

PRINCIPAL EXAMINER'S REPORT



BOTSWANA
EXAMINATIONS
COUNCIL

BGCSE FIELD CROP PRODUCTION 2023



Paper 1: Written

Section 1: General Comments

The performance for the 2023 cohort indicated that it was somewhat better as compared to the 2022 cohort. The quality of work of the 2022 cohort was also somewhat better as evidenced by the presentation of their work, whereby most candidates did not have any gaps where questions were left not attempted. There was a logical presentation of responses by most candidates and most candidates were able to observe rubrics. Most of the work presented by candidates was neat, for example, Question 2 (a) (iii) for calculating mass of double superphosphate and Question 4 (c) (iii) on plotting a Bar chart. Most candidates had serious problems with computations and lost a lot of marks on questions that required them to do mathematical computations, that is question 2 (a) (iii), 2 (c) (iii) and 3 (c) (iii). Candidates also failed to observe command words like describe and explain, Candidates simply outlined or stated points where they were required to describe or explain them leading to candidates losing a lot of marks. This was evident in questions 3 (a) (iii), 3 (b) (ii), 3 (c) (ii), 4 (b) (ii), 4 (c) (ii), 5 (a) (ii) and 5 (a) (iii). Some candidates also had problems with questions that required them to differentiate/distinguish things. They failed to give matching responses to attract a mark e.g. in question 1 (b) (ii), 2 (c) (ii), 3 (a) (ii) and 5 (c) (ii).

Section 2: Comments on Individual Questions

- 1 (a) (i) Most candidates did very well in this question. Most candidates managed to recall that the leaf's function is to carry out photosynthesis or food manufacture. Some correctly wrote transpiration as the answer.
- (ii) Performance of candidates in this question was average. Most candidates only managed to get the definition and failed to address other points like where respiration takes place, the word and symbol equations, aerobic and non-aerobic respiration descriptions. The Centre is advised to teach all aspects of respiration starting with definition, products, word and symbol equations as well as aerobic and anaerobic respiration
- (iii) This question was poorly done. A good number of candidates labelled the xylem instead of the phloem as the part that transport food and some labelled wrong parts. Most candidates failed to label the cortex or pith as parts that stores food in plants.
- (b) (i) Well done. Most candidates were able recall that sexual reproduction is the type of propagation that produces crops using seeds.
- (ii) Performance of candidates in this question was average. Most candidates failed to get the available 2 marks. The problem might have been caused by the use of two command words in this question. Candidates were asked to describe and differentiate characteristics of plants propagated by sexual and asexual means at the same time. The Centre is advised to intensify teaching and explanation on the differences between sexual and asexual propagation.
- (iii) This question was poorly answered. Candidates failed to recognise the growth habit (tillering) shown in the diagram. The few candidates who wrote tillering as the correct answer they failed



to get conditions that encourage tillering. The Centre is advised to address the issue of conditions that encourage or promote growth of both cuttings and tillers

- (c) (i) This question was well answered. Most candidates managed to recall the conditions necessary for plant growth e.g. the correctly wrote, water, sunlight/air, suitable temperature, nutrients etc.
- (ii) Most candidates were able to write that hydrotropism is the response of plants to water and were not able to expand beyond that. Candidates failed to show directional response of plant parts (shoots and roots) to water. The Centre is advised to touch on all aspects of all the four tropisms e.g. definition, direction of movements of plants parts (roots/shoots) when they respond to stimuli and their significance to plant growth.
- (iii) Most candidates were able to get only phototropism but failed to see geotropism in the diagram. Though most candidates wrote tropism as the correct answer they dismally failed to suggest reasons for their observations. The Centre is advised to touch on all aspects of all the four tropisms e.g. definition, direction of movements of plants parts (roots/shoots) when they respond to stimuli and their significance to plant growth.
- 2 (a) (i) Well done. Most candidates were able to recall equipment that is used for clearing e.g. spade, slasher, hoe, axe, bulldozer etc.
- (ii) This question was poorly answered by most candidates. Some of the expected responses were; divide the field into different units; remove surface litter; driving the sampling tube or auger into the soil; to a depth of 10-15 cm/required depth; extract soil core; collect 10 to 15 samples from each sampling unit; place in a bucket / tray /container /bag / plastic; use zig-zag method / any named appropriate method; The Centre is advised to fully explain the steps involved in soil sampling to their learners.
- (iii) This question was poorly answered by the candidates. Candidates seemed to have difficulties with mathematical computations. Candidates failed to simply convert hectares to metres and vice versa cross multiply. The Centre is advised to work extra hard in teaching the learners these basic mathematical computations.
- (b) (i) The question was poorly done by candidates. Most candidates failed to emphasise year after year in their response. They simply wrote mono cropping as a practice of growing a single crop on the same piece of land. The Centre is advised to emphasise the issue of year after year.
- (ii) Most candidates failed to correctly answer this question. For intercropping the candidates failed to write that two or more crops are grown on the same piece of land at the same time. Some of the expected responses for this question were:



| | |
|---|---|
| relay cropping | inter cropping |
| one crop seeded into a standing crop /well before harvesting the second crop/AW | growing two or more crops on the same field at the <u>same time</u> ; |
| crops harvested at different times | crops harvested at same time; |
| less / inefficient utilisation of resources | better / efficient utilisation of resources; |

(iii) This question was fairly answered. Most candidates got 2 marks out 4 with good number getting 3 marks. Most the candidates failed to write the title of the presentation. The Centre is advised to emphasise on the title of presentation as it was clear that most candidates did not have any idea about. The labelling of axis and intervals was well done by most candidates.

(c) (i) The question was well done by candidates. The candidates were able to recall classes of field crops. They managed to write legume, cereal, tuber, oil and fruit as correct responses.

