

2025 ASSESSMENT REPORT

AGR315117 AGRICULTURAL SYSTEMS

The external assessment consists of two main reports:

1. Agribusiness Case Study (Unit 6)
2. Agricultural Technologies – Engineering Solution Project Folio (Unit 5).

The [Agricultural Systems External Assessment Specifications](#) in the Supporting documents on the TASC AGR315117 course page provides important advice for students about presentation of the folio, such as work requirements, or the minimum word limit for the Agribusiness Case Study and the maximum page length for the Engineering Solution Project Folio. These word and page limits do not include references.

In 2025, each folio was assessed against the following criteria and elements:

- **Agribusiness Case Study**
 - Criterion 2 (Elements 3, 4, 5, 7) – Analyse physical and biological systems that support sustainable agricultural production
 - Criterion 5 (All Elements 1-6) – Assess general business principles and decision-making processes involved in sustainable farm management and marketing of farm products
 - Criterion 9 (Elements 2-5, 7, 8, 9) – Explain the impact of innovation, ethics, and current issues on Australian agricultural systems. (NB Not Elements 1 [biotechnology in food and fibre] or 6 [reasons for adopting emerging technologies] as not repeatedly relevant to be assessed externally).
- **Agricultural Technologies – Engineering Design Solution Project Folio**
 - Criterion 6 (Elements 1, 2, 7) – Examine technologies and technological innovations employed in the production and marketing of agricultural products (NB Elements 3, 4, 5, not relevant to all projects)
 - Criterion 8 (all Elements) – Apply appropriate engineering principles to agricultural problems and situations
 - Criterion 9 (Elements 6, 7, 8, 9) – Explain the impact of innovations, ethics, and current issues on Australian agricultural systems.

STEM dimensions

The four STEM dimensions – Science, Technology, Engineering, and Mathematics – must be considered as they are an important aspect of the external examinable components of this course. In the Agricultural case study, a systematic approach to documenting the production inputs, outputs, risks, factors of quantity, quality and sustainability, as well as financial choices that impact upon data-driven decision-making are also important. In the engineering solution project folio, demonstrating the impact of agricultural technologies, evaluating reasons for determining what is technological innovation and scientific research in the engineering systems-thinking are vital. Also, demonstrating that design-thinking cycles with the use of mathematical/computational, scientific, or graphical methods or other digital tools throughout the process is essential.

Primary and secondary reference sources

Each folio must contain reference to primary information and sources, and not be based upon secondary knowledge. Primary information may include interviews, opinion surveys, observations, measurements, sampling data, or other recorded data.

Referencing

In both folios, Criterion 9, Elements 7, 8, and 9 are the ethical elements for clearly differentiating the methodologies and work of others. There is further reference following in the folio component. Careful referencing is a critical component of Criterion 9 in both sections of a successful examination folio.

Referencing conventions include:

- Using the author/date format for in-text citations.
- In primary research style, when using personal communications, pay attention to labelling own tables and figures, as well as own images taken to support the folio work. Names can be used of the agribusiness or engineering owner, if permission has been received. If own work, replace name with the TASC candidate number (date), giving a title of the image, table or chart, or the description: 'Personal communication, date, or title of survey response.
- Organising the reference list in alphabetical order by the author or organisation name.
- Understanding the distinction between a reference list (which includes only sources cited in the folio) and a bibliography (which lists all sources consulted).
- The author/date systems – APA 7th ed. or Harvard referencing style is recommended in the TASC External Assessment Specifications.

For Agricultural studies, the preferred referencing style is typically APA. Clear and accurate referencing not only strengthens the credibility of the work but also demonstrates an ethical and high-level of academic integrity, particularly if generative AI has been used, being those elements which are essential for success in this subject. Examiners will check to ensure that every source referenced in the text appears in the reference list and vice versa, and that students have paid attention to punctuation, italics, and capitalisation as required by APA style. Successful candidates achieved this to a high degree, setting the tone and reflecting the authenticity and meticulous effort demonstrated in both sections.

Writing style and folio lengths

Specific report writing styles, including tone, language, and different formats are required for the two sections – the engineering design solution and the case study. The tone, language, and format required for case studies and design briefs differ significantly from those used in English subject essays. These distinctions are not always understood, so it's essential for students to be explicitly taught these expectations. For example:

- **Agribusiness case studies** use a *professional* and objective tone, with clear and concise language, focussing on explanations and analyses with evidence-based conclusions. Marketing information or brochure-type tones should be avoided. Authentic in-person access to a farming enterprise in the Tasmanian agricultural industry is required by this course. Online case studies from other states or overseas where only virtual access is possible is not a viable part of this current course.

