

# 2025 NCEA Assessment Report

<b>Subject:</b>	Agricultural and Horticultural Science
<b>Level:</b>	2
<b>Achievement standard(s):</b>	91290, 91294, 91297

## General commentary

The three examination papers were designed to allow candidates to demonstrate their understanding of livestock, crops, and land uses relevant to a familiar area or region within New Zealand that they had studied throughout the year. They were required to also integrate real-world, up-to-date knowledge into their responses. Candidates were encouraged to provide specific supporting evidence to strengthen their explanations to achieve a higher grade.

## Report on individual achievement standard(s)

### **Achievement standard 91290: Demonstrate understanding of techniques used to modify physical factors of the environment for NZ plant production**

#### Assessment

This assessment expected candidates to show their understanding of how physical factors were managed and had an impact on commercial production systems in New Zealand. Candidates had the ability to choose their management practices and production systems in two of the three questions. The assessments prompted high-quality responses, as candidates were able to demonstrate what they knew.

#### Commentary

Candidates who achieved higher grades, were able to make clear links between their chosen crop and how the management practice altered physical factors, and therefore had an impact on plant growth. Many candidates made clear links to plant growing processes and showed good understanding of how a range of management practices impacted aspects of quality, timing, quantity, and economics of production.

#### Grade awarding

Candidates who were awarded **Achievement** commonly:

- defined the management practice and physical factor within their answer
- described how management practices that modified physical factors were carried out, with explicit mention of the physical factors
- used production systems with products that are commercially grown in New Zealand
- selected a relevant management practice for the chosen production system
- made some reference to changes to plant growth and / or plant processes, such as transpiration and photosynthesis.

Candidates who were awarded **Achievement with Merit** commonly:

- explained in detail, making clear links between the management practice, the modified physical factors of the environment, and how it had an impact on plant growth
- explained how modification of the physical factors had an impact on plant growing processes, such as an increase in reaction rate, more ATP / energy for growth, or improved fruit ripening
- chose a management practice that was relevant to both the production type and the physical factor of the environment.

Candidates who were awarded **Achievement with Excellence** commonly:

- showed clear understanding of a range of production systems, and management practices that were used to modify physical factors with clear, explained references to plant growth
- justified the use of management practices by identifying strengths and weaknesses of different management practices
- provided clear evidence of how the modification of the physical factor had an impact on crop quality, quantity, timing and / or economics of production. This included evidence relevant to the production type, e.g. being able to grow summer fruit year round, or increased sugar levels due to more sunlight.

Candidates who were awarded **Not Achieved** commonly:

- did not describe how management practices influenced the environment
- chose management practices that were not relevant to their chosen production system, e.g. kiwifruit in a greenhouse
- used a production system that did not suit the chosen management practice
- did not answer all parts or an entire question.

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## **Achievement standard 91294: Demonstrate understanding of how NZ commercial management practices influence livestock growth and development**

### Assessment

This assessment required candidates to show their understanding of how management practices have an impact on livestock growth and development. Candidates were required to respond to three questions that assessed their understanding of the growth and development of three different livestock groups that were impacted by the effects of breeding, a named health issue, and stress.

### Commentary

Overall, candidates that used livestock such as sheep, beef cattle, deer, chickens, and pigs were able to make clear links between their chosen management practices. Some candidates that used dairy cattle and horses did not make effective links between how the management practice influenced quality, quantity, and timing. When referencing growth and development, candidates are encouraged to ensure they are naming a measurable aspect of growth and development. Some examples may include the age of the animal at maturity, growth rate in terms of grams or kilograms per day, feed conversion ratio, growth curves, or tissue development, such as muscle, bone, and fat. Candidates that produced detailed responses gave specific evidence about their chosen livestock or product, and in many cases linked the management practice, and growth and development back to nutrient intake.

## Grade awarding

Candidates who were awarded **Achievement** commonly:

- described how management practices that impact livestock growth and development were carried out
- used a range of different livestock groups, and choose management practices that were relevant to their chosen livestock class
- attempted to link the management practice to how it impacts growth and development.

Candidates who were awarded **Achievement with Merit** commonly:

- made clear links between the management practice and how it impacted livestock growth and development
- referenced an aspect of growth and development, such as tissue development, growth rates, and feed conversion ratios.
- used specific examples that were relevant to their chosen livestock group.

Candidates who were awarded **Achievement with Excellence** commonly:

- demonstrated clear understanding of a range of livestock groups and management practices that were used to increase growth and development
- justified the use of the management practices by identifying strengths and weaknesses of the management practice
- provided clear evidence of how the management practice had an impact on product quality, quantity, timing and / or economics of production. This included evidence relevant to the production type, e.g. lambs receiving a premium price prior to Christmas, or a high pH in meat having a negative impact on quality.

Candidates who were awarded **Not Achieved** commonly:

- did not describe how management practices were carried out, or only briefly described what the management practice was
- used a livestock class more than once.
- answered some parts of questions or left entire questions blank.

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## Achievement standard 91297: Demonstrate understanding of land use for primary production in New Zealand

### Assessment

This examination allowed candidates to show their understanding of traditional, current, and future land uses in New Zealand through discussing contexts that they covered throughout the year.

### Commentary

Candidates that achieved well in this standard had a broad understanding of primary production land use across New Zealand and had an understanding on what land use trends are occurring in New Zealand currently.

## Grade awarding

Candidates who were awarded **Achievement** commonly:

- described, in simple terms, how factors determined land use in different areas of New Zealand
- presented evidence of how economic, environmental and / or social factors influenced land use
- named appropriate land use types and / or regions.

Candidates who were awarded **Achievement with Merit** commonly:

- made clear links between the chosen land use, named regions and factors within that region (environmental, economic, political, workforce etc) that allowed or supported the success of that land use
- chose regions, or primary production land use types, which suited the question, e.g. dairy farming and Canterbury requiring high irrigation
- included specific qualitative and quantitative data to support a good explanation.

Candidates who were awarded **Achievement with Excellence** commonly:

- showed clear understanding of how a range of factors influenced primary production land use types in different regions of New Zealand
- justified land use types in different parts of New Zealand by identifying strengths and weaknesses of the land use in relation to a significant region and named factors
- demonstrated a broad understanding of factors across New Zealand, and within specific regions, which influenced both current and future land use
- linked factors to land use and future challenges that may arise in New Zealand primary production industries
- included evidence and detail specific to the primary production type or region throughout the response.

Candidates who were awarded **Not Achieved** commonly:

- did not demonstrate an understanding of what the factors that influenced land use were
  - used primary production types that were not relevant, or misidentified regions where the production type was not commonly grown
  - answered some parts of questions, or left entire questions blank.
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