



BOTSWANA
EXAMINATIONS
COUNCIL

FIELD CROP PRODUCTION

2022



PAPER 1 (1256/01)

General Comments

This is the first cohort of the newly introduced outcome-based syllabuses the performance of cohort fell short of meeting the expectations of the standards set for this syllabus. The scores were ranged from 7 to 50 marks. Most of the candidates (that is 43.59% of the candidates) were scoring between 20 to 29 %, followed by 28.21% of the candidates were scoring between 30 to 39 %, 15,38% of the candidates scored between 7 to 20 %, 12.82% of the candidates scored between 40 to 50%. The quality of work of the 2022 cohort was 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 fairly 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 a 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 in order to attract a mark e.g in question 1 (b) (ii), 2 (c) (ii), 3 (a) (ii) and 5 (c) (ii).

Comments on Individual Items

Question 1

- (a) i. Most candidates did very well were in this question. Candidates wrote correct classes of field crops.
- ii. Performance of candidates in this question was average. Some candidates wrote haptropism instead of haptotropism
- iii. A good number of candidates labeled the palisade cell instead of palisade layer. Use of a bracket {} can help a great deal to correctly label the layer.
- (b) i. Most candidates did badly in this question. Responses such as photosynthesis, active/passive transport instead of translocation surfaced.
- ii. This question was badly answered. Most candidates wrote that osmosis is the movement of water molecules from an area/region of high concentration to a region of low concentration instead of from their region/ area of high water potential to their area of low concentration/ area of low water potential.



- iii. This question was poorly answered. Students wrote answers such as watering, adding fertilizer etc. some of the expected responses; mulching; planting seeds to a correct depth; control soil pests; break soil caps / cultivate the soil; control of birds and mice eating seeds; making sure the soil has a fine tilth; application of slug pellets; mulching; planting seeds to a correct depth; control soil pests; break soil caps / cultivate the soil; control of birds and mice eating seeds; making sure the soil has a fine tilth; application of slug pellets;
- (c)
 - i. Most candidates did badly in this question. Expected responses were use of greenhouse, tunnels etc
 - ii. The question was poorly answered. Expected responses were breeding/hybridisation in plants; irrigation/rainwater harvesting for irrigation/watering crops; selection/selection of improved crop varieties; use of fertilisers; use of pesticides to kill pest; use of herbicides to control weeds
 - iii. This question was fairly answered. Some students wrote wrong answers such as millet and sunflower. Most candidates who got the crop correct failed to give the correct reason that demand for maize/sorghum was higher than its supply.

Question 2

- (a)
 - i. Most candidates got this question correct. A few candidates wrote digging and some cultivation.
 - ii. Most candidates failed to describe ploughing. Most candidates got 1 mark in this question instead of the available 2 marks.
 - iii. This question was poorly answered by candidates. Students seemed to have serious problems with mathematical computations. Some candidates wrote that a hectare is equivalent to 1000m² instead of 10 000m².
- (b)
 - i. Most candidates got the answer (20-30 cm) correct. some wrote 15cm as the answer.
 - ii. Most candidates failed to correctly answer this question. Some candidates wrote answers such as organic manure adds chemicals to the soil. Some of the expected responses were organic manure increases water retention; warms the soil; reduces leaching; ensures a steady supply of nutrients; improves soil health for crops; improves soil structure; addition of organic matter;
 - iii. This question was fairly answered., most candidates got 2 marks out 4 with good number getting 3 marks.
- (c)
 - i. Most candidates got all the available marks. A good number of candidates got 1 mark



out 2.

