2021 Agricultural Systems Subject Assessment Advice

Overview

Subject assessment advice, based on the 2021 assessment cycle, gives 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, and the quality of student performance.

Teachers should refer to the subject outline for specifications on content and learning requirements, and to the subject operational information for operational matters and key dates.

School Assessment

Assessment Type 1: Agricultural Reports

Students complete three agricultural reports. Two reports have a practical focus, and one report has a focus on science as a human endeavour, SHE, in an agricultural context. Both assessment design criteria, Investigation, Analysis and Evaluation, and Knowledge and Application, are used for this assessment type. Both practical reports and the SHE report have required specifications, which are described in the assessment section of the subject outline.

Student evidence in the Agricultural Reports should focus on the science inquiry skills, explain connections with science as a human endeavour and apply the key agricultural understandings. In at least one practical investigation, students deconstruct a problem and design a method to investigate one aspect of the problem. Students should trial and/or research aspects of their proposed design before they write their final method.

The more successful responses commonly:

* deconstructed open-ended problems that had several possible aspects to explore that allowed opportunities for individual design and investigation of an uncertain outcome
* provided evidence of individual design by using a unique layout and their own justification for the selection of equipment and various steps in the procedure
* used a concise, testable hypothesis, one independent variable and one dependent variable in practical investigations
* discussed trends and errors specifically in terms of the data collected in practical investigations
* had clear and succinct analysis and evaluation contained within the word count
* were able to suggest reasons for results that did not show a clear trend
* acknowledged the limitations of the conclusion by referring to the parameters of the investigation
* linked key SHE concepts specifically to aspects of the topic in the SHE investigation
* supported the discussion in the SHE investigation with substantial, relevant, and well-referenced research.

The less successful responses commonly:

* were limited by too much scaffolding in the task, such as specific questions to answer in the deconstruction and pre-formatted results tables
* had little opportunity to deconstruct a problem or develop an individual design
* rarely included justification of the design procedure
* stated potential errors without acknowledging the significance of these on the data collected and hence on the conclusion
* displayed a poor understanding of errors, mistakes, precision, and reliability of results
* responded to questions rather than discussing the actual data collected in a practical investigation
* did not explain the interaction between the relevant agricultural science and society in the SHE investigation.

Assessment Type 2: Applications

Students undertake three applications tasks, with at least one of these tasks done under direct teacher supervision within a maximum of 90 minutes of class time. Evidence should be presented for both assessment design criteria, Investigation, Analysis and Evaluation, and Knowledge and Application.

Student evidence in the Applications tasks should focus on the key agricultural understandings, apply science inquiry skills, and explain connections with science as a human endeavour.

The more successful responses commonly:

* used a variety of communication formats and included relevant diagrams, data, and images
* demonstrated deep levels understanding of concepts, application of knowledge and skills in new contexts and linked some aspects of topics to key SHE concepts.

The less successful responses commonly:

* responded to questions requiring predominately recall of learned facts and recording of information with little opportunity to demonstrate deep understanding, apply knowledge to new contexts or analyse agricultural practices.

External Assessment

Assessment Type 3: Experimental Investigation

Students conduct their own individual experimental investigation that is based on a specific aspect of animal or plant production systems. Thorough and proper consideration of animal ethics can mean that it is difficult to conduct a worthy experimental investigation using livestock. The teacher should guide students towards a suitable question and procedure during the drafting of the proposal. Students write a justification for their experimental design in the proposal. This should be more than simply describing what a procedure or piece of equipment is used for or including generic statements about randomisation and replication. It should provide evidence of their considered thought about the design and why certain methods/quantities/ sample sizes etc. are selected. Students need to source relevant secondary data that can be used during the analysis of their primary data.

The more successful responses commonly:

* included all assessable information within the word limit
* chose a narrow question to investigate, such as ‘what is the optimal (xxx) for the yield of crop (yyy)’, rather than ‘what is the effect of (xxx) on plant growth?’
* included information from research to explain the significance of the production system and characteristics of high-quality products
* used only one independent variable and one dependent variable
* justified the various parts of the design
* tested an aspect of an agricultural system that has not been widely researched before, using a unique design procedure
* explained agricultural concepts directly related to the topic under investigation
* wrote the proposal in the present tense
* summarised raw data for presentation in tables and graphs
* analysed data with reference to previous scientific studies
* discussed examples of bias that could occur if randomisation not undertaken and the potential effect on the results
* discussed the relevance of results in terms of ethical, economic, environmental, and/or political impacts on agricultural systems.

The less successful responses commonly:

* wrote a very simplistic method, beginning with ‘collect all materials’, that lacked details such as quantities, resulting a procedure that would be difficult to replicate
* used a simplistic dependent variable, like “plant growth” or “plant height,” which doesn’t have commercial relevance
* mentioned uncontrolled variables such as temperature and weather but did not explain what effect they would have on the dependent variable. Sometimes these factors were described as random errors when in fact all samples were exposed to the same conditions
* identified that randomisation and replication are important, but did not demonstrate an understanding of why they are important
* misunderstood the concept of random sampling, where every individual has an equal chance of being selected for testing
* exceeded the word limit for varying reasons, such as including much information in table format (which is included in the word count) and using more than one IV and/or DV (hence repeating similar information). Words beyond the word limit are not assessed and sometimes useful parts of the work cannot be assessed.
* included useful information, such as results, in appendices, which are not assessed
* wrote very simple statements when attempting to evaluate procedures.