



EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
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2023 NSC CHIEF MARKER'S REPORT

SUBJECT	AGRICULTURAL SCIENCES		
QUESTION PAPER		2	
DURATION OF QUESTION PAPER	2½ hours		
PROVINCE	EASTERN CAPE		
DATES OF MARKING	07 – 19 DECEMBER 2023		

SECTION 1: (General overview of Learners Performance in the question paper as a whole)

QUESTION 1

**(a) General comment on the performance of learners in the specific question.
Was the question well answered or poorly answered?**

Question 1 was fairly answered, according to the 100 script analysis, candidates were scoring at an average of 59% ($\frac{27}{45}$) for this question (Figure 1).

FIGURE 1: Average learner performance per question (100 scripts analysis)

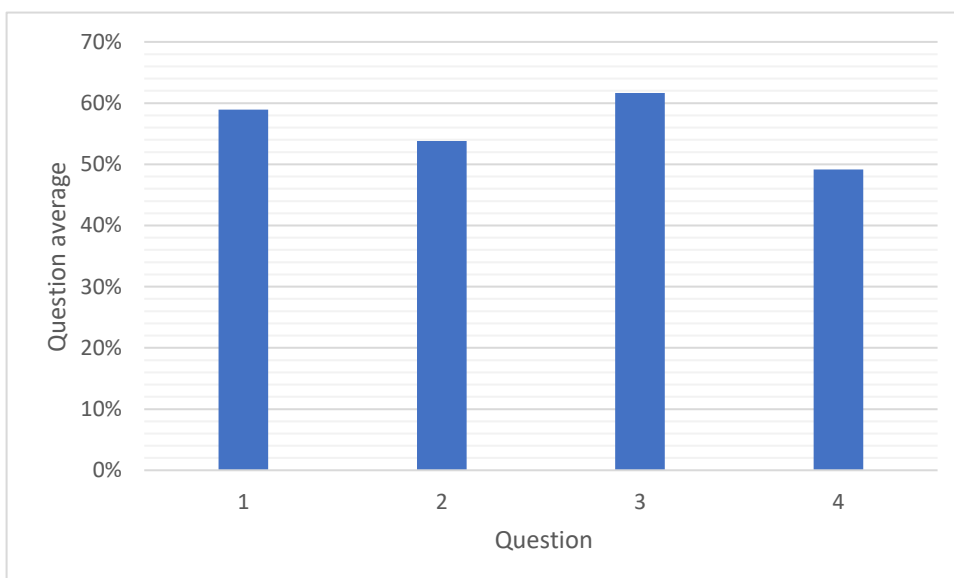
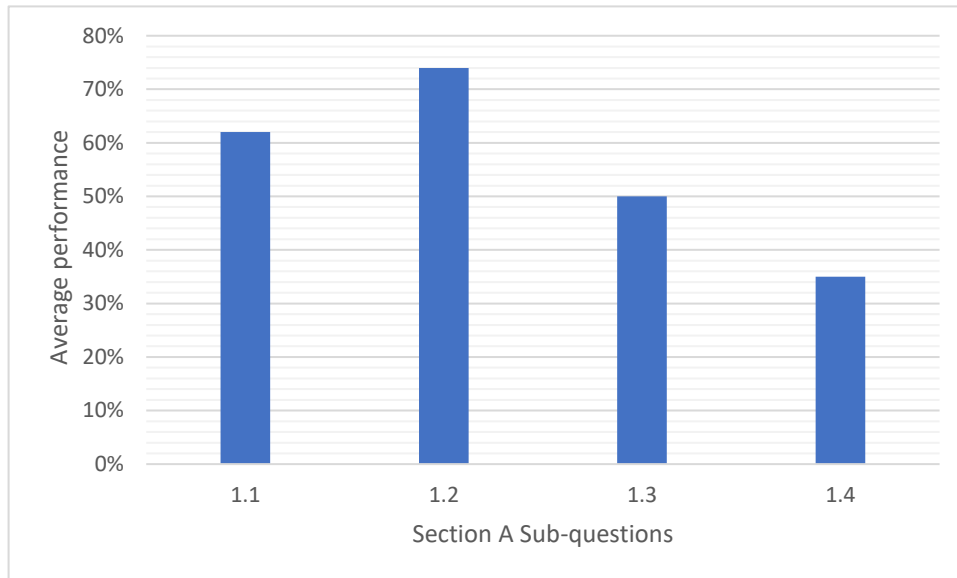


Figure 2: Question 1 average learner performance per sub-section



Question 1.1.1-1.1.10

This sub question was well answered as many candidates scored 28 an average of 28 marks according to a sample of 100 scripts.