- **Engineering design solutions** maintain a **technical** and precise tone, emphasising clarity, accuracy and detail in the design elements, perspective, dimensions, prototypes, other diagrams, or calculations aligned with standard design practices. Engineering design is an “iterative process”, with guiding steps from problem identification to designing, testing and re-designing improvements for a solution. The specifications about the sections to be included and the length of the folio are important, and examiners respect a word count or page numbering. Less successful students often failed to fully utilise the available word limit and did not include a word count as required by the External Assessment Specifications.

General Comments

Successful and high-achieving students ensured that they:

- utilised the full complement of the word count or expected page length for each section and acknowledged who provided varied sources of information such as charts, diagrams, and photographs, with all these accurately identified, labelled or attributed/referenced.
- addressed all the appropriate elements of the criteria, making explicit reference to the area being referenced, even where this may not have been evident in the agribusiness.
- provided reports specifically referenced and provided examples of the four STEM dimensions and their application in productive, innovative, or sustainable agricultural systems.
- used checklists to ensure all relevant or required elements were addressed.
- meticulously proof-read, making effective use of data to interpret financial information, inputs and outputs, or rates of change, or design changes, and who were specific rather than generalised in their problem analysis of the agribusiness selected or the engineering design solution pursued.
- used and reported on a full range of communication types: email, interviews, face-to-face discussions, phone conversations or website/blog feedback to support their case study or the investigations, internet search of existing products, or results and feedback on their engineering solution.
- were precise, accurate and methodical in their referencing conventions, including in-text conventions, and reference lists or bibliographies.

Both sections of an objective and external assessment are equally important, so allowing time to seek feedback from a second read, or time to refine ideas and conclusions are vital steps to bringing the work to a high standard of completion.

Folio Components

Agribusiness Case Study

Each case study considers a farm or agribusiness, firstly as a business and then as a part of a wider agri-business sector. The following points are crucial for making a case study effective:

- collecting, describing, explaining, analysing, and synthesising the data
- including essential sustainability and climate data relevant for that business context
- presenting the information in effective formats
- making the report of an agricultural enterprise interesting to read.

The use of graphical information is encouraged in this section. Successful candidates effectively incorporated diagrams, charts, and graphs to illustrate key points, enhancing the reader's understanding of the case study. These students used commentary to bridge the gap between raw data and personal communications with the agribusiness owner/s views and experiences. By providing context, clarifications, and insights, they ensured that their visual elements were meaningful and supported their overall narrative. In contrast, weaker candidates presented data and figures in isolation, without the necessary explanation, narrative, or analysis of an actual physical context or geographic location. Examiners noted that successful students went beyond mere presentation of data; they analysed it thoughtfully, identified patterns, and drew meaningful conclusions. This demonstrated a deep understanding of the implications of the figures and reflected a higher level of intellectual or empathetic engagement with the agricultural industry and its sustainability.

The high-achieving students displayed their critical thinking by linking their analysis back to the project's aims and outcomes, which earned them higher assessments than simply describing or assessing and explaining. Conversely, less successful candidates often relied on broad, generic, or internet-sourced marketing and descriptive statements that lacked specific relevance to their physical location or agribusiness context. This approach suggested they were merely attempting to meet criteria without genuinely engaging with the business, resulting in lower assessments.

Criterion 2

Analyse physical and biological systems that support sustainable agricultural production. References to climate variability and its effect on agricultural production, strategies for biosecurity, a substantial commentary on the relevant physical, chemical, and biological properties of soil, air and water and their impact on the property must be evident. Some analysis giving reference to the tensions between sustainability and short-term profitability in farming is worthwhile.

Criterion 5

Assess the general business principles and decision-making processes involved in sustainable farm management and marketing of farm products. This is an important criterion as all elements are externally assessed. This calls for an overview of the dynamic elements of farming. All these factors need to be specific, as gleaned through both analysis of data, reports and conversations with the agribusiness owner/s. It requires good planning, drafting, editing, and decision-making about what to include in the word limit to highlight the most important information in the most interesting and informative means available.

Government influences need to be factored in, such as legislation, regulations, loans and taxes along with the marketing chain, and the scheduling of operations in the production cycle.

An analysis of the financial markers, metrics, indicators or assumptions, predictions of a sustainable enterprise; either sometimes, and only where applicable, enable a calculation or estimation of a gross margin. Commercial-in-confidence business assessments and privacy regulations are appreciated. Candidates need to make decisions with the agribusiness proprietor/s about how much detail from management accounts really needs to be shared or retabulated.