(ii) This question was well answered by the candidates. Most candidates were able to identify broadcasting as the method used in plot X and row planting in Y.

(iii) Most candidates were able to write the correct response (Plot Y) for the first part of the question. For reasons for choosing plot Y most candidates failed to get all the available 3 marks. Most candidates got 2 marks here. The Centre is advised to fully explain to learners the benefits of row planting over broadcasting.

3 (a) (i) Most candidates did well in this question. The candidates managed to recall that sprinkler or centre pivot are examples of an overhead irrigation method.

(ii) Students performed poorly in this question. Most candidates wrote drip irrigation as an example of surface irrigation method hence lost marks. Some of the correct responses are as follows.

basin - land / plants surrounded by soil / embankments, water is poured / flooded in the basin, practicable in areas with zero / flat / gentle slope, suited for heavy soils.

flood - water is supplied to a field through pipes/ditches/furrows; water flows over the ground and through the crop, levees / gates are often used to control water depth, practicable in areas with zero / flat / gentle slope.

The Centre is advised to remind their learners that according to the teaching syllabus drip irrigation is not a surface irrigation method.

(iii) The question was fairly done. Some of the expected responses are poor soil fertility/ leaching of soil nutrients, lack of oxygen/ poor aeration, outbreak of fungal, reduced soil temperature, death of useful microorganisms etc.

(b) (i) Most Candidates did well in this question. Most candidates wrote quelea as the correct answer.



- (ii) Most candidates failed to get the available 2 marks. Some candidates wrote answers such as use of scare crows to control pests instead of use of living organisms.
- (iii) Most candidates got the first part for mode of feeding correct (biting and chewing and piercing and cutting). Most candidates failed to describe the damage caused by pest B shown in the diagram. Some of the expected responses from the question.

Damage caused by Pest B - sucks plant sap; leaf discolouration / yellowing, leaf curling / distortion, wounds on leaves, stunted growth, wilting of leaves, transmit viral / named appropriate viral disease, growth of sooty mould on leaves / plants. The Centre is advised to cover all aspects pest control in their lessons.

- (c) (i) This question was well done by candidates. Most candidates managed to recall precautions observed when using chemicals in the farm. Some of these precautions include; wear protective clothing, don't inhale farm chemicals, follow manufacturer's instructions, do not taste farm chemicals etc.
- (ii) This question was poorly done by most candidates. Expected responses from the question were:

| | |
|--|---|
| aerosols | wettable powder |
| dissolved / enclosed in an inert liquid under pressure | forms a suspension when mixed with water / insoluble in water |
| consists of one active ingredient | consists of one or more active ingredient |
| applied / released as gas | applied / released as liquid sprays |

- (iii) The question was poorly done. Candidates seemed to have serious problems with mathematical computations. Some candidates wrote that a hectare is equivalent to 1 000 m² instead of 10 000 m².

Answer: 40 containers / 40

The Centre is advised to take learners through a series of mathematical computations and address the issue of units.

- 4 (a) (i) This question was well done by candidates. Most candidates were able to recall that a combine harvester is used to harvest maize.
- (ii) This question was fairly done by the candidates. Most candidates seemed to have a problem with the command word explain. Candidates ended up getting 1 mark from the available 2. Some of the expected responses were cools plants/ dissolves nutrients / encourages photosynthesis, leading to increased / improved growth.
- (iii) This question was poorly answered by candidates. Most candidates displayed poor mathematical computations skills. A few candidates got one mark out of 2. The Centre is advised to take learners through a series of mathematical computations.



- (b) (i) This question was well fairly done by candidates. Some of the expected answers were fertiliser use, labour use, machinery use, pesticide use, yield etc.
- (ii) Most candidates got this question wrong. Some of the expected responses are as follows; accurate, concise, accessible, up to date, kept for longer time etc.
- (iii) The question was fairly answered by students. Most students got half of the available marks. A few candidates swapped expenditure entries with income entries. The Centre is advised to fully explain to learners how a profit and loss is determined and cover all areas or aspects of a profit and loss account.
- (c) (i) The performance of candidates in this question was average. Some of the expected answers are as follows, cost of production, demand/supply, consumer's income, government regulation, price of competitors, marketing method used, quality, variety.
- (ii) The question was fairly done. Most candidates got one mark of the available two. Some of the expected answers from the question are as follows; packaged according to colour / size/ quality /variety, packaged into sacks/ plastic /jute/ bags, bags are sealed/ sewn, packaged into different quantities / 50 kg / 25 kg / 10 kg / 5 kg / 2,5 kg.
- (iii) Most candidates failed to see that the diagram was for a silo, and they wrote such things as water tank, storeroom, etc. For features candidates did badly in this part. Some of the expected answers for features are as follows: rodent / vermin proof, well-ventilated/aerated, temperature well-regulated / controlled, water-tight / rainfall proof, durable, strong, and rigid.
- 5 (a) (i) The question was well answered by most candidates. Candidates were able to recall that a rake is a tool used to level the soil.
- (ii) Most candidates seemed to have a problem understanding the command word explain. They ended up getting one mark from the available two marks. The Centre is advised to teach learners that command word explain means the answer comes in two parts, a factor and an explanation. Some of the expected answers are improve air circulation / easy control of pests / diseases / easy to carry out management practices / reduce /prevent spread of air borne diseases / reduce competition for nutrients / water / sunlight, leading to increased growth / yield of crop.
- (iii) The question was poorly answered by candidates. It was clear that candidates did not know how to calculate plant population from the given plant spacing. The answer that was expected from them is as follows.
- Answer.* 83 333 / 83 334
- The Centre is advised to teach learners how to calculate plant spacing.
- (b) (i) This question was well done by most candidates as they were able to recall reasons for cultivating the soil. Some of the expected reasons are to improve drainage / aeration, to kill /



bury / remove weeds, to improve root penetration, to incorporate nutrients /organic matter / fertilisers, destroy pests / pathogens, turn the soil into a fine tilth, improve seed germination.