Question 1.2

This Sub question was also well answered, many candidates gave good responses and scored an average of 8 marks.

Question 1.3 and 1.4

This question was poorly answered by many candidates who committed common errors and some misconceptions

Misconceptions identified from learner's responses in question.

In Question 1.3.1, most candidates market intelligence and others wrote research only instead of market research.

In 1.3.2, candidates confused balance sheet with income statement and others wrote wrong spelling of balance sheet.

In 1.3.3, candidates confused meiosis with mitosis.

In 1.3.4, candidates wrote natural selection instead of artificial selection.

Another misconception was observed in learners' responses in sub-question 1.3.5, instead of writing genetic modification or GM they wrote **GMO** and **gene modification**.

Question 1.4

This sub question was also poorly answered by most candidates getting 2 marks out of 5 according to the analysis of 100 scripts sampled.

The following misconceptions were identified from learner's responses in this question.

In Qn 1.4.1, some candidates wrote retailers instead of broker.

In Qn1.4.3, learners wrote Agrobacterium only instead of Agrobacterium tumefaciens or Bacterial carriers.

In Qn 1.4.4, most candidates do not know the difference between *heritability* with *heredity*, they wrote heredity instead of heritability.

In Qn 1.4.5, most candidates wrote complete dominance instead of **co-dominance**.

Possible reasons for the better improvement in section A's learner performance

- Learners had enough time to practice on how to answer questions with various options given.
- More activities were given to learners by subject teachers and specialists to practice on combination type of questions and terminology.

Suggestions for improvement in this section

- Teachers must compile concepts following CAPS document and present them first whenever introducing new topic.
- More revision in concepts/terminology in formal and informal assessments
- More Spelling exercises for Agricultural Sciences terms.
- Teachers must drill the recall skills on learners to master section A
- Teachers must keep the good work of exposing learners to those concepts and give different distracters to various option.

Section B

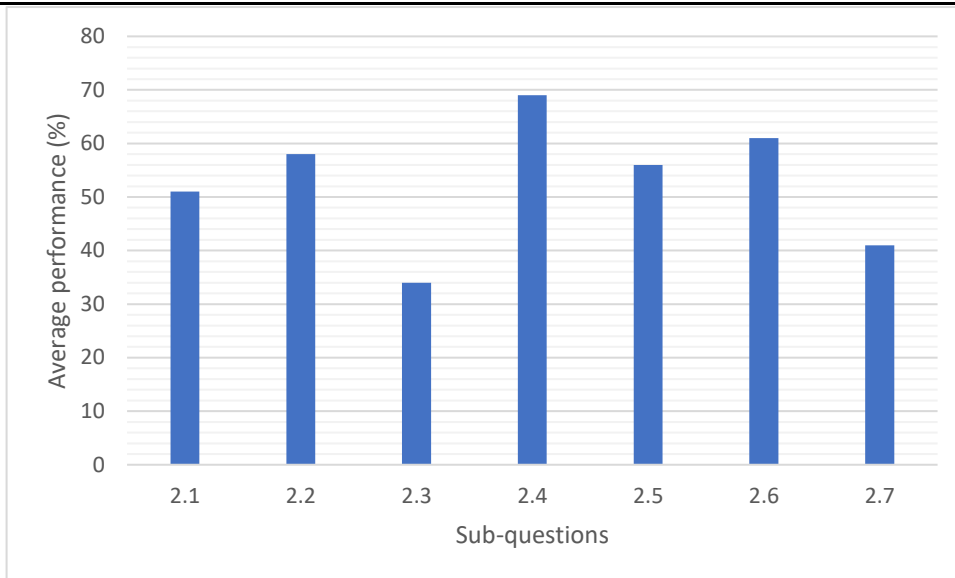
(a) Why were the questions poorly answered?

