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| Agricultural and Horticultural Science2014 Chief Assessor's Report |



# Agricultural and Horticultural Science

# 2014 Chief Assessor’s Report

## Overview

Chief Assessors’ reports give an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, the quality of student performance, and any relevant statistical information.

## School Assessment

A total of twenty-nine students completed Agricultural and Horticultural Science this year. The standard of most work presented at moderation was good and teachers have heeded past moderator comments to produce sound tasks assessed at the correct level of the performance standards.

**Assessment Type 1: Investigation**

It was pleasing to observe several investigations where students had chosen topics of their own interest, displayed competent understanding of the key concepts from Topic 1: Experimental Design in the subject outline, and then presented very well-written reports using the correct scientific format.

Teachers need to reinforce to students the importance of the discussion section of their report. Students should analyse their results for any patterns that may emerge from their data and formulate a conclusion in the light of their original hypothesis. They should then evaluate their procedure by discussing aspects such as sample size and factors that could not be kept constant for all trials/samples, and then explain how these may have affected the results. From this discussion, students can then suggest relevant improvements and state how they may be able to improve the reliability or validity of the results.

Some students produced reports over the word-limit. Teachers should check student work before it is finalised to ensure that this does not happen, as words past the limit should not be assessed by the teacher and are not reviewed by moderators. Students should not include raw data in the main part of the report, it must be placed in an appendix. Student comments on the data must be placed in the body of the report as words in the appendices are not assessable.

It is recommended that students include, where appropriate, evidence of their design and practical skills, such as notes about preliminary investigations that led to their own design, photographs of their experiments/trials, self-reports of how they handled equipment, and teacher checklists of their ability to use equipment and work individually or collaboratively. This evidence can be used to assess specific features I1, I3, and A3.

As identified last year, teachers may find it useful to refer to the SACE website exemplar and to participate in cross-group assessment with other teachers of the subject to achieve greater consistency in interpreting and applying the performance standards for this assessment type.

**Assessment Type 2: Skills and Applications Tasks**

The moderators noted that while the work of several students displayed exceptional levels of competence and understanding, some tasks this year tended to be somewhat weaker in the analysis and evaluation assessment design criterion. When designing tests or selecting questions from past examinations, teachers should aim to include a range of question types including higher-order questions so that students have the opportunity to demonstrate their learning at the higher grade levels. Teachers are encouraged to consider including assessment tasks other than tests or practicals, as these may allow some students to apply their skills and knowledge in greater depth.

As with the investigations, evidence to support moderation of the teacher’s judgment of specific features I3 and A3 should be included with the student work. It is also recommended that a performance standards sheet be highlighted to identify the grades awarded to specific features in each assessment task to facilitate confirmation of grades during moderation.

## Operational Advice

School assessment tasks are set and marked by teachers. Teachers’ assessment decisions are reviewed by moderators. Teacher grades/marks should be evident on all student school assessment work.

## External Assessment

**Assessment Type 3: Examination**

Twenty-nine papers were marked this year, a further drop of nine students from last year. Examination marks out of a possible 120 ranged from 32 to 104 marks. The mean score for the examination rose this year to a pleasing 61%. As in previous years, students are reminded to read each question carefully before answering.

Part 1: Short-answer Questions (Questions 1 to 19)

The mean marks obtained for each question are presented in the table below, as an indication of how difficult students found individual questions.

|  |  |  |  |
| --- | --- | --- | --- |
| **Question** | **Maximum Mark** | **Mean Mark** | **Mean Mark (%)** |
| 1 | 5 | 2.97 | 59 |
| 2 | 6 | 3.34 | 56 |
| 3 | 6 | 3.86 | 64 |
| 4 | 3 | 1.66 | 55 |
| 5 | 6 | 3.45 | 57 |
| 6 | 6 | 4.07 | 68 |
| 7 | 6 | 4.14 | 69 |
| 8 | 5 | 3.97 | 79 |
| 9 | 8 | 4.48 | 56 |
| 10 | 5 | 1.72 | 34 |
| 11 | 3 | 2.17 | 72 |
| 12 | 7 | 3.90 | 56 |
| 13 | 4 | 2.45 | 61 |
| 14 | 7 | 4.07 | 58 |
| 15 | 3 | 1.90 | 63 |
| 16 | 5 | 3.31 | 66 |
| 17 | 5 | 3.07 | 61 |
| 18 | 7 | 4.97 | 71 |
| 19 | 3 | 1.90 | 63 |

*Question 1*

A majority of students selected either compaction or wind erosion and were able to describe causes and remediation methods satisfactorily. Most students avoided selecting sodicity, and so avoided confusing this problem with salinity.

