

*EXAMINATIONS COUNCIL OF ESWATINI*

# **EGCSE**

**EXAMINATION REPORT**

**FOR**

**AGRICULTURE (6882)**

**YEAR**

**2021**

**Table of Contents**

<b>Subject Code:</b>	<b>Name of Subject:</b>	<b>Page No:</b>
6882	Agriculture P1 .....	3 - 19
6882	Agriculture P2 .....	20 - 34
6882	Agriculture P3 .....	33- 38
6882	Agriculture P4 .....	39 - 42

## EGCSE AGRICULTURE

### Paper 6882/01

#### Multiple Choice and Simple Response Questions

The 2021 EGCSE (Eswatini General Certificate of Secondary Education) Agriculture examination has four components.

**Component 1:** Theory (multiple choice and objective (short) questions)

**Component 2:** Theory (structured and essay questions)

**Component 3:** Practical exercises

**Component 4:** Practical (investigatory project work)

Candidates that had registered for the 2021 examination were 8893 in this component.

#### **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 2021 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 overall performance of candidates in the 2021 examination saw the lowest mark/score attained to be 2 and the highest being 50 out of 60. The highest mark obtained in the 2021 examination is 3 points lower than in 2020 which was 53 and the lowest mark was 09 out of 60. This indicates a decline in performance in the 2021 examination year compared to the previous year. It is also worth noting that the majority of candidates scored less than 30 out of 60 in the 2021 Paper 1 examination.
3. Section A (multiple choice) was relatively well answered by most candidates. 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 15 and 25 marks, leaving many candidates below the C grade level.

Questions that were easily accessible to candidates:

**Section A:** Question 1, 6, 7, 8, 13 and 16.

**Section B:** Question 24, 25, 46, 50, and 52.

Questions that were averagely/ accessible to candidates:

**Section A:** Question 4, 9, 14, 15, 17 and 19

**Section B:** Question 22, 23, 26, 27,28, 31, 32, 34, 35, 37, 38, 40, 42, 47, 49 and 51.

Questions that were not easily accessible to candidates:

**Section A:** Questions 2, 3, 5, 10, 11, 12, 18 and 20.

**Section B:** Questions 21, 29, 30, 33, 36, 39, 41, 43, 44, 45, 48 and 53.

### **Comments on Specific Questions**

**Section A:** Multiple choice

#### **Question 1**

Which soil texture is difficult to cultivate?

**Correct response:** A (clay)

**Comments:** Well answered question.

**Question 2**

What is a problem of extensive pasture management?

**Correct response:** C (selective grazing)

**Comments:** A challenging question, candidates wrongly opted for compaction or overgrazing which all occur after selective grazing.

**Question 3**

A homozygous white female (**RR**) rabbit is mated with a homozygous red male rabbit (**rr**). The offspring from this cross were allowed to interbreed.

What is the probability of obtaining a heterozygous white rabbit in the second filial generation?

**Correct response:** B (50%)

**Comments:** A poorly answered question. Candidates had a challenge in carrying out genetic crosses as well as handling the genetic terms, this was critical for the correct calculation of the required probability.

**Question 4**

Which livestock feed would be suitable for a two-week old broiler chick?

**Table 2.1**

Feed	Carbohydrate (%)	Calcium (%)	Protein %
<b>A</b>	55	5	40
<b>B</b>	58	2	40
<b>C</b>	62	3	35
<b>D</b>	65	5	30

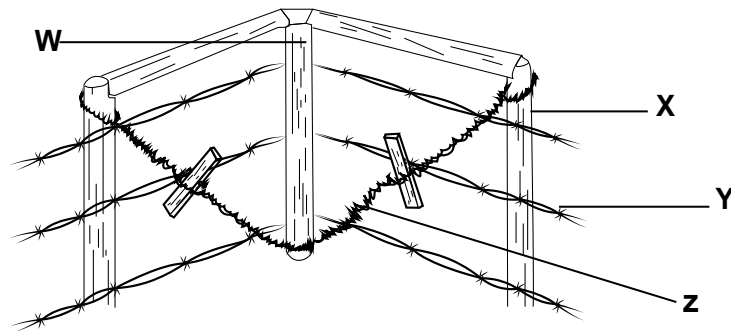
**Correct**

**response:** A (55% carbohydrate; 5% calcium; 40% protein)

**Comments:** Fairly answered question.

**Question 5**

Fig 5. 1 shows a corner post.



**Fig. 5.1**

**Correct response:** A (it braces post W from opposing forces)

**Comments:** Poorly answered question. The question required candidates to understand that every component around the corner post is meant to brace the corner post.

**Question 6**

Which of the following loans can be classified as a long-term loan?

**Correct response:** C (loan for purchasing a tractor)

**Comments:** Well answered question.

**Question 7**

What could be a benefit of using a drip irrigation system?

**Correct response:** A (decreases water loss)

**Comments:** Well answered question.

**Question 8**

Which hand tool is used to prepare a fine tilth?

**Correct response:** C (rake)

**Comments:** Well answered question.

**Question 9**

Which disease is recognised by blood stains in the droppings?

**Correct response:** B (coccidiosis)

**Comments:** Well answered question.

### Question 10

Which of the following is a characteristic of insect pollinated flowers?

**Correct response:** D (sticky pollen)

**Comments:** A challenging question to most candidates. The common wrong response was feathery stigma which is a feature on wind pollinated flowers.