- ii. This question was poorly answered by candidates. The expected answers for this question are;

Row planting	Broadcasting
seeds placed in a row at fixed spacing;	seeds scattered on the surface without fixed spacing between plants;
less seeds used	More seeds used;
uses a planter/row planter/named planter	uses a hand/fertilizer spreader;
expensive	cheaper;

- iii. Over 90% of candidates got this question wrong. Candidates seemed to have serious problems with mathematical computations. Some candidates wrote that a hectare is equivalent to 1000m² instead of 10 000m².

$$\begin{aligned}
 0:8 \text{ m} \times 0.25 & : 1 \text{ plant} \\
 10\,000 \text{ m}^2 & : x; \\
 0.2x & = 10000; \\
 x & = \frac{10\,000}{0.2}; \\
 x & = 50000;
 \end{aligned}$$

Question 3

- (a) i. Candidates did well in this question. A few candidates wrote surface irrigation
 ii. Students performed poorly in this question. Some of the correct responses are as follows;

Sprinkler	Furrow
- uses less water	- uses a lot of water;
- less chances of erosion	- encourages soil erosion;
- wet the leaves	- does not wet the leaves;
- expensive	- cheap;
-less chances of leaching	- high chances of leaching;

- iii. Candidates performed badly in this question. They failed to write how the crop is harmed by the method. They only wrote effects such as leaching of nutrients, outbreak of fungal diseases, poor respiration and failed to say how those effects will harm the crop leading to most candidates getting 1 mark.



- (b) i. Most candidate got this question wrong. Candidates wrote that dust is a chemical which is in a form of dry fine powder instead of the active ingredient is in form of dry fine powder
- ii. Candidates failed to describe the environmental hazards of farem chemicals but instead onll outlined or listed them without going further. Candidates were expected to write answers such as cause pollution in the air/water killing fish/birds/untargeted / beneficial organisms; persist in the soil / have long residual effect/ soil pollution can damage crops in the following season; increased population of resistant pests due to repeated use of pesticide.
- (c) i. Most candidates got this question correct.
- ii. This question was poorly done by most candidates. some wrote that chemicals kill weeds instead of herbicides.
- iii. Most of the candidates got this question wrong. Candidates seemed to have serious problems with mathematical computations. Some candidates wrote that a hectare is equivalent to 1000m² instead of 10 000m².

Question 4

- (a) i. Most candidates managed to write the correct tool.
- ii. This question was fairly done by candidates. Some wrote hair instead of silk/stigma/styles. The sign for hanging done of cobs proved to be a challenge for most candidates. They used expressions that did not mean hanging down.
- iii. This question was poorly answered by candidates. The candidates were expected to write responses such as grain/seed treatment, allowing grains to dry to correct moisture content, use well ventillated/cool/dry storage, use water-proof storage facility etc
- (b) i. This question was well answered by candidates
- ii. Most candidates got this question wrong. Some of the expected responses are as follows ; a means by which a farmer tells the consumer about the existence /the quality/ use / price of product; done to increase/ demand/inform customers about product/retain customers/to monitor competition to beat competitors/ to increase profit/ establish a brand in the market;
- iii. The question was fairly answered by students. Most students got half of the available marks.



- (c) i. The performance of candidates in this question was average.
- ii. Most candidates wrote the importance of recording keeping in general though the question was focusing on record keeping using ICT. They wrote answers such as to calculate profit/loss, for easy planning and budgeting, to compare between similar enterprises. Some of the expected responses are as follows;

better management of information;	due to many/different software applications;
records are readily accessible;	due use to use of various gadgets;
information cannot get lost easily;	due to data backup;
large volumes of information kept in gadgets;	due to large gadget / cloud memory ;

- iii. The question was fairly done by most candidates. Some candidates presented a histogram instead of a bar chart and a few presented a linear graph. Some did not write the title for the bar chart. Both axis were well labelled by most candidate. The interval scale for both axis was also well done by most candidates.

Question 5

- (a) i. The question was well answered by most candidates
- ii. Most candidates just outlined the benefits without explaining them. Most candidates ended up getting only 1 mark because there was no explanation accompanying the benefits. Some of the expected responses are as follows; prevent competition between weeds and crops/ to facilitate tillage operations/ ensures operation of other machinery/ to avoid injury to the farmer/workers; to ensure increased productivity/yield;
- iii. Most candidates did not describe environmental factors but simply stated or outlined them. This resulted in most candidates performing badly in this question. Some of the expected responses are as follows; increased rate of soil erosion since the land left bare; increased amount of carbon dioxide in the atmosphere since there are no trees to absorb carbon dioxide; loss of animal habitat due to land clearing etc
- (b) i. Most candidates answered this question correctly
- ii. The question was fairly done by most candidates. Most candidates got 1 mark writing that hay is tied with a string.



