

Assessment Schedule – 2025**Agricultural and Horticultural Science: Demonstrate understanding of land use for primary production in New Zealand (91297)****Assessment Criteria**

Achievement	Achievement with Merit	Achievement with Excellence
Explains the factors that determine traditional, current, and future land use for primary production in New Zealand.	Explains in detail the factors that determine traditional, current, and future land use for primary production in New Zealand.	Evaluates the factors that determine traditional, current, and future land use for primary production in New Zealand. This may involve justifying, comparing and contrasting, and analysing.

Evidence

Question ONE	Sample evidence	Achievement	Achievement with Merit	Achievement with Excellence
(a)	<p><i>Explain how environmental and economic factors have influenced the decision to irrigate your chosen land use.</i></p> <p>Example: Region – Canterbury Primary production – Dairy</p> <p>Economic Irrigation has allowed farmers to manipulate their environment conditions, which has allowed for higher pasture growth leading to intensified dairy farming in Canterbury. This has meant farmers have increased their income due to a significant number of dairy farmers converting from sheep. Dairy farming has been significantly more profitable than sheep over the past 30 years in New Zealand. Irrigation also allows for farmers to mitigate economic loss during dry periods, meaning their business is more resilient, which is beneficial to both the farmer and local community.</p> <p>Environmental The Canterbury Plains have a relatively low rainfall average per year of 500–700 mm, which is less than many other parts of New Zealand. Due to long, dry summers, irrigation is required to maintain pasture growth over the year for successful dairy production. The soils are also stony, and therefore very well drained. Poor water availability in summer increases the need for irrigation to ensure the success of dairy as a land use in this region.</p>	Explains the factors that support current land use.	Explains in detail the factors that support current land use. Explains BOTH factors. A region incorrectly identified can be ignored if the candidate has clearly described the economic and environmental success.	

<p>(b)</p>	<p><i>Discuss whether irrigation of your chosen land use can continue sustainably into the future.</i></p> <p>Irrigate sustainably</p> <p>Centre-pivot irrigation technology allows farmers to artificially apply water to pastures at a sustainable rate based on the soil type and soil moisture. This means that excessive water is not applied to the soil and only a sufficient amount based on the soil's requirement.</p> <p>Social</p> <p>This means that less water is being taken from underground aquifers and rivers, which allows them to regenerate quicker, or not be reduced to levels that have a negative impact on freshwater ecology. This would allow farmers to continue irrigating pasture to maintain dairy farming within a region into the future, ensuring longer-term sustainability. Taking water from a waterway that is used by people for recreation will negatively impact on users of the river.</p> <p>Political</p> <p>Social pressure is put on government to make decisions that influence land-use decisions. They must strike a balance between economic development, as well as protecting people's social and cultural connections with waterways. Irrigation dams alter the natural waterway, which will have impacts downstream if not managed appropriately.</p>			
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N1	N2	A3	A4	M5	M6	E7	E8
Some writing but does not describe either factor.	Partial or insufficient description of ONE factor.	Explains ONE factor that supports the success of the land use of an appropriate primary production system.	Explains TWO factors that support the success of the land use of an appropriate primary production system.	Explains in detail ONE factor that supports the success of the land use, with reference to an appropriate region.	Explains in detail TWO factors that support the success of the land use, with reference to an appropriate region.	Discusses whether the land use can continue sustainably with clear evidence for ONE factor, with the other factor supporting.	Discusses whether the land use can continue sustainably with clear evidence for BOTH factors.

N0 = No response; no relevant evidence.

Question TWO	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
(a)	<p><i>Explain how your selected region provides the environmental and social requirements for market garden production.</i></p> <p>Example: Pukekohe, South Auckland</p> <p>Environmental</p> <p>The land use around Pukekohe has historically been used for market gardens due to the high quality, fertile soils found there. The soils are derived from weathered volcanic rocks. The natural fertility of the soils has meant lower expenses on fertiliser application, making it a profitable place to have a market garden, which are often small businesses.</p> <p>Social</p> <p>These soils are ideal for growing a range of vegetables, as well as being close to a well populated area. Being close to Auckland, it is a good location to deliver quality vegetables to a large, reliable market quickly. Market gardens also provide local employment to people who can work in the industry.</p>	Explains the location of land use with reference to factors.	Explains, in detail, the location of land use, with evidence to support explanation.	
(b)	<p><i>Justify why your chosen region should remain market garden production, and why it should not be converted to an alternative land use.</i></p> <p>Market gardens are found on highly productive soils, and they are considered intensified systems, meaning they have a high value per hectare return compared to some other alternative agricultural or horticultural land uses. Due to land prices, the alternative option would be to sell to housing developers as this land would be too expensive to buy and convert to any other land use due to a lower return per hectare.</p> <p>People are also skilled in these jobs. If this land use was converted, this would mean a loss of employment for some people, if the land use is less intensified. It also means that new skills would be required to work in a more diverse range of land uses, or to change a land use.</p>	Explains why the land use should remain, in general terms.	Explains, in detail, why the land use should remain.	Justifies why the land use should remain, with reference to both economic and workforce factors.