Criterion 9

Explain the impact of innovation, ethics, and current issues on Australian agricultural systems. The examiners focus their attention on reference to long-term climate variability, water storage and water resources, and the effect of greenhouse gases on atmospheric temperature and climate change.

The candidate must differentiate the information, images, and words of others, such as the agribusiness owner from their own. Adherence to referencing conventions is also important and reporting research evidence in practice, whether in-text or again in the alphabetical reference list adds to the impact of the agribusiness standard case study.

Engineering Solution Project Folio

It was evident that successful students had made effective use of the TASC External Assessment Specifications to consider the requirements of their engineering solution to:

- generate a design solution
- use technology skills, processes, and systems
- apply management and planning skills to an engineering challenge
- implement risk assessment and mitigation strategies
- evaluate and justify engineering solutions
- suggest modifications and improvements to the engineered solution.

The project folio outlines and explains the engineering design and development and must reflect these design cycle stages:

- a design brief (problem/challenge, background, requirements, and limitations)
- research (analysis/comparison, survey, feedback)
- concept sketches, notes, annotations
- tools, materials, techniques, and experiments/prototype/testing
- production stages
- evaluation of outcomes (of requirements from initial design brief).

Successful students began by presenting a well-considered design brief where they demonstrated a clear understanding of the TASC External Assessment Specifications, often providing an introduction or overview of the problem, the environment, and a clear problem statement before detailing the design brief. Recognising the importance of the design brief in guiding the project, these students researched and applied the principles of effective design briefs, using them to outline the project requirements for minimising environmental impact, making cost savings in labour, materials or energy, improvements to animal welfare, or alignment with government targets.

To support their work, these students included detailed project timelines and utilised project management tools such as Gantt charts. The most effective submissions supplemented these visual representations with commentary, interpreting the figures given, contextualising the data, and explaining its significance. In the evaluation phase, successful students demonstrated their ability to critically assess their work. They sought feedback from teachers, industry professionals, neighbours, or family members to validate and improve their designs, thereby enhancing the credibility and practicality of their solutions. Measurement data was provided to evaluate the

effectiveness of their solutions, with commentary and reflections that offered insight into the outcomes. These students concluded their projects with a summary of their objectives, the extent to which they were achieved, and an overall assessment of their design's effectiveness.

Methodologies and methods allow for the application of scientific data, and mathematical thinking or engineering concepts to meet the standards of technology use or innovation. Resources will be materials, parts and production techniques in defined timelines. Marking criteria and work requirements for testing and re-testing models or prototypes require a minimum a scale model or perspective-drawn 2D sketches or a rendered illustration using computer aided design (CAD) illustrations for non-physical models, or computer aided manufacturing (CAM) to produce full size or scaled 3D models to provide the testing data. Poorly drawn figures or direct screenshots or cropped images of existing internet-sourced products without justification or a referenced URL source to the manufacturer result in lower assessments.

Criterion 6

In examining the technologies and innovations in the production and marketing of agricultural products, students needed to identify the 3 elements – examine or evaluate the ongoing research, the impact of technologies on production or marketing as well as the impact of any new developments that will assist the agricultural industries. Examples often included the development and use of biotechnology in food production, including reference to any new regulations. As climate plays a crucial role in agricultural production and research, evidence needed could be provided to explain the impact of the long-term climate variability, with La Niña and El Niño. Care is needed in referencing and using authoritative sources of information.

Criterion 8

This is an important criterion where all seven (7) elements may be appropriate engineering principles to apply to problems or situations. Students with successful folios were concerned with the word limit and made use of appendices to provide supplementary or tabulated information. These might include figures, tables, maps, photographs, raw data, computer programs, interview questions, sample questionnaires to be referenced as supplementary information in the body of the folio. Setting out to solve a routine or non-routine problem, it is useful to consider reflecting on these elements as design cycle questions, such as what is the justification to design a new solution? Where is the evidence? What evaluation criteria will be used? Have the measurements been interpreted well? Are the work, health and safety procedures going to be acceptable? How can some risk mitigation strategies be implemented? Or, how can modifications be made and tested to optimise performance?

Criterion 9

Explaining the impact of innovations, ethics and current issues on Australian agricultural systems is the focus. External assessment of this criterion focuses on Element 6 and how well the student has evaluated reasons for adopting emerging technologies and explained their impact in agriculture. Elements 7, 8 and 9 address the referencing conventions and how the student has differentiated the information, images, and ideas and words of others from their own.