- (ii) The question was fairly done by most candidates. Most candidates got 1 mark which was mainly the definition of the thinning. The Centre is advised to remind learners that if the command word is discussed, they are expected to give definitions, benefits, tools used, method, advantages/ disadvantages, reasons etc.
- (iii) Most candidates were able to get one name of the fertiliser out of two correct. Most of them failed to get possible causes of the observation correct. Possible causes of the observation were as follows; fertiliser was applied directly on plants; too close to plants; recommended application rate of fertiliser exceeded; insufficient irrigation / watering.
- (c) (i) The question was fairly done as most candidates managed to get a mark from the available two. Some of the expected responses are as follows; keeps out pests, maintain nutritional value / quality of fodder, prevent growth of mould, increase the lifespan of fodder, ensures adequate supply throughout etc.
- (ii) The candidates performed fairly in this question. Candidates were unable to get the available 2 marks because they failed to obey the command word explain. Expected answers from this question were eliminates microorganisms / moisture, to improve shelf life / eliminates microorganisms / moisture, to improve quality. fermentation / additives / addition of molasses, to improve taste.

The Centre is advised to teach the learners how the command word entails like it was advised in 5 (a) (ii)

- (iii) The question was fairly done by candidates. Most candidates were able to get 2 or more marks from this question. Some of the expected answers include name of business, date of sale, time of sale, address / place of sale, price, contact details, terms of payments, terms and conditions, variety, illustration/diagram, tagline.



Paper 2: Practical Test

Section 1: General Comments

This is a practical examination paper targeting assessment objectives AO2 and assessment objectives AO3. Through this paper candidates are expected to identify and make observations from specimen provided and to draw some logical conclusions that relate to the specimens. The paper also allows candidates to demonstrate their ability to manipulate data and to arrive at critical decisions based on the data provided. The paper evaluates the readiness of the candidates to apply the knowledge they have acquired in the syllabus. The Paper consists of two questions, the first one focused on the specimens while the second one focused on data manipulation.

The performance of the 2023 cohort was better as compared to the 2022 cohort in terms of understanding and interpretation of the given information or specimens displayed. Though they were better as compared to the 2022 cohort they needed to be given more practice on proper inventory preparation and profit / loss account. They needed to follow instructions as given in the items/questions and they should have used information or observation on displayed specimens rather than using recalled information from prior theoretical knowledge.

Section 2: Comments on Individual Items

- 1
 - (a) The cohort had the skill of deducing the class of pests that could have done the damages on displayed specimens and give examples of pests in those classes. However, the cohorts was unable to give the type of damage observed from the displayed specimens but instead they recalled the types of damages that could be done by the classes of pests.
 - (b) The cohort failed to show the skill of following instructions as the item/question required them to use letters labelled on displayed chemical specimens to suggest the appropriate pesticide for use to control the pests that caused the damages on the plant part displayed specimens in 1 (a).

They failed to associate the pesticide specimen on the display with the pest they control in 1 (a) as they failed to interpret the pesticide specimens' descriptions on the display.
 - (c)
 - (i) The cohort had a skill of observing, identifying, and naming parts of the knapsack sprayer displayed but the lacked the skill of arranging them in order of connection. They failed to follow instruction of using letters in their responses in arranging the parts in order of their connection as required by the item/question. Most of the cohorts failed to equate the knapsack sprayer parts and their function.
 - (ii) Most of the cohort responded well on this item as it required them to recall what they already knew.
 - 2
 - (a) Most of the cohort knew the entries for expenses but they failed to compute the correct total cost for each entry. Some of the cohort entered the unit price on the column for the total amount which showed that they lacked the skill for calculating or computing the total amount for each entry. The cohort managed to compute the total expenses without individual item total costs.
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Most of the cohort knew the entries for the sales but they failed to compute the correct total returns for each entry. Some of the candidates entered the unit sale price on the column for the total amount which showed that they lacked the skill for calculating or computing the total amount for each entry. The cohort however managed to compute the total returns without individual item total returns.

The cohort displayed the skill of correctly interpreting the profit and loss account. It shows they have gained the skill of deducing if a business is making a profit, or a loss based on given expenses and sales records upon computations.

- (b)** Majority of the cohort failed to extract correct information from stipulated date of the inventory taking as specified by the question. The candidates failed to add the ordered supplies to the supplies already in the stock to make a complete and correct inventory taken. Majority of them were including consumables in the preparation of the inventory. Some copied ordered supplies together with their unit price and included them in the preparation of the inventory. Some prepared their own inventory using abstract items not included in the extract sheet. Some entered the correct description of inventory items but failed to enter the correct quantities of supplies or items.



Paper 3: Provider Based Assessment

Section 1: General Comments

This a provider-based assessment of candidates is on four tasks, namely Farm Diary, Field Observations, Field Practical Training (FTP), and Practical Tasks. This is a generic report about the performance by the second cohort of candidates registered and assessed under Field Crop Production 1256/03 component. The centre was very generous in its awarding marks for the selected scored tasks. The Centre had submitted all the four provider-based assessment essentials for the Field Crop Production summative assessment and the other coursework essentials such as summary marksheets, centre order of merit and scores for the various coursework items. However, they did not submit the *Appendix B: Practical task Assessment Form* for 1256/03.

