



EXAMINATIONS COUNCIL OF ESWATINI

Eswatini General Certificate of Secondary Education

Agriculture (6882) **Examination Report for 2023**

Table of Contents

Subject Code:	Name of Subject:	Page No:
6882	Agriculture P1	3 - 16
6882	Agriculture P2	17 - 34
6882	Agriculture P3	35 - 41
6882	Agriculture P4	42 - 45

EGCSE AGRICULTURE

Paper 6882/01

Multiple Choice and Simple Response Questions

The 2023 EGCSE (Eswatini General Certificate of Secondary Education) Agriculture examination has four components:

Component 1: Theory (multiple choice and simple response questions)

Component 2: Theory (structured and essay questions)

Component 3: Practical exercises

Component 4: Investigatory project

In the year 2022, there were 4960 registered candidates while in the current year (2023) there were 5744 registered candidates. This reflects a 16 percent increase in the 2023 candidature.

PAPER 1 THEORY (Multiple Choice and Simple Response Questions)

The agriculture paper 1 comprised of **two** sections;

Section A: Multiple choice worth 20 marks.

Section B: Simple response questions worth 40 marks.

The overall total marks for this component was 60 marks.

General comments:

1. Assessment for the 2023 examination was based on the 2021-2023 Examination syllabus. The style and approach to marking had not been altered, it was the same as in previous examination years.
2. The lowest mark/score attained in the 2023 examination was 4 and the highest being 54 out of 60. The highest and lowest marks obtained in the 2023 examination are 1 point higher than in 2022. This suggests a slight improvement in performance in the 2023 examination year compared to the previous year. However, it is also worth noting that the majority of candidates scored less than 30 out of 60 in the 2023 Paper 1 examination.
3. Section A (multiple choice) was relatively well answered. Most candidates scored at least 10 out of 20.
4. Lower marks were scored in Section B. This was attributed to;
 - Failure to recall terminology in reference to described concepts.
 - Writing of incorrect spelling of appropriate terms thus altering meaning in context.
 - Some questions being left unanswered by the candidates.

5. Average performance ranged between 16 and 28 marks, leaving many candidates below the C grade level.

Questions that were easily accessible to candidates:

Section A: Question 1, 2, 12, 17.

Section B: Question 29, 30 and 33.

Questions that were not easily accessible to candidates:

Section A: Questions 4, 7, 14, 16, 18, 19 and 20.

Section B: Questions 23, 26, 31, 34, 44, 48, and 51.

The rest of the questions were averagely/fairly accessible to candidates.

Comments on Specific Questions Section A:

Question 1

What is the first stage in the development of agriculture?

Expected response: B (gathering/hunting)

Comments: This question was correctly answered by a majority of the candidates.

Question 2

Which land tenure system is owned by the community?

Expected response: A (communal)

Comments: This question was correctly answered by a majority of the candidates.

Question 3

Which farming practice is most diversified?

Expected response: C (mixed farming)

Comments: An average performance was noted in this question, though there were cases where candidates opted for intercropping.

Question 4

Which organization, issues permits for genetically modified seed imports?

Expected response: A (Eswatini Environmental Authority)

Comments: Not an easily accessible question. Most candidates opted for D (National Agricultural Marketing Board).

Question 5

Fig. 5.1 shows a type of physical weathering on the surface of a rock.

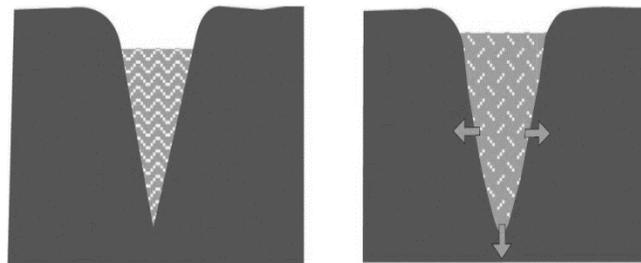


Fig 5.1

Name the type of weathering shown in Fig 5.1.

Expected response: B (freeze-thaw)

Comments: This question was averagely/fairly accessible to candidates.

Question 6

Fig 6.1 shows a pie chart of four soil constituents.

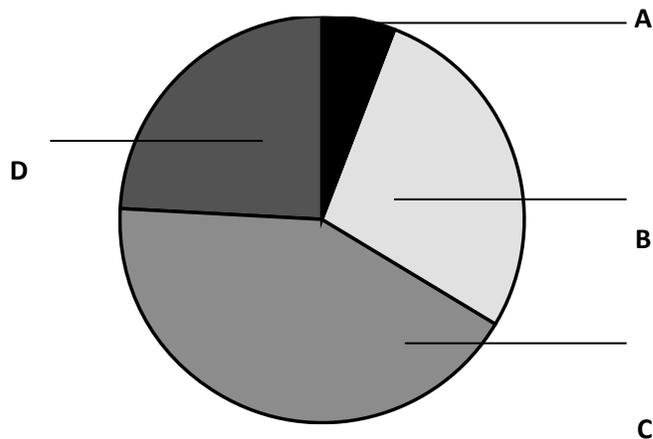


Fig 6.1

Which segment on the pie chart represents minerals in Fig 6.1?

Expected response: C

Comments: Generally, well answered question by a majority of the candidates.

Question 7

What soil structure is made up of vertical, cylindrical-shaped aggregates?

Expected response: D (prismatic)

Comments: Not an easily accessible question as most candidates opted for C (platy).

Question 8

Which of the following is an organic fertiliser?

Expected response: C (cotton seed meal)

Comments: Average performance was observed in this question.

Question 9

Which method of conserving the soil uses stones in a wire netting?

Expected response: B (gabions)

Comments: Generally, well answered question by a majority of the candidates.

Question 10

Which part of a plant leaf controls the exchange of gases?

Expected response: C (stoma)

Comments: Generally, well answered question by a majority of the candidates.

Question 11

Which of the following is a parasitic weed of maize?

Expected response: D (witch weed)

Comments: This question was averagely/fairly accessible to candidates.

Question 12

Which is the planting material for sweet potatoes?

Expected response: C (stem cuttings)

Comments: A well answered question by a majority of the candidates. Misconceptions related to stem tubers which are planting material for Irish potato.

Question 13

What type of pest is an armyworm larva?

Expected response: A (biting and chewing)

Comments: Generally, well answered question by a majority of the candidates.

Question 14

Which crop disease can be identified by dark brown patches on leaves?

Expected response: B (blight)

Comments: A challenging question where most candidates opted for C (damping-off) which was incorrect.

Question 15

Which of the following is a pasture legume?

Expected response: B (lucerne)

Comments: This question was fairly answered by a majority of the candidates.

Question 16

What phenotypic ratio for a single gene effect is obtained when breeding heterozygous individuals?

Expected response: D (3:1)

Comments: A challenging question. Most responses related to the ratio 1:1 which was incorrect.

Question 17

Fig. 17.1 shows a set of farm tools.

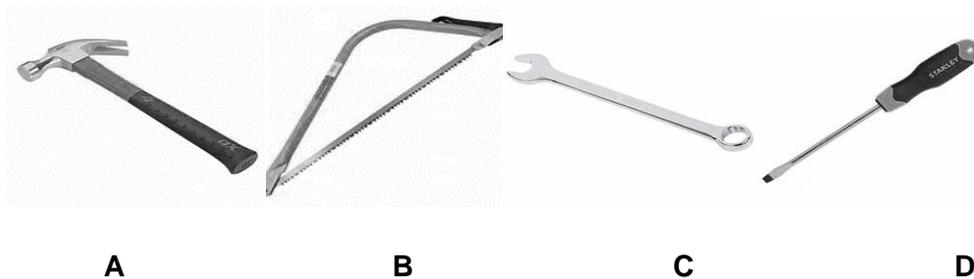


Fig 17.1

Which tool is used for removing nails in Fig 17.1?