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2025 FOLIO MARKING GUIDELINES

TASC ID: _____

Agribusiness case study (Criteria 2,5,9)

Criterion 2: analyse physical and biological systems that support sustainable agricultural production Elements: 3, 4, 5, 7 (NB not 6)		
Rating A	Rating B	Rating C
analyses implications of climate variability for agricultural production	explains implications of climate variability for agricultural production	describes implications of climate variability for agricultural production
evaluates the principles and strategies of biosecurity measures used in food and fibre production	describes the principles and strategies of biosecurity measures used in food and fibre production	identifies the principles and strategies of biosecurity measures used in food and fibre production
analyses the physical, chemical and biological properties of soil, air or water and how they relate to agriculture	describes the physical, chemical and biological properties of soil, air or water and how they relate to agriculture	identifies the physical, chemical and biological properties of soil, air or water and how they relate to agriculture
analyses tensions between sustainability and short-term profitability in farming systems	explains tensions between sustainability and short-term profitability in farming systems.	describes tensions between sustainability and short-term profitability in farming systems.

Criterion 5: assess general business principles and decision-making processes involved in sustainable farm management and marketing of farm products

All Elements

Rating A	Rating B	Rating C
analyses financial pressures that may impact on farmers including the irregular nature of income, high expenditure on inputs, the dynamic nature of markets and interest rates and risk management	assesses financial pressures that may impact on farmers including the irregular nature of income, high expenditure on inputs, the dynamic nature of markets and interest rates and risk management	describes financial pressures that may impact on farmers including the irregular nature of income, high expenditure on inputs, the dynamic nature of markets and interest rates and risk management
applies techniques to analyse the financial situation of a farm enterprise including calculating gross margin and return to capital	applies techniques to interpret the financial situation of a farm enterprise including calculating gross margin and return to capital	uses techniques to identify the financial situation of a farm enterprise including calculating gross margin and return to capital
evaluates government influence on the production and marketing of an agricultural product such as legislation, regulations, codes of practice, low cost loans, tax incentives	explains government influence on the production and marketing of an agricultural product such as legislation, regulations, codes of practice, low cost loans, tax incentives	describes government influence on the production and marketing of an agricultural product such as legislation, regulations, codes of practice, low cost loans, tax incentives
determines and justifies the marketing chain for an agricultural product	explains various marketing options for an agricultural product	describes various marketing options for an agricultural product
schedules the timing of operations in a production cycle to meet market specifications	explains the management strategies used to assess and meet market specifications	describes market specifications for an agricultural product
analyses marketing information such as a sales report for an agricultural product.	interprets marketing information such as a sales report for an agricultural product.	describes marketing information such as a sales report for an agricultural product.

Criterion 9: explain the impact of innovation, ethics and current issues on Australian agricultural systems

All Elements

Rating A	Rating B	Rating C
analyses research evidence in relation to long-term climate variability, and explains implications for agricultural production including the impact of La Niña and El Niño	explains implications of climate variability for agricultural production including the impact of La Niña and El Niño	describes implications of climate variability for agricultural production, including the impact of La Niña and El Niño
analyses methods used to store and trade water resources	explains methods used to store and trade water resources	describes methods used to store and trade water resources
issues related to water storage and trading including river flows and aquifer depletion	explains issues related to water storage and trading including river flows and aquifer depletion	describes issues related to water storage and trading including river flows and aquifer depletion
explains the effect of greenhouse gases on atmospheric temperature and climate change	identifies and describes sources of greenhouse gas emissions	identifies carbon dioxide, methane and nitrous oxides as the three main greenhouse gases
clearly differentiates the information, images, ideas and words of others from the learner's own	clearly differentiates the information, images, ideas and words of others from the learner's own	differentiates the information, images, ideas and words of others from the learner's own
referencing conventions and methodologies are followed with a high degree of accuracy	referencing conventions and methodologies are followed correctly	referencing conventions and methodologies are generally followed correctly
creates appropriate, well -structured reference lists/bibliographies.	creates appropriate, structured reference lists/bibliographies.	creates appropriate reference lists/bibliographies.

Work requirements and instructions to markers

Evidences of learner work requirements from External Examination Specification as well as course standards

Agribusiness case study - Is it a case study approach? to analyse ... investigate the factors that influence the enterprise ... collect and evaluate the following data to determine which factors have influenced the business:

- the inputs into the production
- production processes and timelines
- risks involved with the production process
- environmental considerations such as waste minimisation strategies, climatic influences
- outputs – both intended and unintended
- external eg government factors that influenced the operation of the small business project
- budgeting – planned and actual
- marketing of products
- success of the business and aspects for future improvement.
- report (2000 - 3000 words). **Is Word Count provided?**

Engineering Solution Project Folio (Criteria 6,8,9)