1.1 Farm Diary

The farm diary targets the sequential record keeping skills of the candidate for a production enterprise that was carried out in the centre by the candidate. A farm diary contributes 15% of the total of provider-based assessment. There was slight improvement in the farm diary that might be attributed to the fact that for the 2023 cohort all the 10 required entries for the farm diary were addressed. Unlike for the 2022 cohort where entries on “Enterprise details” were not addressed by all candidates. The entry on “precautions observed and project termination” were only partly addressed by all candidates in the previous year.

1.2 Field Observation

The candidate is expected to identify a problem, plan, and carry out an investigation and recommend a solution to the problem identified. Field observation contributes 25% of the total provider-based assessment. There was a drastic decline in performance of candidates in the field observation this year compared to 2022. The drastic decline in 2023 performance could be attributed to candidate’s failure to address some of the contents of the Field observation of which the 2022 candidature did. For instance, in 2023, the contents “Alignment of observation to existing literature, Precautions during observation, Procedure, Manipulation and Recommendations” were not adequately addressed by most candidates.

1.3 Field Practical Training (FPT)

Field Practical Training allows the candidates to gain real farm industry exposure by attaching them to a functional farming enterprise for a period of two weeks. After the attachment the candidates submit a report of their learning experiences. Field practical training contributes 35% of the provider-based assessment. There was a slight decline in performance compared to 2022. The slight decline might be due to failure by most candidates to address some of the important entries required for FPT. For example, the entry “Description of activities carried out” which scored 15 marks was not addressed by a significant number of candidates. The entry on “Recommendations” which scored 5 marks was also not addressed by a significant number of candidates and this was not the case with the 2022 candidates.

1.4 Practical Tasks

The teaching syllabus has some performance criteria that are to be assessed practically. Therefore, practical tasks sample such performance criteria, and therefore, four practical tasks are sampled per module. Practical task contributes 25% of the total provider-based assessment. The centre did not submit



the minimum required number of practical tasks per module. This resulted in the poor performance of candidates in the practical task this year compared to the previous year.

2.0 Summary Marksheet

- The Centre submitted a completed summary mark sheet with columns indicating name of candidate, farm diary mark, field observation mark, field practical training mark, practical task mark, total mark, and weighted mark.
- The marks for each component were presented to 1 decimal place and rounding off was shown on total mark and weighted mark. This was a good practice as it was able to discrete the weighted marks for candidates.
- It was suggested that the summary mark sheet should also have columns for Moderated mark next to each component.

3.0 Organising, Packaging and Binding of Scripts

- Quotation files were used for binding Farm dairy, FPT and Field observation scripts which were then arranged according to candidate's numbers in ascending order. However, there were no files for Practical tasks and no arrangement of tasks hence this delayed the process of checking tasks for every candidate. The scripts were properly packaged in boxes supplied by BEC.

4.0 Report on Individual Scored Tasks

The individual scored tasks are farm diary, field observations, field practical training and practical tasks.

4.1 FARM DIARY

Generally, compared to 2022, there was a marked improvement in presentation of the farm diary as most of the farm diaries were presented very well. Furthermore, all the diaries were typed and none of them were hand-written. The candidates were able to document an outline of activities they performed when undertaking their Field Crop Production projects. They recorded their day-to-day occurrences very well. All candidates had recordings about details of one field crop being the maize crop.

4.1.1 Cover Page

The cover page was well done by most candidates, and this showed an improvement from 2022. All of the candidates had bound their farm diaries neatly in quotation files.

Most candidates did well in providing the required details for *name of production enterprise*. All candidates did well by providing details of *name of candidate*, *candidate number*, and the *name of centre*.

The dates for *starting and completing* the enterprise were also provided by all candidates. Furthermore, candidates should be encouraged to indicate *labels* for *starting* and *ending* dates separately.

4.1.2 Enterprise Details

Variety grown – most candidates did well by providing the name of a crop variety planted as MRI 651.

Age – all candidates did well by indicating the age of plants at the end of their project. Most of the plants were 4 months old.



Plant populations – the plant populations were different across the candidates as some candidates had recorded a plant population of more than 120 plants whereas some had recorded only less than 90 plants.

Suggestion: The Centre should encourage candidates to write the plant population at the initial stage of planting.

4.1.3 Sequence of Activities

Activities conducted in correct order – this section was well done by most candidates as they accessed this mark easily. However, some candidates had combined two crop field enterprises in the same farm diary e.g., butternut and maize production. This practice caused distortion of the order of activities.

Dates reflected for every activity – compared to the cohort of 2022 most candidates did very well on this part but only a few candidates did not manage to provide dates for all the activities carried. Owing to the nature of the presentation of the diary information some activities had no dates as a result the mark for this criterion was lost. Candidates should present their work such that every activity has a date for full credit.

4.1.4 Activities / Operations

Relevant activities reflected in the diary – all candidates did very well by providing very relevant operations for their project. They had provided many more than the required threshold / minimum number of ten (10) activities.

However, a few operations such as *watering, cultivation* and *weeding* were repeated many times for the same reason. It is reiterated that whenever a candidate repeats an operation then a different reason must be given otherwise it would be treated as a point already awarded/given a mark.

4.1.5 Tools Used

Tools used for every operation reflected – This was very well done as candidates managed to access all the available marks. Most candidates used a lot of different tools during their projects, and they met the set standard of a minimum of ten (10) tools.

Appropriate tool used for each activity – this was also very well done. Most of the tools used were very relevant for carrying out the operations at hand. However, still there were some candidates who just listed tools used without attaching them to a specific operation. This was still very common under the description of *land clearing* activity where there were multiple tools used (e.g., spade, rake, pickaxe, wheelbarrow, etc). Candidates should attach every tool used to a specific activity carried.

4.1.6 Importance of Activity

Significance of carrying out each operation – generally most candidates did well by giving valid reasons for carrying out each activity. These reasons were written correctly as they appeared under the activity *description* column unlike in 2022 where they were misplaced under the *comments* column.