Expected response: A

Comments: This question was well answered by a majority of the candidates.

Question 18

In an automatic watering system in a glasshouse, what would trigger the start of irrigation?

Expected response: A (humidity)

Comments: A challenging question where most candidates opted for C (temperature) which was incorrect.

Question 19

Fig. 19.1 shows the law of diminishing returns.

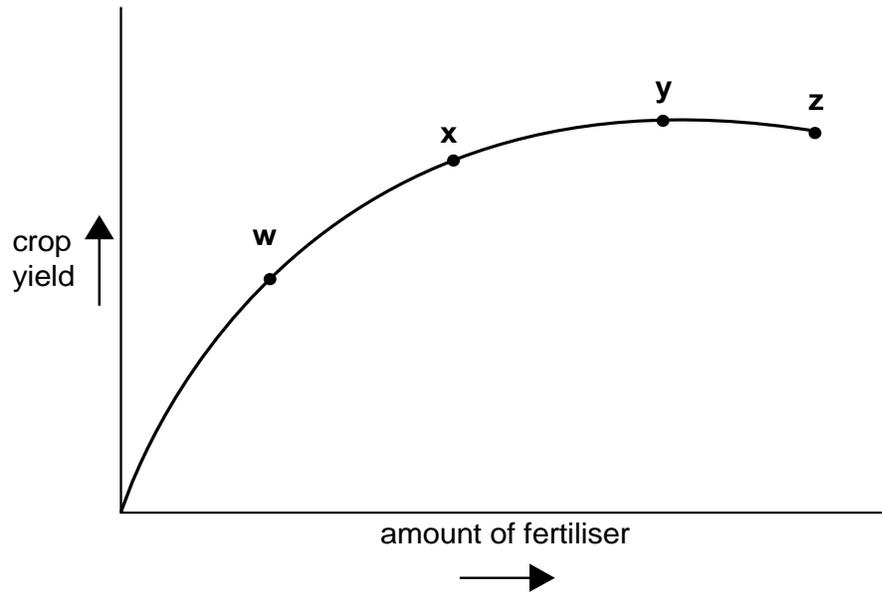


Fig 19.1

What point of fertiliser application represents the best use for money?

Expected response: A (W)

Comments: A challenging question and most candidates chose C (Y), whereas returns start diminishing at point W.

Question 20

What can farmers do to reduce the effects of risk and uncertainty?

Expected response: D (ration inputs)

Comments: A challenging question where more candidates opted for A (acquire more credit).

Section B

Question 21

Name the term that describes having enough nutritious and affordable food.

Expected response: food security.

Comments: Generally, well answered question by a majority of the candidates.

Question 22

What is the key role of the Regional Development Fund in the Agriculture of Eswatini?

Expected response: provides credit/ loans.

Comments: This question was fairly answered.

Question 23

Give the scientific name for bug weed.

Expected response: *Solanum mauritianum*.

Comments: Not an easily accessible question. Common incorrect responses included *Lantana camara* or failure to underline the genus and species names separately.

Question 24

Give two soil amendments that could be used to improve the soil structure.

Expected response: lime; organic matter/ fertiliser.

Comments: This question was fairly answered. Misconceptions involved giving examples of liming materials or organic fertilisers.

Question 25

List any two ways through which nitrates can be lost from the soil.

Expected response: leaching; erosion/runoff; denitrification; absorption; volatilization.

Comments: Generally, well answered question, misconceptions included reference to damping-off which was unacceptable.

Question 26

Name two types of bacteria that are responsible for the nitrification process.

Expected response: nitrosomonas; nitrobacter.

Comments: Not an easily accessible question as candidates listed any type of bacteria including rhizobium, azotobacter or just micro-organisms which were incorrect.

Question 27

Fig. 27.1 shows soil testing.

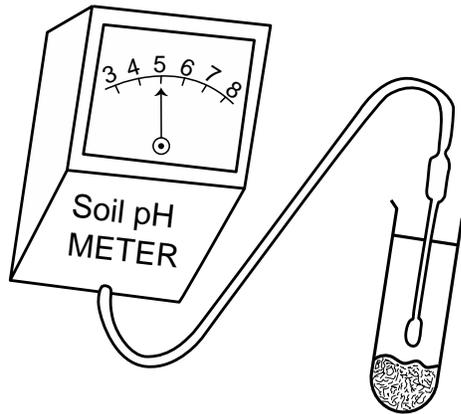


Fig 27.1

What is the pH condition of this soil?

Expected response: acidic.

Comments: A fairly answered question. Misconceptions involved reference to pH value instead of pH condition.

Question 28

Fig. 28.1 shows a root hair cell.

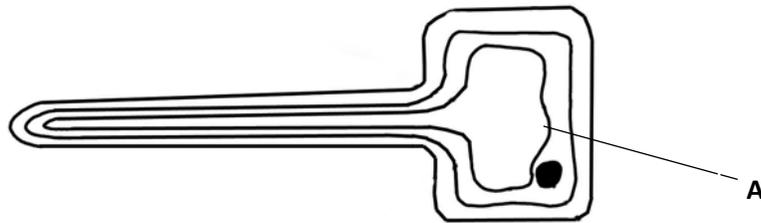


Fig 28.1

Name part A in Fig. 28.1?

Expected response: vacuole.

Comments: This question was not easily accessible. Unacceptable responses included root hairs, cytoplasm or any other part of a plant cell.

Question 29

Complete this word equation for respiration:

Carbohydrate + Oxygen gives Carbon dioxide + Water +

Expected response: energy.

Comments: This question was well answered by a majority of the candidates.

Question 30

What is the main agent of pollination in maize?

Expected response: wind.

Comments: This question was well answered by a majority of the candidates.

Question 31

State one use of beetroot by-products.

Expected response: compost; feeding animals.

Comments: This question was not easily accessible as most candidates gave salad making as the answer which is the use of the product.

Question 32

What type of herbicide is applied once the crops have started to grow?

Expected response: post emergence/ selective herbicide.

Comments: This question was fairly answered though some candidates gave examples of herbicides such as bladex or paraquat.

Question 33

Which method of pest control uses natural enemies?

Expected response: biological.

Comments: This question was well answered by a majority of the candidates.

Question 34

State two possible impacts of chemical pest control to the environment.

Expected response: residual effect in the soil; kill beneficial organisms.

Comments: This question was not easily accessible by a majority of the candidates. Misconceptions related to different types of pollution or incorrect use of terms such as killing of beneficial pests.

Question 35

What is the function of the pancreas in the digestive system of a ruminant?

Expected response: produce pancreatic juice; produce enzymes.

Comments: A fairly answered question by a majority of the candidates.

Question 36

Which hormone loosens the cervical muscles at birth in a farm animal?

Expected response: relaxin.

Comments: This question was fairly answered by a majority of the candidates. A few candidates wrote wrong responses such as oestrogen, progesterone or FSH.

Question 37

Name the type of ration given to bulls during the breeding season.

Expected response: production.

Comments: A fairly well answered question by a majority of the candidates. Common errors involved reference to maintenance ration or balanced ration.