### Question 11

Which programme in Eswatini builds on farmers' knowledge in promoting agricultural development?

**Correct response:** A (agricultural extension)

**Comments:** A poorly answered question. The most common wrong response was B (agricultural research), which finds solutions to problems faced by farmers.

### Question 12

Which substances are needed for a nitrate nitrogen test in a school laboratory?

**Correct response:** B (nitrate nitrogen reagent and soil extract)

**Comments:** A poorly answered question. Incorrect responses related to A (nitrate nitrogen extract and nutrient reagent) and D (nitrogen nitrate reagent and nutrient extract)

### Question 13

Which substance is a chemical and physical weathering agent?

**Correct response:** C (water)

**Comments:** A well answered question.

### Question 14

Which of the following is considered a major plant nutrient?

**Correct response:** B (magnesium)

**Comments:** An average performance was noted on this question. However, a few candidates chose C (manganese) which was an incorrect response.

### Question 15

Which element is lacking in acidic soils?

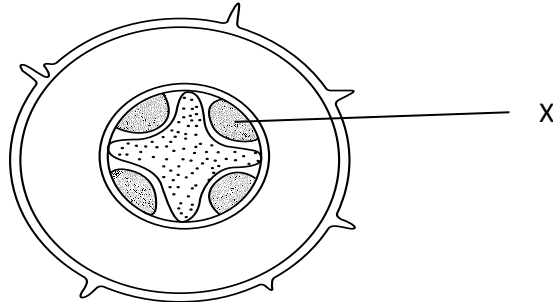
**Correct response:** D (phosphorus)

**Comments:** A fairly answered question.

**Question 16**

**Fig.16.1** shows the cross section of a root.

What is tissue X?



**Fig.16.1**

**Correct response:** B (phloem)

**Comments:** A well answered question.

**Question 17**

What is the end product of protein digestion in a ruminant?

**Correct response:** A (amino acids)

**Comments:** A well answered question. Misconceptions related to D (glucose).

**Question 18**

Which hormone causes the pelvis of a cow to widen at birth?

**Correct response:** C (relaxin)

**Comments:** A challenging question. The common incorrect response was B (progesterone).





**SECTION B**

**Question 21**

Name a major nutrient that increases plant resistance to diseases.

**Correct response:** potassium

**Comments:** A well answered question. Incorrect response related to phosphorus.

**Question 22**

State the function of the cuticle of a leaf.

**Correct response:** reduce transpiration/ allows water retention/ protection

**Comments:** An average performance was noted on this question. Incorrect responses made reference to photosynthesis.

**Question 23**

Name the method of determining the spray volume of a sprayer.

**Correct response:** calibration

**Comments:** A fairly answered question. Common incorrect responses included pumping or dilution.

**Question 24**

What type of land tenure is characterised by faster land degradation?

**Correct response:** communal/ Swazi Nation Land (SNL)

**Comments:** Generally, well answered question. Misconceptions related to title deed or leasehold.

**Question 25**

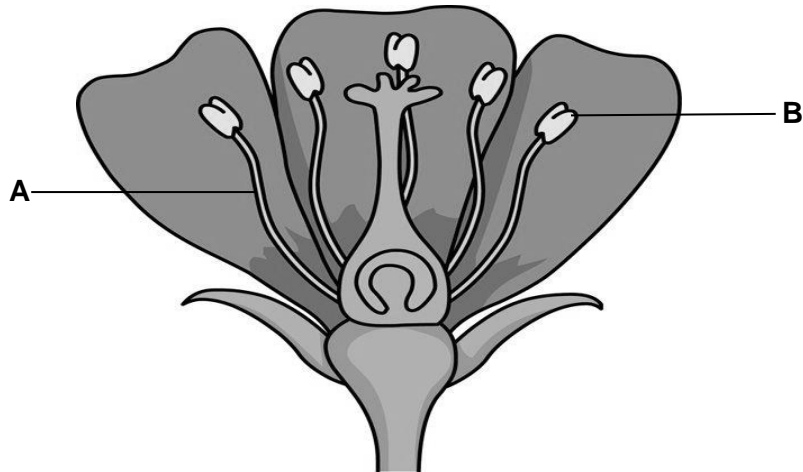
Which term describes the amount of moisture in the atmosphere?

**Correct response:** humidity/ relative humidity

**Comments:** A well answered question.

**Question 26**

**Fig 26.1** shows a structure of a flower.



**Fig 26.1**

Name structures **A** and **B**.

**Correct response:** **A** – filament **B** – anther

**Comments:** Fairly answered question. Common incorrect responses were fallopian tubes for A and pollen grains for B.

**Question 27**

**Fig. 27.1** shows an annual weed.



**Fig. 27.1**

What type of weed killer would be used to control this weed in a young crop of maize?

**Correct response:** selective herbicide

**Comments:** A poorly answered question. Incorrect responses included systemic herbicide or specific examples of herbicides such as bladex and paraquat.

**Question 28**

How are bush plants controlled biologically in a pasture?

**Correct response:** living organisms/ organisms feeding on plants/ browsers

**Comments:** A fair performance was observed on this question. The common wrong response was using cattle to graze on the bush.

**Question 29**

Name the organism that spreads the maize streak virus.

