



basic education

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AGRICULTURAL MANAGEMENT PRACTICES

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

2018

These guidelines consist of 35 pages.

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1. INTRODUCTION

The 16 Curriculum and Assessment Policy Statement subjects which contain a practical component all include a practical assessment task (PAT). These subjects are:

- **AGRICULTURE:** Agricultural Management Practices, Agricultural Technology
- **ARTS:** Dance Studies, Design, Dramatic Arts, Music, Visual Arts
- **SCIENCES:** Computer Applications Technology, Information Technology
- **SERVICES:** Consumer Studies, Hospitality Studies, Tourism
- **TECHNOLOGY:** Civil Technology, Electrical Technology, Mechanical Technology and Engineering Graphics and Design

A practical assessment task (PAT) mark is a compulsory component of the final promotion mark for all candidates offering subjects that have a practical component and counts 25% (100 marks) of the end-of-year examination mark. The PAT is implemented across the first three terms of the school year. This is broken down into different phases or a series of smaller activities that make up the PAT. The PAT allows for learners to be assessed on a regular basis during the school year and it also allows for the assessment of skills that cannot be assessed in a written format, e.g. test or examination. It is therefore important that schools ensure that all learners complete the practical assessment tasks within the stipulated period to ensure that learners are resulted at the end of the school year. The planning and execution of the PAT differs from subject to subject.

2. TEACHER GUIDELINES

2.1 How to administer the practical assessment task (PAT)

The PAT contributes 25% of the total promotion mark (400) in Grades 10–12. The practical assessment task contributes 100 marks and consists of a management overview (20 marks), practical activities (50 marks), a management test (20 marks) and a time register (10 marks).

The portfolio must be available for monitoring and moderation, and be evaluated, checked and authenticated by the teacher before being presented as the learner's final evidence of performance.

The teacher file of the practical assessment task must contain evidence of:

- a) The PAT task
- b) A complete record of all assessment

and must always be available for monitoring and moderation purposes

Failure by the teacher to maintain a file of assessment tasks constitutes an act of misconduct and will be dealt with in terms of paragraph 5(3) of the policy document, *National policy on the conduct, administration and management of the National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF), or other appropriate measures.*

- 2.1.1 The aim of the practical assessment task (PAT) for Agricultural Management Practices (AMP) is to assess management, entrepreneurial, research, marketing, operational and technical skills of learners in the production enterprises which they are exposed to.
- 2.1.2 In Grades 10–12 a total of at least THREE production enterprises must be utilised that would consist of at least ONE animal production enterprise or at least ONE plant production enterprise.
- 2.1.3 The context in which the subject is offered is subject to a wide range of different production systems, production enterprises, management approaches and ecological differences between the different regions in the country. The PAT has to allow for this wide range of possible approaches and applications.
- 2.1.4 These PAT guidelines will provide criteria to assist with the standardisation of the wide variety of possibilities that exists in Agricultural Management Practices (AMP).
- 2.1.5 The PAT should show progression in complexity, content and context from Grade 10 to Grade 12.
- 2.1.6 The PAT activities should link with the content of the relevant grades and practices as applied in the primary and secondary agricultural industry.
- 2.1.7 The PAT for Grades 10 and 11 is internally set, marked/assessed and moderated whereas the PAT for Grade 12 is internally set and marked/assessed and externally moderated.
- 2.1.8 The components of the PAT are completed under controlled conditions and evidence of each activity or task is combined in the learner portfolio.
- 2.1.9 The PAT must include evidence of how the production-related processes in the different enterprises are managed over a period of a year.
- 2.1.10 Learners should know the assessment criteria before they start with each activity.
- 2.1.11 The use of external assessors (e.g. wool-classing, artificial insemination (AI) and shearing courses) for the practical section of the PAT will support the assessment done by the teacher.

2.2 Components of the PATs

The PAT in Grades 10–12 consists of the following components:

- **The management overview** is based on the development of annual production plans for the management of the relevant enterprises
- **Practical tasks (activities)** which are comprehensively assessed
- **The management test** which consists of application questions, like case studies and scenarios based on activities in the above management plans and practical for production enterprises
- **The logbook (time register)** of time and task performed that the learner spent in a practical situation or production enterprise

2.2.1 Management overview

This activity requires the learner to create/complete a production plan of the chosen production enterprise which includes the most important practices within that production enterprise. It should be presented in calendar form or as a monthly report. This provides an overall impression of production processes as they are implemented over a period of a year or production cycle within the specific production system.

This activity must include proven farming practices which are locally practised and those which the learners would be exposed to. The activity could be a group, paired or individual activity and would include research and home work. The management overview should be within the learners' field of interest.

Grade 10

The basic production activities that would be included in an annual production plan for a plant production enterprise or an animal production enterprise must be listed. These activities could be described and an indication of a possible timeframe for each activity should be included.

Table 1: Examples of some practices that form part of a production enterprise

CROP PRODUCTION	ANIMAL PRODUCTION
<ul style="list-style-type: none"> • Planning for the planting season • Order of production inputs • Basic soil preparation/Mechanisation • Planting • Crop care/Integrated pest/weed and disease management • Crop fertilisation programme • Irrigation programme 	<ul style="list-style-type: none"> • Feed mixing/rations provided, • Reproduction/ /Mating season • Order production inputs • Animal husbandry: castration/ dehorning/immunisation/dosing/dipping etc. • Production of milk/meat/fibre/ eggs etc. • Basic management of animals (animal health management) • Recordkeeping/animal identification (tagging, ear marking, tattooing, branding – hot iron, freeze etc.)

Grade 11

A **comprehensive production plan** for the relevant plant or animal production enterprise for a period of 12 months must be presented. This production plan should clearly indicate the enterprise-specific management activities which are implemented to get the optimum production outputs for that enterprise.

