

2024 NCEA Assessment Report

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

General commentary

The questioning style throughout all three assessments allowed candidates to demonstrate their own understanding of livestock, crops, and land uses relevant to a familiar area / region around New Zealand that they had studied throughout the year.

Candidates who provided specific evidence to support their response attained higher grades.

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 required candidates to show their understanding of how farmers and growers can modify the growing environment through techniques to improve plant growth, yield, quantity, and timing. The focus was on methods and benefit of shelter; the impact and prevention of frost; and the management of water in soils.

Commentary

This assessment provided plenty of opportunity for candidates to demonstrate their own understanding of what has been assessed by bringing their own contexts, management practices or techniques. Candidates who applied a context to the question were able to give more specific evidence for the impact of the physical factor being discussed, which allowed them to attain a higher grade.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- could describe how management practices influenced the environment
- made some reference to changes to plant growth and / or plant processes such as transpiration and photosynthesis
- attempted all of the questions.

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

- explained using detail about how the attributes of the management practices influenced plant growth
- explained in detail how the management practices modified the physical factor(s) of the environment.

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

- discussed how a selected method of shelter impacted the environment and improved the quality of the chosen plant production system
- evaluated the use of one method of frost prevention over an alternative by discussing the social implications and impacts on quantity produced
- discussed the use of a water management practice that modifies the physical environment to improve plant yield and profitability.

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

- described management practices, and their influence on the environment in insufficient detail
- chose management practices that were not relevant to their chosen production system, e.g. apple trees in glasshouses
- provided responses that may have been rote learned.

Achievement standard 92194: Demonstrate understanding of how NZ commercial management practices influence livestock growth and development

Assessment

This assessment required candidates to show their understanding of how farmers can influence and enhance livestock growth and development through preventing ill health; understanding how pasture quality and quantity changes throughout the year; and the positives and negatives of indoor housing. Candidates were required to link their knowledge of management practices to how it improves the quantity, quality, timing and economics of production of livestock, or end product.

Commentary

Candidates had the opportunity to choose their own livestock as well as a management practice to fit the context of each question. Some candidates explained animal health management practices rather than ways of monitoring animal growth and development. Candidates who explained how changes to pasture growth influence growth and development rather than how animals feed requirements changed through their lifecycle did well. Candidates who provided specific explanations and included data were able to attain higher grades.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described how a grower monitors their chosen livestock's growth and development
- explained how pasture growth and quality change throughout the year
- described the ideal environment for growth and development.

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

- established clear links between the management practice, and how it increased the growth and development of the animal
- explained the impact on the growth and development by linking the management practice to at least one measure of growth and development, e.g. increased muscle mass, more fat, faster to reach maturity
- included data or made reference to specific markets / timing that allowed a farmer to increase production
- chose appropriate livestock or management practices relevant to the question.

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

- discussed how prevention of illness / disease influenced economics of production and timing of products, compared to treatment
- discussed how a chosen management practice improved crop production, which improved growth and development in regards to the quality and quantity of livestock products, and the economics of production
- discussed the issues indoor housing may cause in regards to quality and quantity of products, and the impact on economics of production.

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

- explained an animal health management practice rather than a method of monitoring
- explained how pasture growth and quality changes throughout the year without specific details
- provided an insufficient response to describe the ideal environment for growth and development of their chosen species.

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

Assessment

This assessment required candidates to show their understanding of the reasons behind traditional, current and future land use change in New Zealand. Candidates applied their understanding of the reasons behind retaining traditional land use and why a farmer / grower may diversify with an additional land use. Candidates then applied their understanding of environmental requirements for production in a selected area, and the challenges involved in setting up a new land use in a new region. Finally, candidates discussed how a selected land use change ensured sustainability for erosion prone land.

Commentary

Candidates were given opportunity throughout the assessment to demonstrate their understanding of land use in familiar contexts. Candidates who provided specific evidence regarding the regions chosen did well. Candidates who wrote about diversification rather than a full change of land use could not achieve higher grades. Candidates who did well also explained why or how factors made land use more suitable, i.e. by linking rainfall to plant requirements such as photosynthesis.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- explained why a region has been traditionally used for a specified land use
- explained the environmental requirements for land used for fruit production
- explained how either forestry or native bush ensured the sustainability of erosion prone land.

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

- explained using detail why a region has been traditionally used for a specified land use
- explained in detail the environmental requirements for land used for fruit production
- explained with specific evidence how either forestry or native bush ensured the sustainability of erosion prone land.

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

- discussed why a producer might diversify their land use to support their income / current land use in terms of economic and workforce factors
- discussed the challenges faced when changed to a new land use in a new region for both economic and workforce factors
- discussed how either forestry or native bush would ensure the long-term sustainability of erosion-prone land in regards to both political and social factors.

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

- provided responses about traditional land use with insufficient detail
 - did not explain the environmental requirements for land used for fruit production
 - focused on political and social reasons without explaining how forestry and native bush ensured sustainability of erosion prone land.
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