(b) Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 2

Question 2 was fairly answered, according to the 100 script analysis, candidates were scoring at an average of 54% ($\frac{19}{35}$) for this question (Figure 1).

Figure 3: Question 2 average learner performance per sub-section



Common errors and misconceptions observed in learners' response

2.2 Identification of agricultural marketing systems

In Qn2.1.1 Learners were confusing marketing systems with free marketing channels and also some candidates instead of controlled marketing they wrote government marketing.

In Qn2.1.2 Instead of writing principles of cooperative marketing they write benefits of cooperative marketing which are asked in 2.1.4.

In Qn2.1.3 Instead of disadvantages of free marketing they write advantages of free marketing.

In Qn2.1.4 Learners confuse the benefits of cooperative with principles of cooperative marketing systems already asked in 2.1.2

2.2 The Price and the quantities in a market

In Qn 2.2.1 Learners write demand instead of supply and others supply instead of demand.

In Qn 2.2.2 Learners write equilibrium price instead of equilibrium point. Some wrote punctuated equilibrium, the term used in Life Sciences, breakeven point in Accounting, chemical equilibrium.

In Qn 2.2.3 Instead of writing surplus and shortage- they wrote law of supply and law of demand, some wrote ceiling price and floor price.

In Qn 2.2.4 Badly answered, most learners wrote relationship between demand and supply excluding the price

2.3 Legislative and regulatory framework that support marketing

In Qn 2.3.1 Badly answered, most learners did not answer this question correctly because they could not clearly understand the roles of legislation in marketing. Mostly they respond by the roles of legislation in agriculture, some wrote agricultural acts.

In Qn 2.3.2 Most learners write infrastructure only or transportation only

2.5 Entrepreneurship

In Qn 2.5.1, learners could not explain entrepreneur and entrepreneurship. The learners gave a general explanation that was not related to business opportunity.

In Qn 2.5.2, learners poorly answered this question confused by many options given to choose from.

In 2.6.1 **Components of SWOT analysis**, learners swap the components and incorrectly spell threats, instead they write treats and threads.

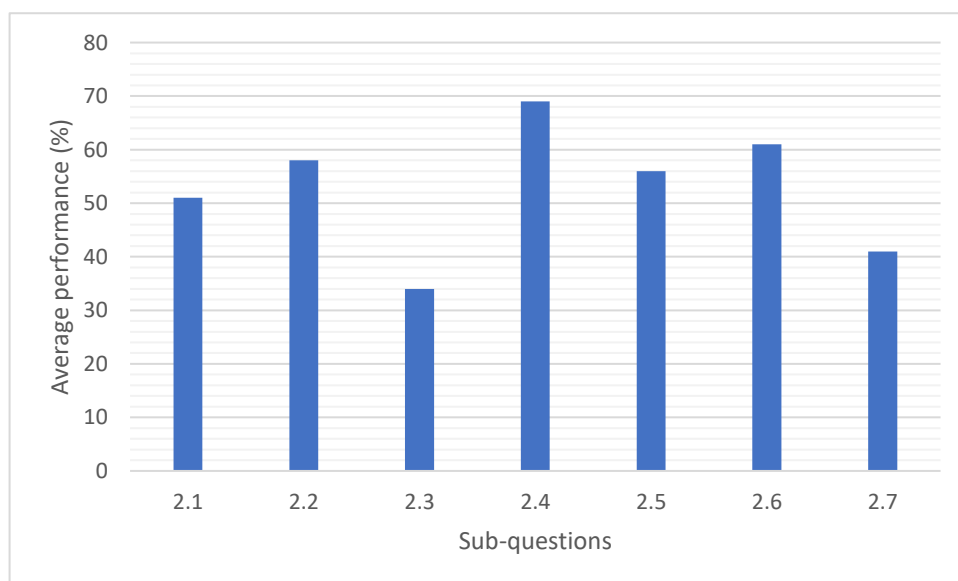
Provide suggestions for improvement in relation to Teaching and Learning