Table 2: Example of practices done in grade 11

SPECIFIC CROP PRODUCTION ENTERPRISE	SPECIFIC ANIMAL PRODUCTION ENTERPRISE
<ul style="list-style-type: none"> • Planning for the planting season • Order production inputs • Soil preparation/ Mechanisation • Planting • Integrate pest and disease and weed management • Crop fertilisation programme • Crop irrigation programme 	<ul style="list-style-type: none"> • Feed (fodder) flow programme • Application of various grazing systems • Mating season planning (reproduction/pregnancy testing) • Manipulation of reproduction/AI • Order production inputs • Health care (Immunisation/ Dosage/Dipping/Medication) • Production of milk/meat/fibre/eggs • Management and handling of animals ((animal health management) • Recordkeeping/animal identification (tagging, ear marking, tattooing, branding – hot iron, freeze etc)

Grade 12

An extensive production plan for a plant- or animal production enterprise that will include the following content issues covered in Grade 12:

- Physical and natural resource management
- Holistic planning/Whole enterprise production planning/Strategic enterprise production planning (from beginning to end)
- Financial aspects/Implementation and control of enterprise budget
- Labour management
- Record-keeping (physical and financial records)
- Harvesting/Post-harvesting procedures (handling, packaging, transportation, storage)
- Grading/Product differentiation/Sorting
- Product processing/Value-adding/Marketing/Distribution
- Agritourism/Niche markets opportunities

General remarks about the management overview

The issues mentioned above must be presented for a complete production cycle and should include all appropriate practices for the relevant enterprise (e.g. beef cattle production for Grade 10, the management overview will include a general overview of management aspects required, for Grade 11 it will include all the processes needed to produce a weaner and Grade 12 the finishing of the weaner in the feedlot, slaughtering and marketing of beef and financial aspects.)

Challenges and successes must be listed, e.g. Code of Good Agricultural Practices (GAP) as prescribed by each relevant industry.

The assessment tool used for this activity could be a checklist, rubric or memorandum.

2.2.2 Practical tasks (activities)

This section of the PAT for AMP must be completed under controlled conditions in an operation or practical situation. If the school does not have the proper facilities, appropriate production enterprise facilities nearby should be identified and used to complete the activities planned for at the beginning of the year. This part of the PAT focuses on the assessment of an individual learner while performing practical activities in both animal and plant production enterprises.

At least TWO practical activities/tasks in the relevant production enterprises per term should be comprehensively assessed for Grade 10 and 11 learners (terms 1–3) and Grade 12 (terms 1–2). This part of the PAT assessment will assess the performance of learners while they are doing the activities/practical. Tasks should be set in real-life settings, for example milking cows, artificial insemination, inoculation, crop-care practices (spraying of crops, grafting, monitoring of diseases and pests, planting, germination percentage, fertiliser application, mechanisation planning), care of animals (dehorning, castration, feeding, branding, marking, disease control, rearing of calves, etc.) and value-adding activities, harvesting, classing, etc. These activities should be spread over the entire range of the enterprise and should not only focus on one aspect or enterprise.

The practical activities are assessed and on-site moderation should be completed where possible. Evidence to support the assessment of the activities should be gathered for the final moderation. This could include photographs, pictures and/or video clips of these activities and assessment of the activities.

Practical activities are related to the **psychomotor domain** which focuses on the physical and kinesthetic skills that learners need to develop and demonstrate. These skills should be gradually

developed by following the various levels as set out below. The development of the skills should be in the relevant production enterprises offered at the school.

The **affective domain** which includes aspects such as feelings, values, appreciation, enthusiasm, motivation and attitude is also covered in this part of the PAT.

The psychomotor domain for practical activity development is characterised by progressive levels of behaviour from observation to mastery of required skills. Assessment can only be done once learners have been given the opportunity to practice the required skills.

LEVEL	DEFINITION	LEVEL DESCRIPTION
1. Observing	Active mental attending of a physical event.	The learner observes a more experienced person in his/her performance of the skill. Asked to observe sequences and relationships and to pay particular attention to the finished product. Direct observation may be supplemented by reading or watching a video. Thus, the learner may read about the topic and then watch a performance.
2. Imitating	Attempted copying of a physical behaviour.	The learner begins to acquire the rudiments of the skill. The learner follows directions and sequences under close supervision. The total act is not important, nor is timing or coordination emphasised. The learner is conscious of deliberate effort to imitate the model.
3. Practising	Trying a specific physical activity over and over again.	The entire sequence is performed repeatedly. All aspects of the act are performed in sequence. Conscious effort fades as the performance becomes more or less habitual. Timing and coordination are emphasised. Here the person has acquired the skill but is not an expert.
4. Adapting	Fine tuning. Making minor adjustments in the physical activity in order to perfect it.	Perfection of the skill. Minor adjustments are made that influence the total performance. Coaching is often very valuable here.

Key Verbs

Below are some examples of key verbs associated with the **cognitive domain**. Using such verbs is beneficial to writing effective learning objectives when worksheets for the practical's are developed.

- Collect, inject, calculate, mix, classify,
- Handle, operate
- Distinguish (by sight, observation, touch, cognitive knowledge)
- Perform (skillfully)

Using external assessors (e.g. wool-classing, AI and shearing courses) for this section of the PAT will support the assessment done by the teacher.

The assessment of these activities would include a comprehensive checklist or rubric and could be supported with a questionnaire or

interview, which is completed while performing this activity. The questionnaire and interview could assess the context and application of the learner who is assessed and could be marked with a memorandum.