4.1.7 Relevance of Comments

Comments made relevant to the activity – this was well done as most candidates met the minimum requirement of ten (10) relevant comments to access all the 3 marks for this criterion. Most recommendations given here were pointing out at making improvements in time management during



operations by suggesting the use efficient methods and equipment during their field crop production operations.

4.1.8 Precautions Observed

There has been some improvement as compared to cohort of 2022 since some candidates did fairly better on this criterion. A few of the candidates accessed some mark under this section as they demonstrated some regard for safety, health and the environment while carrying some practical activities on the field.

Safety precautions observed for activities –most of the candidates who scored marks had attempted observation of precautions in a few of their activities during their projects. It was evident that candidates misconstrued observation of precautionary measures to be limited to the use of farm chemicals alone. In future any precautions observed should be accompanied by a reason/s for that observation.

Cleaning of tools after use – just like in 2022 this was also poorly done as only one candidate attempted any washing, drying, wiping, greasing or any form of cleaning the tools after using them.

Safe storage of equipment after use – only one candidate made any attempt to store their equipment after use. Candidates should demonstrate proper behaviour after using equipment and tools for their increased usage.

4.1.9 Project Termination

Description of how the project was ended – Most candidates did very well because their termination was clearly projected. There were many activities listed by candidates under termination which included harvesting, removal of crop residues, chopping of maize stalks etc. Candidates should describe in detail how the project area was treated at the end of the project.

Description of how the products and residues were disposed of – all candidates did well by indicating that their grain maize (product) was disposed-off by feeding it to livestock. Similarly, they also mentioned that the crop residues, i.e. the maize stalks were chopped off and given to livestock for feeding.

Observations about project viability – this was fairly done by all the candidates. Candidates mentioned that their projects were viable and also gave a reason such as “the project was viable as it saved livestock feeds costs”.

4.1.10 Neatness of Work

All the farm diaries were generally neater. For this year, the reports neatly presented, as they had no untidiness due to reprographics such some ink stains from the printer(s) found in the 2022 reports.

4.2 FIELD PRACTICAL TRAINING

The Centre submitted enough evidence that suggested that the candidates were attached to Botswana University of Agriculture and Natural Resources (BUAN) farms for real industry situation to gain hands-on experience. The candidates were placed under Incuhive Enterprises where it was expected that the candidates would be afforded an opportunity to perform some field crop production practices or activities. However, according to the evidence suggested by the candidates’ reports (more glaringly at the *Findings/Observations* section) their expectations were never met as the candidates were misplaced under



Horticulture and Animal Production related environments instead of their line strand, that is Field Crop Production.

It appears these candidates were never afforded an opportunity to interact with farm employees, farming operations and learning experiences for field crop related agribusiness and industry. Furthermore, there is no evidence to suggest that this gap was ever closed by the Centre after the Field Practical Training (FPT) exercise to mitigate for the opportunities lost by candidates.

Generally, the presentation of the candidates' works was neat and well-organised. It was observed that all FPT reports had been typed. There were no hand-written reports. However, there were still some differences in the use of fonts and font sizes as compared to last year's reports (of 2023) where some font sizes used were outrageously bigger. There was also some improvement in showing some *creativity in the presentation of information* by the candidates. Candidates need to demonstrate refined skills in the use of ICT in report writing since it is believed that they have unlimited access to ICT at their Centre.

The highest mark scored under FPT report was 92 but the lowest mark scored was 59.

4.2.1 Cover Page

Most candidates did well by providing all the expected details and managed to score all the available marks for the *cover page*. However, there were instances where the name of the farm was just written as "BUAN" instead of *Incuhive Enterprises*. The information was well-centred but not evenly spread on the cover page as it was only skewed to the top of this page.

4.2.2 Title Page

The *title page* was well-designed by most candidates. The candidates managed to provide all the details required. Just like on the cover, the information on this page was well-centred but not evenly spread on the page as it was skewed to the top.

For the date of submission some candidates indicated a wrong date e.g. 03 / 08 / 2022.

4.2.3 Content Page

There has been some improvement on this page. All the expected details were there on this page. In all the reports there were appendices, and page numbers in the candidates' table of contents (TOC). There was some consistency with fonts and font sizes used and this was pleasing. Most of the candidates wrote the main heads in *upper case* as required in the table of contents page. However, page numbers and leader dots were somewhat poorer as there was no consistency in their alignment. The page numbers in the TOC were at times not corresponding with ones in the text pages of the report. Some candidates' TOC started their content list with the *Title page* instead of *Declaration of originality*.

4.2.4 Declaration of Originality

Most candidates gave clear statements of originality and provided *all the specific details* required and scored the 2 marks for this criterion safe for a few candidates who often missed the total marks (2) by omitting just one detail such as the name of the farm where FPT was done.



4.2.5 Acknowledgements

Most candidates did well by acknowledging individuals who played an important role in the success of their FPT. The candidates also met the minimum requirement of acknowledging at least four people that *rendered the services* but a good number of them were unable to specify *what services were rendered*.

4.2.6 Introduction

Generally, the introduction was fairly done. Most candidates managed to provide the *names of the farm* where they were attached for FPT (i.e. *Incuhive Enterprises*). However, there were instances where the names of the farm had changed to *Sebele* or *Notwane* without explaining or proper introduction of the two areas.

The justification for the choice of that farm by candidates also came out clearly. The most common reason often given was that the farm had almost everything that was need and that it had the most qualified personnel to train the candidates.

Most of the candidates' expectations prior to FPT were clear. But some candidates ended up reporting about the disappointments they had experienced at the field of attachment here. Candidates should only report on their expectations as prior to their attachment. At times it was also unclear as to how they were to benefit from the FPT exercise.