- iii. Most candidates performed well in this question
- (c) i. Most candidates got 1 mark in this question. some of the expected responses are as follows; prolong shelf life of fodder/prevent rotting/spoilage of fodder; have feed during drought /dry period; retain livestock feed of high nutritional value;
- ii. The candidates performed fairly in this question. Some gave answers which were not matching, if one side is wrong the candidate gets no mark even if he/she provided a correct answer for one of the fodder crop. Some of the expected responses are as follows;

Hay	Silage
less nutritive	more nutritive;
less palatable	more taste;
less time to make	more time to make;
low moisture content	high moisture content;
low digestibility	High digestibility;
preserved by drying	preserved by fermentation;

- iii. Most candidates performed badly in this question. They could not write what caused the signs in the silage. Some expected responses are as follows; inadequate covering with plastic; insufficient compression of the silage; no addition of silage activator/named silage activator; not cut/chopped into small pieces; silage heap too wet; too much soil accidentally in silage heap; inefficient fermentation;



PAPER 2 (1256/02)

General Comments

The performance of the cohort was general average since majority of the candidates managed to score 50% of the marks available. At most 50% of the questions were accessible to most candidates.

Looking at the nature of the candidates that were writing this paper it showed that they were of lower standard but their performance was average. The candidates who scored between 30 and 38 were 15 which gives 38%. The candidates who scored between 26 and 29 were 7 which gives 18%. Therefore the candidates who scored above 50% were 56% which indicate that the candidates performance were average. The candidates who scored between 20 and 24 were 9 which gives 23%. The candidates who scored between 10 and 19 were 8 which gives 21%. The candidates who scored below 50% were 44%. As this cohort were the first ones to write this paper there was no baseline were one can compare with the previous year but in conclusion it can be said their performance is average. Most of the work presented by candidates were neat and presented well for example question 1c) most of the candidates did very well in this question. Most of the candidates did not do well in question 1d) they were not showing any knowledge and what they see in the specimen provided to them which made it difficult for them to score marks in this question. Candidates should always be cautioned to write the correct quantities of items as marks were lost by some candidates for example they were writing maize seeds at P500 each instead of writing 2x5kg maze seeds at P500 each.

Comments on Individual Items

Question 1

- (a) **Specimen A** common name was well done by majority of the candidates while some confused locust and grasshopper. The answer was locust.

Feeding feature for specimen A was poorly done as no candidates accessed this mark. As the answer was mandibles.

Specimen B common name was well done by majority of candidates. The answer was termites.

Feeding feature for specimen B was poorly done no candidates accessed this mark as the answer was mandibles.

Specimen C common name was well done by majority of candidates. The answer was aphids.

Feeding feature for specimen C was poorly done as no candidates accessed this mark as the answer was proboscis/stylet.



Specimen D common name was done well by 50% of candidates as they were confusing stalkborer with american ball worm and army worm. The answer was stalkborer.

Feeding feature for specimen D it was poorly done as no candidates accessed this mark. The answer was supposed to be mandibles.

Most candidates under feeding feature for all the specimens they were giving responses like classes of pests instead of mouthparts.

- (b) **Specimen 1** it was well done by majority of candidates as the responses were warlock9.2EC and Aviklopirifos EC.

Specimen 2 it was well done by most of the candidates as the responses were Bandit 350EC and Warlock19.2 EC.

Specimen 3 it was poorly done as candidates wrote Aviklopirifos EC instead of warlock 19.2 EC and Bandit 350 EC.

Some candidates lost marks as they were not writing the concentration level of pesticides example their réponses were like warlock, bandit only.

- (c) It was well done by majority of candidates
The answers were Q/ googles, R/gloves, S/mask, W/overall, Y/rubber boots, U/respirator.
Some few candidates were writing (T- leather boots) and (Z- cotton cap)
- (d) It was poorly done as most of the candidates responses were about class of pests (eg biting and chewing, piercing and sucking) instead of giving the damage done by pests.
Responses like eat plant leaves, roots,flowers and fruits.