2.2.3 Management test

The learners are exposed to various case studies or scenarios based on the annual production plan to which they have been exposed. The management test will represent examples of applications from the annual production plan and practical activities. These questions will be linked to the application of the knowledge.

This activity or task will be completed under controlled conditions as an individual activity. The assessment tool for this activity could include a marking guideline (memorandum), checklist and rubric or a combination of these.

Assessment of management test	
Grade 10	Management test is based on general issues in the production processes of animals and plants to which the learners have been exposed
Grade 11	Management test based on specific issues in the production processes of animals and plants to which the learners have been exposed
Grade 12	Management test based on specific issues in the agribusiness production processes and processing of relevant animal and plant production enterprises to which the learners have been exposed

2.2.4 Logbook (Recording of time spent)

The time that learners spend in a practical situation or at an active production enterprise should be recorded. These records should include time spent while doing tasks, gathering information, observing, evaluating or demonstrating skills while in a practical situation.

A list of the processes or activities to which the learners had been exposed should be included to indicate evidence of exposure to the major production activities that the available enterprises have to offer. This time should then be converted to a mark as percentage of the total time spent doing the required activities.

Learners must spend at least **10 hours per term** in such a practical situation. Where possible, the time should be equally distributed between the production enterprises. Learners should be assessed on the time spent in these practical situations and on the complexity of their exposure. A checklist must be used for this purpose and the marks adjusted proportionally.

These guidelines assist to provide the minimum standard for the PAT in AMP. More informal and more complex activities will be to the advantage of learners.

2.3 PAT component summary and weightings

PAT component	Number of activities			Weighting	Focus
	Grade 10	Grade 11	Grade 12		
Management overview	1	1	1	20%	Planning
Practical tasks (activities)	3	3	2	50%	Operational skills
Management test	1	1	1	20%	Application
Logbook (Time register)	Record sheet of learners' attendance and duties carried out			10%	Experience

The practical assessment task (PAT) contributes 25% of the total promotion mark and should develop and apply agricultural management skills, processing skills and responsibility. The total mark allocation should add up to 100 marks. The PAT therefore focuses on the management skills as well as the development and application of various skills in the production process and processing of products in a production-related context.

Final mark

The final mark of the PAT is linked to these domains:

Management overview and test (Cognitive domain)	40
Practical activities and time allocation (Psychomotor and affective domain)	60
TOTAL	100

2.4 **Layout of the PAT (Examples)**

2.4.1 Guidelines for compiling a PAT in livestock production

Assessment type	Topic	Grade 10 Basic principles and background of enterprises (4 crops & 4 animal)	Grade 11 Production-driven (3 production enterprises)	Grade 12 Production-driven (3 production enterprises)
Management overview (20%)	Layout: production cycle	Determined by scenario	Determined by scenario	Determined by scenario
	List of equipment needed/Inventory	List the equipment and facilities	Type and quantity	Cost calculations
	Housing; housing preparation; handling facilities	Types of housing and handling facilities. What needs to be controlled.	Detailed information about housing	Costing and management aspects that must be implemented
	Handling and management	Reasons for proper housing and handling	Detailed information about handling	Costing and management aspects
	Period of growth	List of factors and management aspects	Detailed information about the management aspects	Calculations, costing and management aspects
	Gestation period	List of factors and management aspects.	Detailed information about the management aspects	Calculations, costing and management aspects
	Lactation period	List of factors and management aspects	Detailed information about the management aspects	Calculations, costing and management aspects
	Feeding	Types of feeding	Growth Stages and quantities	Costing and calculations
	Bio-security, vaccination, veterinary procedures, medication and sanitation	List actions to implement biosecurity	Detailed information about medication: which medication, when to administer (stages), volumes methods' Detailed information about the use of relevant chemicals, stages and volumes	Biosecurity prices, costing and calculations
	Farrowing, calving and lambing, kidding	Signs of farrowing, calving, kidding and lambing	Detailed information about the management	
	Record keeping	Records to be kept	Actual recordkeeping	Data capturing and interpretation
	Financial statements			Financial statements
Harvesting; processing; marketing			Product harvesting, processing, value-adding, packaging, marketing and sales	

	Grade 10 Basic principles and background of enterprises (4 crops & 4 animal)	Grade 11 Production-driven (3 production enterprises)	Grade 12 Production-driven (3 production enterprises)
Examples of topics for practical activities (50%)	<ol style="list-style-type: none"> 1. Handling course 2. Pest & Disease management 3. Management activities: dosing, vaccination, dipping, etc. 4. Care: new-born calve/piglets/lambs etc, marking, castration, dehorning. 5. Basic records: production, health, feeding, breeding and mating etc. 6. Classification of plant & animal breeds/cultivars (determine adaptability) 	<ol style="list-style-type: none"> 1. Management and care 2. Dehorning, castration, marking, tail docking, teeth clipping, iron injection etc. 3. Animal Judging course & Body condition scoring (BCS) 4. Reproduction/AI course 5. Reproduction management, Pregnancy testing, bull fertility, ICP, AI etc. 6. Feed requirements 7. Daily management 8. Breed characteristics (judging and selection) 9. Performance testing 	<ol style="list-style-type: none"> 1. Harvesting: shearing, wool classing, milking, slaughtering 2. Processing: wool, meat , milk, leather etc. 3. Price determination 4. Financial planning 5. Marketing 6. Identify natural resources e.g. veld types 7. Determine grazing capacity and veld condition assessment 8. Grazing systems 9. Execution of planning 10. Feed flow programme 11. Analysing of resources 12. Production Systems 13. Herd composition 14. SWOT analysis
Management Test (20%)	From all the above enterprises	From all the above enterprises	From all the above enterprises
Logbook (40 hours/year) (10%) Time spent/work done during practical activities on the production enterprise (Register signed by learners and supervisor/mentor on the site)	Routine tasks and visits for practical activities	Routine tasks and visits for practical activities	Routine tasks and visits for practical activities