**Correct response:** leafhopper

**Comments:** A challenging question. Common wrong responses were hoppers, insects and witch weed.

**Question 30**

Which muscle pulls back the penis into the sheath after mating in bulls?

**Correct response:** retractor muscle

**Comments:** A poor performance was noted in this question. Common responses were erector muscle, foreskin, penis muscle and sigmoid flexure which were all incorrect.

**Question 31**

What name is given to extra feed that makes up for nutritional deficiencies in the normal diet?

**Correct response:** supplement

**Comments:** A fairly answered question. Incorrect responses made reference to different types of rations (production/ maintenance) or overfeeding.

**Question 32**

What term describes the occurrence of two identical alleles at the same locus on a chromosome?

**Correct response:** homozygous

**Comments:** Average performance was noted in this question. Incorrect responses included homologous and heterozygous.

### Question 33

List **two** methods of collecting rainwater for the purpose of irrigation.

**Correct response:** roof; catchment

**Comments:** A challenging question, many candidates listed water storage methods (tanks and dams) instead of collection methods required by the question.

### Question 34

Which marketing function would ensure each of the following?

1 availability of product throughout the year?

**Correct response:** storage

**Comments:** A fairly answered question. The common incorrect response was processing.

2 easy handling of the product?

**Correct response:** packaging

**Comments:** A fairly answered question. Packing was the common incorrect response.

### Question 35

What type of cost relates to levels of production?

**Correct response:** variable

**Comments:** A fairly answered question. Incorrect responses made reference to production costs and fixed costs.

### Question 36

Which term describes output per unit input factor?

**Correct response:** productivity

**Comments:** A challenging question to a few candidates. Common responses were production and efficiency which were all incorrect.

### Question 37

State **any** source of information needed for budgeting.

**Correct response:** previous records, experienced personnel; suppliers

**Comments:** A fairly answered question. Common incorrect responses included listing specific types of records and banks.

### Question 38

Name any **one** surface irrigation method.

**Correct response:** furrow/ basin/ flood

**Comments:** A fair performance was noted in this question. A common error was wrong spelling for furrow which changes the whole meaning of the word (i.e. farrow).

### Question 39

What name is given to the affordable and non-complex farm equipment that improves production efficiency?

**Correct response:** intermediate technology

**Comments:** A poorly answered question. Incorrect responses made reference to tools and implements.

### Question 40

What is the type of disease that is caused by lack of some nutrients in livestock rations?

**Correct response:** deficiency disease

**Comments:** An average performance was noted in this question. Misconceptions involved naming specific deficiency diseases such as anaemia, rickets etc.

### Question 41

Give any **two** examples of pasture legumes.

**Correct response:** Lucerne/ alfalfa; luecaena; clover

**Comments:** Poor performance was observed in this question. Shortcomings included not knowing that luecaena and alfalfa is the same plant, and listing field crops legumes.

### Question 42

State any **two** methods of conserving water in a field.

**Correct response:** minimum tillage; mulching

**Comments:** A fairly answered question.

### Question 43

**Fig 43.1** shows a grazing pasture.



**Fig. 43.1**

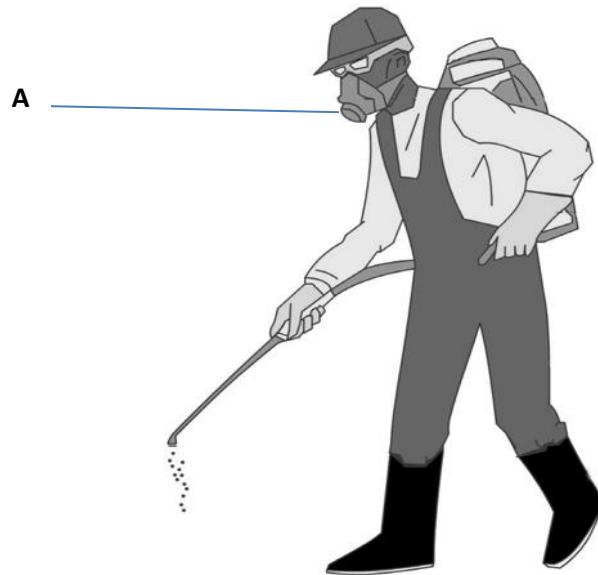
Give **one** good feature of the pasture shown in **Fig 43.1**

**Correct response:** no bare patches/ signs of erosion; no useless bush/trees; fencing

**Comments:** A challenging question. Misconceptions related to palatable grasses, stocking rates etc. which are not captured on **Fig 43.1**

**Question 44**

**Fig 44.1** shows a farmer using a knapsack sprayer.



**Fig. 44.1**

What is the name of the protective wear labelled **A**?

**Correct response:** respirator

**Comments:** A poorly answered question. The common incorrect answer was protective mask or face shield.

**Question 45**

State any **two** sources of farm credit that are made available for farmers.

**Correct response:** banks; agricultural finance companies; merchants credit; private credit; cooperatives; Tinkhundla Centres

**Comments:** A poorly answered question. Incorrect responses comprised specific examples of banks, cooperatives, and finance companies.