How damage affects plants itw as poorly done by majority of candidates. Candidates instead of writing responses like stunted growth, reduced photosynthesis rate they were writing réponses like plant will die for all the spcimen A,B,C and D.

Question 2

- (a) It was well done by majority of the candidates except for few candidates who were writing items without quantities under description of inventory items and also few giving incorrect quantities. For example instead of writing 2x5kg maize seeds at P500 each they were writing maize seeds only.

Some candidates included incorrect entries such as pegs, hammers, spades etc.

Some candidates were writing description such as done by 2 workers, grass was cleared, shades nets was erected, two employees were engaged instead of writing responses such as permanent labour 2, plant tags 500, casual labours 2



- (b) It was well done except for few candidates with incorrect quantities and the ones who were writing description such as two farm employees were engaged, two workers hand pulling instead of just writing the item and quantity example maize seed 2, malathion 250g *3



PAPER 3 (1256/03)

General Comments

This is a generic report about the performance by the maiden cohort of candidates registered and assessed under Field Crop Production 1256/03 component at Moeng College (BW800) in 2022. A total of 38 candidates submitted their scripts for assessment. There were only **2 absentees**.

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 attendance register for 1256/03.

This report comprises four main parts: Farm Diary, Field Practical Training, Field Observations and Practical Tasks Assessment.

Individual Scored Items Reports

1.0 Farm Diary

General Observations

Generally, most of the farm diaries were presented very well except for a handful. 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 two field crops (maize/lablab and butternuts) instead of just one field crop.

The highest raw mark obtained was 40 and the lowest mark was 20. There were 20 typed farm diaries and 18 hand-written farm diaries. The Centre is hereby reminded that it is a requirement that **all farm diaries must be typed**. The most common enterprises diarised was maize crop production.

1. Cover Page

The cover page was well done by most candidates. However, some candidates did not make cover pages especially those who used manila files for binding their reports. Some of the said candidates had cover pages hidden under a non-transparent material. A good number of candidates bound their farm diaries in quotation files.

Recommendation: The Centre is advised to use quotation files for binding projects as they are ready-made, cheaper, affordable, and easily available in local markets.



Most candidates did well in providing the required details for *name of production enterprise* except for three (3) candidates who didn't have the cover page. 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. However, there was a slight variation as some candidates wrote the months and year only, e.g., *August to September 2022* whereas some candidates gave specific and full dates, e.g., *14 May 2022 to 20 September 2022* (which is recommended). Furthermore, candidates should indicate *labels* for *starting* and *ending* dates. It is also submitted here that it is not necessary for candidates to append their signatures on this page as some signed on it.

2. Enterprise Details

Variety grown – a total of 18 candidates did well by providing the name of a fodder crop variety produced but 20 candidates did not indicate the variety planted.

Age – all candidates did well by indicating the age of plants at the end of their project. Most of the plants were 3 months old.

Plant populations – the plant populations were different across the candidates as some candidates had recorded a plant population of 200 whereas some had recorded only 100.

It was observed that some candidates had written the *enterprise details* information on the *cover page*.

Recommendation: Candidates should write the *enterprise details* on a separate page from the *cover page*, otherwise they should use the Field Crop Production Assessment Guide template as it is more detailed.

3. Sequence of Activities

Activities carried out 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 – most candidates did poorly on this part but only 4 candidates managed to provide dates for all the activities carried. Some activities had no dates as a result the mark for this criterion was lost. All activities should have dates for full credit.

4. Activities / Operations

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



However, some operations were repeated many times for the same reason. 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.

5. Tools Used

Tools used for every operation reflected – This was very well done as candidates managed to access all the available marks. Candidates used a lot of different tools during their projects.

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, some candidates just listed tools used without attaching them to a specific operation. This was 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 a tool to a specific activity carried.

6. Importance of Activity

Significance of carrying out each operation – generally most candidates did well by giving valid reasons for carrying out each activity. However, some reasons were misplaced by writing them under the comments/observation's column. These reasons should appear under the activity *description* column.

7. Relevance of Comments

Comments made relevant to the activity – this was fairly done by most candidates. Most recommendations given here were pointing at making improvements in time management during operations. Very few candidates met the minimum requirement to access all the marks for this criterion.

