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Agricultural and Horticultural Science

2015 Chief Assessor’s Report

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## 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.

## General Comments

A total of 34 students completed Agricultural and Horticultural Science this year, with most work displayed being of a pleasing standard. It remains pleasing to note that teachers have heeded past moderator comments and their standard of work samples is now much more appropriately assessed.

## School Assessment

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.

Assessment Type 1: Investigation

Investigations tended to be diverse in nature, with a mix between plant and animal investigations. Some investigations were deemed exceptional this year in their ingenuity.

A reminder that all investigations using animals or birds need to be carried out in an ethical manner, ideally approved by the relevant Animal Ethics Committee before proceeding. One or two of this year’s investigations were close to the boundary of good animal husbandry practice.

It was noted by the moderators that there were often lots of statistics provided by students, but the analysis of these statistics was lacking. Data added simply because it was collected is not useful, especially when no reference is made back to how it connects to the original hypothesis of the investigation.

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

The design of many tests continued to be weakest in the analysis and evaluation assessment design criteria. When designing tests or selecting questions from past exams, teachers should aim to include a number of higher-order questions so that students have the opportunity to demonstrate their learning at the higher grade levels.

Where deemed suitable, teachers are encouraged to include assessment tasks other than tests or practicals. Where possible, practicals should not be merely “reruns” of those that have been used in another subject. They also need to clearly assess the specific features and content of this course.

Teachers are again encouraged to use a performance standards table in the task sheet to indicate the grades achieved for the specific features assessed in the task. Where a student does not provide any evidence against a specific feature, this is recorded as an ‘I’ rather than an ‘E’, even though this does not appear on the rubric, which then feeds in to the overall grade awarded for the task.

## External Assessment

Assessment Type 3: Examination

Thirty four papers were marked this year, an increase of 5 students from last year. This year’s cohort achieved better exam results, with marks outs of a possible 120 ranging from 54 to 112. The mean score for the exam rose this year to a very pleasing 70%, which is the highest in almost a decade.

As in previous years, students are reminded to read the question carefully before answering.

Part 1: Short-answer Questions

The mean marks obtained for each question are presented in the table below. The mean mark % is in part a reflection of how difficult students found individual questions.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Mean % | 52 | 82 | 57 | 84 | 50 | 81 | 83 | 74 | 59 | 80 | 59 | 59 | 65 | 64 | 72 |

Question 1

Students struggled with this question. They displayed little knowledge of the internal structure of the wheat seed and relatively few made the connection between oxygen and cellular respiration to produce energy.

Question 2

This question was well done. Students understood clearly the differences between the monocotyledon and dicotyledon plants. A few students still struggled with the uptake of nutrients however.

Question 3

Students usually had an acceptable understanding of the two macronutrients required, with a greater number opting to discuss calcium than sulphur. Most knew why tissue culture was asexual in nature, but less could explain how it was used to propagate plants.

Question 4

This was the question in the paper that was answered most succesfully. Students had a good understanding of plant physiological processes, and could apply that understanding to part (d). This year most did well with the chemical equation for photosynthesis.

Question 5

This was the question students found most difficult in this year’s paper as too many simply stated information provided in the graph. Each section of this question required an explanation of the reason explaining the graphical data.

Question 6

This question was generally well-answered, in contrast to the previous question that required similar skills.

Question 7

Students were generally able to clearly distinguish between soil structure and soil texture. Students could interpret the earthworm graph effectively, and related how direct drilling could be of benefit to plant growth.

Question 8

A majority of students provided a suitable justification for this observation.

Question 9

Too many students did not clearly label the horizons requested. Given the large size of some student’s writing, a label next to two or three horizons was not given any marks. For those students who knew their soil profiles, they were able to label and explain the components of the horizon accurately, and expand on the reasons for the different colouration of the A2 horizon. A majority of students were able to logically explain the problems of shallow soil on plant growth.

Question 10

Students took advantage of the opportunity to write a longer response with less formal structure. The responses covered a range of factors, with a majority of students gaining either 3 or 4 marks for this question.

Question 11

Students tended to struggle with this question. They tended to give satisfactory answers to part (c), but had difficulty providing the soil chemistry that explains why gypsum can solve one problem but may lead to another problem, that of salinity.

Question 12

Students struggled to know the organs, and their roles, of the poultry digestive tract. Having explained the differences between poultry and pig digestive systems, more than a few students decided that the pig was a ruminant, highlighting the risk of learning rehearsed answers comparing digestive systems of a ruminant and a monogastric, rather than comprehending what the question is actually asking.

Question 13

The questions on ruminant digestion and function were generally satisfactorily completed.

Question 14

A majority of students answered the questions on sheep breeding well. It was disappointing that too many students could not successfully convert 150 days into 5 months and so accurately predict the estimated beginning of lambing.

Question 15

This question was generally well-answered, with most students capable of reading the tables and interpreting the data.

Part 2: Extended-response Questions

Questions 16 and 17

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. There was a relatively even split between the questions, with 20 students choosing question 16 and 14 choosing question 17. Both questions had a mean score of 15.3. For both questions, a majority of students were able to satisfactorily address the dot points required, achieving more highly than in most other questions.

However, this year it was noted that many students did not read the entire question thoroughly enough before beginning their answer. Taking that extra few seconds could have improved many responses, as the knowledge was clearly there, but the correct articulation often did not come through.

## 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.

Chief Assessor

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