4.2.7 Description of Farm Routine

Most candidates clearly indicated the number of workers on the farm (*staff complement*) by indicating the number of personnel employed under each section of the farm. Staff complement simply means the total number of personnel in that establishment. The qualifications or areas of specialisation for the employees were also provided. But for those employees who were only classified as workers there were no qualifications for them.

It is still not clear to the candidates about what to report on the daily work schedule by farm employees. Candidates kept on writing "we did this; we did that" instead of describing the routine schedule for the farm employees only. They also indicated operating hours for the farm workers but they left out the required descriptions of some very important details in the specific daily work done by the employees. Candidates can simply draw a table showing *operating times* and *activities* done on these schedules as suggested last year, 2022. Most candidates did not adequately describe the operations carried out on the farm. Therefore, the description of the workers daily schedule left a lot of requisite details.

Most candidates did well in describing the *tools, implements, machinery, and technologies* used and what they were used for. However, the details provided were just scanty.

The *workplace interaction* was very unclear. The question of *who reports to who* was adequately answered clearly by drawing an organisational structure flowchart. However, most of the charts were just posted on a page without a title or caption for purposes of communication.

Most candidates reported clearly about *how the farm records* were kept as they wrote that '*the records were computerised*.' However, the evidence in the reports suggested that most candidates did not have a simple understanding about what is required for *technology leverages* in record keeping. Under *technology*



leverage candidates are expected to indicate the type of technology used and how is advantageous or useful it is to the farm.

The descriptions of how the products were prepared for the market by most candidates were inadequate. The candidates just mentioned that *“the broccoli/strawberries/mushrooms were packaged/cleaned”* without describing in detail how that was done. There was a statement to report that the Incuhive farm made profits because the expenses were said to be lower than the revenues collected.

4.2.8 Description of Activities

Most candidates did well in describing *activities carried out* and *mentioning of materials/tools/equipment* used. However, they barely had some *sequence of activities*, *number of employees* involved in that activity as well as the *duration* and *importance* of each activity carried.

Recommendation: it is advisable to use a tabular presentation of activities done by candidates since it organises their information better into columns and rows than in continuous writing.

4.2.9 Findings

Generally, most candidates did not do well in describing their findings because there were no relationships between the list of expectations initially set by the candidates at the *Introduction* section.

Most candidates did not even state the *learning expectations not met* let alone *how the gaps were to be closed*. However, the candidates were able to articulate the *unexpected learning experiences* and their *usefulness* to them.

4.2.10 Conclusions

This section was fairly done by most candidates. Candidates did well by stating the *worth of the attachment exercise* and the *lessons learned* during the FPT. Their conclusions were somewhat *relevant to farming experiences*. Very few candidates managed to point out *how learning experiences can be made better* by their farm of attachment.

4.2.11 Recommendations

This section was poorly done by most candidates. The candidates only managed to access the 2 marks for recommending for some *improvement of the farm*. However, all the other recommendations were irrelevant.

Neither of the candidates recommended for any *farm operations to be maintained* nor did they suggest for any *farm practices to be discouraged*.

4.2.12 Rating by Training Officer in Industry (TOI)

Candidates were awarded marks based on the ratings by TOI. Most candidates were rated highly by the TOI as a result they managed to access excellent marks.

4.2.13 Overall Report Quality

There was evidence of *creativity* in the candidates' presentation of their work. There were *illustrations* such as organograms, pictures, tables, etc. All the reports were *sequenced* properly and there was logical presentation as well as proper flow of ideas and information in the reports. The *quality of binding* was very good in most reports that were bound in quotation files.



4.2.14 Appendices

Most candidates did well by appending documents that served as proof that the field attachment was actually carried out by the candidates. However, the appendices were not arranged in any standardised order. There were many free styles of what was put in the appendices. Some candidates appended some carbon copies whereas the others appended original copies of the prescribed documents. There were samples of records kept in the farms. There were some pictures *of the farm, farm operations but there were no pictures of equipment used on the farms*. The Centre is hereby advised to facilitate for inclusion of the above-mentioned requirements into the candidates' FPT reports.

4.3 FIELD OBSERVATIONS

This Field Observations assessment required candidates to produce a detailed report of the scientific observation carried out during the course at their centre. Through the scientific observations facilitators were to assess the candidate's capabilities on carrying out a systematic study.

4.3.1 Title of Investigation

Most candidates did reasonably well in presenting a descriptive title for their observation. However, the element of comparison in their observations did not appear clearly in the titles. This means that their titles were not clearly indicating that the investigation was a comparison study or at least comparing *different times of fertiliser application*.

Most candidates did well by reflecting the *factor to be observed* as the *parameter measured* (only the mass/yield of maize/lablab) on their titles. However, some candidates did not indicate the parameter in their titles, especially those whose observation was about *the effects of different times of fertiliser application on the herbage of maize/lablab*. It should be noted that herbage alone does not appear as a measured parameter as opposed to *herbage mass*.

4.3.2 List of Equipment / Materials Used for Investigation / Inputs

Candidates were provided with a common list of inputs used for the investigation at the Centre. This list included a hand fork/hand trowel, digging fork, drip lines, spade, rake, measuring tape, pegs, Adam's electronic scale/Micro Ace digital way indicator scale, kraal manure, urea/LAN fertiliser, maize/lablab seeds, and a hoe. Most candidates did not list all materials / equipment suggested but managed to list most of those inputs. They did not include kraal manure in the lists as required except for one candidate only.

Some candidates unnecessarily wrote the uses of each of the listed items here. This is not necessary because they are only required to do so at the Approach / Procedure section of the Observation report.