- Learners to be trained thoroughly on how to analyse trends and relationships presented in a graph.
- Frequently writing of activities taken from previous papers can provide good preparation and practice.
- Teach learners on how to answer questions based on graphs, and scenarios and diagrams
- Drill learners on the criteria used in drawing graphs following the exam guideline.
- Follow up on students who are struggling and grouping them during revisions to address their specific needs.
- Teachers must use CAPS document together with examination guidelines when preparing for their lessons.
- Teachers are encouraged to use previous examination question papers for classroom activities, home activities and informal class tests to familiarize learners with questioning style.

Question 3 Production Factors

Question 3 was fairly answered, according to the 100 script analysis, candidates were scoring at an average of 62% ($\frac{22}{35}$) for this question (Figure 1).

Figure 4: Question 3 average learner performance per sub-section



Common errors and misconceptions

3.1 Land as a Production Factor

Qn3.1.1 fairly answered and most of them made a mistake of swapping variables and some forgot to write units and headings.

Qn3.1.2 Most learners were answering with general characteristics of land, not specifying "Law of diminishing returns" meaning they were not familiar with the terminology and most explained the law of diminishing returns.

Qn3.1.3 Fairly answered, although some learners were giving functions of land that are not related to the table.

Qn3.1.4 Fairly answered but some learners were including soil fertility/fertilizing the land which was provided in the scenario.

3.2 Labour

Qn3.2.1 was well answered, however learners had challenges with identifying tasks performed by workers as they mixed up type of workers.

Qn3.2.2 was poorly answered, they were generally giving ways of motivating labours, not specifying living conditions. They failed to give living conditions like bonus, transport and wages.

3.3 Labour contract and legislation

Qn3.3.1 was well answered, most of them scored 3 full marks but few wrote statements instead of letters.

Qn3.3.2 was well answered, however most learners were simply writing contract instead of labour contract and some were writing agreement document.

3.4 Capital

Qn3.4.1 was fairly answered, as some learners were giving types of credit, e.g. Long, medium and short term capital.

Qn3.4.2 was well answered but some were giving sources of finances instead of methods of creating capital.

3.5 Financial records of a farm

Qn3.5.1 was poorly answered, they leave out the word statement. They mention all types of financial documents, i.e. income statement budget and balance sheet.

Qn3.5.2 was well answered since it was having many options.

Qn3.5.3 was fairly answered, as majority of them got 2 marks or 1 mark.

Learners could not write the correct formula and some also left out profit/loss whilst others were writing net worth instead of profit/loss

Some learners twisted and calculated (Expenditure – Income) as a result they came out with positive answer.

3.6 Management

3.6.1 Poorly answered, they mixed up. Most learners know management principles but do not know how to explain them and link with real life situations.

3.6.2 Both A and B are poorly answered because they were giving general responses which is a sign that teachers do not emphasize differences between extensive and intensive factors influencing farming business.

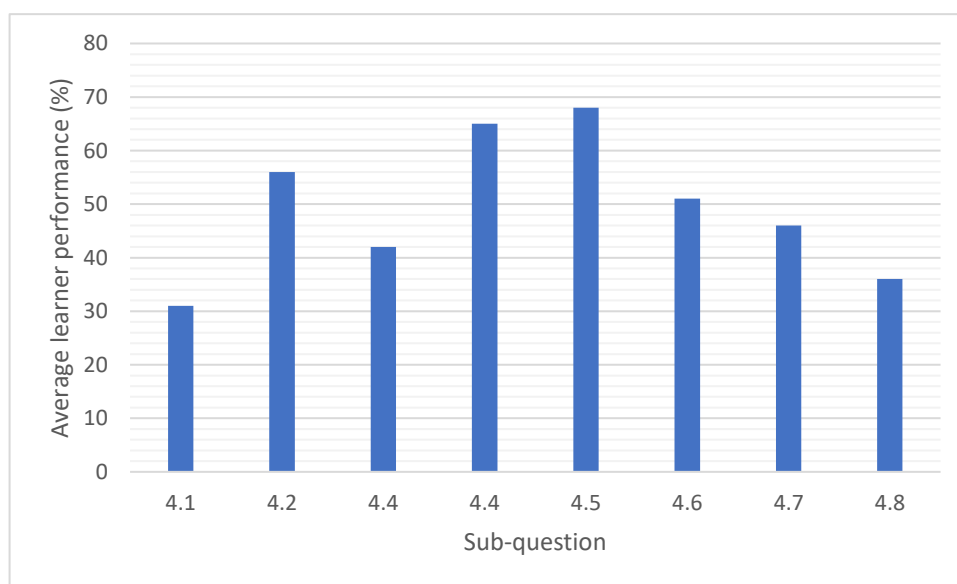
Provide suggestions for improvement in relation to Teaching and Learning

