VCE Agricultural and Horticultural Studies (2020–2025)

School-based Assessment report

General observations

This report provides advice for the first year of implementation of the VCE Agricultural and Horticultural Studies Study Design 2020–2025. The VCE Agricultural and Horticultural Studies Advice for teachers provides teaching and learning advice for Units 1 to 4 and assessment advice for school-based assessment in Units 3 and 4. Other support materials for the study can be found on the VCE Agricultural and Horticultural Studies study webpage on the VCAA website.

This report is based on the findings from the 2020 School-based Assessment Audit for Units 3 and 4 VCE Agricultural and Horticultural Studies. Schools providing the VCE must deliver the course to the standards established by the VCAA, ensure the integrity of student assessments and ensure compliance with the requirements of the VCAA for the relevant assessment program. For school-based assessment, the standards and requirements are stated in the assessment specifications set out in the relevant VCE study design and the [VCE assessment principles](https://www.vcaa.vic.edu.au/Documents/vce/VCE_assessment_principles.docx). The School-based Assessment Audit checks that the standards and requirements set out in study designs are being followed and that assessment is being carried out in line with the VCE assessment principles.

The School-assessed Coursework (SAC) tasks submitted through the audit showed that schools deliver practical tasks well as part of their teaching and learning programs. The evidence submitted demonstrated that a variety of practical tasks are undertaken according to the location and resources of the schools. All schools identified the start of the new accreditation period; however, many were unaware the accreditation period has been extended until 2025.

As a result of the coronavirus (COVID-19) pandemic in 2020 and students having to undertake remote and flexible learning, adjustments were made to the VCE Agricultural and Horticultural Studies Study Design for Unit 4 Outcome 2. This involved the deletion of some key knowledge and key skills dot points for the outcome and removal of the practical task/s related to sustainable business practices for student assessments. These adjustments were for 2020 only. Teachers must refer to the Agricultural and Horticultural Studies study webpage at the start of the school year for the current study design.

Areas for improvement included assessment tasks requiring problem-solving and evaluation skills. Schools should incorporate command terms from the key skills being assessed into the assessment tasks to ensure students are able to demonstrate the relevant key skills and key knowledge for the outcome.

Many schools did not provide enough detail when responding to the study-specific audit questionnaire. For example, many schools did not identify the pests, weeds and diseases being studied. These are listed in the study design. Additionally, questions relating to key knowledge dot points that are new to the reaccredited study design were not well addressed by schools. Schools are encouraged to refer to the study design when preparing their responses to the audit questionnaire, as well as throughout the development of their teaching and assessment programs.

Where schools are in partnerships, teachers should be mindful that schools must develop common criteria for assessment of their tasks. Assessment tasks do not need to be the same for each school in the partnership, but the tasks must be comparable in scope and demand so the common assessment criteria can be used to rank the students from both schools in the partnership as one student cohort. If schools in a partnership are using the same assessment task, it is also important that these be sat at the same time wherever possible to ensure information about the task cannot be shared between students attending different schools.

Schools are encouraged to consider issues of student workload. Assessment should be mainly completed in class and within a limited timeframe. Schools are reminded that key knowledge and key skills only need to be assessed once.

Overall, most schools provided evidence that showed their school-based assessment was in line with the VCE assessment principles; that is, tasks were valid and reasonable, reflected the requirements of the task types as listed in the study design, and were conducted under fair conditions for all students. Tasks were generally balanced, with schools using suitable assessment criteria or marking schemes to rank students and offering a variety of task types across the unit.

It is highly recommended that teachers cross-mark assessments with colleagues within the school or from another school.

Specific information

Unit 3: Securing the future

Outcome 1

Describe the role of innovation and technology in agricultural and horticultural practices, analyse past and current initiatives, including unforeseen consequences, and apply innovative processes to agricultural and/or horticultural practices.