4.3.3 Objectives / Aims of Observation

Most objectives were *relevant to titles* (by having a crop, parameter, treatment and had the element of positive direction: *increase*); *achievable* (possible), *measurable* (with a specific parameter). However, most of the objectives lacked the element of comparison for the factor manipulated.

4.3.4 Statement of Factor to be Observed

Most candidates did this part very well by stating low yield/biomass/mass as the problem to be put under observation. Candidates did not link the *possible causes of factor / problem* observed to the possibility of



wrongful/untimely application of a named fertiliser during the growth stage of the crop in question. They simply linked it to fertility as a mere lack of nutrients in the soil.

Most candidates did well to suggest some *possible solutions to factor / problem observed* by re-stating their statement of objective to offer a proposed solution.

How the proposed solution will be of benefit to the user – most candidates did not include this aspect in their statements. However, the few candidates who did this, indicated that as, “farmers will make informed decisions about when to apply the fertiliser...”

4.3.5 Factor to be Compared / Contrasted / Manipulated

Most candidates were able to state the *factor to be observed* as mass/biomass/yield. They also introduced the factor of manipulation very clearly by stating the *different times of applying the fertiliser at the 3rd and 5th/7th week of growth*.

It was clear from the candidates writeup that they manipulated the *time of application* of a (given) fertiliser. However, the candidates did not state clearly what was manipulated during the observation. Consequently, this was only deduced by inference.

It is very important for candidates to first state this factor in unequivocal terms as required and later on describe how the manipulated factors were introduced into the experiment.

4.3.6 Number of Units per Treatment / Manipulation and Size of Unit /Age

The candidates' field observations comprised experiments conducted on two *test* treatments. Each treatment was replicated once. As a result, there were four (4) experimental plots altogether.

It was evidently clear that candidates did not understand what they were *to replicate* and what a replication is. This could otherwise be clarified by them stating how many replications / plots were there per treatment. Therefore, most candidates did poorly on this criterion. Very few candidates *justified* the number of replications or any reasons for not replicating the experimental units/treatments for example they had decried lack of resources (such as time, seeds, land, fertilisers) as the main reason.

4.3.7 Layout / Sketch Plan of Investigation

Candidates were required to provide a complete and well-illustrated or labelled sketch plan to indicate how the field observation was laid. All the sketch plans were complete but they were not clearly labelled out.

Most candidates did not indicate the *title for the sketch plan* distinctively as they did not underline what appeared to be the intended title.

The *treatments* were not clearly shown on most of the layouts / sketch plans. Almost all the candidates indicated their treatments as only *Week 3* and *Week 5/7*. They did not include the application or name of their fertiliser in the labels/key.

For a complete and well-illustrated or labelled layout the candidates should include a bare minimum of the following details: underlined title; appropriate dimensions/size; and treatments/manipulations/key; for full credit.



Most candidates included a key/legend in an attempt to clarify the labels. However, the clarity of some labels was inadequate as they did not indicate the required specific application times. The keys only indicated *drip lines, maize / lablab seedlings* and *plots*.

For plot sizes most candidates labelled only a length of 50m on one plot only without labelling the 1m width. All candidates did not label the dimensions of the other plots. All the plots / units must be fully labelled (length and width on each) for full credit.

4.3.8 Approach / Procedure

The description of procedure(s) followed was somewhat too general or less descriptive with scanty descriptions of activities carried out.

Step-by-step account of what is to be done – most candidates were able to identify and describe pre-treatment, conduct of treatments and post-treatment activities. However, in some instances the name of the fertiliser applied was omitted in their description of the conduct of treatments. Such candidates just wrote, “*a fertiliser was added*”

Steps numbered in correct sequence – most candidates did well by writing their procedure in a numbered and sequential manner. However, a few candidates failed to describe in detail **how** the data was collected. It was not descriptive enough as the candidates merely mentioned that “*a weighing scale was used for collecting data*” without elaborating on **how** the actual weighing was done. Candidates should fully describe all the steps taken about how the data was collected. It was also discovered that all candidates collected their data by weighing. There were no candidates who measured other parameters such as height/length, counting etc. it is hereby advised that candidates can share resources/plots/plants during experimentation but still go on and measure different parameters on the same plants to reduce duplication of data.

Ease of following procedure – most procedures were very well descriptive except at the conduct of treatments where the fertiliser name was not mentioned leading to loss of marks for this criterion.

4.3.9 Information Collected / Data

What is to be observed / units of measure – Most candidates did very well by stating what was measured as the mass. However, the units of measure were (mostly grams / kilograms) were only deduced from the mention of capacities of the instruments used.

Instruments / devices used for collecting data – Most candidates did well as they mentioned the use of a *Micro Ace digital way indicator* scale for weighing the crop produce.

How the collected data is going to be recorded – the most common form of presentation was a table. It was an appropriate form to present the both the raw data and the analysed data.

4.3.10 Analysis of Findings / Implications of Findings

Most candidates did somewhat better than the previous candidates of 2022 on this section of the report. There was a disturbing observation where the candidates work resembled a template. For example, errors such as spelling mistakes, wrong computations, italics in calculations, units, etc. were the identical.



All the candidates had presented their findings on a table. The candidates presented their raw data table and did all their calculations / computations on this page. However, this practice cluttered the relevant information needed for this page.

Recommendation: To avoid this cluttering of information, candidates may be advised to write their raw data and computations on a separate page and place the said page under the *Appendices*.

Form of presentation / table / charts/ graph - Most candidates did well by writing a descriptive statement before the table which resembled the title because the statement was italicised. All table rows were correctly labelled with specific names of the experimental trials, except that some candidates had wrongly indicated that one of the experiments was a control. However, the physical quantity indicated on the table columns was wrong. Candidates wrote *Mass / kg* and wrote incorrect units on column cells instead of *biomass / yield in kg per m²* (kg m⁻²).

