Province of the
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ASSESSMENT & EXAMINATIONS
Bundy Park, Schornville, KWT * Private Bag X 4571, KWT, 5600
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NSC 2011 CHIEF MARKER'S REPORT

SUBJECT	AGRICULTURAL SCIENCES

PAPER	1

DATE OF EXAMINATION:	4 NOV. 2011	DURATION:	2½ HRS

SECTION 1:

(General overview of Learner Performance in the question paper as a whole)

With an average percentage of 32.2% of the 15 365, the general performance of candidates could be described as fair. This is in comparison with previous years' performances.

Scores ranged from 11 to 137 out of a total of 150 marks, with 22 learners obtaining 120 marks and above; 116 obtaining 90 to 104 and 5617 obtaining between 0 and 44. The overall percentage pass being 63.4%.

SECTION 2:

Comment on candidates' performance in individual questions
(It is expected that a comment will be provided for each question on a separate sheet).

QUESTION 1
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
This question was fairly well answered, with most candidates obtaining more than 20 out of 45
marks. Scores ranged between 03 – 38 marks.
Question 1.1
A fairly well answered sub-question with an average score of 12 out of 20 marks.
Question 1.2
The performance of candidates in this section was comparatively the worst of the four sub-questions. Only 107 out of the 15 365 candidates managed to obtain 10 out of 10 in this sub-question. A good number of candidates obtained zero (0).
Question 1.3
Question was fairly well answered with the majority of candidates obtaining 6 out of 10 marks.
Question 1.4
Though candidates did not perform poorly, fewer than 200 candidates managed to obtain the full mark, 5, in this sub-question.
(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Question 1.1
The inability of a substantial number of candidates to score high marks was due to a lack of understanding of basic concepts and relating parts to functions. Besides, it was apparent that learners did not take time to read questions very well before answering. For example, in Question 1.1.1, majority of candidates either chose option B or D failing to realise that the question referred to an **accessory organ** which produces amylase.
Question 1.2
The rather poor performance of candidates in this sub-question underscores a lack of understanding of basic concepts. For example, in Question 1.2.1, it was evidently clear that learners could not differentiate between molasses and hormones.

(a) Provide suggestions for improvement in relation to Teaching and Learning

- Teachers should adequately prepare for lessons by making use of all available textbooks and resources.
- Learners, with the assistance of teachers, should go through the glossary in every textbook for grade 12 Agricultural Sciences
- Teachers must give daily exercises / homework / assignments on Section A, if possible.
- Ensure that learners are well informed and acquainted with the uses of all tools and equipment for animal handling and other management practices

(d) Describe any other specific observations relating to responses of learners

- Incorrect spelling of terminologies.
  Horribly spelt terms make learners to lose marks. If the incorrectly spelt term gives a different meaning from the answer, the learner loses the entire mark.
  For example in Question 1.3.3 ***pistolette*** is correct whereas ***pistil*** is incorrect; ***spermatogenesis*** is correct but ***spermatogonium*** is incorrect in Question 1.3.4.
- Leaving Multiple Choice Questions (MCQ) unanswered
  Learners who do not know the answer for a particular question are advised not to leave no option crossed. Take a chance and make a cross over one of the options (A—D). This applies to both questions 1.1 and 1.2.

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

Since Section A (Question 1) covers all examinable topics, it is strongly suggested that Subject Advisors ensure that the following is implemented:

- Learners, with the assistance of educators, should be made to prepare wall charts in the form ***annotated*** drawings on the following:

  - Digestive systems of the three categories of farm animals.
  - Feeds – concentrates and roughages.
  - Reproductive systems of farm animals.
  - Mating, artificial insemination etc.
  - Mammary gland and lactation curve.
  - Equipment / tools used in handling animals.
  - Equipment / tools used in various procedures / operations (eg. branding, castration, dehorning, etc.) on animals.
  - Animal diseases and the life-cycle of parasites.
  - Types of graphs – line, bar, histogram and pie.

  (***Charts should be affixed to walls of the classroom***)

- Thorough planning and preparation, making use of all available resources, (particularly a variety of textbooks), before lesson is delivered.

QUESTION 2

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

This was the worst answered question. Many learners obtained no mark (i.e. 0) for the entire question. Scores ranged from 0 – 25, with an average score of 08 out of 35 marks.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- More than half of the candidates could not answer Question 2.1.4 correctly. They failed to mention that the intervention of rumen micro-organisms which make it possible for ruminants to synthesize proteins.
- About 65% of candidates were not able to calculate the Nutritive Ratio of oatmeal for the following reasons:
  - Incorrect formula
  - Incorrect substitution of values
- Only 35% of learners could answer Question 2.3.2 correctly. The rest of the candidates could not compare the protein requirements of mature and young animals with respect to growth.
- More than 70% of candidates could not answer Question 2.4 satisfactorily. Apparently they could not figure out what was expected of them. Educators might have taught learners about growth stimulants without explaining their effects and how they are administered.
- Question 2.5.1 on *biological value* (BV) was poorly answered. Most learners do not know what biological value is.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- The role and requirements of micro-organisms in ruminant digestion should be explained by teachers.
- Protein requirements for the following purposes should be stressed:
  - Growth
  - Production / milk production
  - Reproduction
  - Maintenance
  - Fattening

  Learners should be able to compare the protein, carbohydrate and lipid requirements for all categories of animals.