Task type option/s

*Student performance will be assessed by:*

* *practical task/s related to innovative processes and/or problem solving in agriculture and/or horticulture.*

*AND*

*Any one or a combination of the following:*

* *a short written report: research inquiry, media analysis, case study analysis, or field/laboratory experiment*
* *an annotated visual report*
* *an oral presentation or practical demonstration*
* *a video or podcast.*

The key knowledge and key skills most commonly addressed in assessment tasks related to the role of innovation and technology in everyday agricultural and horticultural practices in Australia and past initiatives by Australian agricultural and/or horticultural industries to control a threat or problem. However, unfortunately most schools indicated that students conducted ‘research’ on these topics rather than being provided with opportunities for this content to be taught before assessment. It is important for schools to ensure specific content related to these key knowledge and key skills are taught before students are assessed.

The following content also was not covered well in the tasks, despite being integral to demonstration of the outcome:

* impacts of new and emerging innovations in Australia’s food and fibre industries
* current Australian agricultural and/or horticultural research projects and/or partnerships that aim to find solutions to the challenges of climate change
* techniques for measuring and assessing the effectiveness of innovations and/or technology in agricultural and/or horticultural practices
* points of view relating to safe, ethical and sustainable food and fibre production in Australia including genetically modified organisms, animal welfare and the use of pesticides and herbicides.

Assessment

Practical tasks are one of the task types that may be used for assessment of this outcome; however, in some cases, the specific skills they were addressing were missed in the questions/activities as they did not require students to demonstrate skills in innovative processes or problem-solving as required in the outcome. Likewise, there was limited evidence that the other assessment task for the outcome enabled students to demonstrate higher order skills such as justification and evaluation.

Many schools set students ‘research tasks’ for assessment that were very general in nature and did not provide enough instructions for students to demonstrate the indicated key skills. It is imperative that students are taught content before they are assessed and that the teaching program provides an opportunity for students to learn the key knowledge and key skills as specified in the study design. Specifically, the description of ‘research tasks’ did not provide enough evidence that the following content was taught prior to assessment:

* new and emerging technologies and its impact on agricultural and horticultural practices in Australia
* past initiatives by Australian agricultural and/or horticultural industries to control a threat or problem
* industry responses to various consumer demands for ethical and sustainable food and fibre production in Australia, specifically with regard to the dimensions of sustainability.

Many responses to the impacts of innovation and technology were too general: for example, stating ‘social, ‘financial’ or ‘economic’ rather than identifying specific impacts. This is likely due to content related to specific innovations and technologies not being explicitly taught to students.

Some assessment tasks used the suggested VCAA performance descriptors (SACs) as provided in the VCE Agricultural and Horticultural Studies Advice for teachers, but there was no evidence of these performance descriptors being modified to suit the requirements of specific assessment tasks set by the school. Often lower order command terms were used repetitively in assessment tasks rather than higher order command terms with a greater mark allocation that aligned with the key skills being assessed. Therefore, there was limited opportunities for students to demonstrate their understanding of content at the highest level. For example, the question ‘List four new or emerging technologies and describe how each works’ indicated the same key knowledge and key skill was being assessed for each new and emerging technology. When students ‘list and describe’ each technology, eight marks may be allocated, but the requirements of the task do not increase in complexity, nor does it require students to demonstrate higher order skills such as evaluating potential impacts of technology as required by the study design. It would be more efficient for assessment to focus on one or two new and emerging technologies and provide opportunities for students to gain eight marks with higher order thinking requirements to evaluate the potential impacts of one of the technologies identified. This would provide opportunities to better assist with ranking the student cohort.

Outcome 2

Identify and describe pests, diseases and weeds of concern to Victorian food and fibre industries, describe principles of integrated pest and weed management, analyse the problem of biological resistances and discuss the role of biosecurity.

Task type option/s

*Student performance will be assessed by:*

* *practical task/s related to integrated pest and/or weed management.*

*AND*

*Any one or a combination of the following:*

* *a short written report: research inquiry, media analysis, case study analysis, or field/laboratory experiment*
* *an annotated visual report*
* *an oral presentation or practical demonstration*
* *a video or podcast.*

Most schools were able to identify the pests, diseases and weeds that are listed in the study design. The following content was well covered:

* characteristics of the metabolic, metazoal and microbial pests and diseases that threaten Victorian agricultural and horticultural plants and/or animals
* strategies for prevention and control of the following common pests and diseases of plants and/or animals:
* pests: aphids; western flower thrips; intestinal worms
* diseases: footrot; fungal rusts; milk fever
* principles of integrated pest management
* strategies for prevention and control of the following weeds commonly affecting agricultural and/or horticultural production:
* flickweed; gorse; wild radish
* principles of integrated weed management.