Question 38

Which method of checking for pregnancy in rabbits is done on day 12 after mating?

Expected response: palpating.

Comments: This question was fairly answered by a majority of the candidates, though some candidates described how it is done instead of giving the term or gave test mating as a response which were all unacceptable.

Question 39

What method of identification uses a marked hot iron on the body of a cow?

Expected response: branding.

Comments: A fairly answered question by a majority of the candidates. Common unacceptable responses included tattooing, numbering or labelling.

Question 40

What name is given to the management practice carried out on bulls that acts both to calm them down and prevent them breeding?

Expected response: castration.

Comments: This question was fairly answered by a majority of the candidates.

Question 41

Which venereal disease causes abortion and barrenness in cattle?

Expected response: brucellosis/ contagious abortion.

Comments: Average performance was noted in this question though some candidates made reference to Newcastle or coccidiosis which were all incorrect.

Question 42

What term describes the organisms that transmit pathogens in crops and livestock?

Expected response: vectors.

Comments: This question was fairly answered by a majority of the candidates. Common errors related to pathogens such as bacteria, fungi and viruses.

Question 43

Which legislative measure involves isolating imported livestock?

Expected response: quarantine.

Comments: A fairly answered question by a majority of the candidates, although some candidates related their responses to the crop and stock movement act.

Question 44

State one deficiency symptom of the following nutrients in livestock.

(a) Phosphorus

Expected response: soft/weak bones / bone deformity.

Comments: This question was poorly answered by a majority of the candidates as candidates gave deficiency symptoms in plants such as purple leaves or stunted growth.

(b) Vitamin A

Expected response: night blindness / retarded growth.

Comments: This question was well answered by a majority of the candidates.

Question 45

What term describes the mating of closely related animals?

Expected response: inbreeding.

Comments: This question was fairly answered by a majority of the candidates.

Question 46

What term describes offspring that are the result of two unrelated parents?

Expected response: hybrid/ crossbreed.

Comments: This question was fairly answered by a majority of the candidates.

Question 47

Give any two ways of maintaining a saw.

Expected response: grease/oil; sharpen the teeth; keep it dry /under shelter; hang it properly; correct blade tension .

Comments: This question was fairly answered by a majority of the candidates.

Question 48

Fig. 48.1 shows a moveable farm structure with corrugated iron roof.

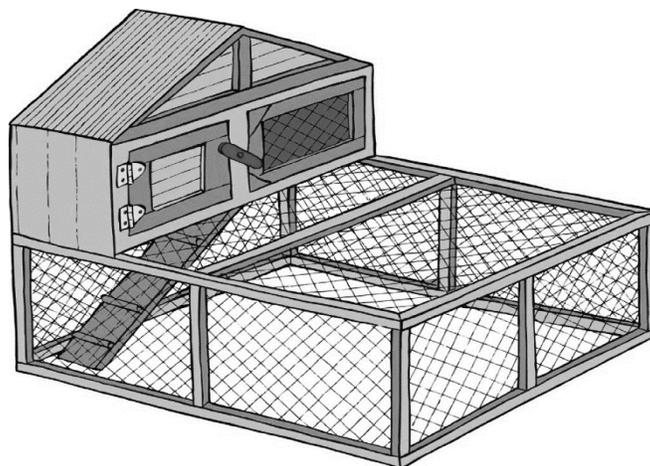


Fig 48.1

(a) What name is given to the system of keeping chickens shown in Fig 48.1?

Expected response: semi-intensive.

Comments: This question was poorly answered by a majority of the candidates. Misconceptions related to battery cage, intensive or free range system.

(b) State one advantage of the roofing material used in Fig 48.1.

Expected response: durable; does not catch fire easily; light weight.

Comments: This question was poorly answered by a majority of the candidates.

(c) Give one substance that can be used to protect the wood from rotting.

Expected response: creosote/ paint/ oil.

Comments: This question was well answered by a majority of the candidates.

Question 49

Fig. 49.1 is a diagram of the water cycle in nature.

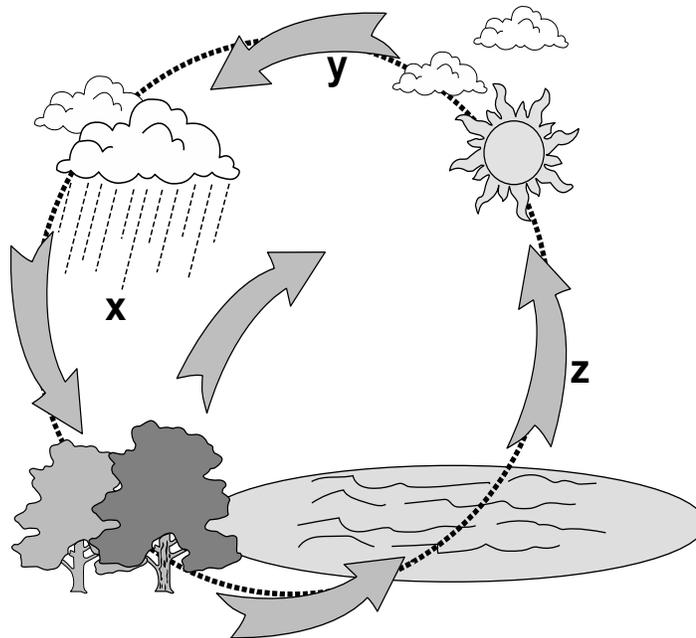


Fig 49.1

Label the processes represented by arrows Y and Z in Fig 49.1.

Expected response: Y - condensation; Z - evaporation.

Comments: Generally, this question was well answered by a majority of the candidates.

Question 50**Which feature of a dam wall prevents wave erosion?****Expected response:** small stones / rip rap.**Comments:** A poorly answered question by a majority of the candidates. Common mistakes involved reference to impervious clay, concrete slab or shape of the dam.**Question 51****Which type of cost in a balance sheet describes the payment for seeds to be used in a farm?****Expected response:** variable.**Comments:** This question was not easily accessible by a majority of the candidates. Common errors included reference to expenses, total costs, liabilities or fixed costs.**Comments on overall performance:**

1. Time allocated for the paper was adequate.
2. Assessment of the paper was evenly spread throughout the syllabus sections.
3. Candidates were **not** able to adhere to instructions related to the paper for example:
 - Writing using pencil in both Sections A and B,
 - Circling of correct letter in Section A instead of writing the letter in the given box,
 - Exam scripts with candidates' name written but no candidates number and center number.
4. There were also cases of overwriting on letters in the multiple-choice section.
5. Some questions were left unanswered by candidates, especially questions 46 to 51. This suggests that candidates do not page through the question paper to the end.

Advice to Agriculture Teachers

In preparation for examination and attainment of much higher scores, teachers should encourage candidates to:

1. Refer to the syllabus as much as possible in preparation for the examination.
2. Adhere to the use of glossary terms used in the assessment of the subject.
3. Read and understand the question clearly before attempting to answer it.

Teachers are still encouraged to;

1. Unpack the assessment syllabus as much as possible.
2. Encourage candidates to page through the question paper to the last page, this will help avoid leaving some questions unanswered. .

EGCSE AGRICULTURE**Paper 6882/02****Theory**

EGCSE Agriculture Paper 2 consists of two (2) sections, **SECTION A:** - Structured Questions and **SECTION B:** - Essay questions. This paper contributes 40% of the overall mark.