- Calculations must be taught starting from **first principles** and formulae, where applicable, gradually developed.
- Teachers must emphasize on the need to write formulae properly.
  The implications and significance of results / answers of all calculations must be thoroughly discussed with learners. (e.g. the narrower the nutritive ratio, the higher the protein content and better the suitability of the feed for growth, production and reproduction).

  Educators with weak mathematical background may solicit assistance from maths teachers in their schools.

(d) Describe any other specific observations relating to responses of learners

- Lack of comprehension skills
- Lack of mathematical skills
- Inability to make simple deductions from case study

(e) Any other comments useful to teachers, subject advisors, teacher development etc.

- Teachers need to thoroughly prepare for lessons by consulting all relevant sources before lesson delivery. Suggestions include:

  Reading materials in agricultural such as journals, magazines, access to internet and download information on current issues.

  - A fifteen-minute, twice-a-week textbook reading (either aloud or silently) by learners, followed by a comprehension exercise is recommended.

  The advantages of this approach are:
  - Enhance learners ability to cope with Case Study questions
  - Sharpening their reading and interpretive skills
  - Covering sections of Work Schedule which an educator may find difficult to teach.

- Learners must go on field trip / excursions to Agricultural Colleges and Research institutions to familiarise themselves with the practical aspects of the theory learnt in the classroom.

QUESTION 3

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

Question was fairly well answered, with scores ranging from 4 to 29 out of 35 marks. Candidates would have done much better had most of them been able to calculate the ADG and draw the graph satisfactorily in Questions 3.3.4 and 3.4.1 respectively.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

- Question 3.3.4 was poorly answered because learners could not work out the calculation even though the formula had been stated in the scenario as to how to calculate the Average Daily Gain (ADG). This could be attributed to poor reading skills as well as poor mathematical background of most candidates.

  Most of the few learners who could apply the formula did not indicate the units for the final answer.

- In Question 3.4.1, about 50% of the candidates could not plot the bar graph correctly. Most learners could not give an appropriate caption for the graph besides failing to label the axes.

  In certain cases learners drew line graphs instead of bar graph as required.

(c)	**Provide suggestions for improvement in relation to Teaching and Learning**
	• There is a dire need of exposing learners to a variety of graphs – line, bar, histogram, pie chart etc. Exercises on plotting and interpretation of graphs should be done regularly. • Learners should drilled on calculations involving Pearson Square, Nutritive Ratio, Digestibility Co-efficient and Selection Index.
(d)	**Describe any other specific observations relating to responses of learners**
	▪ In Question 3.1 learners could not interpret the relationship between production output and temperature by referring to the graph. The majority of learners interpreted it as an inverse relationship instead of a direct relationship. ▪ Question 3.2.1 demanded the transportation of animals in a truck, but learners' responses were mostly for movement of animals on the road. ▪ Though the formula for the calculation of the Average Daily Gain (ADG) was stated in Question 3.3.4, learners could not apply it appropriately. Several candidates got negative values resulting from subtracting he bigger number from the smaller value. The few learners who managed to get the correct answer could not give the correct units. ▪ 45 % of learners could not plot the graph in 3.4.1 correctly. Some drew line graphs, some bar graphs with one variable (price or Production) on the Y-axis, others price on the x-axis instead of years. A good number of candidates combined years and production on the X-axis. Some drew two separate graphs. Most learners neither gave the title / caption nor labeled Y/X-axes.
(e)	**Any other comments useful to teachers, subject advisors, teacher development etc.**
	▪ Organisation of workshops by Subject Advisors in the drawing and interpretation of graphs. ▪ Teachers must acquaint themselves with tools and equipment used in handling farm animals. ▪ Visits to Agricultural Research Institutions so as to be exposed to different farming enterprises.
QUESTION 4	
(a)	**General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?**
	• Question was fairly answered with an overall average of 17 marks. Low achievers averaged 8; mediocre averaged19 and top achievers averaged 25. Scores ranged between 04 and 32 out of 35 marks.

(b) Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
• In Question 4.1.1 most learners did not identify the two secondary sex organs instead they labelled parts A-E, resulting in the loss of marks. • Learners could not interpret the two graphs in Question 4.2, hence gave wrong answer to the day of ovulation. • It was apparent that learners did not know the meaning of epidemic in Question 4.4.3 so supplied a variety of responses which were far from the correct answer.
(c) Provide suggestions for improvement in relation to Teaching and Learning
• Subject advisors to organize courses to train educators in drawings of graphs. • Teachers must identify their own areas of weakness and seek help from other teachers. • Subject Advisors can arrange movement of experienced and capable teachers to from school to school to assist struggling teachers in these problematic areas.
(d) Describe any other specific observations relating to responses of learners
• Learners provided names of the parts of the female reproductive system in Question 4.1.1 instead of giving the letters used to label the parts. • Learners mentioned male instead of female reproductive organs. • Most learners gave the functions of the fallopian tube instead of the adaptations of the infundibulum. • A substantial number of learners instead of mentioning colostrum, gave the IsiXhosa name – umthubi, which is not acceptable.

(e)	**Any other comments useful to teachers, subject advisors, teacher development etc.**
	• Subject Advisors should be seen in schools and give the necessary support and guidance to teachers. • School management should monitor work schedule coverage and ensure that full coverage of the work is attained by the end of July to allow more time for revision. • Principals in conjunction District Officials to facilitate arrangements for field trips and excursions. It is equally necessary to arrange tours / field trips for educators within the District to buttress their knowledge in the subject to enrich their classroom delivery. • Career Days / exhibitions pertaining to Agricultural Sciences to be organised by Subject Advisors.

SIGNATURE OF CHIEF MARKER: _____