N1	N2	A3	A4	M5	M6	E7	E8
Some writing but does not describe factors that lead to market garden production.	Partial or insufficient description of ONE factor that leads to market garden production.	Explains ONE factor that supports market garden production.	Explains TWO factors that support market garden production.	Explains in detail ONE factor that supports market garden production, with reference to the region.	Explains in detail TWO factors that support market garden production, with reference to the region.	Justifies why the land use would remain and not be converted to an alternative land use, with clear evidence from ONE factor and the other supporting.	Justifies why the land use would remain and not be converted to an alternative land use, with clear evidence from BOTH factors.

N0 = No response; no relevant evidence.

Question THREE	Evidence	Achievement	Achievement with Merit	Achievement with Excellence
(a)	<p><i>Explain how political and technological factors have led to the decline of dairy cattle numbers in New Zealand.</i></p> <p>Dairy cattle numbers peaked in 2014, with a very slow decline happening. Despite the decrease in cattle numbers, milk production is remaining stable due to improved herd efficiency and production.</p> <p>Political</p> <ul style="list-style-type: none"> • Regulation changes and uncertainty – the government has implemented stricter environmental regulations over time, which is discouraging farmers’ desire to carry on farming intensively. • Riparian planting and freshwater quality regulations decrease the amount of productive land for grazing, which forces farmers to reduce their stocking numbers. • The dairy sector is focused on reducing its carbon footprint, so decreasing imported feed will mean a reduction in dairy numbers. <p>Technological</p> <ul style="list-style-type: none"> • Although there has been a decrease in total number dairy cattle numbers, there has not been a drop in milk production. This maintained / increased milk production is a result of improved dairy genetics. 	Explains the decline in dairy herd numbers, with reference to factors.	Explains, in detail, the decline in dairy herd numbers, with some supporting evidence.	
(b)	<p><i>Evaluate the impact that a reduction in dairy herd numbers would have on future land use.</i></p> <ul style="list-style-type: none"> • A reduction of the national dairy herd would have a positive impact on future land use. <p>Economic</p> <ul style="list-style-type: none"> • A reduced stocking rate does not mean economic loss to farmers. Through genetic improvement in the national dairy herd, farmers can maintain or improve their production through not increasing dairy numbers. • Dairy farmers with high debt may find reducing stocking numbers difficult if they rely on a high stocking rate to increase their income. <p>Workforce</p> <ul style="list-style-type: none"> • Dairy plays a large role in contributing to GDP, supporting the prosperity of local communities, as well as providing around 55,000 jobs nationwide. • An aging workforce is starting to retire. There is a workforce supply issue, due to workers within agriculture wanting more of a flexible lifestyle, which they can achieve through dry stock farming rather than dairy. 	Explains the impact on future land use.	Explains, in detail, the impact on future land use.	Evaluates the impact on future land use, with reference to BOTH economic and workforce factors.

<ul style="list-style-type: none"> • Aging farmers are destocking to make their system more manageable compared to when they had more stock. • Fewer cows will mean less income, which will mean less employment opportunities for farm hands / relief milkers. 			
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N1	N2	A3	A4	M5	M6	E7	E8
Some writing but does not describe factors that resulted in the decline of dairy numbers.	Partial or insufficient description of ONE factor that resulted in the decline of dairy numbers.	Explains ONE factor that has resulted in the decline of dairy numbers.	Explains TWO factors that resulted in the decline of dairy numbers.	Explains in detail ONE factor that resulted in the decline of dairy numbers, with some case study evidence.	Explains in detail TWO factors that support the decline of dairy numbers, with some case study evidence.	Evaluates the positive or negative impact on future land use, with clear evidence from ONE factor and the other supporting.	Evaluates the positive or negative impact on future land use, with clear evidence from BOTH factors.

N0 = No response; no relevant evidence.

Cut Scores

Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
0–6	7–12	13–18	19–24