8. Precautions Observed

All candidates did poorly on this criterion. None of the candidates accessed any mark under this section. Candidates couldn't demonstrate some regard for safety, health and the environment while carrying some practical activities on the field.

Safety precautions observed for activities –None of the candidates attempted any observation of precautions in any of their activities during their projects. In future any precautions observed should be accompanied with a reason/s for that observation.

Cleaning of tools after use – this was also poorly done as none of the candidates attempted any washing, drying, wiping, greasing or any form of cleaning the tools after using them.



Safe storage of equipment after use – none of the candidates made any attempt to store their equipment after use. Candidates should demonstrate proper behaviour after use of equipment and tools.

9. Project Termination

Description of how the project was ended – Most candidates did not do well because their termination was not clearly projected. It was merely implied by harvesting the fodder crop. However, harvesting a crop is only but a part of termination of the project. Candidates should describe in detail how the project was ended.

Description of how the products and residues were disposed of – for candidates who produced lablab fodder crop indicated their product disposal very well by feeding it to livestock. However, they did not mention how the crop residues were treated. For those who grew maize they managed to describe it clearly.

Observations about project viability – this was not done at all by any candidate.

10. Neatness of Work

All typed farm diaries were generally neater than the handwritten ones. However, the typed reports though neatly presented, they had some negligible untidiness due to reprographics such some ink stains from the printer(s).

Most of the handwritten reports were neat but with some untidiness reflected due to some cancellations and a lot of overwritten words.



PART B: FIELD PRACTICAL TRAINING

General observations

There was enough evidence that suggested that the candidates were attached to a nearby real industry situation to gain hands-on experience. It is believed that the candidates were afforded an opportunity to perform some farming practices or activities. This must have afforded them a further opportunity to interact with farm employees at work to have an idea of how a real agribusiness and farming industry operates.

Generally, the presentation of the candidates' works was neat and well-organised. It was observed that all Field Practical Training (FPT) reports had been typed therefore there were no hand-written reports. However, there were differences in the use of fonts and font sizes: some font sizes used were outrageously bigger. There was also lack of *creativity in the presentation of information* by the candidates. It should be borne in mind that it is a requirement that this FPT report be typed. Therefore, candidates needed to demonstrate refined skills in the use of ICT in report writing. The highest mark scored under FPT report was 82 but the lowest mark scored was 37.

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*.

2. Title page

The *title page* was designed very well by most candidates. The candidates manage to provide more than half of the details required.

3. Content page

This page was not well done. A lot of details were missing on this page. In all the reports there were no appendices, and page numbers in the candidates' table of contents (TOC). Some of the fonts and font sizes used were not pleasing and inappropriately used at the TOC. Some TOCs included the *Cover Page, Title Page & contents page* in the list of contents on the TOC; this should be discouraged. Most of the candidates wrote the main heads in *lower case* instead of *upper case* in the table of *contents* page.

4. Declaration of originality

Most candidates 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 dates when FPT was started and completed.



5. Acknowledgements

Most candidates showed that they know how to acknowledge individuals and/or organisations that played a role in the success of their FPT. However, the candidates could not meet the minimum requirement of acknowledging at least four people/organizations that *rendered the services* as well as *what services were rendered*.

Candidates should be discouraged from acknowledging more than one person/organization for the same type of *service rendered*. For example, acknowledging “*Teacher X and Teacher Y for giving me guidelines on how to write the FPT report*”.

6. Introduction

Generally, the introduction was fairly done. Most candidates managed to provide the *names of the farm* where they were attached for FPT. However, their justification for the choice of that farm did not come out clearly, except that the most common reason often given was that “*the farm was near to our school*”.

Most of the candidates’ expectations prior to FPT were not clear. The candidates sounded like they were reporting about what they had already experienced at the field of attachment. Candidates should have reported on their expectations as prior to their attachment. At times it was also unclear as to how they were to benefit from the exercise.

7. Description of farm routine

Most candidates did not clearly indicate the number of workers on the farm (*staff complement*) let alone their qualifications or areas of specialization. Only a few of them did.

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

Most candidates did not adequately describe the operations carried out on the farm. The details were just scanty. The description of the workers daily schedule left a lot of requisite details.