2.4.2 Guidelines for compiling a PAT in poultry production (broilers or layers)

Assessment Type	Topic	Grade 10 Basic principles and background of enterprises. (4 crops & 4 animal)	Grade 11 Production driven (3 Production enterprises)	Grade 12 Production driven (3 Production enterprises)
Management overview (20%)	Production cycle	Determined by scenario	Determined by scenario	Determined by Grade 11 scenario
	List of equipment needed in housing	List of equipment	Number needed as indicated by scenario	Cost calculations
	Preparation of housing before intake	Actions that must take place; material, chemicals, equipment, etc.	Detailed information about actions e.g. what, when and amount.	Cost calculations based on numbers and volume Management aspects that are required
	Before placement checklist	What must be controlled?	What must be taken into consideration?	Actual costs, prices, cost calculations and the influence of management.
	Placement of birds	Actions that must take place during the process	Detailed information about actions e.g. what, when and volume / amount	Cost calculations Management aspects that must take place in the process
	Period of growth	List of factors and management aspects that must be taken into consideration during the period of growth	Detailed information about all management aspects named in Grade 10	Calculations and cost calculations and the influence management has on each of the aspects
	Feeding and stages of changes	Types	Dates and amounts	Prices and cost calculations
	Biosecurity, inoculations, medication and sanitation	List of actions that must take place and at what age	Detailed information about medication: which medication, when to administer (stages), volumes, methods' Detailed information about the use of relevant chemicals, stages and volumes	Actual costs, prices, cost calculations and the influence of management
	Catching of birds / collection of eggs	List of actions that must take place beforehand	Methods, preparation and detail about actions that take place during the period	Implications of poor management

Assessment Type	Topic	Grade 10 Basic principles and background of enterprises. (4 crops & 4 animal)	Grade 11 Production driven (3 Production enterprises)	Grade 12 Production driven (3 Production enterprises)
Management overview (continued) (20%)	Sanitation	List of actions that must take place	Detailed information about chemicals, volumes, actions and dates	Actual cost calculations of chemical substances
	Daily records	Types of records to be kept	Actual records	
	Financial aspects			Calculations of profit/loss based on actual expenditure and income as indicated in records
	Harvesting	List of actions	Methods, preparations and detail about the actions that must take place during the period	Handling, sorting, grading and packaging, storage
	Processing, value adding and marketing			Methods and examples of processing of the specific product and the marketing
Examples of topics for practical activities (50%)		<ol style="list-style-type: none"> 1. Daily routines and responsibilities 2. Handling – inoculation 3. Basic management skills 4. Identification – pests, diseases 	<ol style="list-style-type: none"> 1. Daily routines and responsibilities 2. Growth recording 3. Disease – inoculation 4. Execution of planning 5. Pests and diseases control and prevention, 	<ol style="list-style-type: none"> 1. Slaughtering process 2. Processing & value adding 3. Marketing 4. Collecting eggs, sorting & grading
Management Test (20%)		From all the above enterprises	From all the above enterprises	From all the above enterprises
Logbook (40 hrs/year) 10% Time spent/work done during practical activities on the production enterprise (Register signed by learners and supervisor/ mentor on the site)		Routine tasks and visits for practical activities	Routine tasks and visits for practical activities	Routine tasks and visits for practical activities

2.4.3 Guidelines for compiling a PAT in Crop/Vegetable/Fruit production

Assessment Type	Topic	Grade 10 Basic principles and background of enterprises. (4 crops & 4 animal	Grade 11 Production driven (3 Production enterprises)	Grade 12 Production driven (3 Production enterprises)
Management overview (20%)	Layout – Production cycle	Determined by scenario	Determined by scenario	Determined by scenario
	Equipment needed to carry out production task	List the equipment	Type and quantity	Cost calculations
	Soil analysis	Study of soil profile and type of soil available	Soil sampling and analysis	Application of precision farming practices
	Soil preparation	Tasks to take place, Material/tools/equipment needed	Detailed information regarding tasks, when, what should be done.	Calculation of costs, Management aspects to take place
	Preplanning control	What should be controlled?	What is important for a specific crop?	
	Crop protection programme	List of actions	Detailed information regarding when, how, types and volumes	Costing, general management and calibration
	Plant/Planting	Planting methods, actions involved in the process	Detailed information regarding the actions for instance when, how much and what must be done	Costing and management principles
	Plant growth period	List of factors and management principles that should be implemented during this period	Detailed information regarding the management factors and principles. Plant growth graphs	Yield predictions/determinations
	Fertilization practices	Types and methods	Stages and quantities	Costing and price determination
	Harvesting & post-harvesting practices	List of actions	Methods, preparations and detail about the actions	Handling, sorting, grading and storage
	Record keeping	Types of records to be kept?	Actual recordkeeping	Data capturing and interpretation
	Financial statements			Financial statements – Budgets etc
	Processing, value adding and Marketing			Processing, value-adding, packaging and sales and SAFEX