Criterion 6: examine technologies and technological innovations employed in the production and marketing of agricultural products Elements: 1,2 7		
Rating A	Rating B	Rating C
evaluates the role of ongoing research related to agricultural industries	examines the role of ongoing research related to agricultural industries	describes implications of climate variability for agricultural production
evaluates recent technologies and their impact on agricultural production and/or marketing	describes recent technologies and their impact on agricultural production and/or marketing	identifies the principles and strategies of biosecurity measures used in food and fibre production
evaluates a range of new technological developments that may assist agricultural industries.	examines a range of new technological developments that may assist agricultural industries	identifies the physical, chemical and biological properties of soil, air or water and how they relate to agriculture

Criterion 8: apply appropriate engineering principles to agricultural problems and situations
All Elements

Rating A	Rating B	Rating C
solves routine or non-routine problems, generates, justifies and evaluates creative design solutions	solves routine problems and generates creative design solutions	solves routine problems and generates design solutions
uses and develops a wide range of technology skills, processes and systems to enable the detailed production of quality engineering solutions and maintains appropriate WHS procedures	uses and develops a range of technology skills, processes and systems to enable the detailed production of quality engineering solutions and maintains appropriate WHS procedures	uses technology skills, processes and systems, to enable the production of engineering solutions and maintains appropriate WHS procedures
evaluates and justifies engineering solutions with supportive evidence	applies engineering solutions with supportive evidence	describes engineering solutions with some justification
applies management and planning skills related to engineering	explains management and planning skills related to engineering	describes management and planning skills related to engineering
implements risk assessment and mitigation strategies across all stages of a project	implements risk assessment and mitigation strategies in appropriate contexts	implements risk assessment and mitigation strategies with guidance
evaluates system through interpretation of measurements, and use of their established evaluation criteria	tests, measures, diagnoses, repairs or modifies, and records appropriate system parameters to optimise system performance	undertakes a limited range of tests, measures, diagnoses, modifications, and records to improve system performance
identifies and undertakes modifications, analysing and justifying the factors which have influenced the development of the system and its use.	identifies and undertakes modifications, justifying the factors which have influenced the development of the system and its use.	suggests modifications and improvements; and identifies how the factors that influenced the development of the system and its use have been taken into account.

Criterion 9: explain the impact of innovation, ethics and current issues on Australian agricultural systems**Elements: 6, 8, 9**

Rating A	Rating B	Rating C
evaluates reasons for adopting emerging technologies and their impact in agriculture	explains reasons for adopting emerging technologies in agriculture	describes reasons for adopting emerging technologies in agriculture
clearly differentiates the information, images, ideas and words of others from the learner's own	clearly differentiates the information, images, ideas and words of others from the learner's own	differentiates the information, images, ideas and words of others from the learner's own
referencing conventions and methodologies are followed with a high degree of accuracy	referencing conventions and methodologies are followed correctly	referencing conventions and methodologies are generally followed correctly
creates appropriate, well structured reference lists/bibliographies.	creates appropriate, structured reference lists/bibliographies.	creates appropriate reference lists/bibliographies.

Work requirements and instructions to markers

UNIT 5: AGRICULTURAL TECHNOLOGIES

Research into Technological Developments

selected innovation on the sustainability of a specific agricultural and/or horticultural business. They:

- describe and **critique current technologies and management** practices used in a specific agricultural and/or horticultural operation
- analyse the **drivers that influence the adoption of new or emerging technologies**
- **undertake research** to analyse new or emerging technologies
- compare **current with new and emerging technologies** and management practices, and assess **their impacts on the sustainability** of an agricultural and/or a horticultural business
- select and justify appropriate **new or emerging technologies** for a specific agricultural and/or horticultural business and evaluate their likely social, economic and environmental impacts.

Engineering solution

Learners develop an engineering solution to an agricultural problem or situation using **existing or emerging technologies**. They: generate a **design solution**, use **technology skills, processes and systems**, apply management and planning skills to an **engineering challenge**, implement **risk assessment and** mitigation strategies, evaluate and justify engineering solutions, suggest modifications and improvements to the engineered solution.

Project folio must reflect: a design brief (problem/challenge, background, requirements and limitations) research (analysis/comparison, survey, feedback), concept sketches, notes, annotations, tools, materials, techniques and experiments/prototype/testing, production stages, evaluation of outcomes (of requirements from initial design brief).

MAXIMUM of 20 pages length - are pages numbered?

Each section of the folio must contain reference to primary information and not be based solely on secondary knowledge:

- Expert interviews
- Surveys of agricultural management practices
- Observations
- Measurements or sampling data
- Data recorded to indicate: o Resource use o Impacts of resource use • Consumer opinion surveys