Recommendation: the information about the workers daily routine can be organised and presented better in a tabular form to show specific dates and work schedules followed by the workers.

The *workplace interaction* was somewhat unclear. The question of *who reports to who* can be better answered by clearly drawing an organizational structure flowchart.

The evidence in the reports suggested that the attachment farm did not have any *technology leverages* in record keeping. Candidates could not even come out clear about *how the farm*



records were kept. Consequently, they did not seem to know whether the farm made profits or losses in their business.

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 organizes their information better into columns and rows than in continuous writing.

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.

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.

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*.



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. However, 10 candidates had no ratings by TOI as a result such candidates lost all the 10 marks for the ratings by TOI.

13. Overall report quality

There was very little evidence of *creativity* in the candidates' presentation of their work. Candidates just displayed rudimentary typing skills when writing their FPT reports.

There were no *illustrations* such as organograms, pictures, decorations, etc. However, 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, but where candidates used manila files and file tags for binding their reports, the binding seemed to interfere with the report text.

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 standardized 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. It was also discovered that some candidates had not appended the Training Officer in Industry (TOI) forms as well as their Completion Certificates in their FPT reports.

There were no samples of records kept in the farms. There were no *pictures of the farm, farm operations and equipment*. The Centre is hereby advised to facilitate for inclusion of the above-mentioned requirements into the candidates' FPT reports.



PART C: FIELD OBSERVATIONS

General 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.

Unfortunately, this did not happen; and as a result, Botswana Examinations Council (BEC) provided a task in place of the actual experiment carried out in the fields (*see task description below*). Candidates were to take assumption that they were the farmer who carried out an investigation. Then the candidates were to use the information provided to write an observation report for the investigation covering a set of given marking criteria.

Task

'A farmer carried out an investigation to establish the effects of a phosphorus fertilizer on seed germination percentage in maize. There were 20 seeds planted in a 2m² plot. The data obtained from the investigation is presented in Table 1.1'

Table 1.1

Treatment (fertilizer in g/m ²)	% Germination per plot of 2m x 1m	
	Plot 1	Plot 2
0	80.02	79.80
16	84.80	82.70
32	87.00	86.16
48	87.51	86.65
64	89.02	87.02

NB: 0 g/m² is where phosphorus fertilizer was not added.

Generally, the presentation of the candidates' work was good. Candidates had bound their reports neatly and securely in quotation files. None of the field observation reports were typed; they were all hand-written. The only topic was that of the task/scenario provided by BEC. However, candidates did not show any evidence of original thought in coining a suitable topic/title for this pseudo investigation. The performance of candidates on this task was generally good. However, there were certain areas in which candidates were left wanting. A total of 38 candidates submitted their Field Observation reports. The highest mark recorded was 38 and the lowest mark was 13.



THE REPORT

1. Title of investigation

Most candidates did reasonably good in trying to coin a suitable topic for this investigation. However, they could not introduce the element of comparison in the investigation titles. Therefore, their titles were not indicating that the investigation was a comparison study or at least comparing different fertilizer application rates.

The candidates did well by reflecting the *factor to be investigated* and the *parameter measured* (i.e., *germination percentage*) on their titles. However, the candidates did not indicate that the topic was about *the effects of different application rates of a (named) phosphatic fertilizer on the germination percentage of maize seeds*.

Some titles were not neatly written. The most common feature here was overwriting some words. There were also some traces of dirt, cancellations, and fat/grease stains on the titles.

2. List of equipment / materials used for investigation / inputs

Candidates were provided with a common list of inputs used for the investigation. This list included a *digging fork, watering can, spade, rake, measuring tape 30cm ruler, pegs, Adam's digital weighing scale, phosphatic fertilizer, wheelbarrow, axe/pickaxe, maize seeds, and a container* used for weighing the fertilizer. Most candidates did not list all materials / equipment suggested but managed to list most of those inputs. They only missed it out by one or two inputs.

3. Objectives / aims of investigation

Most objectives were *relevant to titles* (by having a crop, parameter & treatment); *achievable* (possible), *measurable* (with a specific parameter). However, the objectives were not *specific* as they lacked the element of comparison, and some were double-barrelled lacking the element of direction (increase/decrease).