	Grade 10 Basic principles and background of enterprises. (4 crops & 4 animal	Grade 11 Production driven (3 Production enterprises)	Grade 12 Production driven (3 Production enterprises)
Examples of topics for practical activities (50%)	Basic management 1. Soil preparation 2. Planting / seedling transplanting process 3. Care taking/responsibility 4. Weeds identification 5. Taking soil samples and types 6. Composition of soils 7. Seed germination tests 8. Identification of pests, diseases 9. Cultivation methods 10. Irrigation system comparison	Execution of planning 1. Calibration of spraying equipment 2. Planter /seedling planter calibration 3. Disease, weed and insect pest control and prevention 4. Pruning & trellising 5. Utilise soil sample analysis for fertiliser application (intepretationof soil sample), conduct soil fertilisation trials, 6. Types of herbicides/ weedicides and usage 7. Soil aspects for particular crops and preparation 8. Different implements 9. Irrigation scheduling. 10. Cultivar evaluation	Product specific– 1. Harvesting and classification 2. Processing 3. Yield determination 4. SAFEX course 5. Grading, processing 6. Marketing plan, packaging, marketing 7. Management skills 8. Fertilizer plan, calibration calculations 9. Human resource planning & management 10. Sustainable soil/ land management
Management Test (20%)	From all the above enterprises	From all the above enterprises	From all the above enterprises
Logbook (40 hrs/year) (10%) Time spent/work done during practical activities on the production enterprise (Register signed by learners and supervisor/ mentor on the site)	Routine tasks and visits for practical's activities	Routine tasks and visits for practical's activities	Routine tasks and visits for practical's activities

2.5 Moderation of the PATs

Internal moderation

The teacher and learner's portfolios of evidence (PoE) and PATs must be moderated by the HOD or senior teacher of the subject at the school.

External moderation (subject specialist/subject advisor)

This moderation should preferably be done once a term. The availability of a calendar sent to the subject specialist reflecting the planned dates of assessment activities (PAT programme of assessment) will assist the moderator to plan ahead for such moderation sessions. The external moderator can identify certain learners to complete certain tasks during the final moderation process.

External moderation (national panel)

A panel of moderators appointed by the National Department of Basic Education will moderate the PATs and observe facilities and resources at the school. (See ANNEXURE A for moderation tool)

3. LEARNER GUIDELINES

3.1 Instructions to the learner

Learners should know the assessment criteria before they start with each assessment task/activity.

1. The Learners tasks should be presented in the back of his/her portfolio under each required section neatly divided with a partition.
2. If the learner start with the subject in Grade 11 or 12, he/she should complete all the required tasks as for the previous year(s).
3. There must be a correlation between the work of grade 10 to 12. Consecutive years' work need to be kept and filed under separate sections.

3.2 Example of Tasks in the various components of the PAT:

- 3.2.1 Management plan
- 3.2.2 Practical activity
- 3.2.3 Management test
- 3.2.4 Logbook/Time register

3.2.1 Example of the management overview

PAT: MANAGEMENT OVERVIEW EXAMPLE
ANIMAL PRODUCTION: Broiler production
TOPIC: Management overview of a broiler unit

Work sheet No.: 1.1**GRADE: 11****NAME:** _____**DATE:** _____**OVERVIEW:**

The overall broiler performance is dependent on several management practices. Brooder management is one of the important aspects of broiler rearing and management. The early developmental stage becomes critical for the overall result and growth of the bird. Hence, care should be taken right from day one. Effective brooding management includes providing the chicks with the right temperature, relative humidity, air quality, good quality feed and water.

LEARNING OBJECTIVES:

Better management results in better productivity! You could be an experienced farmer or newly venturing into the poultry industry, but effective management is essential for the overall development and health of any animal production system. Hence, care should be taken from day one to achieve the following outcomes:

- Clean, disinfect and fumigate the shed and equipment.
- Check for the right temperature and humidity levels.
- Ensure chicks have immediate access to fresh water and feed.
- Use chick behaviour as an indicator of satisfactory temperature and air quality.
- Replenish feed constantly during the brooding period.
- Monitor and ensure chick feeding by crop fill scores.

PRE-VIEWING ACTIVITIES:

The environment in which the birds are reared is critical for their performance. In addition it would help if the farm is located closer to the production and marketing centers. A farm that has access to good roads and easy transportation has an added advantage.

POST-VIEWING ACTIVITIES:

Learners should be exposed to a real-life situation in managing a broiler house for a production cycle. During this activity, learners should keep records of various processes (like growth and food consumption rates etc.) to determine the efficiency and the application of their knowledge.

INTERESTING FACTS:

Throughout the production cycle observe the batch for sick birds and conditions conducive to disease. Early diagnosis with prompt and adequate treatment will reduce death and production losses.

Scenario:

The school was given 1 500 day-old broiler chicks to rear. Evaluate the farm's resources and determine the requirements for a broiler house that the school should build/erect to rear the 1 500 birds.

1. State NINE requirements of suitable housing to accommodate the above scenario.

 _____ (9)

2. Discuss the importance of the following equipment needed in the broiler house:
 - (a) Floor litter _____ (2)
 - (b) Side curtains _____ (2)

3. Name THREE different types of litter material that could be used in the broiler house.
 - (a) _____
 - (b) _____
 - (c) _____ (3)

4. From the information given under 'working procedure' on the managing calendar, calculate the floor area needed to accommodate 1 500 birds at the following ages:
 - (a) Day old _____ (2)
 - (b) 45-day-old _____ (2)
 - (c) In meters, give TWO options to illustrate the dimensions of your building:
 - i. _____
 - ii. _____ (4)

5. List how much of the following equipment is needed to ensure adequate water and feed space for the number of birds mentioned in the scenario above:
 - (a) Water troughs _____ (2)
 - (b) Feed hoppers _____ (2)

6. For how many days should a unit be vacated before a new batch of chickens can be placed in the building?
 _____ (1)

7. List FIVE daily management tasks that you should execute in the broiler house to ensure good quality broilers for slaughter.

(5)

Enterprise Management Calendar

How to use the enterprise management calendar:

This management overview can be used for Grade 11. Grade 10 will reflect fewer activities that should be removed by the teacher. For Grade 12 the list should be more expanded to include the slaughtering, cleaning and marketing aspects of the enterprise.