General Comments on Paper 2

The 2023 cohort performed poorly compared to the 2022 cohort, though the highest mark in 2022 was lower (54) compared to the highest of (57) in 2023. Most candidates in 2023 Agriculture Paper 2 examination scored in the range of 09 – 26 marks out of 80. The lowest score was 01/80 and the highest was 57/80. On the overall, the paper proved to be challenging to most of the candidates. There were 5753 candidates who sat for the 2023 EGCSE Agriculture examination compared to the estimated 4919 candidates for 2022.

The paper was appropriate and relevant to the grade level of the candidates. It also covered all sections of the syllabus from general agriculture to agricultural economics.

In 2023, inappropriate definitions of scientific terms using improper technical words was noted as a key setback for candidates. There is a continued failure to describe processes or practical procedures in chronological order, resulting in loss of marks for disorderly mentioned points.

Parts of the syllabus that seemed to be challenging to candidates:

Question 1 (a,), (i), 1), (b, ii) (c) – cash crop farming, use of organic methods and climate change;

Question 2 (c) – use of greenhouse;

Question 3 (b), (c) – use of lime, properties of soil texture;

Question 4 (a), (ii, iii) – wilting of tomatoes, prevention methods for crop diseases ;

Question 5 (a, ii,iii), – artificial insemination;

Question 6 (a,i,ii) – temperature for chicks;

Question 7 (a), (b) – pasture management, silage making;

Question 8 (a), – selective breeding;

Question 9 (a), – entrepreneurship.

(NB: The comments on specific questions are found in full from section B of the report)

Section A

Answer **all** questions in this section **(60 Marks)**

Question 1

(a) (i) 1 State what is meant by cash-crop farming

Expected responses

- small scale production of crops using limited resources for sale.

Comments

This question was poorly answered. Most candidates failed to score a point since they were not mentioning the scale of production. Some were also missing the use of limited resources. Common wrong response was that cash crop farming is farming for sale.

2 subsistence farming.

Expected responses

- producing to feed family and sell surplus

Comments

This part of the question was poorly answered by a majority of the candidates. Most candidates were defining subsistence farming as the growing of crops and missing livestock. Some omitted the selling aspect if there is a surplus. There were those who were using the stem word 'farming

(ii) Maize yields are poor under subsistence farming.

State **two** reasons to explain these poor yields:

Expected responses

- poor crop management/ weeds/ no fertilizer/ pests/ diseases;
- reliance on rainfall/no irrigation;
- late planting;
- bad soil management/ poor soil pH/ fertility/ soil structure;
- less technology/mechanization/improved inputs (any two)

Comments

This question was fairly answered by a majority of the candidates. Most of the responses were based on poor management, use of seeds from previous produce. Some candidates mentioned that the cause is due to the use of small piece of land, lack of skilled labour and shortage of money.

(b) Commercial crop production can involve both monoculture and organic farming methods.

(i) Give reasons why a farmer might choose to farm using monoculture methods.

Expected Response

- ease of management;
- high outputs/yields;
- specialisation;
- satisfy market demands;
- expertise/mastery of skills

Comments

This question was fairly answered by an average number of candidates. Most responses were based on management such as easy weeding, pest/disease control. Some candidates got this question wrong because of spelling mistakes, instead of saying expert they wrote 'expect'.

(ii) Give reasons why a farmer might choose to farm using organic methods.

Expected Response

- reduce negative effects of agrochemicals/ pollution to the soil/ water/ crops/ animals healthy products;
- ensure maximum use of locally available resources;
- reduces the cost of production;
- high market value of products

Comments

This question was poorly done. Fewer candidates got this question. Most candidates referred to organic farming methods being cheap and environmentally friendly without expanding point to pollution.

(iii) Explain why mixed farming can be useful in organic farming.

Expected Response

- OM from livestock used as fertiliser;
- fodder from crops used as feed for livestock;
- animals provide draught in fields

Comments

The performance was above average. Most candidates described the system and used the answer as an example. Some mentioned the general point of mixed farming without relating to organic farming. In some instances, candidates mentioned crops to be fed to animals instead of the crop residues. Some candidates mentioned that this system produce organic matter without stating the source.

(c) Suggest how climate change might affect the type of crops grown in Eswatini.

Expected Response

- drought resistant crops to survive higher temperatures/ lack of rainfall;
- tropical crops to withstand a wide range of conditions (temperature/ pests and disease/ soils) [12 Marks]

Comments

This question was poorly answered by a majority of the candidates. Candidates did not understand the question. They were simple describing the effects of climate change on crops. e.g. spread of disease, drought, reduced yield.

Question 2

Fig. 2.1 shows a cross-section of a root.

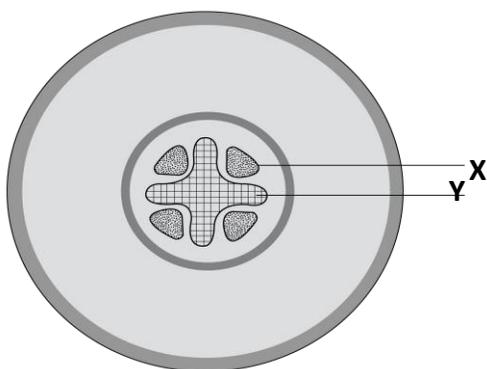


Fig 2.1

(a) Name the parts labelled **X** and **Y** in **Fig 2.1**.

Expected Response

- X - phloem;
- Y- xylem

Comments

This question was properly answered by a majority of the candidates. Some candidates did not read the statement of the diagram resulting in **X** being named nucleus or pith or cuticle or Xylem. Some of the candidates wrote the wrong spelling for xylem as Zylem.

(b) Describe the process of water movement from the soil up to the leaves.

Expected Response

- osmosis;
- dilute soil solution enters the root hair cell
- high water concentration to low water concentration, through the cortex cells up to xylem
- root pressure/ transpiration pull/ suction force moves water to the leaves

Comments

This question was fairly answered done. Most candidates had a challenge in describing osmosis. Some described it generally without relating to the absorption. Common spelling mistake of osmosis as osmoses'. Some candidates mention the process as diffusion, active transport.

- (c) Explain how a greenhouse can be used to control the rate of transpiration.

Expected Response

- windows open / control ventilation, reduces temperature and humidity therefore increasing transpiration
- thermostats to control temperature, hence decrease/increase water
- humidifiers reduce/increase moisture, to reduce/increase transpiration

Comments

This question was poorly answered by a majority of the candidates. This question was challenging. Candidates discussed the effects of light on the opening and closing of stomata. Some were describing the greenhouse effect. Others were discussing the factors affecting transpiration. A few described a greenhouse as a structure having glass to let in light.

- (d) Suggest **two** reasons why transpiration is important to plants.

Expected Response

- cools plants;
- facilitates nutrient uptake/ provides water for photosynthesis
- turgidity of plant

Comments

The performance on this question was slightly below average. Most candidates wrote the removal of waste products. Some candidates mentioned transport of nutrient and water instead of facilitates absorption. A few mentioned that it regulates the temperature without stating direction. Others said it is for gaseous exchange.

Question 3

Fig. 3.1 shows a soil profile.