However, many of the higher order thinking requirements of the associated key skills were not evident in the assessment tasks. For example, some tasks only asked students to describe common agricultural and/or horticultural pests, diseases and weeds but not explain their impact on the food and fibre industries. Likewise, other tasks only asked student to describe strategies of prevention and control for common agricultural and/or horticultural pests, diseases and weeds rather than discuss these strategies. It is imperative that assessment tasks provide opportunities for student to perform at the highest levels. Schools are encouraged to read the study design carefully to ensure the appropriate command terms are used in both the teaching and learning and assessment program.

The following content was not covered well, despite being integral to demonstration of the outcome:

* reasons for, impacts of, and strategies to combat biological resistance to herbicides, pesticides and antibiotics in Australian food and fibre industries
* the role of national and property biosecurity measures and laws governing Australian agriculture and horticulture
* investigation and application of principles of integrated pest and weed management for measuring and controlling risk factors in agriculture and/or horticulture
* demonstration of practical tasks concerning integrated pest and weed management
* analysis of potential solutions to the problem of biological resistances in agriculture and/or horticulture
* explanation of national and property biosecurity measures and laws affecting Australian agriculture and horticulture.

As mentioned previously, most schools were aware of the pests, weeds and diseases listed in the study design that need to be studied. But there was evidence that not all the listed pests, weeds and/or diseases were being studied and/or those being studied were not found in the study design. In particular, there was evidence that some schools determined their own list using local pests, diseases and weeds; this was especially evident for weeds, but there was also evidence of pests and diseases not listed in the study design being assessed. Unfortunately, this indicated that some teachers did not know what pests, weeds or diseases need to be studied, or that all those listed in the study design need to be taught. In addition, biological resistance and biosecurity was often missing from many responses, and there was limited evidence of the key laws around biosecurity.

Assessment

The assessment needs to provide opportunities for students to perform at the highest level. The tasks often required students to only describe the pests, weeds and diseases, but they should also be able to explain their impact on agricultural and horticultural practices. Opportunities for students to investigate integrated approaches and analyse solutions to problems around biological resistance were also often overlooked.

There was limited evidence that assessment tasks used the suggested VCAA performance descriptors (SACs) as provided in the *VCE Agricultural and Horticultural Studies Advice for teachers*, and there was no evidence of these performance descriptors being modified to suit the requirements of specific assessment tasks devised by schools. Weightings provided for the assessment often did not reflect the complexity required. As in Outcome 1, often lower order command terms were used repetitively in assessment tasks rather than using higher order command terms with greater mark allocations. Use of higher order thinking command terms to contribute to greater weighting of questions would better assist with ranking the student cohort.

Unit 4: Sustainable food and fibre production

Outcome 1

Analyse the impacts of climate change and environmental degradation on food and fibre production, evaluate strategies for environmental protection and rehabilitation, and discuss techniques for monitoring the sustainability of agricultural and/or horticultural practices.

Task type option/s

*Student performance will be assessed by:*

* *practical task/s related to sustainable management of land and/or water.*

*AND*

*Any one or a combination of the following:*

* *a short written report: research inquiry, media analysis, case study analysis, or field/laboratory experiment*
* *an annotated visual report*
* *an oral presentation or practical demonstration*
* *a video or podcast.*

The key knowledge and key skills most commonly addressed in assessment tasks related to the impacts of climate change on food and fibre production and types of environmental degradation. Most schools indicated that students would conduct research and identification of different degradations. Land degradation related to erosion, salinity, waterlogging, compaction and soil acidity, and water quality issues related to acidity or alkalinity (pH); electrical conductivity (EC) and turbidity were generally addressed through this research. Soil nutrient depletion and levels of nitrogen, phosphorus and dissolved oxygen in water were not generally addressed adequately or at all. There was limited evidence of content related to land degradation and water quality issues being taught prior to students conducting research. It is important for schools to ensure specific content related to these key knowledge and key skills are taught and that schools are not solely relying on students conducting research as part of assessment without explicit teaching instruction.