No dates are given on this calendar. Preparation before and after each cycle is the start and finish of a management process. The Second Column on the left (**Production Cycle**) is blank for you to insert (fill in) the information required during that week or production stage. The Third Column gives a list of procedures/tasks that should be undertaken at specific intervals during the production cycle. Learners should arrange these working procedures/required tasks in the production cycle. This is not a complete list and may be added to or deleted from the programme based on your specific needs.

MANAGEMENT CALENDAR FOR A BROILER PRODUCTION SYSTEM

Week (Days)	Production Cycle	Working Procedure/Required Tasks	Other Management Practices								
1 (1–7)		<p>Chick arrival – farm preparation</p> <ul style="list-style-type: none"> • Provide chicks with bio-secure, clean housing. • Control spread of disease by using single-age, (i.e. all-in/all-out) housing. • Spread litter evenly. <p>Chick placement</p> <ul style="list-style-type: none"> • Preheat the house and stabilise temperature and humidity prior to chick arrival. • Unload and place chicks quickly. 									
2 (8–14)		<ul style="list-style-type: none"> • Make feed and water available to the chicks immediately. • Arrange equipment so that chicks can reach feed and water easily. • Position supplementary feeders and drinkers near the main feeding and drinking systems. • Leave chicks to settle for 2 hours with access to feed and water. • Check feed, water, temperature and humidity after 1 to 2 hours and adjust where necessary <p>Feeding management</p> <table border="1" data-bbox="741 1062 1559 1214"> <thead> <tr> <th data-bbox="741 1062 1032 1090">Age</th> <th data-bbox="1032 1062 1559 1090">Feed Form and Size</th> </tr> </thead> <tbody> <tr> <td data-bbox="741 1090 1032 1117">0–10 days</td> <td data-bbox="1032 1090 1559 1117">Starter: sieved crumbs or mini-pellets</td> </tr> <tr> <td data-bbox="741 1117 1032 1166">11–24 days</td> <td data-bbox="1032 1117 1559 1166">Grower: 2–3,5 mm (0,08–0,125 inch) diameter pellets or coarse grinded mash</td> </tr> <tr> <td data-bbox="741 1166 1032 1214">25 days to processing</td> <td data-bbox="1032 1166 1559 1214">Finisher: 3,5 mm (0,125 inch) diameter pellets or coarse grinded mash</td> </tr> </tbody> </table>	Age	Feed Form and Size	0–10 days	Starter: sieved crumbs or mini-pellets	11–24 days	Grower: 2–3,5 mm (0,08–0,125 inch) diameter pellets or coarse grinded mash	25 days to processing	Finisher: 3,5 mm (0,125 inch) diameter pellets or coarse grinded mash	
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3 (15–21)		<p>Preparation for catching</p> <ul style="list-style-type: none"> • Allow 3 days on full light (23 hours light and 1 hour dark) to avoid problems during catching. • Appropriate feed removal from the birds will ensure that the digestive systems are empty before processing commences, limiting faecal contamination during transport. • Delay the removal of drinkers for as long as possible 									
4 (22–28)											

5 (29–35)		<p>General management</p> <ul style="list-style-type: none"> • Clean out coop and disinfect properly using common laundry bleach. • Allow a 10–14-day rest period between each batch. • Use new litter for each batch. • Allow sufficient space for the day-old chicks, 50 chicks to a square metre or (1,5 metres x 0,7 metres). • Provide water fountains, 1 to every 40 chicks. • Provide adequate feeders, 1 to every 40 chicks. • Provide fresh feed and clean water in cleaned water and feeders daily. • Provide initial brooding temperature of 33–39 °C at chick level decreasing by 1 °C each day until the heat is no longer needed (14 days). • Increase floor space as chicks grow older to advance their growth. The chicks should triple their birth weight by the 7th day and double that weight by the 14th day. It should be 0,09 m² per bird at 49 days (7 weeks). • Continuously remove damp or caked litter from the house and replace with new, dry litter. • Remove all dead birds from the house and burn or bury them. • Seek professional advice when symptoms of sickness and trouble appear. • In hot months water consumption will increase so be prepared to fill non-automatic water fountains/drinkers regularly. • Keep very accurate records of the number of birds, mortality (death), culls, amount of feed given and final weight. 	
6 (36–42)			
7 (43–49)			
8 (50–56)		<p>Special procedures</p> <p>The environment in which the birds are reared is critical for their performance. In addition, it would help if the farm is located closer to production and marketing centres. A farm that has access to good roads and easy transportation has an added advantage. When setting up a farm there is a set of must-have requirements to be adhered to:</p> <ul style="list-style-type: none"> • Water availability throughout the year. Water quality: Hardness below 750 ppm, pH 6,0 to 8,5. • Ventilated shed and water proof. • Lighting, tube light @ 1 for every 35 m² is essential. • Foot bath/Dip with disinfectant for better bio-security. • Separate feed room near the shed with stacking arrangement for feed bags. • Water tank – 2 (1 for medication and 1 for drinking water) with capacity of 500 litres for every 90 m². • Side curtain for the entire length of the shed for both sides, inside and outside. • Provision of death pit for disposal of dead birds. • Provision for placing weighing scales 0,90 m x 0,90 m. 	
9 (57–63)			
10(64–70)			

3.2.2 Example of a practical activity**PRACTICAL ACTIVITY**
ENTERPRISE: Broiler production
TOPIC: Record keeping in a broiler unit**Work sheet No.:** 2.1**Grade:** 10–11**Name** _____**Date** _____**Overview:**

The overall broiler performance is dependent on several management practices. Brooder management is one of the important aspects of broiler rearing and management. The early developmental stage becomes critical for the overall result and growth of the bird. Hence, care should be taken from day 1.