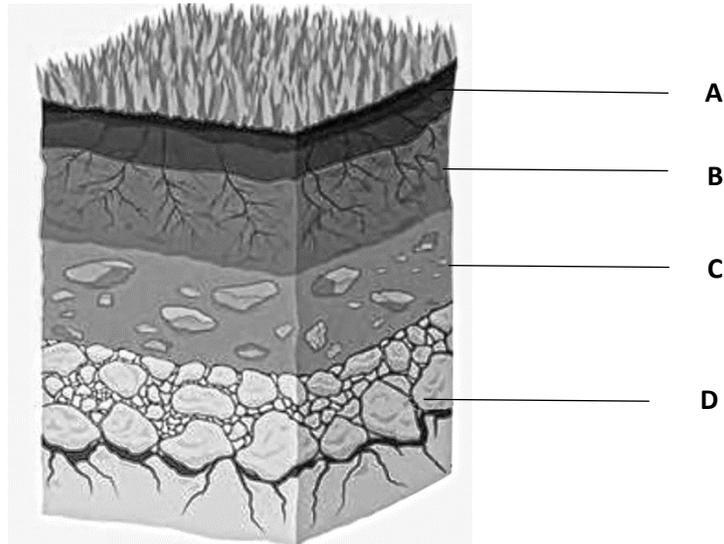


Fig 3.1

(a) (i) In which layer are most microorganisms found? [1]

Expected Response

- layer **A**/ **A** – horizon/ **A** **A** = topsoil

Comments

This question was well answered by a majority of the candidates. Few candidates mentioned subsoil or layer B. There were those who were writing horizon A instead of A- horizon.

(ii) State any **two** characteristics of Layer **B** that hinders the growth of crops.

Expected Response

- compacted/ poor aeration;
- less nutrients/less fertile;
- poorly drained/ poorly aerated;
- poor root growth

Comments

This question was poorly answered by an average number of candidates. Candidates were describing the topsoil instead of layer **B**. Some had a challenge with the term hinders such that they were describing characteristics supporting good growth.

(b) Describe the reasons for applying lime to the soil.

Expected Response

- reduce acidity to make nutrients more available;
- improve soil structure/flocculation of clay soils or aggregation of sand soils;
- promotes microbial activity; add nutrients (Calcium and magnesium)

Comments

This question was poorly answered by a majority of the candidates. Candidates were only stating the points without describing the reason such as reducing acidity, improving soil structure and increasing fertility. Some were using the word neutralizing instead of reducing acidity. Others were confusing the whole concept as they were saying it reduces alkalinity and pH.

(c) Explain how any **two** properties of soil are influenced by soil texture.

Expected Response

- drainage – sand highly drained; clay poorly drained
- aeration – sand well aerated; clay poorly aerated
- workability/erodibility – sand highly eroded/ easily workable; clay heavy
- fertility – sand poor in nutrient content/ loose nutrients easily; clay rich in nutrients
- soil temperature – sand warmer; clay cooler due to high water content

Comments

This question was poorly answered by a majority of the candidates. The candidates did not understand the question. Most candidates were relating to soil structure instead to texture. The candidates failed to explain the properties.

Question 4

Fig. 4.1 shows a vegetable crop of tomatoes which have collapsed during a cool day.



Fig 4.1

(a) (i) Identify a plant disease that might have caused this collapse in **Fig 4.1**.

Expected Response

- bacterial wilt

Comments

This question was well answered by a majority of the candidates. However, some got it wrong as they mentioned bacterial disease blight, pests such as stalk borer, cutworm and ladybird.

(ii) State **two** other factors which can lead to the condition in **Fig 4.1**.

Expected Response

- lack of water;
- damaged roots;
- nematodes attack

Comments

This question was poorly answered by a majority of the candidates. Candidates did not understand the question. Common answers were drought, heavy rainfall, watering the leaves, high temperature and poor irrigation

(iii) Describe prevention methods that can be used for crop diseases.

Expected Response

- resistant varieties to avoid carryover of pests and diseases;
- burning to kill pathogens on infected plants;
- crop rotation to break lifecycle of pests and diseases;
- disinfect tools to prevent spread;
- early planting to reduce risk of disease infection

Comments

This question was poorly answered by a majority of the questions. Candidates were not able to answer the question properly. Candidates listed methods without describing them. Others listed the methods for controlling pest /disease such as biological control, chemical control cultural control. Some candidates describe crop rotation but omitting 'life' on the cycle.

(b) Describe suitable soil conditions for the growth of cabbages.

Expected Response

- suitable pH/ 5.5 – 6.5/ slightly acidic to neutral;
- fertile soil;
- OM content;
- loam soil/ crumb structure;
- deep top soil;
- well drained/ well aerated

Comments

This question was fairly answered by an average number of candidates. Some candidates mentioned climatic factors such as rainfall, temperature, humidity, moist soil.

(c) Explain **two** reasons for ridging in sweet potatoes.

Expected Response

- ridging loosens soil; so improves drainage
- ridging increases height of soil; promotes roots to grow more/larger tubers
- ridging makes regular mounds; which makes harvesting easier

Comments

This question was fairly answered by an average number of candidates. Common wrong response was ridges prevent soil erosion. Most wrote ridges are for the growth of sweet potato instead of growth of tubers or roots. It was common for candidates to mention the last part of the answer, omitting the first part.

Question 5

Fig. 5.1 illustrates a management practice being carried out on a cow.

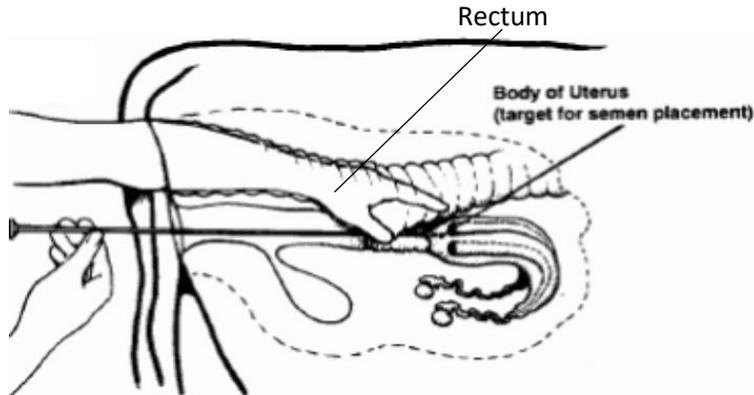


Fig 5.1

(a) (i) Name the practice being carried out in **Fig 5.1**. [1]

Expected Response

- artificial insemination (**R = AI**)

Comments

The performance on this question was above average. Common errors were castration, palpating, artificial breeding, embryo transfer, semination. Some candidates wrote only the abbreviation AI and teachers are encouraged to teach candidates to first write AI in full before the abbreviation.

(ii) State the reason for inserting the arm in the rectum as shown in **Fig 5.1**.

Expected Response

- guide the insemination syringe;
- identify the position of the cervix

Comments

This question was poorly answered by a majority of the candidates. Most candidates mentioned that the hand was for feeling the uterus. Some were stating that it is for the animal to feel like is mated by a bull. Few candidates mentioned that it was to control the tube or the tool.

(iii) Explain, with reasons, the importance of carrying out this practice when a cow is on heat.

Expected Response

- ovulation;
- high chances of fertilisation;
- cow stands

Comments

This question was poorly answered by a majority of the candidates. Most candidates got 0. Few Candidates mentioned that there is ovulation but failed to relate it to high chances of fertilisation. Some were saying to prevent injuries from heavy bulls.

(iv) Suggest costs that might be incurred by the farmer when carrying out this practice.

Expected Response

- cost of buying the semen;
- cost of transport/storage;
- cost of inseminator/ professional expertise/ labour costs;
- cost of equipment/ inseminating gun

Comments

This question was fairly answered by an average number of candidates. Most candidates mention the buying of sperm instead of semen. Some candidates gave advantages of artificial insemination. Few candidates mentioned the cost of wastage of semen.

