

National Certificate of Educational Achievement

2014 Assessment Report

Agricultural and Horticultural Science Level 2

- 91290 Demonstrate understanding of techniques used to modify physical factors of the environment for New Zealand plant production**
- 91294 Demonstrate understanding of how New Zealand commercial management practices influence livestock growth and development**
- 91297 Demonstrate understanding of land use for primary production in New Zealand**

COMMENTARY

Candidates need to ensure that they use the terminology associated with the standard and that they use it in the correct manner. Terms like wilted, soil air ratio, photosynthesis, glucose, carbohydrates, transpiration need to be used and explained. Colloquialisms should not be used, such as plants drowning, feeding plants water, and plants are thirsty.

It is important to understand how New Zealand's primary industries have developed in the past 100 years. Candidates need an understanding of why our early settlers chose different industries in different locations around New Zealand. They also need an understanding of the reasons why these industries have changed over the last one hundred years due to environmental, economic, social or political conditions.

STANDARD REPORTS

91290 Demonstrate understanding of techniques used to modify physical factors of the environment for New Zealand plant production

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:

- described how plastic or glasshouses modified carbon dioxide and humidity for commercial nursery production
- showed how shelter belts modified physical factors in commercial fruit production
- understood how an irrigation technique can improve the physical factors of the environment for an export vegetable root crop.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:

- partially or insufficiently described how an irrigation technique can improve the physical factors of the environment for an export vegetable root crop
- partially or insufficiently showed how shelter belts modified physical factors in commercial fruit production
- partially or insufficiently described how plastic or glasshouses modified carbon dioxide and humidity for commercial nursery production
- misunderstood the meaning of key words, such as physical factors and environmental impacts
- showed a narrow understanding of the standard
- gave only one physical factor when two were required
- did not show any understanding of the physical factors associated with protected environments, shelter belts and irrigation
- rewrote the question in the answer without supplying any further information.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:

- linked the physical factor in the question with how it affected plant production
- explained how shelter belts improves the timing of harvest in commercial fruit production by referring to plant processes and plant growth
- demonstrated an understanding of how carbon dioxide and humidity improves commercial nursery production in terms of plant quality
- provided an explanation how a gun irrigator can increase yield of the vegetable root crop
- showed how irrigation increases export vegetable root crop production to allow an increased root production yield, in relation to plant processes and plant growth.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:

- were able to give well thought out answers demonstrating thinking when comparing the preferred technique over another technique based on environmental and economic impacts
- justified the preferred technique by comparing alternative techniques which could be used
- fully explained all reasons, with comprehensive and integrated supporting evidence
- justified the use of water scheduling over using gun irrigation to modify physical factors of the environment for export vegetable root crop production, in terms of the economics of management
- compared and contrasted plastic and glasshouses for improved plant growth and quality in nursery production for environmental and economic impacts
- justified the use of natural shelter belt over the use of shelter cloth in the production of fruit, by explaining why natural shelter belts are likely to provide fewer environmental impacts.

91294 Demonstrate understanding of how New Zealand commercial management practices influence livestock growth and development

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:

- understood how indoor protective environments and their related practices affect livestock growth and development
- understood how the knowledge obtained from weighing could be used to improve growth and development
- understood how fencing systems could be used to improve livestock growth and development.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:

- discussed the exam questions from an animal ethics perspective rather than an Agricultural one
- confused “happiness” with level of stress
- did not relate the data obtained from weighting to managing the feed requirements of the livestock
- did not describe how the management practice affected livestock growth rate.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:

- wrote extended answers to demonstrate knowledge
- showed in-depth understanding of farrowing practices
- linked weighing with improving the quality or quantity of livestock
- linked fencing systems with improving the quantity or quality of livestock
- showed an in-depth understanding of pasture utilisation
- showed an in depth understanding of purpose-built housing
- linked purpose built housing with improving the quality or quantity of livestock.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:

- showed comprehensive understanding of farrowing practices and accurately explained the impacts on quantity and economics of production
- showed comprehensive understanding of how the information obtained from weighing livestock can be used to make management decisions that improve the quantity and quality of livestock produced
- showed comprehensive understanding of how purpose-built housing systems improve the quality and quantity of livestock
- gave justification in terms of economic return to the farmer.

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

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They commonly:

- were able to explain environmental and economic reasons why land in the Marlborough region was historically used for primary production, and reasons why it is being converted to viticulture
- provided ideas as to how technological and economic factors are affecting the intensification of developing the land or explained how farmers who have access to long term water supplies were able to increase the use of their land

- were able to explain some economic reasons why farmers are using steep hill country for grazing animals, and some political reasons for changing the use of steep hill country.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They commonly:

- did not read the question carefully and wrote answers that did not address the question
- did not provide enough information in their answers
- did not understand the words environmental, economic or social conditions.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit commonly:

- explained in detail environmental conditions (e.g. sunshine hours, mm of rain, soil type) and economic conditions (e.g. prices of lamb, milk, land) and give reasons why land in the Marlborough region was traditionally used for primary production, or gave reasons why it is being converted to viticulture (e.g. increased population, export sales, tourism, highly specialised work force)
- explained in detail how technological and economic factors are affecting the intensification of developing the land or explained how farmers who have access to long term water supplies were able to increase the use of their land in terms of the environment (e.g. loss of land, flooding of the land, potential increase production); economic (e.g. increased production means increased profit, for a longer period of time) or social (increased employment, increased population)
- explained in detail some economic reasons why farmers are using steep hill country for grazing animals, (e.g. fine micron Merino wool, export figures for meat, wool, velvet etc.) and some political reasons (erosion, biodiversity, clean green image, recreational sports etc.) for changing the use of steep hill country.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence commonly:

- were able to justify the continuing trend in converting land to viticulture over traditional land use in the Marlborough region. Advantages and disadvantages were discussed and conclusions drawn in terms of economic and workforce considerations
- were able to justify that changing land use on steep hill country to conservation land will have on the farmers economic return and on the environment. Students statements were supported with accurate data from a range of sources such as the Resource Management Act, high country tenure review, fine wool export figures, tourism numbers etc.
- provided an analyse of the advantages and disadvantages of how a long term water supply will increase the intensification of land use. Economic, environmental and social aspects were considered. Candidates supplied evidence such as potential increased income per hectare, drought statistics for the years 2006 and 2009 and recreational/social activities associated with the water to support their answers.