabus, making your own school syllabus, deriving a scheme or scheme- cum plan and a lesson plan, choosing appropriate methods and instructional aids, managing your class making and maintaining records and finally evaluating yourself and your learner's progress. The Agriculture learning area needs you to update yourself in terms of content and modern technology like ICT competence to deliver your lessons with confidence.

19 ANNEXURE 1: Syllabus scope and sequence

TOPIC 1: GENERAL AGRICULTURE

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
LAND USE	<ul style="list-style-type: none"> Forms of land use Land tenure Historical background to land tenure Environmental factors 	<ul style="list-style-type: none"> Population growth and land use Farming systems 	<ul style="list-style-type: none"> Physical farm planning Crop rotation 	-----
ENVIRONMENTAL FACTORS	<ul style="list-style-type: none"> Environmental factors 	<ul style="list-style-type: none"> Modification of adverse environmental factors 	<ul style="list-style-type: none"> Rainfall: distribution, effectiveness, reliability and intensity 	<ul style="list-style-type: none"> Natural disasters Disaster and risk management strategies
NATURAL FARMING REGIONS	<ul style="list-style-type: none"> Natural farming regions of Zimbabwe 	-----	-----	-----
FORESTRY	<ul style="list-style-type: none"> Forests 	<ul style="list-style-type: none"> Soft and hard wood Tree nursery Tree planting and management 	<ul style="list-style-type: none"> Timber harvesting and marketing Deforestation 	<ul style="list-style-type: none"> Agro-forestry
WILDLIFE	<ul style="list-style-type: none"> Value of wildlife Wildlife resources Fauna and Flora Classification of wildlife 	<ul style="list-style-type: none"> Sustainable utilisation of wildlife resources Specially protected plants and animals Dangerous animals and problem animals 	<ul style="list-style-type: none"> Indigenous knowledge systems in management of natural resources 	<ul style="list-style-type: none"> Human and wildlife conflicts

TOPIC 2: SOIL AND WATER

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
SOIL FORMATION	<ul style="list-style-type: none"> • Weathering 	<p>-----</p>	<ul style="list-style-type: none"> • Weathering 	<p>-----</p>
SOIL TEXTURE, STRUCTURE AND PROFILE	<ul style="list-style-type: none"> • Soil texture and soil structure 	<ul style="list-style-type: none"> • Soil profile 	<ul style="list-style-type: none"> • Improvement and maintenance of soil structure • Destruction of soil structure 	<p>-----</p>
SOIL TYPES	<p>-----</p>	<ul style="list-style-type: none"> • Composition and properties of each soil type 	<ul style="list-style-type: none"> • Improvement of physical characteristics of soils 	<p>-----</p>
SOIL CONSTITUENTS	<p>-----</p>	<p>-----</p>	<ul style="list-style-type: none"> • Importance of soil components • Movement of water • Field capacity • Soil macro and micro organisms • Importance of living organisms 	<p>-----</p>

SOIL TEMPERATURE	-----	-----	<ul style="list-style-type: none"> • Influence of soil temperature on plant growth and soil organisms • Modification of soil temperature 	-----
SOIL FERTILITY	<ul style="list-style-type: none"> • Plant nutrients 	<ul style="list-style-type: none"> • Organic and inorganic fertilisers 	<ul style="list-style-type: none"> • Fertiliser application • Soil pH and liming 	<ul style="list-style-type: none"> • Nitrogen cycle
SOIL EROSION AND CONSERVATION	<ul style="list-style-type: none"> • Soil erosion 	-----	<ul style="list-style-type: none"> • Soil sampling • Conservation methods and structures 	-----
WATER LOSS AND SOIL DRAINAGE	<ul style="list-style-type: none"> • Causes of water loss 	-----	<ul style="list-style-type: none"> • Drainage and water logging 	-----
WATER CONSERVATION	<ul style="list-style-type: none"> • Water conservation • Methods of water conservation 	-----	<ul style="list-style-type: none"> • Leaching • Rain water harvesting and storage 	<ul style="list-style-type: none"> • Water pollution • Water legislation
IRRIGATION	-----	<ul style="list-style-type: none"> • Importance of irrigation • Sources of water for irrigation 	<ul style="list-style-type: none"> • Methods and types of irrigation • Choice of an irrigation system 	<ul style="list-style-type: none"> • Irrigation equipment

TOPIC 3: CROP HUSBANDRY

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
CLASSIFICATION OF PLANTS	<ul style="list-style-type: none"> • Classification of plants 	<ul style="list-style-type: none"> • Botanical classification 		
STRUCTURE OF FLOWERING PLANTS	<ul style="list-style-type: none"> • External structure of a plant 	<ul style="list-style-type: none"> • Structure of a flower 	<ul style="list-style-type: none"> • Plant anatomy and physiology 	
PLANT PROCESSES	<ul style="list-style-type: none"> • ----- 	<ul style="list-style-type: none"> • Plant reproduction • Germination 	<ul style="list-style-type: none"> • Water and nutrient uptake • Transpiration • Photosynthesis • Translocation and food storage • Crop breeding 	<ul style="list-style-type: none"> • Respiration • Plant tropisms
CROP IMPROVEMENT	<ul style="list-style-type: none"> • ----- 	<ul style="list-style-type: none"> • ----- 		
CROP PRODUCTION	<ul style="list-style-type: none"> • Horticulture • Land preparation • Crop management 	<ul style="list-style-type: none"> • Land preparation • Fruit tree production 	<ul style="list-style-type: none"> • Field crops • Land preparation • Legume and cereal production 	<ul style="list-style-type: none"> • -----
CROP PROTECTION	<ul style="list-style-type: none"> • Pests • Diseases • Weeds 	<ul style="list-style-type: none"> • Pests • Diseases • Weeds 	<ul style="list-style-type: none"> • Pests • Disease • Weeds 	<ul style="list-style-type: none"> • Agrochemicals