(b) State with reasons **two** tasks that a farmer might carry out immediately after the birth of a calf.

Expected Response

- remove mucous/ remove amniotic membrane / place straw up nostrils/ pull tongue to the side; to ensure breathing;
- dip navel chord in antiseptic/ antibiotics: to ensure no bacterial infection;
- inspect udder; for proper milk flow/ for provision of colostrum;
- isolate cow and calf from herd; to ensure bonding;
- ensure calf suckles to get colostrum; that contains antibodies for disease resistance and nutrients/cleans alimentary canal

Comments

The performance on this question was below average. Common errors were cutting of umbilical cord; Deworming; castration; dehorning. Some candidates mention the separation of calf from the Mother.

6 Fig. 6.1 shows chicks raised under an artificial brooder.

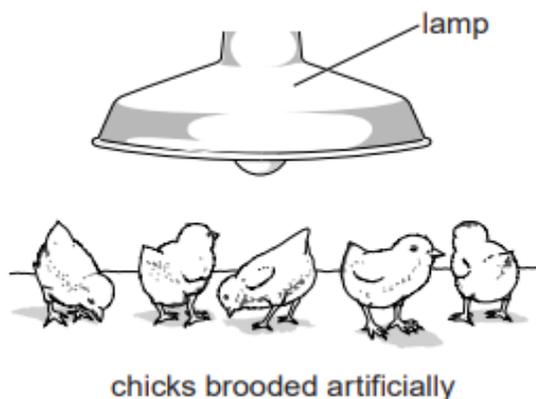


Fig 6.1

(a) (i) State a suitable temperature for the chicks under the brooder in the first week.

Expected Response

- 33 - 35 degrees Celsius

Comments

This question was poorly answered by a majority of the candidates. Common errors mentioned were 37°C, optimum temperature, few were giving 35 without correct units.

(ii) Explain how the temperature around the chicks is controlled.

Expected Response

- lower/lift the lamp;
- make a barrier around chicks;
- close/open ventilations

Comments

This question was poorly answered by a majority of the candidates. Most candidates were referring to the behaviour of the chicks at different temperatures. Some candidates mentioned the reduction of temperature by 3°C each week. Few mentioned switching on or off the brooder.

(iii) Describe the behaviour of the chicks that would indicate that the temperature was too hot.

Expected Response

- crowd next to the barrier/ away from heat source;
- do not feed

Comments

This question was performed above average by a majority of the candidates. Some candidates mentioned that the chicks will move away from the 'lamb' instead of 'lamp'. Fewer candidates were saying the chicks will move away from the light.

- (b) Describe how a Newcastle vaccine can be administered to chicks.

Expected Response

- dissolve a given quantity of Lasota; clone 30 in 10L drinking water
- eye drop application; appropriate name of chemical
- wing injection; appropriate chemical

Comments

This question was fairly answered by an average number of candidates. Most candidates were getting the point for mixing the vaccine with drinking water. Some mentioned that the vaccine should be poured on waterers or on the water. On the injection part, some of the candidates were saying Injection is done on the neck/ head instead of wing. Most candidates failed to mention the name of the vaccine.

- (c) Describe measures, other than vaccination, that should be taken to ensure good health of growers in a deep litter shed.

Expected Response

- footbath;
- good litter management;
- isolate sick birds;
- ventilation/air circulation/
- providing fresh water and feed;
- avoid predators

Comments

This question was fairly answered by an average number of candidates. On the other hand, some candidates were only listing omitting the description part. Some candidates used wrong terms such as 'culling or quarantine' instead of 'isolation', turn or dig the deep litter instead of forking the deep litter, use of water bath instead of footbath.

- (d) Describe any **two** physical appearances that indicate ill-health in livestock.

Expected Response

- dull eyes;
- abnormal sores;
- limping/straining when walking;
- poor posture;
- rough coat/feathers;
- poor body condition;
- soiled vent/back;
- pale mucus membrane/runny nostrils

Comments

This question was fairly answered by an average number of candidates.

Section B – Essay Questions

Answer any **two** questions in this section (**20** Marks)

Question 7

- (a) Define pasture management.

Expected Response

- planned use of grazing land/pasture

Comments

This question was poorly answered. Candidates were describing instead of defining the term. Some candidates gave importance of pasture and grazing methods.

- (b) Describe the process of making a silage.

Expected Response

- chop/ cut green vegetation;
- place in a large heap/ pit;
- compress it down/ anaerobic conditions;
- cover with a plastic sheet;
- allow to ferment/ lactic acid;
- suitable conditions;
- suitable equipment/ forage harvester/ slashers/ roller

Comments

This question was poorly answered by an average number of candidates. The process was very challenging for the candidates to describe. Some could not know the silage that is being asked. Candidates were confusing silage and hay. They did not know the condition of the grass cut for silage. Some would mention that the chopped grass is put in a hole or plastics instead of pit or heap.

- (c) Suggest characteristics of a good pasture.

Expected Response

- palatable and nutritious;
- perennial grasses;
- no sign of erosion/ bare patches;
- no useless bush/no invasive plants;
- has leguminous plants

Comments

This question was fairly answered by a majority of the candidates. However, candidates would mentioned provisions to a pasture such as water. Some candidates stated the use of pasture such as making silage/ hay.

Question 8

- (a) Define selective breeding.

Expected Response

- choosing organisms with the desired traits to be parents of the next generation.

Comments

This question was poorly answered. Candidates described selective breeding instead of defining.

- (b) Describe **three** factors to consider when selecting breeding stock.

Expected Response

- age;
- level of performance/ high yielding (growth rate/ functionality);
- physical fitness;
- health/ resistance to diseases;
- body conformation (shape)/ appearance;
- temperament or behavior;
- quality of products;

- mothering ability
- adaptability/ resistance to drought/ hardiness
- prolificacy

Comments

This question was fairly answered by the candidates although some candidate mentioned only the factors without describing them. This clearly indicated that some candidates failed to understand what the question was asking.

- (c) Suggest **three** reasons for breeding animals with desired traits.

Expected Response

- expand the inherited potential of the animal/ improve production/yield;
- to overcome production problems created by the environment (drought/ diseases/ pests);
- to satisfy consumers taste/ preferences/ quality;
- for economic reasons/ higher returns/ higher profits

Comments

This question was fairly answered by a majority of the candidates. Candidates used answers from question 8.(b) some of which were irrelevant for the question. Most candidates did not understand the question.

Question 9

- (a) Define entrepreneurship.

Expected Response

- generating innovative/ creating new ideas in a business

Comments

This question was poorly answered. Candidates described entrepreneurship instead of defining it. Some referred to entrepreneurship as a farmer or a person.

- (b) Describe **three** factors that could affect farm productivity.

Expected Response

- level of technology;
- personnel; finance;
- management;
- environment;
- government laws and policies

Comments

This question was fairly answered, although most candidates listed the factors without describing them on how they affect productivity. Some candidates could discuss factors all falling under one marking point.

(c) Suggest **three** sources of farm credit.

Expected Response

- farmers' co-operatives;
- commercial banks;
- agricultural finance corporations/ banks;
- insurance companies;
- individual money lenders;
- regional development fund;
- micro-lenders

Comments

This question was fairly answered by a majority of the candidates. Some candidates mentioned the types of loans such as short-term loan, mid-term loan, long term loan. Others mentioned the different individual people such as zenzele, Siyakhula , inhlangelo . Some would list using abbreviations as RDA, RDF, FNB.

