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Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 2 Agricultural and Horticultural Science 2023

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 2–12 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (DO NOT WRITE IN THIS AREA). 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.

Merit

TOTAL 16

QUESTION ONE: Land use – North and South

- (a) Select a North Island region, describe a land use that is commonly carried out there, and explain why it is carried out in that region.

Region: Northland

Avacados are commonly used in northland because of the warm temperature/humidity & the optimal rainfall that allows the avacados to flourish. These conditions are ideal for avacados because the rainfall acts as irrigation & the warm temperatures support good & fast growth.

- (b) Select a South Island region, describe a land use that is commonly carried out there, and explain why it is carried out in that region. The land use selected must be different from part (a).

Region: Marlborough

Vineyards are extremely common in Marlborough, this is due to the warm climates & good growing degree days through out the year. There is also a good amount of rainfall & water supply to keep the grapes healthy. The warm temperatures increase the sweetness within the grapes which makes them more optimal to be turned into wine.

- (c) For one of the regions from page 2, justify a landowner's decision to either convert to a new land use or keep the land in its current use.

In your answer consider TWO of the following factors:

- economic
- political
- environmental.

Region: Northland

Due to the rising temperatures & humidity in Northland I would suggest that the land owner converts the land to grow more tropical fruits such as bananas or mangos. This is because these types of fruit thrive in warmer environments & due to climate change, the climate in Northland is becoming warm enough to sustain tropical fruits. The farmer would have great economic benefits in the long run because not many other people would have tropical fruit farms. However, a negative could be at the start of converting the climate might not quite be warm enough so they could start out with a smaller crop. An environmental positive of converting to tropical fruits is that the land is being used as productive land ~~as~~ and not being converted into subdivisions, where the good land is going to waste. A potential negative environmental impact could be that pesticides & chemicals might be used more because

in warmer temperatures diseases & insects thrive more & faster. Therefore chemicals may have to be used more to get rid of them. Overall I would suggest that the landowner converts the land into tropical fruits as there won't be many other people doing the same thing. So when the climate becomes ideal there will be high demand for the landowners fruit.

QUESTION TWO: Urban sprawl

"The Ministry for the Environment's *Our land 2021* report shows that between 2002 and 2019, 54 percent of highly productive land was lost to housing, while cities and towns have sprawled by about a third," said the former HortNZ chief executive.

"This situation simply isn't good enough, considering that the primary production sector is the backbone of the New Zealand economy and only 15 percent of land is suitable for food production.

"The Government must act now to retain remaining highly productive land. Once houses have been built on it, that soil is lost forever."



- (a) The environmental and social factors that make land suitable for intensive production systems such as market gardens, also make it suitable for urban land use. Explain why this is so.

Because the land for market gardens is usually flat land making it desirable for urban land use. The soil structure & quality is also ideal, ~~as~~ as it has good aeration & drainage. This makes it suitable for urban land use because it is less likely to get flooded, but also allows people to grow their own gardens.

- (b) Justify a council's decision **not** to allow the re-zoning of rural farmland into urban zoned land. In your answer consider the economic and political factors.

The council would have made this decision because rural farmland is very important in New Zealand's economy. They also supply a food source within New Zealand as well as other countries. Whereas urban land provides nothing & ruins the land use once converted. Urban areas also don't have to spread out they can build up e.g. apartments, hotels, etc. Where rural land usually can't. A positive economic factor for deciding not to allow re-zoning is that the farmers don't have to pay as much for transport costs because if they got re-zoned they would be pushed out further & have to pay ~~the~~ extra for transporting costs. A positive for the council is that productive land isn't being destroyed & instead is making steady income that they will profit from.

~~Overall the council~~ Overall the council's decision not to allow re-zoning was good because it means good rural land isn't being destroyed when urban areas could just be pushed up instead of out.

QUESTION THREE: Changing land uses

Over the past 20 years some land users have seen considerable change in land area while others have seen very little change.



- (a) Referring to the graph above, how have economic and technological factors led to land use change?

New technology that made it easier to dairy farming has meant there was a spike in the amount of dairy farmers. Another reason for the spike is because China's demand for milk was increasing & most of our exports go to them. This probably partly of the reason sheep & beef decreased as they were no longer as productive & earning less income.

- (b) Choose one land use from the graph and analyse how TWO factors might affect this land use in the future.

Choose two factors:

- political
- social
- workforce.

Dairy cattle farms have been increasing due to china's demand for milk increasing. ~~However~~ However, china's demand can fluctuate quite a bit meaning the milk demand can decrease by a lot at any moment. This probably why dairy cattle land use started to decrease slightly in the last few years. ~~As~~ A positive social factor that affects the land use is that most people drink milk ^{every day} so the demand for it will never fully drop. ~~However~~ Although a negative social factor is peoples perceptions on dairy farming, as some beleive it is cruel & should not continue. This can sometimes cause problems for farmers because there is the odd farmer that is a bit cruel & videos can get around putting the blame on all dairy farmers which could lead to more & more complaints in the future. A negative future impact ~~for~~ workforce is that people are getting lazier & therefore won't want to work on a dairy farm because it's "too hard". Therefore making it harder for farmers to find workers. A positive workforce factor for the future is that if dairy farms continue decreasing, the existing workers will be forced to

Work on other farms meaning there will
be more workers on the dairy farms.

Acknowledgements

Material from the following sources has been adapted for use in this assessment:

Page 5

(quote) <https://www.hortnz.co.nz/news-events-and-media/media-releases/government-report-shows-need-for-urgent-protection-of-land-for-food-production-hortnz-says/>

(image) <https://www.stuff.co.nz/national/politics/local-democracy-reporting/300687900/government-gets-set-to-announce-new-policy-to-protect-prime-horticultural-land>

Page 8

(graph) <https://www.stats.govt.nz/indicators/agricultural-and-horticultural-land-use>

Merit

Subject: Agricultural and Horticultural Science

Standard: 91297

Total score: 16

Q	Grade score	Marker commentary
One	M6	The candidate made links between the region and the requirements of the production type, for both islands. They made a connection between the suitability of the climate and the land use.
Two	M5	The candidate made links between the features that make the land ideal for both housing and intensive production.
Three	M5	The candidate explained how the increase in one production type has resulted in the reduction of another.