**Question 46**

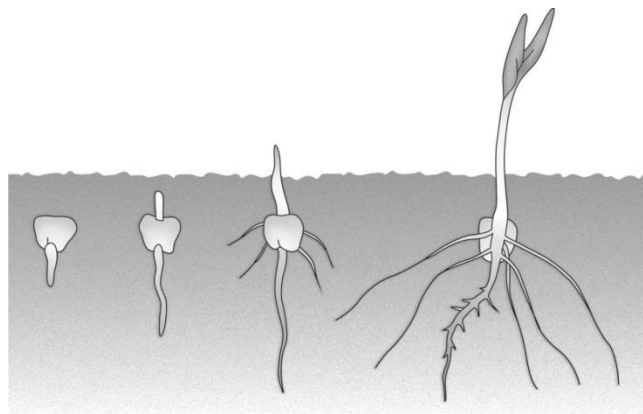
Give **two** soil sampling methods.

**Correct response:** traversing; zigzag; zone sampling; Grid sampling

**Comments:** A fairly answered question. Challenges in this question involved writing transverse instead of the traversing sampling method.

**Question 47**

**Fig 47.1** shows the germination of a maize seed at different stages.



**Fig. 47.1**

What type of germination is shown by the seed above?

**Correct response:** hypogeal

**Comments:** Average performance was noted in this question. Common incorrect responses were maize germination, geotropism and epigeal were common.

**Question 48**

Name the sheath that protects the plumule when it emerges from the soil?

**Correct response:** coleoptile

**Comments:** A poorly answered question. The common incorrect response was testa or seedcoat.

**Question 49**

Name the practice of using superior animals as parents of future generations?

**Correct response:** artificial selection/ selective breeding

**Comments:** Average performance was noted in this question. Common incorrect responses included artificial insemination or selection methods.

**Question 50**

What term describes the running of different enterprises at once, so that if one fails the farmer can benefit from the other?

**Correct response:** diversification

**Comments:** A well answered question.

**Question 51**

What name is given to a person who is passionate about a project and identifies a market opportunity?

**Correct response:** entrepreneur

**Comments:** A fairly answered question. Common incorrect responses included entrepreneurship, opportunists and agriculture teacher.

**Question 52**

Name **one** common invasive plant species in the kingdom of Eswatini.

**Correct response:** *Chromolaena odorata*, *Lantana camara*; *Solanum mauritianum*; *Caesalpinia decapitala*  
or use common names

**Comments:** A well answered question. However, there were candidates who gave vernacular names which were not acceptable.

**Question 53**

Give **one** technological advance that could be used when using a sprinkler system in a green house.

**Correct response:** sensors; timing; direction; location

**Comments:** A poorly answered question. Common incorrect response was computer, or centre pivot.

**Comments on overall performance:**

1. Candidates were able to adhere to instructions related to the paper.
2. Some questions were left unanswered by candidates.

**Advice to Agriculture Teachers**

Contribution and immersive commitment of the teachers is commendable. They are still kindly requested to continue motivating, empowering candidates with the knowledge and skill required of this practically science-oriented subject. In preparation for examination and attainment of much higher score's candidates should:

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 subject.
3. Read and understand the question clearly before attempting to answer it.
4. 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 2021 cohort performed poorly than expected on the paper with most of them attaining below (30/80) mark. Most candidates in 2021 Agriculture paper 2 examination scored in the range of 11–27 marks out of 80. Overall, the paper proved to be challenging to most of the candidates, with the lowest mark in 2021 being 0/80 and the highest being 55/80; compared to 6/80 and 60/80 which was the lowest and highest mark in 2020. 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.

Even in 2021, the poor usage of agriculture technical terms remains the main setback to candidates. Further, description of processes or practical procedures in chronological order remains a challenge as candidates lost points for mentioning points in a disorderly manner.

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

**Question 1 (a), (b) – soil profile and soil sampling**

**Question 2 (a) – law of diminishing returns**

**Question 3 (a), (b) – pests damage and outbreak**

**Question 4 (a), (b), (d), (f) – ruminant diseases, pasture management, using dosing gun, zero grazing**

**Question 6 (a), (b) – permaculture, crop rotation**

**Question 7 (b) – organic fertilisers**

**Question 8 (a), (b) – fencing**

**Question 9 (a), (b) – records, intensive livestock production**

**(NB:** The specific questions are found in full from Section B of the report)

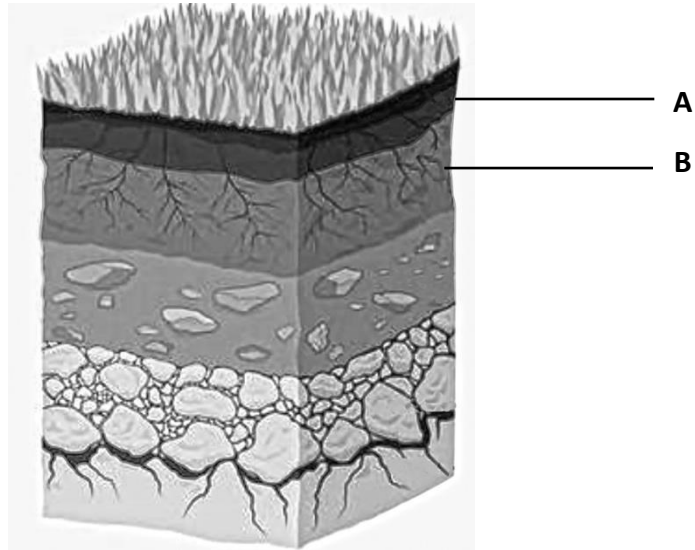
All the other parts of the syllabus in the paper seemed to be accessible to the candidates.