The following content was not covered well in the tasks, despite being integral to demonstration of the outcome:

* sustainable strategies in agricultural and/or horticultural industries to address the impacts of climate change
* the role of sustainable property management in determining appropriate land use
* sustainable strategies in agricultural and/or horticultural industries to manage and conserve water and finite energy resources
* techniques and rationale for environmental control and modification in agriculture and/or horticulture: modification of microclimate; soil or growing media; topography.

Assessment

As in Unit 3, lower order command terms were used repetitively in assessment tasks rather than higher order command terms with a greater mark allocation. Assessments also mainly required students to list or recall answers, often from past VCAA exams, rather than investigating, evaluating and analysing content as detailed in the key skills. SAC tasks should contain a range of question types (from lower through to medium and higher order questions) to enable students to demonstrate different levels of achievement. This would provide opportunities to better assist with ranking the student cohort. Questions from past VCAA examinations are not suitable for school-based assessment tasks as these are in the public domain and create authentication issues.

There was limited evidence that assessment tasks used the suggested VCAA performance descriptors (SACs) as provided in the *VCE Agricultural and Horticultural Studies Advice for teachers*, and there was no evidence of these performance descriptors being modified to suit the requirements of specific assessment tasks devised by schools.

Outcome 2

Analyse dimensions of sustainability concepts across the food and fibre supply chain, evaluate strategies to improve the sustainability of agricultural and/or horticultural businesses, and discuss the role of dimensions of sustainability in business practices.

Task type option/s

*Student performance will be assessed by:*

* *practical task/s related to sustainable business practices.*

*AND*

*Any one or a combination of the following:*

* *a short written report: research inquiry, media analysis, case study analysis, or field/laboratory experiment*
* *an annotated visual report*
* *an oral presentation or practical demonstration*
* *a video or podcast.*

Please note that due to the coronavirus (COVID-19) pandemic in 2020, adjustments were made to the *VCE Agricultural and Horticultural Studies Study Design* for Unit 4 Outcome 2. This involved the deletion of some key knowledge and key skills dot points for the outcome and removal of the practical task/s related to sustainable business practices for student assessments. These adjustmentswere for 2020 only. Teachers must refer to the Agricultural and Horticultural Studies study webpage at the start of the school year for the current study design.

The key knowledge and key skills most commonly addressed in assessment tasks related to aspects of the challenges and opportunities presented by dimensions of sustainability across the food and fibre supply chain, and strategies for broadening markets for food and fibre produce. Most schools addressed content related to food provenance, food safety standards and value adding in assessment tasks. Carbon footprint, healthy rural and regional communities, safe work practices, commodity prices for primary producers, growing for export, and targeting niche markets were not addressed adequately or at all.

The following content was not covered well in the tasks, despite being integral to demonstration of the outcome:

* social, economic and environmental sustainability and ethical considerations as related to agricultural and horticultural business practices
* evaluate agricultural and/or horticultural business practices by applying dimensions of sustainability and ethical considerations.

Assessment

Opportunities for students to perform at the highest level were often limited in the assessment tasks − lower order command terms were used too often rather than higher order command terms aligned to the key skills being assessed. Many tasks were also inefficient as they required students to list or recall answers and so assessed the same key knowledge and key skill, rather than enabling students to investigate, evaluate and/or analyse content as detailed in the key skills. SAC tasks need to contain a range of question types, from lower through to medium and higher order questions, to enable students to demonstrate different levels of achievement, and so provide opportunities to better assist with ranking the student cohort. Questions from past VCAA examinations were often used for school-based assessment; these questions are not suitable as they are in the public domain and so create authentication issues.

The VCAA performance descriptors are not mandated but do provide guidance for teachers in developing suitable marking schemes. There was limited evidence that assessment tasks used the performance descriptors, and there was no evidence of these performance descriptors being modified to suit the requirements of specific assessment tasks devised by schools.