23 TOPIC 4: ANIMAL HUSBANDRY

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
TYPES OF LIVESTOCK	<ul style="list-style-type: none"> • Types of livestock 	<ul style="list-style-type: none"> • Ruminants and non-ruminants 	-----	-----
ANATOMY AND PHYSIOLOGY	-----	<ul style="list-style-type: none"> • Reproduction in poultry 	<ul style="list-style-type: none"> • Digestive system of a ruminant and non-ruminant 	<ul style="list-style-type: none"> • Reproductive system of a ruminant
ANIMAL NUTRITION	-----	<ul style="list-style-type: none"> • Livestock nutrients 	<ul style="list-style-type: none"> • Types of feeds 	<ul style="list-style-type: none"> • Maintenance and production rations
SMALL LIVESTOCK PRODUCTION	<ul style="list-style-type: none"> • Broiler production 	<ul style="list-style-type: none"> • Broiler management • Slaughtering, processing and marketing 	<ul style="list-style-type: none"> • Rearing of rabbits/layers/indigenous chickens 	<ul style="list-style-type: none"> • Slaughtering, processing and marketing
NON-RUMINANTS	-----	-----	<ul style="list-style-type: none"> • Rearing of non-ruminants 	-----
RUMINANTS	-----	-----	-----	<ul style="list-style-type: none"> • Management of cattle or sheep or goats
ANIMAL HEALTH	<ul style="list-style-type: none"> • Signs of health and ill-health 	<ul style="list-style-type: none"> • Livestock diseases and Hygiene 	<ul style="list-style-type: none"> • Notifiable livestock diseases 	<ul style="list-style-type: none"> • Animal parasites and immunisation
ANIMAL IMPROVEMENT	-----	-----	<ul style="list-style-type: none"> • Genetics 	<ul style="list-style-type: none"> • Breeding

TOPIC 5: FARM STRUCTURES AND MACHINERY

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
FARM IMPLEMENTS	<ul style="list-style-type: none"> • Implements 	<ul style="list-style-type: none"> • Adjustments of animal drawn implements 	<ul style="list-style-type: none"> • Maintenance 	
FENCING	<ul style="list-style-type: none"> • Types of fences 	<ul style="list-style-type: none"> • Fencing materials and tools 	<ul style="list-style-type: none"> • Treatment of fencing materials • Fencing specifications 	<p>-----</p> <ul style="list-style-type: none"> • Anchors and fencing calculations
FARM BUILDINGS	<p>-----</p>	<p>-----</p>	<ul style="list-style-type: none"> • Farm buildings • Properties of building materials 	<ul style="list-style-type: none"> • Designing livestock buildings
FARM ROADS	<p>-----</p>	<ul style="list-style-type: none"> • Siting of farm roads 	<ul style="list-style-type: none"> • Features of farm roads 	<ul style="list-style-type: none"> • Road construction and maintenance
APPROPRIATE TECHNOLOGY	<p>-----</p>	<p>-----</p>	<ul style="list-style-type: none"> • Irrigation pumps 	<ul style="list-style-type: none"> • Shellers
HARNESSING	<ul style="list-style-type: none"> • Harnesses: Yokes 	<ul style="list-style-type: none"> • Harnesses: breast band and collar 	<p>-----</p>	<p>-----</p>

TOPIC 6: AGRI-BUSINESS

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
FARM RE-CORDS AND ACCOUNTS PRINCIPLES OF ECONOMICS	<ul style="list-style-type: none"> • Farm records 	<ul style="list-style-type: none"> • Profit and Loss Account 	<p>-----</p> <ul style="list-style-type: none"> • Opportunity cost and choices • Demand, supply and price 	<p>-----</p> <ul style="list-style-type: none"> • Diminishing returns • Risk and uncertainty • Decision making
FARM BUDGET-ING	<p>-----</p>	<p>-----</p>	<ul style="list-style-type: none"> • Budgets 	<p>-----</p>
AGRICULTURAL MARKETING	<p>-----</p>	<ul style="list-style-type: none"> • Types of markets 	<ul style="list-style-type: none"> • Functions and factors of marketing 	<ul style="list-style-type: none"> • Marketing legislation
AGRICULTURAL COOPERATIVES	<ul style="list-style-type: none"> • Principles of cooperatives • Types of cooperatives 	<ul style="list-style-type: none"> • Cooperatives 	<p>-----</p>	<p>-----</p>