Pre-activities:

Divide learners' group into three subgroups. Each group will be responsible for the duties required to feed, clean and take care of the birds for the relevant period.

Follow the daily routine for pen feeding strictly because that may influence your final mark. Remember you are responsible for the chickens as long as the task card is being completed.

All feed needed should be weighed and recorded. All other tasks required in the section must also be performed.

Daily and routine tasks:

1. Inspect the broiler house every day at the times allocated by the teacher. You may work out a timetable with two people in your group to be on duty at any time. That includes weekends and sport afternoons.
2. Place as much feed as is necessary in the trough, there should always be enough feed, but not so much that there is wastage and spoilage.
3. Record the amount of food eaten. The easiest method is to record when a full bag is opened, record the days used to fill feed hoppers and divide it into the mass of the full bag. That gives the amount of food used/day. Record all data gathered on the given record sheet.
4. Remove wet bedding in the broiler house daily and the water trough as soon as it becomes soiled.
5. Weigh the birds every 3rd day and record data on your record sheet. Plot the data on a graph, calculate the daily gain, e.g. mass gain/feed period (days) = grams/day and feed conversion rate, e.g. feed given/mass gained = 1 kg feed used : kg meat gained.
6. Calculate the margin of cost of feed over the value of mass gain. Also calculate the slaughtering % of the birds once slaughtered.
7. Report any problems or sickness to the teacher in charge and indicate it on the record card.

BROILER UNIT: RECORD

Number of birds

Description

Feed cost/kg

Ave. mass at beginning

Date	Day	Mass (20 chicks)	Mass change	Ave. mass	kg feed	A.D.G	F.C.R	Mortality
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							
	22							
	23							
	24							
	25							

Date	Day	Mass (20 chicks)	Mass change	Ave. mass	kg feed	A.D.G	F.C.R	Mortality
	26							
	27							
	28							
	29							
	30							
	31							
	32							
	33							
	34							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
	42							
	43							
	44							

3.2.3 Example of a management test

Management Test: Grade 11

Examiner:

Time: 30 minutes

Date: _____

Moderator:

Marks: 20

This test contain all aspects done in the management overview, practical activities and experience gained when routine tasks were done. Answer all questions.

SECTION A: POULTRY PRODUCTION: BROILERS

1. Write a brief answer next to the question number.
 - 1.1 One tube light is sufficient for ... m². (1)
 - 1.2 The pH level of water that will be suitable for the chickens ... (1)
 - 1.3 How much water is needed for every 90 m²? ... (1)
 - 1.4 Indicate the initial temperature range for day-old chickens ... (2)
2. Discuss the importance of floor litter in a broiler house. (2)
3. State FIVE tasks that must be executed in the chicken house the moment that the chicks arrive. (5)
4. You are planning to house 2 000 chicks in your chicken house. Calculate the amount of space needed when the chicks reach the age of 7 weeks (29 days). (3)
5. A footbath is essential for biosecurity.
 - 5.1 Define *biosecurity*. (2)
 - 5.2 State the importance of a footbath to accomplish biosecurity. (1)
 - 5.3 Where will such a footbath be placed to be effective? (1)
6. Indicate the time (in days) that a broiler house must be vacated. (1)

TOTAL SECTION A: 20**SECTION B: ENTERPRISE 2****TOTAL SECTION B:****SECTION C: ENTERPRISE 3****TOTAL SECTION C:****GRAND TOTAL:**

3.3 **Absence, non-submission of tasks and non-participation in practical activities**

The PAT forms 25% of the total promotion mark for the learner. Learners should complete all assessment activities that form part of the final PAT. Any failure to adhere to this will result in a mark that is calculated pro rata from the assessment sections and pieces available.

The absence of marks for the practical assessment task in Grades 10–12, without a valid reason, will result in the candidate registered for that particular subject receiving an incomplete result. The candidate will be given three weeks before the commencement of the final end-of-year examination of the relevant grade to submit the outstanding practical assessment task. Should the candidate fail to present the practical assessment task the candidate will be informed that he/she did not meet the minimum requirements and that he/she must repeat the subject the following year.

3.4 **Requirements for presentation**

All proof of assessment should be presented in the learner's subject portfolio under its own division for PAT. The management overview for Grades 11 and 12 should be presented in the Grade 12 portfolio to show continuity.

3.5 **Timeframes**

Each school is unique regarding resources available and management. Each learner should receive a planned activity calendar at the beginning of the year informing them when certain activities should be executed/completed.

PAT COMPONENT	INITIATED	COMPLETED
Management overview	1 st term	3 rd term
Practical	Grades 10–11/2 per term Grade 12/2 per term	3 rd term 2 nd term
Management test	Development of skills throughout practical work and management plan	4 th term: Grades 10–11 3 rd term: Grade 12
Time	Continuous	4 th term: Grades 10–11 3 rd term: Grade 12

3.6 **Declaration of authenticity**

Declaration of Authenticity		
<p>All proof of assessment should be presented in the learner's subject portfolio under its own division for PAT.</p> <p>The following pieces of assessment for the PAT are included in the learner's portfolio of evidence (PoE):</p> <ol style="list-style-type: none"> 1. Management overview/task 2. Practical activities 3. Management test 4. Date register of practical work and courses attended <p>At least 60% of the PAT was done under the supervision of the teacher and without the help of anybody else. This is to certify that all work submitted is the learner's original and own work. Processes not performed by the learner have not been assessed as part of the learner's work.</p>		
Learner		
Teacher		
District		
	Signature	Date
Learner		
Teacher		
Principal		

School Stamp

4. LIST OF RESOURCES

- 4.1 Moderation tool (ANNEXURE A)
- 4.2 Learner involvement (ANNEXURE B)
- 4.3 PAT mark schedule (ANNEXURE C)

5. CONCLUSION

On completion of the practical assessment task learners should be able to demonstrate their understanding of the industry, enhance their knowledge, skills, values and reasoning abilities as well as establish connections to life outside the classroom and address real-world challenges. The PAT furthermore develops learners' life skills and provides opportunities for learners to engage in their own learning.

