



New Zealand Qualifications Authority
Mana Tohu Matauranga O Aotearoa

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Assessment Report

Level 2 Agricultural and Horticultural Science 2016

Standards [91290](#) [91294](#) [91297](#)

Part B: Report on Standards

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

Candidates who were awarded **Achievement** commonly:

- understood how spreading effluent modifies the physical factors of the soil
- described one drought management practice
- demonstrated understanding of a hail cannon or hail gun and how it could reduce the impact of hail.

Candidates who were assessed as **Not Achieved** commonly:

- showed limited understanding of what effluent is and how its application modifies the physical factors of the soil
- showed limited understanding of where effluent comes from and common practices of its use on a dairy farm
- had no understanding of a hail cannon or hail gun
- could not explain a drought management technique sufficiently.

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

- understood how effluent affects plant production with specific reference to plant processes and / or growth rates.
- explained in detail how a hail-prevention technique, such as a hail cannon, modifies physical factors of the environment relating to plant processes, and / or the growth, and production of plants and fruit crops.

- showed an in-depth understanding of drought management techniques, specifically, how they affect plant processes.

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

- demonstrated a good understanding of the spreading of effluent on a dairy farm and could explain its potential in the reduction of the purchasing of artificial fertiliser.
- understood how effluent can have a negative effect on the environment if not used with caution.
- comprehensively understood how covers could be used to improve fruit crop yield, making strong links to social and economic factors
- compared the use of covers with an alternative hail prevention method.

Standard-specific comments

Some candidates responded to scaffolded questions well, such as question 1 and 2. However, candidates need to be prepared to respond to a variety of question types, such as question 3 which was not structured with as many parts.

Question 1 asked about how the addition of organic matter (specifically effluent) affects plant production and plant yield. Some candidates gave poor answers in relation to plant processes and growth rates.

Question 2 asked about an alternative technique to the use of covers in the reduction of the impact of hail on fruit crops. Many candidates wrote effectively about hail cannons or guns. However, some listed alternative techniques that were too similar to covers or not regarded as a feasible alternative. For example, plastic cloth or glasshouses.

Candidates who gained an Excellence in this question were effective in comparing covers with hail cannons and made strong references to the social and economic impact.

Question 3 asked for a description of the effect of drought on plant production. Many candidates answered this effectively, making links to plant processes, but were less effective with growth rates.

When asked to explain two drought management techniques a producer could use to reduce the impact of drought, many candidates wrote in detail about one management technique, but some explained the second technique only briefly, or not at all.

When asked to explain how each technique affects plant processes and reduces the impact of timing, quality, and yield of crops produced, some candidates were unable to effectively explain how each technique reduced the impact on the timing, quality and yield of crops.

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

development

Candidates who were awarded **Achievement** commonly:

- attempted all question parts
- applied basic growth and development principles to the context used
- understood how calving ease affected livestock growth and development
- understood how NAIT tagging is used to monitor health, growth and development
- understood how deer farmers minimise damage to velvet.

Candidates who were assessed as **Not Achieved** commonly:

- did not answer all questions
- could not describe how the management practice was carried out
- did not link the management practice to improved growth rates
- repeated the information given in the question without elaborating any further
- focused on how low calf birthweight and calving ease affected the heifer and not the calf
- did not know what NAIT tags were or their purpose
- did not understand deer velvet management.

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

- wrote extended answers to demonstrate knowledge of growth and development principles and linked these to growth rate
- showed in-depth understanding of sire selection and how calving ease improves growth and development of the calf
- showed in in-depth understanding of NAIT ear tagging and how these could be used to improve livestock growth and development
- showed an in-depth understanding of how minimising the potential damage to velvet ensures good growth and development, and quality
- linked improved feed utilisation and energy intake with improved livestock growth rate on velvet growth and / or quality
- wrote extended answers to demonstrate knowledge.

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

- gave justifications in terms of the economic return to the farmer for all management practices
- showed comprehensive understanding of sire selection and how calving ease improves calf survival
- linked increased calf survival to reduced labour or veterinary costs
- linked increased calf survival to increased profit
- comprehensively understood how NAIT benefits the national cattle or deer herd
- did not limit their explanation to the farmer's herd
- comprehensively understood how deer velvet is harvested to ensure a high-quality export product

- linked the velvet harvesting practices to improved international market perception and therefore improved product value.

Standard-specific comments

Candidates who did not understand NAIT did not have the knowledge to reach Excellence, however with an understanding of basic “cattle identification systems” candidates were able to gain Achievement or Merit.

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

Candidates who were awarded **Achievement** commonly:

- attempted all questions
- understood the processes affecting the use of land for primary production.

Candidates who were assessed as **Not Achieved** commonly:

- did not answer all the questions or repeated the stem of the question without adding any more information
- demonstrated a poor understanding of the question.

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

- gave reasons for the actions of the farmers or growers
- had an in-depth knowledge of apple harvesting and / or horticulture in general
- linked weather effects with an economic downturn and the use of this knowledge to future proof their businesses.

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

- had a comprehensive horticultural knowledge and linked this to economic outcomes
- justified their reasons fully, for the actions of the industry participants and alternative outcomes
- considered the effect on the export market if production levels were to alter significantly.

Standard-specific comments

Some candidates found it difficult to structure their answers to show understanding of the context.

Candidates are encouraged to answer the question being asked. For example, describing the reasons for increasing efficiency rather than for decreasing apple production.

At this level, candidates should be able to discuss consequences rather than simply describe a technique.

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