*Question 2*

Several students gave good answers, but, as is often the case, the soil triangle calculation confused some.

*Question 3*

Most students had a reasonable understanding until part (d). Here the question refers to a physical method, and many students gave answers that did not address this aspect.

*Question 4*

This question was not well answered. Too many students failed to recognise the importance of including a legume break crop in the rotation, and only a few were able to articulate the benefit to be gained from including a deep-rooted crop in the rotation as well. Worryingly, several students suggested that option A was better than B or C because it did not have two successive years of barley being grown.

*Question 5*

Students were provided with the space to write a detailed explanation on the importance of pH to nutrient availability, microbial activity, and subsequent organic matter breakdown. A majority of students achieved 3 or 4 marks for this question since they could discuss the first two aspects, but then they failed to follow up on the importance of pH to the conditions necessary for organic matter breakdown processes to occur.

*Question 6*

A reasonable attempt was given by most students, though in part (c) many struggled to name two pasture grasses.

*Question 7*

Parts (a), (b), and (c) were generally well answered, though part (d) tended to cause more difficulties. Many students did not recognise that a free flow of oxygen into the plant tissues is required for respiration in the cells at night.

*Question 8*

This question was the best answered in the examination paper. Students were accurately able to name two macronutrients and explain a process by which they are taken up into the plant from the soil.

*Question 9*

Students generally were less sure of how a new variety of an asexually reproducing crop was produced, or how a commercial quantity would be generated. Those that understood the process scored well.

*Question 10*

This was the most poorly answered question of the paper. The poultry reproductive tract was poorly identified, with many students attempting to label it with mammal-specific terms. Despite the inclusion of the ‘prompting’ diagrams, few students correctly identified the function of the respective sections of the tract. The subject outline requires knowledge of the reproductive systems of the main types of animals in agricultural production, which includes poultry.

*Question 11*

This question had the second best mean of the paper; most students knew the parts and the functions of the testes.

*Question 12*

Students were mostly able to read the label and gain information from it, but then many had difficulty in answering the rest of the question.

*Question 13*

Students had a good understanding of both puberty and the role of the rumen in digestion of plant material in the diet.

*Question 14*

A majority of students did well in parts (a) and (b), but then struggled with parts (c) and (d). Many students only gave one benefit instead of two in part (d).

*Question 15*

This question was generally well answered. While students were not penalised for incorrect spelling of the yeast (providing it was intelligible), it would be appropriate to see greater emphasis on the correct spelling of common agricultural scientific names and terminology.

*Question 16*

This question was generally well answered, with most students understanding the processes to prevent food spoilage.

*Question 17*

This question was generally well answered.

*Question 18*

A majority of students gained 4 marks or more, and demonstrated a sound understanding of a fly lifecycle, agricultural problems caused by flies, and methods to overcome these issues.

*Question 19*

Generally well answered. A number of students put an ‘X’ on the roots of both plants — presumably without thinking, given that they then gave a correct written answer in part (b).

**Part 2: Extended-response Questions** (Questions 20 and 21)

Each extended-response question is marked out of 20, with 16 marks being allocated for content and 4 marks for communication. In awarding the communication mark, the following factors were taken into account:

* clarity and expression
* organisation and relevance
* correct use of agricultural and horticultural terminology.

This year all students attempted the extended response. For both questions, a majority of students were able to satisfactorily address the dot points required. Question 20 was marked for 11 students, with a mean mark of 11, while 18 students answered Question 21, with a mean mark of 13.

*Question 20*

Students tended to struggle with the first dot point despite the prompters in the opening sentence. They discussed mostly traditional issues such as rainfall and commodity prices. The second and third dot points were generally well considered. Again, the fourth dot point caused students to lose the focus of the question and students did not canvass the range of possible responses the prompts were intended to elicit. Students who only had time to list dot points were still able to receive marks for content, although their communication marks were lower.

*Question 21*

More students chose this question and it was preferred by the country students. Most students had a reasonable understanding of methods to alter the environment that lead to an improved agricultural outcome. The best answers addressed each dot point with clear and detailed examples.

Chief Assessor

Agricultural and Horticultural Science