ANNEXURE A**MODERATION TOOL: AGRICULTURAL MANAGEMENT PRACTICES**

SCHOOL: _____

EMIS No. _____

TEACHER: _____

GRADE: _____

SUBJECT SPECIALIST: _____

DATE: _____

No. of learners in grade: _____

No. of learners taking AMP Grades 10–12: _____

Resources Available	Good <input checked="" type="checkbox"/>	Acceptable <input checked="" type="checkbox"/>	Poor <input checked="" type="checkbox"/>	Comments
Functioning farm				
Relevant production enterprises				
Available human resources				
Farm manager				
Labourers				
Recent funding				
Fully equipped production units				
Teacher				YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>
Subject file/Preparation file:				
☞ PAT guideline document				
☞ Working mark sheet				
☞ Proof of assessment				
☞ Reference material (Additional information and resources given to learners by the teacher)				
Safety and equipment:				
☞ First aid kit				
☞ Safety signs				
☞ Applicable OHS Acts implemented on the farm				
☞ Is the number of learners in workshop per session not more than 15 as stipulated by the OHS act?				
☞ Basic tools and equipment, implements				
☞ Damaged and broken equipment, implements				
Farm atmosphere and layout:				
☞ Safe layout				
☞ Is the farm layout properly planned?				
Cleanliness of surroundings and sheds:				
☞ Sheds (storage houses) well-organised and clean				
☞ Farm area and enterprises clean				

ANNEXURE A (continued)

Learner PAT project files	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Is there a record of proof of planning by the teacher for the PAT?	
Did the learners follow the prescribed format of the PAT?	
If not, is the PAT of the same standard or higher than the prescribed PAT?	
Do all learners have PAT portfolio files?	
Do all learners have a completed Learner Summary Record Sheet in their portfolios?	
Do all learners have a document that indicates planning for practical activities as done by the teacher?	
Did all learners complete the Declaration of Authenticity?	
Did the learners complete all sections of the PAT sufficiently?	
Does evidence exist that all tasks were assessed by the teacher?	
Are all assessment tools completed and totals carried over to the mark sheet correctly?	
Does the assessment conducted by the teacher appear to be fair and reliable?	
Is the mark allocation and level of achievement in line with the rest of the province?	
Will an adjustment of that average be needed?	
Overall quality of the project	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Have all learners completed the PAT and has it been moderated?	
Do the marks allocated by the teacher in the rubrics match the available evidence in the learner's file?	
Internal/External moderation	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Is there evidence of internal moderation by the HOD?	
Is there evidence of external moderation by the subject specialist/advisor?	
Internal/External monitoring	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
Is there evidence of internal monitoring by the HOD?	
Is there evidence of internal monitoring by the deputy principal?	
Is there evidence of external monitoring by the subject specialist/advisor?	
Additional information. Add typed lists of the following information:	
Add List of Equipment needed for AMP	
Add List of Equipment in excess for AMP	
Add List of Equipment that is broken beyond repair and that must be written off	

Conclusive Observations:

ANNEXURE A (continued)

Signature: Teacher

Date

Signature: HOD

Date

**Signature: FET Subject
Facilitator**

Date

Signature: Principal

Date



School Stamp

ANNEXURE B

LEARNER INVOLVEMENT

Criteria/Requirements	1	3	5
Responsibility (Leadership) 1	Follows prescribed or verbal instructions with a lot of assistance. Indicates no sense for safety procedures even with instructions. Shows no or little responsibility towards the work.	Follows written and verbal instructions with limited assistance. Aware of the need for safety procedures, but has difficulty to identify them without guidance. Shows responsibility towards the work.	Follows written and verbal instructions without assistance. Follows proper safety procedures. Accepts responsibility easily and takes leadership during group work.
Initiative (Planning and goal-setting) 2	Uncertain about how to proceed. Needs a lot of assistance. Recognises only noticeable errors in experimental methodology with a lot of assistance.	Offers solutions or explanations for unexpected problems with guidance. Recognises errors in experimental methodology with assistance.	Offers solutions or explanations for unexpected problems. Ability to recognise problems or to anticipate problems and solve them without assistance. Indicates errors in experimental method and results.
Technique (Execution and organising) 3	Clumsy and awkward handling of implements, tools, apparatus. Executes practical activities with difficulty.	Handles implements, tools, and apparatus effectively. Adequate execution of practical procedures.	Method and systematic approach to tasks. Handles implements, tools and apparatus with self-confidence. Skilled execution of practical procedures.
Endurance (Leadership and motivation) 4	Practical tasks and written work incomplete. Somehow not interested in and impatient about the execution of the tasks. Inclined not to repeat procedures.	Required practical tasks and written work completed with motivation. Shows some interest in execution of tasks. Willingness to execute repeating procedures with motivation.	Required tasks and written work are complete. Positive attitude, good motivation. Willingness to execute repeating procedures.
Quality (Evaluating, control and coordinating) 5	Hastens through practical tasks. Superficial with less attention to complete product. Written work inaccurate and poor.	Proper practical work with satisfactory to good results. Written work mostly accurate and clearly.	Proper practical work. Evidence of detail to acquire good results. Written work is neat, accurate and clear.