Relevance of presentation method - Candidates did very well by using a table as their form of data presentation. This was a relevant choice. However, all the candidates presented two tables: one for presentation of raw data and the other one for results. Only one table for the results/findings should be presented.

The overview interpretation of the findings was not there in most of the reports. Most candidates had left this out completely. Candidates were expected to indicate trends by writing a concluding statement of how the results/ major findings reflect on the title of the observation. The statement should include the *field crop*, *treatments* and the *statistical parameter* calculated.

4.3.11 Conclusion

The conclusion was not so well done but there has been a slight improvement compared to the cohort of 2022.

Re-stating the purpose or question looking for answer – A few candidates were able to re-state the purpose or the research question that was looking for an answer by writing the objective of the observation.

Explaining briefly the findings of the observation – for this criterion, very few candidates attempted to indicate the result trends however, they could not suggest some supporting reason/s for the outcome.

Providing an answer to the observed factor – most candidates could not suggest an answer to the research question. Candidates were expected to indicate this by writing their major concluding statement here and they could even state the extent to which the investigation met its aims / objectives.

Explanation of unexpected outcomes / errors made – this part did not come out clear in the candidates' work. The expectation is candidates can even mention any non-treatment factors e.g shortage of water that might have had a bearing on the outcome of the experiment.

Statement of take-home finding made from observation – it appeared from the candidates' work that there were no other *lessons learned* from the entire observation since there was no evidence to suggest that.



4.3.12 Recommendations

State the actions to be taken based on observation - generally most candidates did well in recommending appropriate actions to be taken based on their findings. They recommended the time of fertiliser application that tallied well with the best field observation results. Therefore, most recommendations were *relevant* and *consistent* with the findings. The recommendations were well-aligned with the objectives of the observation as they mentioned the treatment choices and the crop.

Any modification to procedure to ensure accurate results – there was relatively no attempt to suggest any modification of the observation procedures.

4.3.13 Precautions / Safety, Health and Environment

Identifying safety, health and environment threats – most candidates managed to identify some safety and health threats during the observation. Their reported actions reflected accurate adherence to SHE concerns mostly on wearing of protective clothing and some regard to safe storage of tools and equipment.

However, candidates rarely mentioned any *threats to the environment*. Only a few precautions observed suggested that candidates spotted some threats to the environment. The only precaution observed was for safe disposal of empty containers for farm chemicals used.

4.3.14 Alignment to Existing Literature

How the observation relates to existing literature – almost all candidates did poorly on this criterion. Candidates who attempted this skill just regurgitated general facts about the effects of certain nutrients on the growth/yield of crops, instead of reviewing the literature that was dealing with the effects of the different times of application of a given fertiliser on the stated parameters.

Two correctly formatted references used – none of the cited sources were acknowledged under references. As a result, there was no listing of references used let alone their correct formatting.

4.4 PRACTICAL TASKS ASSESSMENT

As per requirement, the centre has duly submitted the candidates' portfolios as evidence for all the tasks assessed as stipulated in the Teaching Syllabus. However, there was some shortfalls in the submission of that evidence especially surrounding the portfolios. The evidence was to be useful for validation of the provider-based assessment of practical tasks for subsequent inclusion into the summative assessments.

It is reiterated once more that the *Field Crop Production Assessment Guide* puts emphasis on that the evidence of assessment is supposed to be sought from the portfolio of evidence maintained and kept by the Centre. Furthermore, some video clips at prescribed range of marks should be kept for presentation to the moderator as evidence. Unfortunately, this assessment requirement has not been fulfilled to date. It is hoped that in future there will be some improvement in fulfilling this assessment requirement.

Despite the honourable work done by the Centre there were still some irregularities and inconsistencies when computing the marks by the Centre. The Centre has submitted less than the required number of 4 practical tasks in Module 1, Module 3, and Module 4 for all the candidates. For example, under Module 1 some candidates were assessed on 4 practical tasks whereas some were assessed on only 3 tasks.



The computation of marks was also inconsistent and at times wrongly done. For example, some average scores were truncated forward while others were wrongly calculated with error differences of ± 2 marks.

The following table is a summary of errors committed and recommended actions to the centre for rectification: -

| Item/area | Error committed | Action required |
|---|---|---|
| Marking rubric | Practical task marks in the candidates' Practical task files do not tally with the candidates' marks in the <i>Appendix C: Practical tasks module Summary Marksheet</i> . | Centre to compute the average practical task marks for all the Modules correctly. This should be done for all individual candidates on the said <i>Appendix C Form</i> and record the corrected marks in the <i>Appendix C: Practical task module summary marksheet</i> . |
| Missing practical tasks in the candidates' Practical task files | The Centre has submitted less than the required number of 4 practical tasks in Module 1, Module 3, and Module 4 for all the candidates. | Centre to account for the missing practical tasks or submit them. |
| Appendix B: Practical Task Assessment Form | The Centre did not submit the <i>Appendix B: Practical Task Assessment Form for the 5 modules</i> to enable the External Moderators to authenticate the marks reflecting on the <i>Appendix C: Practical Tasks module Summary Marksheet</i> . | Centre should submit the said form for authentication of the practical task marks. |
| Planning sheets and Marking rubrics | <ul style="list-style-type: none"> Some candidates did not append their signatures on their <i>Planning sheets</i> and <i>marking rubric</i> pages. All Facilitators did not write their names on the candidates' <i>Marking rubric</i> pages | <ul style="list-style-type: none"> To account for the missing candidates signatures on the <i>Planning sheets</i> and <i>Marking rubrics</i>. To account for the missing facilitators' names on the <i>Marking rubrics</i> and <i>Planning sheets</i> |