**B. Comments on Specific Questions**

**Section A**

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

1 **Fig 1.1** is a cross section of a soil profile



**Fig 1.1**

(a) (i) Name the layer labelled **B** on Fig. 1.1.

**Correct response: subsoil**

**Comments:** A well answered question, though other candidates opted for D-horizon which was not accepted as a correct response.

(ii) Explain how layer A supports plant growth.

**Correct response:** well aerated providing oxygen for plant roots/ porous for water infiltration; high nutrient level due to microbial activity.

**Comments:** Generally well answered question, most learners opted for 'fertile due to organic matter' which was accepted.

(b) Explain why a soil sample may not be collected from certain parts of the field?

**Correct response:** burnt areas due to high ash content; swampy areas due to denitrification; eroded areas due to lack of topsoil; soil accumulated areas due to deposition of nutrients; sampling under trees or near kraals due to build-up of humus.

**Comments:** A poorly answered question. Common wrong responses were: because some places were rocky, waterlogged, presence of trees.

(c) Suggest **two** ways to prevent erosion on cultivated land.

**Correct responses:** plant cover crop; intercropping; terracing; mulching; contour planting; leave grass strips between fields.; tie-ridging; storm drains and graded contour drains.

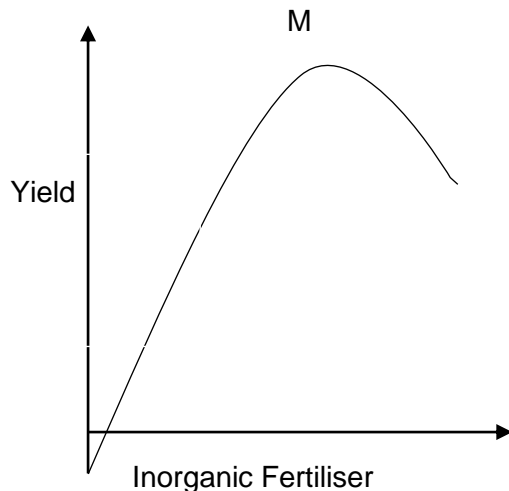
**Comments:** A fairly answered question. Common responses that were accepted were: ground cover/ across the slope.

(d) Describe how temperature changes cause weathering.

**Correct responses:** alternate warming and cooling; cause uneven expansion and contraction.

**Comments:** A generally well answered question. However, other candidates opted for exfoliation.

2 **Fig 2.1** shows maize yield in response to an inorganic fertiliser application.



**Fig 2.1**

(a) (i) Explain the law of diminishing returns as shown in **Fig. 2.1**.

**Correct responses:** If a variable input e.g fertiliser is increased; while other inputs remain constant; a point is reached where the additional output/ yield for each additional input/ fertiliser will decline.

**Comments:** A well answered question for a few candidates, as most of them talked about an increase of yield as the number of years increased but decrease at the end. A few candidates mentioned 'diminish' for decline and was not accepted.

(ii) Suggest **two** effects of adding inorganic fertiliser beyond point **M**.

**Correct responses:** burns the plant; increase production costs; destroys soil structure

**Comment:** This question was averagely answered by most candidates. Common wrong responses were that the yield will increase with an increase in the inorganic fertilizer as there would be more nutrients to favour the growth of the plants.

(b) Describe how market research helps a farm business.

**Correct responses:** collects accurate information about the customers; identify better opportunities; minimize risks; develop appropriate strategies; measure progress in specific markets; identify the level of competition/ competitors.

**Comments:** an averagely answered question by candidates. Common responses that were accepted included: to collect information about customer tastes and preferences.

- (c) A bank gave a farmer a loan of E6 000.00 at an interest rate of 12% per annum to be repaid after 12 months.

Calculate the interest and total amount to be paid.

**Correct responses:** Interest =  $12/100 \times E6\ 000.00 = E720.00$

Total amount repaid =  $E6\ 000.00 + E720.00 = E6720.00$

**Comments:** A fairly answered question by candidates. Marks were awarded on the correct formula used for calculating the interest (E720.00) or based on the correct calculation (working) displayed. Then the other mark was for the final answer (Total amount paid = E6720.00). Marks were not awarded if units were not displayed during the calculation.

### Question 3

**Fig 3.1** shows a maize crop damaged by a pest.



**Fig. 3.1**

- (a) (i) Name the type of pest shown in **Fig. 3.1**.

**Correct responses:** boring

**Comments:** Average performance by candidates for this question.

Biting and chewing was accepted. Common wrong responses included: cutworm, 'chewing and biting' was also common and was not accepted as a correct response.

- (ii) Explain the effect of the damage made by the pest in **Fig 3.1**.



**Correct responses:** if leaf tissues are damaged, leaf surface is reduced; less area for photosynthesis; leaves stripped/ damaged so inside exposed; encourages disease; excess water loss results; weaken the plant leading to death the plant.

**Comments:** A generally poorly answered question. Most candidates mentioned that the plant would be damaged, thus low yield instead of mentioning the effects of the damage.

- (b) Suggest the possible economic effects of an outbreak of the pest in **Fig. 3.1** on agriculture.

**Correct responses:** high cost of production regarding pesticides and extension; reduced yields/ quality; export certification challenges; policy issues.

**Comments:** A poorly answered question by most candidates. They wrote high yield instead of reduced yield/ production.

- (c) Describe how a systemic insecticide can control a piercing and sucking pest.