Comments on the question paper

- A majority of candidates attempted all the questions as per the instructions.
- The allocated time of 1 hour 30 minutes was adequate for writing this paper.
- Candidates had no challenges of time management.
- There was no common misinterpretation of the rubric.

Advice to Agriculture Teachers

- The assessment covers all sections of the syllabus, from the first unit (general agriculture) up to the last unit (agricultural economics). All questions were fairly attempted by the candidates
- Emphasis should be made on description of experimental procedures and processes in chronological order.
- Candidates should be taught and tested on all levels i.e. in reference to the command words used in the syllabus.
- Further emphasis should be made on the appropriate usage of technical terms used in agriculture when explaining concepts. In most cases, where technical terms are not used appropriately, candidates' responses become unacceptable.

- A further need to relate practical work to theoretical facts remains key for understanding of some concepts.
- Teachers should make use of examination reports from the previous years as they teach their candidates.

EGCSE AGRICULTURE

Paper 6882/03

Practical Activities

Practical activities

This paper tests the practical skills, which is objective C of the syllabus. Even this year practical was developed by the Examination Council of Eswatini (ECESWA). Each practical had two sections: practical assessment sheet and processed skills. The practical activity was assessed by the teachers in the centres using the descriptors provided by ECESWA. The processed skills were written as an exam paper in Centres and were marked by the teachers in the centres. A majority of the centers were able to submit their practical to ECESWA on time.

All Centres are encouraged to submit their work within the stipulated time.

Registers

All Centres submitted their registers. Even this year registers were incorrectly filled by teachers. In some registers there were no page totals, dates, invigilator's name and signature. In some centres the registers showed only the sampled students in the column for scripts submission.

Expected: All students who had submitted their practical work must be indicated in the registers. Teachers are reminded to complete the registers, sign them, show date of completion, as well as the name of the teacher responsible.

Sitting plan

Centres are encouraged to submit the centre's sitting plan for the processed skills. This will assist in identifying students who did not write a particular task.

Teacher's File

This year some centres submitted the teacher's file; however some centres did not submit this file. In some centres the teacher's file had the following challenges:

- Student cards were in the teacher's file
- Pictures in the teacher's file

Expected: All centres are expected to submit the teacher's file. It should have the following:

- A diaries for the centre to show what was supposed to be done or was required by the practical. It should give a guide on what is expected to be seen in the candidates' diaries and should have correct dates.
- Number of rabbits in the Centre (does, buck and weaners) and the number of cages
- Any other necessary record/ information for the centre to facilitate the moderation

The teacher's file is important as it guides the moderation with the correct dates for activities in each centre, it also highlights challenges faced in the centres and assist in explaining deviation from the marking guide given by ECESWA.

The teacher's file should be according to the instructions for the practicals and questions from the processed skills in that particular year.

Sampling

Even this year some centres had incorrect samples. Teachers are expected to sample a wide range of scores: top students, average students and low students. They are to indicate with asterisks (*) the sampled candidates on the Summary Sheet. Packaging of the student files should be according to the scores of the candidates, with the top candidates at the top and low students at the bottom. The sample should include the whole mark range obtained at the centre. centres are expected to sample the following number of candidates as indicated in the syllabus:

- Below 10: all candidates
- 11 – 50: 10 candidates
- 51- 100: 15 candidates
- Above 100: 20 candidates

Practicals that are not sampled should be submitted in a separate envelope from the sampled work and the envelope should also indicate that these are not sampled work.

Student Card

All Centres submitted sampled students' cards. In some centres however, the student's cards were not placed in the candidate's file. Some were found in the teacher's file others were loose not fasten in the individual file. In some Centres the student cards lacked the marks for the processed skills, which made

the marks in the Summary Sheet to be incorrect. Some student card had decimals. In some Centres marks were incorrectly transferred from the marking criteria onto the student card.

Expected: The student cards must be placed inside the student file and must be on top of the work. Whole numbers should be used when filling the individual student card. Marks obtained by the student on the processed skills must be included on this card.

Teachers are also encouraged to cross check student card's mark, with mark awarded on the marking criteria or processed skill mark.

Teachers are encouraged to ensure all candidates write all three process skills and do all three practicals as they are all needed in the computing of the final mark of the candidate. Teachers are reminded to include the marks for processed skills in the first column of the student card.

Summary sheet

This year there was an improvement on the summary sheets. However, the following challenges were still noted on some Summary Sheets:

- Few centres had decimals
- Some centres had totals which were not correlating with the marks awarded (incorrect adding)
- Few centres had no centre details, that is centre name or number
- Candidates with no marks or indication of being absent
- No teacher's details (name or contact number)
- No principal stamp or signature
- Loose sheets
- In some centres it was difficult to read numbers, as some teachers would write on top of another number or the numbers not clearly written
- Processed skill marks not included
- Some centres did not have asterisk (*) for the sampled candidates

Centres are encouraged to indicate in the Summary Sheet if a student is absent or missing it should correlate with the register. They should thoroughly check if the marks are completed, and the totals are correct.

No decimal should appear on the Summary Sheet. All Summary Sheets should have the teacher's detail, principal signature and school stamp.

Practical Tasks

The practicals received this year were as follows:

- Land preparation for vegetable production
- Rabbit Management
- Planting sweet potato

All centres were able to do all three tasks.

Teacher's comments

There was a slight improvement in teacher's comments this year. However, there were centres without teacher's comments. Very few centres had detailed comments justifying mark awarded to candidates. In some centres they had comments were of lower quality. Comments that were provided included the following: good, fair or excellent. In some centres the comments were just based on one descriptor. Teachers are encouraged to make comments as they serve as a justification for the mark awarded.

Expected: Teachers should make specific and detailed comments and they must be relevant for the practical.

Evidence

This year there was a decline on the evidence given by centres. However, the quality of the evidence given was low. Some centres submitted diaries that are scanty, and some were not marked. Most diaries were lacking critical information and observations were not clearly stated. Some candidates were confusing activities with observations. In some centres, some of the events were not logical e.g. opening planting stations before applying NPK fertilizer. centres are encouraged to write detailed information pertaining to all activities and observations. Most diaries had detailed information on land preparation. This year few centres had pictures as evidence.

Processed skills

1. Diaries

Candidates were expected to carry out some activities and as well as to make some observations as they carried out the activities.

Comments:

Most candidates were able to carry out the activities and the dates for the activities were indicated. In some centres the activities were not well detailed e.g., basal dressing, lacking spacing, variety used, feeding rabbits to mention a few. However, most candidates failed to make relevant observations. In some centres the observation section was left blank or with few observations noted. Most centres did not provide diary for planting sweet potato. Centres are encouraged to write detailed activities showing all management practices expected for that particular enterprise with logical dates. They are also encouraged to make observations based on the activity at hand.

2. Calculations

Centres were expected to show the working clearly and use the correct units. Some of the calculations should correlate with the relevant data given to predict the future outcomes.

Comments: Some Centres had challenges with calculations. In some centres working was not shown but only the answers, whilst in other Centres wrong units were used. centres are encouraged to state the formula (if need be), show working and use relevant units. In most centres candidates were able to do the first calculation on Land preparation, however most failed to do second calculation on planting sweet potato. Most candidates did not show working for calculating the area, before calculating the expected kilograms per hectare as a prediction.