4. Statement of factor to be investigated

This part was poorly done by most candidates. Candidates did not link the possible causes of factor / problem investigated to the possibility of poor/low phosphorus content in the soil. However, they barely managed to *state the factor / problem to be investigated*.

Most candidates did well to suggest some *possible solutions to factor / problem investigated* but they gave only 1 benefit of the proposed solution.



5. Number of units per treatment / manipulation and size of unit /age

This experiment had four *test* treatments and one *control* treatment. Each treatment was replicated once. As a result, there were ten (10) experimental plots altogether.

It was evidently clear that candidates did not understand what their *experimental unit* 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. None of the candidates *justified* the number of replications or any reasons for not replicating the experimental units/treatments.

Most candidates only did well by stating the *size of units used*. They gave the correct sizes of the plots as 2m x 1m.

6. Layout / Sketch plan of investigation

Most candidates did not indicate the *title for the sketch plan* distinctively as they did not underline what appeared to be the intended title. For handwritten reports the title of an illustration or form of presentation is usually denoted by *underlining* it.

The *treatment* and *control* were clearly shown on most of the layouts / sketch plans. Most students included a key/legend to clarify the labels. However, the clarity of some labels was poorly done as they did not indicate the required specific application rates.

Most of the plots were labelled with *appropriate dimensions* (2m x 1m). However, some candidates did not label the dimensions of some plots, leading to a loss of 1 mark for *appropriate dimensions*. All plots / units must be fully labelled for full credit.

The *neatness of sketch* was fair. There was some *dirt* caused by improperly shading the plots and there were some cancellations of labels on the layout.

7. Analysis of findings / implications of findings

Most candidates wrote a wrong formula used for *analysis of results / computations*. They added the two results figures (percentages) and divided their total by the number of plots. It was only convenient for them to get the correct average figure. 20 candidates did not show calculations / computations here.

Most candidates did well by *selecting the average (statistical parameter) for summarising the data*. It is suggested that the statistical parameter must always be attached to the measured parameter, e.g., average height not just “average”.



Candidates did very well by *mentioning / naming* the table as *the form of data presentation* to be used. This was a relevant choice. However, some candidates later used two forms of presentation for the same results: a table and a line graph.

For labelling, most titles were not underlined. Most tables were drawn to a consistent scaling of columns and cells. However, they were drawn to only one dimension with no row headings but just column headings.

The overview interpretation of the findings was somewhat poor. Candidates could not clearly establish trends shown by the results. Candidates were expected to indicate trends by showing the *highest* and *lowest* result figures or the differences between the two results supporting a major findings / concluding statement.

8. Conclusion

The conclusion was poorly done. All candidates could not re-state the purpose or the research question that was looking for an answer; they could not proffer an answer to the research question; and they could not even state the extent to which the investigation met its aims / objectives.

9. Recommendations

Most candidates did poorly in recommending appropriate actions to be taken based on their findings. There were no appropriate specific actions to be taken based on the investigation findings. Candidates were supposed to suggest the best treatment or fertilizer application rate to use. Therefore, all their recommendations were *irrelevant* and *inconsistent* with the findings

Only a handful candidates suggested some modifications of the investigation to ensure accurate results, but they did not align their recommendations with the poorly written objectives.



PART D: PRACTICAL TASK ASSESSMENT

General observations

It was noted that the centre submitted the candidates' portfolios as evidence for all the tasks assessed as stipulated in the Teaching Syllabus. However, there was relatively no evidence whatsoever that the portfolios could be useful when standardizing and moderating the provider-based assessment of practical tasks for subsequent inclusion into the summative assessments.

The *Field Crop Production Assessment Guide* emphasises that the evidence of assessment is supposed to be sought from the portfolio of evidence maintained and kept by the Centre. Some video clips at prescribed range of marks should be kept for presentation to the moderator as evidence. It is hoped that there will be some improvement in fulfilling this assessment requirement in future.

There were some irregularities and inconsistencies when computing the marks by the Centre. The number of practical tasks were not the same for all candidates who were registered for Field Crop Production Paper 3. 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.