**Correct responses:** absorbed/ diffuses into plant sap; translocated throughout the plant; kills pest when sucking sap.

**Comments:** Few candidates were able to respond correctly to this question as most of them could not include all the information on how the pest will get killed. Candidates did not score all the marks because they could not write the technical terms such as absorption/ diffusion and translocation of the chemical into the plant system, which will result into the death of the pest that have sucked the chemical.

- (d) (i) State the harmful effects of heavy rainfall on crop production.

**Correct responses:** heavy rain drops damage leaves; causes rotting of produce; soil erosion/ compaction/ capping; leaching/ loss of nutrients.

**Comments:** A well answered question by most candidates.

- (ii) Suggest **two** harmful effects of a fungal disease on potatoes.

**Correct responses:** reduced surface area for photosynthesis; reduced transpiration; reduced yield/ rotten tubers.

**Comments:** A fairly answered question as most candidates scored 1 out of the 2 marks in this question for reduced yield or rotten potatoes.

**Question 4**

- (a) Give **one** symptom of brucellosis in ruminants.

**Correct responses:** abortion; yellowish/ brownish vaginal discharge; retained placenta; swollen testicles/ sterility.

**Comments:** This question was poorly answered by most candidates, as they wrote the general symptom of an ill animal, 'poor appetite' which were common responses.

- (b) Figure 4.1 shows cattle grazing on a pasture.



**Fig 4.1**

Describe the impact of cattle grazing on a pasture with allow stocking rate.

**Correct responses:** selective grazing; under grazing; increased growth of invaders/ increasers/ bush encroachment.

**Comments:** This question was on average well answered by most candidates.

- (c) Explain the importance of quarantine when importing a herd of livestock.

**Correct responses:** enables monitoring; this reduces disease spread to other areas.

**Comments:** A well answered question by most candidates.

- (d) Describe how a readily mixed deworming chemical is administered to livestock using a dosing gun.

**Correct responses:** insert nozzle with chemical into the mouth above the tongue; pull the trigger/dose regulator to release chemical.

**Comments:** This question was poorly answered by most candidates. The candidates never mentioned that the dosing gun should be placed on the mouth above the tongue, thus losing the whole concept of the answer. A common response was that of inserting the dosing gun with chemical through the anus.

- (e) Suggest advantages of crossbreeding, rather than pure breeding in livestock production.

**Correct responses:** drought resistance/ adaptation to climate; disease resistance; increases meat/milk production/yield/ improved breed quality.

**Comments:** The question was well answered by the candidates.

- (f) Suggest **two** ways in which zero grazing can improve the yield of beef cattle.

**Correct responses:** less energy wasted by cattle, so more food converted to meat; improves meat quality (cattle do not move long distances); saves space/ more cattle kept in a small area.

**Comments:** Poorly performed question by most candidates. Others left the question unattended. Common responses were: the cattle would get fat as good quality feed would be brought to them.

### Question 5

- (a) State **one** use of the following tools.

- (i) Saw

**Correct responses:** cutting wood /metal

**Comments:** A well answered question.

- (ii) Screwdriver

**Correct responses:** loosening and tightening screws

**Comments:** a poorly answered question by most of the candidates.

- (b) Outline **two** safety precautions in the use of farm tools.

**Correct responses:** use tool in good condition/ avoid faulty tools; use tools correctly/ for proper jobs/ place tools correctly; wear protective clothing.

**Comments:** This question was well answered by most candidates.

- (c) (i) Describe any **two** factors to be considered when selecting a site for a farm building.

**Correct responses:** direction from prevailing wind/ sunlight/ slope/ drainage; soil type; proximity to water/ power supply; access to roads; security; proximity to living quarters/ other farm structures; government regulations.

**Comments:** A fairly answered question by candidates. A common error was mentioning that the farm should be away from trees and in a land with no rocks.

- (ii) State any **two** reasons why thatch could be a good material for roofing livestock houses.

**Correct responses:** cheap; good insulation/ poor conductor of heat; readily/locally available.

**Comments:** A well answered question.

## Question 6

- (a) (i) What is permaculture.

**Correct responses:** the development of agricultural systems intended to be sustainable and self-sufficient/ promoting interdependency amongst living organisms in an ecosystem.

**Comments:** A well answered question for most candidates. Except for a few who described permaculture as organic farming.

- (ii) Explain why permaculture is considered a good farming system.

**Correct responses:** recycles water/ less pollution; reduced costs of production/ cheap; maintenance of soil fertility; helps biodiversity.

**Comments:** A well answered question by candidates.

(b) Describe how crop rotation can improve yields of crops.

**Correct responses:** reduced pests and diseases; improve soil fertility/ legume fix nitrogen; improve soil structure; allow utilization of nutrients at different soil levels.

**Comments:** Most candidates did not describe, but only stated the idea. This resulted to an incomplete answer.

(c) Suggest the impact of HIV/AIDS on food production.

**Correct responses:** less labour/ skilled labour/ weak labour; less family income; less farm inputs; money for agriculture is diverted to health; child headed families.

**Comments:** A very good performance was noted on the responses of the candidates for this question. A common correct response was 'agricultural inputs/ equipment sold for medical expenses/ to buy medicine for sick individuals' and was accepted. However, 'old-age- headed families' was not accepted as a correct response.

