

2023 NCEA Assessment Report

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

General commentary

Assessments for standards 91290, 91294, 91297 provided ample opportunity for candidates to demonstrate their own understanding of livestock, crops, and land uses relevant to their own area / region or familiar areas / regions around New Zealand.

Candidates who were successful, were able to read and interpret questions carefully before committing to their answers to ensure that they answered the question fully in all three papers.

All candidates should take care to read the question carefully to determine whether they are required to provide reasons or justifications for using their management practice.

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 for the 2023 assessment was on commercial greenhouses, irrigation systems, and light.

Commentary

This assessment gave candidates the opportunity to demonstrate their own understanding through the open nature of the questions. There were no limits to the number of crops that could have been discussed by candidates.

Candidates should be encouraged to focus on the positive aspect of modifying an environment to improve plant yield, quality and timing. An excellence response would be able to talk about negative impacts of modification while still being able to justify its use.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described either a physical factor or how a technique improved a factor in a chosen plant production unit
- described how the technique improved plant processes.

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

- explained at least one factor or how a technique improved one factor in a chosen plant production unit
- explained how this factor improved the process of photosynthesis, transpiration or respiration and therefore, impacted on plant production.

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

- gave reasons for the choice of a chosen technique(s) due to its influence on quality, quantity or timing of the produce being grown
- used their understanding to make inferences about how the factor influences economics, the physical environment or its impact on society. Many candidates could expand further into discussions about the environmental sustainability.

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

- could not describe or could only partially describe how a factor was able to be improved in a plant production unit.

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

Assessment

This examination required candidates to show their understanding of how farmers can influence and enhance livestock growth and development through feeding, good animal health practices, and through breeding. Candidates were required to link their knowledge of management practices to how they improve the quantity, quality, timing, and economics of production of livestock or end product.

Commentary

Candidates were given the choice of both their livestock and particular management practice. This allowed candidates to focus on a livestock that has familiarity and relevance to them. This resulted in a range of response quality. In Question One, candidates focused on how the feeding of animals changed during different life stages, rather than how and why these changes occurred. In Question Two, some candidates were not able to correctly identify livestock health practices, such as stating that the drench makes an animal immune, or that vaccinations kill bacteria. Candidates should provide more specific explanation as to how growth and development is impacted.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- were able to explain a chosen livestock's growth and development changes from birth until harvest and why these occur
- wrote about how feeding changed during an animal's life cycle but did not articulate the reasons and its impact.

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

- explained how a chosen livestock's growth and development changes from birth to harvest and why these changes occur
- explained in detail how animal health practices has a positive impact on livestock growth and development
- explained in detail how a breeding practice impacted on growth and development.

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

- discussed the management practices a grower uses to match feed demand with seasonal changes by linking growth and development
- discussed how effective an animal health practice is by explaining how the growth, and development improvements, impacted on the quality or products and economics of production
- discussed how the use of a specified breed practice impacted growth and development compared to an alternative, by explaining the impacts on quality and quantity of the livestock produced.

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

- wrote general answers or provided insufficient detail.

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

Assessment

This examination required candidates to show their understanding of the reasons behind traditional, current and future land use in New Zealand. Candidates applied their understanding of the reasons behind traditional land use, and why a farmer / grower may change to a new production type. Candidates wrote about the implications of reducing the conversions of farmland to housing, changing land use over the last 20 years, and how it might change in the future.

Commentary

Candidates were given opportunity throughout the examination to demonstrate their understanding of land use in familiar contexts. Candidates were able to list factors influencing land use but did not explain how or why this made it more suitable, for example, by linking rainfall to plant requirements, such as photosynthesis.

Candidates commonly provided answers that did not contain evidence that matched the questions and overall candidates needed to have more specific evidence regarding the regions that they had chosen.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- wrote down the factors influencing land use but did not write the reasons for their chosen land use.

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

- explained the reasons for a traditional land use and changes in the past 20 years.

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

- discussed why a producer might change land use with reference to two factors – economic, political and / or environmental
- discussed why councils would not rezone farmland for urban use in terms of economic and political factors
- analysed how factors such as political, social and / or workforce might affect a specified land use in the future.

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

- gave very general, non-specific answers such as 'good rainfall'
 - did not explain the factors that caused land use to change in the past 20 years.
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