- Use of previous question papers so that learners can be familiar with different assessments demanding different cognitive levels.
- Drill learners on terminology when introducing a new topic.
- Teachers should give more scenario based assessments to learners.
- Make use of real life examples related to agriculture when teaching learners so that they can be able to apply concepts correctly.
- Learners should be exposed to different calculations related to different budgets, balance sheet and cash flow statements.

Question 4 Genetics

Question 4 was fairly answered, according to the 100 script analysis, candidates were scoring at an average of 49% ($\frac{17}{35}$) for this question (Figure 1).

Figure 5: Question 4 average learner performance per sub-section



Common errors and misconceptions observed in learners' response

4.1 Mendel's laws

In Qn 4.1.1, most learners were unable to differentiate between genotype and phenotype. Learners wrote phenotype instead of genotype.

In Qn 4.1.3, most learners got the explanation of Mendel's law of independent assortment correct but majority were unable to give full explanation of the law to score all marks.

4.2 Monohybrid crossing

In Qn4.2.1, learners struggled to draw the punnet square with populated gametes as a result they scored 3 marks instead of 4 marks. Some confuse the mono hybrid Punnet Square with that of Dihybrid cross.

4.2.2 Percentage of red piglets

In Qn 4.2.2, some learners just wrote the answer (0%) without showing the calculation and failed to score all marks

4.3 Polygenic inheritance

In Qn 4.3.2 (b), learners wrote short instead of 40cm, meaning learners are still challenged with the explanation of polygenic phenotypic characteristics.

4.4 Sex-linked characteristics

In Qn 4.4.2, most learners were able to locate the X and Y chromosomes as sex-linked characteristics, but some wrote gonosomes instead of sex-linked characteristics

4.5 Pedigree diagram.

In Qn 4.5.2, most learners had a misconception of writing the genotype of a short fleece individual 5 (ii) instead of (II).

4.6 Variation

In Qn 4.6.1, Candidates got the first part of the definition correct but failed the last part to score all two marks.

In Qn 4.6.2, learners could not differentiate between causes of variation and types of variation.

In Qn 4.6.3 Many learners gave examples of mutagens instead of types.

4.7 Breeding systems

In 4.7.1 (b), most learners confused line breeding with inbreeding.

4.8 Genetic modified organisms

In Qn 4.8.1, most learners confused health benefits with general benefits genetic modification instead of health benefits.

In 4.8.2, some learners wrote the aims of genetic modification in crops instead of animals.

Suggestions for improvement

- Must form groups in classes to define and discuss about terms on each and every topic.
- More practice on punnet square method is needed.
- More assessments testing different cognitive levels is needed.
- Extra classes so that they can have enough time for revision.
- Train learners to be able to answer both formal and informal assessment.
- Workshops should be done on teachers based on genetics.

Any other suggestions

- Learners must be given different tasks (writing and oral presentation of concepts)
- Print classrooms with agricultural posters so that every learner can be able to distinguish and identify all the concepts/pictures
- Content subject like Agricultural Science shouldn't be last paper on the exam timetable, whereby learners are very exhausted with exams
- June assessment for paper 2 should also be set provincially for grade 12 like paper1 in order to train learners thoroughly on different questioning techniques.