(d) Suggest **two** reasons why the use of Genetically Modified Organisms (GMOS's) can improve food security.

**Correct responses:** High performing/ survive harsh conditions/ fast growth rate/ fast maturity; high yield; pests/disease resistance; increased shelf life/ drought/ saline tolerance crops; high nutritional value.

**Comments:** A very good performance by candidates was observed in this question.

## SECTION B: Essay Questions

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

### Question 7

- (a) Explain the advantages of intercropping.

**Correct responses:** provide soil cover to reduce soil erosion/ weeds/ soil moisture; alternative crop for income; insurance; legume crop for soil fertility through nitrogen fixation; improves diet of the farmer; maximum utilization of land/ high yield per unit area.

**Comments:** Average performance by candidates was noted. However, most candidates did not 'explain', but only stated the advantages, thus lost marks.

- (b) Discuss the advantages of organic fertilisers.

**Correct responses:** improve soil structure; reduce soil acidity; improve soil drainage/ soil aeration; improve buffering capacity/ reduce leaching; improve cation exchange capacity; food for microbes; last longer in the soil; cheap and readily available; improves soil fertility.

**Comments:** Poorly performed question by most candidates. The candidates lost all the marks because they failed to discuss their points, but instead stated them.

- (c) Suggest problems that might arise when practicing monoculture.

**Correct responses:** increase pests and diseases; reduce soil fertility; high management costs; overproduction may lead to rapid decline in market prices; threats of crop failure are high.

**Comments:** a well performed question.

### Question 8

- (a) Explain how the use of fencing can result in improvements to a pasture.

**Correct responses:** fencing allows for rotational grazing; enables regrowth of plants/ palatable species maintained; for controlled grazing/ reduced selective grazing; reduces pasture erosion; allows reservation of pasture for winter feeding.

**Comments:** This question was poorly answered by candidates. Candidates could not explain the uses in improving the pasture, but only stated them, therefore lost marks.

- (b) Wooden fence posts need replacing regularly.

Discuss reasons for this and the methods used to protect the posts.

**Correct responses:** wood can be attacked by termites, preserved by creosote; wood rot/ get fungal infections/ decay, preserved by creosote; fire can burn wood, preserved by fire belts or removing vegetation by herbicides or other methods.

**Comments:** This question was averagely answered by candidates. However, some candidates lost marks when they mentioned that the protection can be done using a dark/ black chemical instead of creosote.

- (c) Suggest how a live fence promotes biodiversity.

**Correct responses:** provides feed; habitat/ shelter; organic matter.

**Comments:** Only a very few candidates were able to give correct responses for this question. A lot of common wrong responses was stating the uses of fence for controlling soil erosion, decoration purposes..

## Question 9

- (a) Explain how records can be used in livestock production.

**Correct responses:** used to determine future mating policy; growth rate records; enables decisions to be made about future feeding/ vaccination; estimation of profits and loss; budgeting.

**Comments:** A poorly performed question for this paper. The candidates could not answer this question at all, it was the least selected under essays. Common correct responses only included: profit and loss estimation and for vaccination purposes. A common shortfall was just listing the different types of records kept in a farm.

- (b) Discuss the problems that might arise in intensive livestock production.

**Correct responses:** leads to high disease/ parasites spread; high animal aggression; starvation; pollution.

**Comments:** Candidates failed to discuss the problems of intensive livestock production.

(c) Suggest the importance of commercial farming in relation to the export of livestock products.

**Correct responses:** increase revenue; promotes trade/ skills exchange; foreign exchange.

**Comments:** It was an averagely performed question in this section. Income as a response was an accepted. However, 'forex', was a common response for foreign exchange and was not accepted.

### Comments on the question paper

- A majority of candidates attempted all the questions as per the instructions.
- Very few candidates would not attempt some questions at all, e.g. procedure for using dosing gun, 4 (d), defining permaculture 6 (a) (i).
- 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.
- The performance of candidates in most sections has improved compared to previous years. Further focus is necessary to ensure all sections of the assessment syllabus are sufficiently taught.
- 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. This year practical were developed by the Examination Council of Eswatini (ECESWA). Each practical had two sections; practical assessment sheet and process skills. The practical activity was assessed by the teachers in the centres using the descriptors provided by ECESWA. The process skills were written as an exam paper in Centres and were marked by the teachers in the Centres. All Centres were able to submit their practical to ECESWA on time. All Centres are encouraged to submit their work within the stipulated time.

**Registers**

Almost all Centres submitted their registers. Even this year registers were poorly 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. 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.

**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

The teacher's file is important as it guides the moderation with the correct dates for activities in each Centre, it also highlight challenges faced in the Centres. It also helped to explain deviation from the marking guide given by ECESWA.

**Sampling**

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 students at the top and low students at the bottom. 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

### **Student Card**

Most Centres submitted sampled students' cards. Only few Centres failed to submit. 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 process skills, which made the marks in the Summary Sheet to be incorrect. Some student card had decimals. Teachers are encouraged to use whole numbers when filling the individual student card. 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 also reminded to include the process skills mark in the first column of the student card. Teachers are also reminded to place the student cards on top of the work done.

### **Summary sheet**

In the Summary Sheet the following challenges were observed:

- Some 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
- In some Centres the first or last student on the page would be omitted at times
- 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
- In some Centres they had their candidates list jumbled up
- Process 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. They should thoroughly check if the marks are completed, and the totals are correct. They are also encouraged to staple the summary sheets if they are more than one sheets. No decimal should appear on the Summary Sheet. All Summary Sheets should have the teacher's detail, principal signature and school stamp.

