

National Certificate of Educational Achievement

2012 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

For 91290 and 91294, candidates generally attempted all questions and had a far better standard of responses than previous years. For 91297, most schools are still understanding the requirements of this new standard.

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 typically:

- understood how irrigation modifies the physical factors of the soil
- described how a glasshouse modifies light, temperature, or humidity
- were able to describe how summer pruning or reflective mulch modifies light.

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 typically:

- did not attempt the entire paper
- wrote incorrect or incomplete answers
- rewrote the question in the answer without supplying any further information
- did not show any understanding of the physical factors of humidity, light, temperature, water or soil.

ACHIEVEMENT WITH MERIT

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

- linked the physical factor in the question with how it affected plant production
- explained how summer pruning or reflective mulch helps in the production of high quality fruit by referring to plant processes and/or ripening
- demonstrated an understanding of how light, temperature, or humidity modification improves plant production
- provided an explanation why high-value export crops are grown in a glasshouse
- showed how irrigation increases pasture production through plant processes and referred to the quality and quantity of the pasture grown.

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 typically:

- read and understood what the excellence question required

- were able to give well thought out answers demonstrating thinking when comparing the preferred technique over another technique based on environmental and economic reasons
- justified the preferred technique by comparing alternative techniques which could be used
- fully explained all reasons, with comprehensive and integrated supporting evidence.

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 typically:

- attempted all questions
- understood how maturity rate affected growth and development
- showed a knowledge of weaning management practices
- understood how feeding affected 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 typically:

- did not answer all questions
- showed a narrow understanding of common cattle breeds
- misunderstood the meaning 'pre-slaughter management practices'
- misunderstood the affect of castration on growth rate
- showed little understanding of the stock and pasture management practices.

ACHIEVEMENT WITH MERIT

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

- wrote extended answers to demonstrate knowledge
- showed in-depth understanding of the significance of maturity and hardiness for breed selection
- linked breed selection to suitability for the high country
- linked an understanding of nutrition and hormones to carcass quality
- showed an in-depth understanding of pasture management practices and linked energy or protein to growth rate.

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 typically:

- expanded on maturity rate to make extended comparisons between breeds and their suitability to different environmental and regional conditions

- showed comprehensive understanding of weaning and drafting processes and their affect on carcass quality
- gave justification in terms of economic return to the farmer
- provided sound and wide-ranging supporting evidence to justify the use of two pasture management practices.

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 typically:

- showed an understanding of New Zealand's farming past, present and possible future directions
- provided generalised ideas on how two factors affected the dairy, hill country, or kiwifruit industries
- were aware of the environmental impact of dairying
- gave evidence of how the use of technology impacts on hill country farming
- could relate a viable alternative land use for kiwifruit based on similar growth habits (fruit trees or grapes) or environmental factors (climate and topography).

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 typically:

- wrote only superficial explanations as to why there are increased dairy farms in terms of 'them make more money'
- misunderstood the terms society and social and wrote answers concerning only workload of the farmer rather than employment and prosperity of the nation/community
- failed to read Question Three (a) sufficiently well so did not provide a viable alternative land use for the kiwifruit orchards.

ACHIEVEMENT WITH MERIT

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

- had a good level of knowledge of how prices for milk solids had changed over the recent few years, and historically
- were able to compare the impact on the environment of dairying with the positives gained for the economy/society
- understood that methane emissions from livestock increase the levels of greenhouse gasses and that nitrates from fertiliser runoff lead to eutrophication of waterways
- understood that the marginal hill country in the North Island is being farmed as intensively as it can be due to topography, climate, soil types, transportation or distance to markets
- explained the benefits of staying with kiwifruit production in terms of infrastructure in the Bay of Plenty.

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 typically:

- were accurate in terms of providing up to date costs and returns for a wide range of primary products such as milk solids, lamb schedules and stocking rates
- evaluated how the increased number of dairy cows impact on the New Zealand economy, environment and society and provided arguments for or against the increased number
- provided well thought through reasons why hill country farming remains much as it has done in the past with sheep, cattle and deer
- could evaluate the economic returns with the lifestyle that farming livestock on hill country offers to those who farm it semi-extensively
- fully justified how and why remaining to grow kiwifruit was the most viable choice to make in terms of the reduced income (hopefully only for a short time), the advances that are likely to be made with new strains of kiwifruit or management practices which will mitigate the effect of Psa-V, and the impact on the community of Bay of Plenty.

OTHER COMMENTS

Having a good understanding of how New Zealand has come to be such a strong farming nation is important. Candidates need to be aware of what has occurred in the past, why we have the different industries located in the regions they are, and possible alternatives to these, depending on the impact of changing consumer demand or environmental change.