3. Graphs

Comments:

Drawing of bar graphs continued to be a challenge for some centres. Some bar graphs had incorrect scaling making it difficult to plot. Some of the axes were not well labelled, plotting was mostly incorrect and most graphs had no titles. In some centres the bar graphs were not drawn at all. centres are encouraged to draw bar graphs with titles, label all axis and use correct scale in order to plot correctly.

4. Predictions

Centres were expected to draw predictions using information on the second calculation.

Comments:

This was the most challenging section to most centres. Most candidates were unable to put up the relevant predictions. Centres are encouraged to predict the performance of the crops or animals based on the observations and measurements obtained.

Marking of processed skills

Centres were expected to allocate marks according to the facts given by the candidates. Comments: Most centres allocated marks that did not tally with the facts written by the candidate. In some centres marks were allocated without ticks, whilst others had ticks without marks being allocated. Some centres allocated marks more than the expected mark for the question. In some centres teachers were awarding marks to incorrect answers not following the given marking guide. Teachers are encouraged to mark all the work written by candidates and award marks according to the facts given and using the mark scheme sent by ECESWA.

Cover letter

All absent candidates and Summary Sheets with zeroes should be accompanied by a covering letter with a valid reason. This letter should be checked and signed by the principal.

Packaging

Few centres still fail to use simple folder and strings for their packaging. In some centres, they submitted loose materials in the individual candidate file. The individual files should have strings to avoid the candidate's work being misplaced or mixed-up during handling and moderation. Very few centres had no files at all. In some centres paper 3 and 4 were packed in the same candidate's file. All centres are encouraged to submit their work in simple folders fastened secured with strings. centres are discouraged to bind their work. Paper 3 and 4 are different papers they should be filed in different files and packaged into separate envelopes, with their own cover letters.

General comments

The number of absent students was low this year. Teachers are encouraged to grade and submit the work done by the candidates.

Recommendations

Teachers who had just joined the profession are encouraged to consult ECESWA regarding the expected procedures for assessment. It is also recommended that teachers continue to share ideas within the department to minimize variation in the standard of work submitted by the centres. Teachers are still encouraged to respond promptly when clarity is required regarding their course work.

EGCSE AGRICULTURE

Paper 6882/04

Project Work

General Comments

This paper tests students on practical skills, which is objective C in the syllabus. There was a slight drop in the quality of the work presented in this paper, compared to last year, 2022.

Appropriateness of the projects chosen

All the topics chosen were relevant and specific. This year, there was an improvement in the quality of topics chosen, however most centres presented projects that were concentrated on vegetables and livestock and there was no spread/ distribution of topics across the syllabus.

Teachers should ensure that topics are well spread over the syllabus content.

Teacher supervision

This year, there was a slight drop in teacher supervision, compared to the previous year, 2022. The performance of the candidates this year declined, and teachers should supervise the candidates throughout the project (both practical and write-up aspect of the project).

Selection of questions (Hypothesis)

The hypothesis must show the null and alternative hypothesis. Teachers are advised to guide candidates in writing a hypothesis with two levels, which are brief and specific. This year, some centres had hypothesis which was one sided. A few of the centres this year wrote the hypothesis as paragraphs, others wrote hypothesis for each objective, while others showed the hypothesis with 3 levels. Teachers are advised to ensure that learners write two hypothesis (null and alternative) only, for the whole project. The hypothesis should be neutral, and it should contain all the variables and the parameters.

Objectives of the study

A few centres still presented objectives which were not measurable. Some centres presented the same objective measuring one variable three times. Teachers are advised to compare variables being investigated, especially with experimental projects, and ensure that they have a stem. The project must have objectives. Survey projects should have research questions.

Plan and principles

This year, there was a decline in the presentation of the project plan. Most centres still presented a scanty plan. The plan should be detailed, showing research design, materials used and their uses, procedure followed (showing dates and how work was done from preparations up to harvesting/ slaughtering or marketing), layout, randomization, replication, population and sampling, data collection, data analysis and data presentation format.

Some centres presented a procedure which was shallow and without dates when work was done, materials without uses. Some centres presented a plan with the procedure but without data collection, data analysis and data presentation format. Others were confusing data analysis with data presentation format.

Handling of evidence

This year, there was a slight improvement in this section, however there were few centres that presented the data with tables which were interpreted, graphs and charts labelled, with proper scaling and drawn in lined papers. Tables have to be labelled and interpreted, graphs and charts drawn on graph papers. The key is always necessary.

Some centres still presented a shallow data. Tables, charts and graphs for some centres were still not labelled and without brief interpretations, there was very little variation in data presentation i.e., tables, pie charts, histograms, bar charts, linear graphs (showing S.I. units) used for different objectives. Some centres did not present data for all objectives. Very few did not have data at all. Some centres presented unrealistic data in this section.

Data for each objective should always be presented in a table first, before drawing the bars or chart.

Teachers should advise candidates to use different patterns to differentiate the variables in the charts or graphs. Teachers are also encouraged to ensure that candidates do the investigatory project and ensure that data is properly collected.

Ability to make deductions

This year, there was a drop in citations in this section. The major challenge of this section is that a majority of the centres did not justify or express their results and give reasons for the differences. This section is the core of the project. It should give a clear picture and understanding of the whole project. The deductions should cover each of the objectives (stated in chapter 1) under study.

Summary, Conclusion and Recommendations

Most centres had a summary based on the whole project, conclusion and recommendations. However, a few candidates excluded this component in their projects.

Summary

Few centres did not include findings of the study in the summary.

Conclusion

Most centres were able to relate their conclusion with the hypothesis, however a few centres still had a challenge in relating the conclusion with the hypothesis.

Recommendations

There was a slight improvement in the presentation of recommendations this year by most centres. Candidates are expected to recommend based on the findings of the study; not on problems encountered during the study.

Limitations

Limitations are problems encountered during the study. This section continued to be a challenge.

Limitations were listed without explaining how they affected the study and suggesting possible solutions to them. Some centres were writing this section in future tense while some omitted this section completely, resulting in candidates losing marks. Centres are encouraged to ensure that candidates identify, assess, and suggest improvements to the limitations of the project.

Presentation and originality

Most centres had all the components of the project. However, some presented scanty work, with no background information, importance of the study, literature review, management activities, layout, randomization, replication, population, sampling etc.

The project must include all the components of an investigatory project. The Background Information and Literature Review are still an important component of the project.

Quality of practical work

Most centres did not submit evidence in the form of diaries or pictures. Teachers are encouraged to ensure that learners attach adequate evidence of work done in the form of pictures and detailed diaries for the entire project. Pictures should show the work done, showing the learner while doing the practical.

References

This section should be written based on the scientific principles to maintain standards. A majority of the centres had a poorly presented list of references. Most centres were unable to properly present the references. References should be in line with the Literature cited in the candidate's project work.

General Comments

The standard of projects has slightly dropped. Some centres were submitting loose projects without files. Some submitted files without strings. A few projects were incomplete with one or two chapters. Absent students should be accompanied by a covering letter and candidate's work must be recorded up to the period when he/ she left school.

Teachers are discouraged from awarding zeroes to candidates when they have been in the centre participating in learning. Proper sampling should be done across the mark range. Proper calculations of marks should be done. Sampled candidates should be indicated with an asterisk in the summary sheet. Whole figures should be written in summary sheets, without decimals. Punching and stapling of MS1 is unacceptable. Marks should be entered and shaded correctly in the MS1. In the case of an absent student, an A should be written and shaded, using HB pencils only and not ink, in the MS1. Both shading and signing of MS1 should be done using a pencil.