### **Practical Tasks**

This year the practical tasks were developed by ECESWA. The practicals received this year were as follows:

- Vegetable management
- Broiler management
- Soil pH testing

Most Centres were able to do all three tasks. Only few Centres had two practical tasks undertaken. All Centres are encouraged to do all three practical tasks. Centres are also encouraged to use the vegetables that are stated in the syllabus.

### **Teacher's comments**

This year there was a decline in teacher's comments. Some Centres had no teacher's comments at all. Those with 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.

### **Evidence**

This year showed an improvement on the evidence given by Centres. However, the quality of the evidence given was low. Some Centres submitted diaries that are canty and some were not marked. Most diaries were lacking critical information and observation were not clearly stated. Some candidates were confusing activities with observations. In some Centres, some of the events were not logical e.g. transplanting and top dressing within one week. Centres are encouraged to write detailed information pertaining all activities and observations. This year fewer Centres had pictures as evidence. Centres are encouraged to submit evidence in the form of diaries or pictures where possible.

### **Process 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. lacking spacing, variety used, litter management 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. 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 clear formula on every calculation, show working and use the correct units. The calculations should correlate with the relevant graph drawn to predict the future outcomes.

**Comments:** Calculations were poorly done by most Centres. 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, show working and use relevant units.

## 3. Graphs and tables

There must be a relationship between the graphs and tables.

**Comments:** In some Centres the information on the table did not show variation on weight gain. Some graphs had incorrect scaling making it difficult to plot. Some of the axis were not well labelled, plotting was mostly incorrect and most graphs had no titles. In some Centres the graphs were not drawn at all. In some Centres candidates used bar graphs instead of a line graph. Some of the weights given by candidate were unrealistic.

Centres are encouraged to fill all the needed details in the tables with the correct units, draw graphs with titles, label all axis and use correct scale in order to plot correctly.

## 4. Diagrams

Where diagrams are used, they must be clearly drawn and correctly labelled.

**Comments:** Most Centres had poorly drawn diagrams. Labels were mainly on soil texture instead of soil ph. Centres are encouraged to draw diagrams based on the observations of the practical task.

## 5. Predictions

Centres were expected to draw predictions using information on the tables.

**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.

## 6. Inferral

Candidates were expected to deduce the performance of crops or animals from the information given.

**Comments:** this area was also challenging for most Centres as they were unable to illustrate the performance of the animal during its growth stage.

## 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. 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.

## General comments

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

## 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 fasten secured with strings. Centres are discouraged to bind their work.

### **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. Most Centres were unable to meet the deadline for submission of this paper. Teachers are encouraged to submit by the stipulated date. There was a slight improvement in the quality of the work presented in this paper, compared to last year, 2020.

#### **Appropriateness of the projects chosen**

Most of the topics chosen were relevant and specific; however, very few topics were irrelevant. This year, there was an improvement in the quality of topics chosen. Most Centres presented projects that were concentrated on vegetables and livestock and there was no spread/ distribution of topics across the syllabus.

#### **Teacher supervision**

This year, there was a slight improvement in teacher supervision, compared to the previous year, 2020. The performance of the candidates this year showed an improvement which indicates that candidates were closely supervised. Teachers are encouraged to continue supervising 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 assist 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 hypotheses (null and alternative) only for 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.

**Plan and principles**

This year, there was a slight improvement in the presentation of the project plan. A few Centres still presented a scanty plan. The plan should be detailed, showing research design, materials used and their uses, procedures (showing dates when work was done), layout, randomization, replication, population and sampling, data collection, data analysis, data presentation.

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. Others were confusing data analysis with data presentation.

**Handling of evidence**

This year, there was an improvement in this section. Most Centres presented the data with tables which were interpreted, graphs labelled, with proper scaling and drawn in lined papers. Tables have to be labelled and interpreted, graphs drawn on graph papers. The key is always necessary.

However, some Centres still presented a shallow data. Tables 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 used for different objectives. Some Centres did not present data for all objectives. Very few others did not have data at all. Some Centres presented unrealistic data in this section.

Teachers are encouraged to ensure that candidates do the investigatory practical and ensure that data is properly collected.

**Ability to make deductions**

This year, there was an improvement in citations in this section. A majority of the Centres still found it challenging to justify or express their results and findings and give reasons of 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 under study.



## **Summary, Conclusion and Recommendations**

A majority of the Centres had a summary based on the whole project, conclusion and recommendations.

### **Summary**

Very few Centres did not include findings of the study.

### **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 drop 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 assessing 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 all major limitations of their projects.

### **Presentation and originality**

Most Centres had all the components of the project. A few Centres presented work which was not original. Very few projects were beyond the scope of the Candidates. Some presented scanty work. Teachers must refrain from using statistical packages e.g. SPSS, which are beyond the level of the candidates. Candidates must use averages, totals, percentages etc. The project must include all the components of an investigatory project. The Literature Review is still an important component of the project.

### **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**

Some Centres submitted their projects late. The standard of projects has slightly improved. Some Centres were submitting loose projects without files. A few projects were incomplete with one or two chapters. Most Centres did not submit evidence in the form of diaries or pictures. 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.