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91297



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Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 2 Agricultural and Horticultural Science 2025

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

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of land use for primary production in New Zealand.	Demonstrate in-depth understanding of land use for primary production in New Zealand.	Demonstrate comprehensive understanding of land use for primary production in New Zealand.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

**You should attempt ALL the questions in this booklet.**

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

Do not write in the margins (//////). This area will be cut off when the booklet is marked.

**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.**

**Achievement**

**TOTAL 10**

# Page 1

## QUESTION ONE: Irrigation

Identify a region in New Zealand that currently uses irrigation to support a chosen primary production land use.

Region:

Land use:

- (a) With reference to your chosen region, explain how **environmental** and **economic** factors have influenced the decision to irrigate your chosen land use.

**B I U**

The environmental and economic factors of the Waikato have influenced the decision to use large amounts of irrigation as there are many benefits that come with it and a lot of increased production. As in the Waikato there are a lot of lakes and rivers that allow for more irrigation in a heavy dairy farming region. The market for dairy in the Waikato is huge and they are one of the top regions in New Zealand for it. Over drier months the Waikato dairy farmers can keep their farm irrigated so that they can insure for their cows to produce at the best rate they can in order for them to have some economic benefit. With the price of dairy being so high the demand for milk is higher than ever and keeping irrigated all year helps to keep farmers up to demand and still profiting at the same time.

Irrigation can have some negative impacts on the environment. To remain a sustainable land use into the future, farmers / growers need to consider how to maintain production but also to protect the environment.

- (b) Discuss whether irrigation of your chosen land use can continue sustainably into the future.

Consider **social** and **political** factors to support your discussion.

**B I U**

Irrigation is right now a pretty sustainable practice but if people continue to over irrigate there may be problems in the future. With the emergence of climate change and not as much rain as there used to be water in some months during the year is scarce. And with a number of dairy farmers irrigating out of underground aquifers that have been there for years once they dry up they have to start looking for another source and this is just using more and more of a resource which isn't unlimited. Many people are asking this question about irrigation but when you look at the positives for it they outweigh the negatives. As irrigation helps to keep one of the strongest economic industries in the country alive throughout the year and is useful to many of our major exports. Irrigation can be sustainable in the future there just has to be very close use and limits on how much people can irrigate a year in order for them to stay viable.

## Page 2

### QUESTION TWO: Market gardens

The location of market gardens is determined by a range of factors. Identify a region in New Zealand used for market garden production.

Region:

- (a) Explain how your chosen region provides the **environmental** and **social** requirements for market garden production.

B I U   ↶ ↷ ?

Hawkes bay has many environmental and social factors that make it viable for market production. As there is much flat land for market gardens and the climate allows for the growth of them to be great. There is also a great social asset in a port which allows for the products of a market garden to be exported right from the space of the own region.

- (b) Justify why your chosen region should remain in market garden production, and why it should not be converted to an alternative land use.

Consider **economic** and **workforce** factors to support your justification.

B I U   ↶ ↷ ?

Hawkes bay should remain a region for market garden production for many reasons and shouldn't have to result in the conversion for other land use. The economic result from the market gardening sector of Hawkes Bay is amazing and is one of the leading exporters out of the region itself and provides much of the local economy with sufficient flow. The amount of jobs that market gardens create as well also gives the local economy jobs and homes so people can provide for their family in the Hawkes Bay. If they were to be converted there would be thousands of jobs lost in the region and a lot of incomes stopped. Other land use won't be able to provide the amount of economic stability to the region as market gardens can.

## QUESTION THREE: The national dairy herd

The national dairy herd peaked in 2014, and it has slowly declined over the past 10 years.

Total dairy cattle numbers, 2002–2023

Source (adapted): <https://www.stats.govt.nz/information-releases/agricultural-production-statistics-year-to-june-2023-final/>

(a) Explain how **political** and **technological** factors have led to the decline of dairy cattle numbers in New Zealand.

B I U

There have been a number of political and technological factors that have led to the decline in the number of dairy cows in the New Zealand. over the recent years some governments have introduced taxes for dairy farmers which harmed their profit margins by so much and caused a lot of strife in the dairy industry. with new laws and regulations also coming in and being harmful for the success of the industry as well. the price of tech used for dairy farming now a days has also come in to effect and is causing some farms to not be able to take as much cows as they possible could so that they could make as much profit as possible.

(b) Evaluate the impact that a reduction in dairy herd numbers would have on future land use.

Consider **economic** and **workforce** factors to support your evaluation.

B I U

if there were to be a reduction in dairy herd numbers there would be a lot of effects on the land's future use. if the numbers were to be cut down a lot of people would likely lose their jobs and would be out of income as they are not needed anymore. the workforce would decrease meaning higher taxes for people and taking more bad out of the economy than good. the future land use would most likely go into something that wouldn't be viable to the economy like housing or urbanisation. the economy would take a massive hit if this were to happen and one of New Zealand's largest economies would be taking massive hits every year and may not become sustainable for some farmers.

## Achievement

**Subject:** Agricultural and Horticultural Science

**Standard:** 91297

**Total score:** 10

Q	Grade score	Marker commentary
One	A4	The candidate has described the environmental and economic factors that have led to dairy land in Waikato. Good links to rivers as a source of water have been provided. The response could have been elevated by adding quantitative data or links between why water / irrigation is required for dairy farming in this region and its profitability.
Two	A3	The candidate has described factors that make Hawke's Bay suitable for market gardens. Environmental factors making up the region's climate has been included and adding more detail could have enhanced the response.
Three	A3	The candidate has described, in some detail, how government regulations have led to a decline in dairy cattle numbers. Naming a specific regulation or law introduced by government would have further strengthened this response.