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NEW ZEALAND QUALIFICATIONS AUTHORITY
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SUPERVISOR'S USE ONLY

Level 2 Agricultural and Horticultural Science, 2018

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

9.30 a.m. Wednesday 28 November 2018

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.

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

Merit

TOTAL

18

ASSESSOR'S USE ONLY

QUESTION ONE: CHANGES IN LAND USE ON THE CENTRAL PLATEAU

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Environmental and financial pressures have forced Landcorp and Wairakei Estate owners to abandon contentious forest-to-dairy land conversions. Freshwater ecologist Dr Mike Joy welcomed the move as a significant win for the environment.

Wairakei Estate, near Taupo, currently comprises 13 dairy farms with 17,000 cows over 6,400 hectares. It had been planned to run 43,000 cows on 39 farms by 2021, but Landcorp chief executive Steven Carden said in a statement that this would be scaled back, without saying exactly how many cows the property would carry.

Text (adapted) and image source: <http://www.stuff.co.nz/business/farming/dairy/77608461/Landcorp-bows-to-pressure-to-halt-dairy-conversions>.

Forestry-to-dairy land conversion



Source: <https://resources.stuff.co.nz/content/dam/images/1/5/g/r/v/j/image.related.StuffLandscapeSixteenByNine.620x349.1a7f2l.png/1457314857545.jpg>.

- (a) Explain why land in the Taupo / Central Plateau region has traditionally been used for forestry.

Because the land is relatively rocky which is hard on machinery and can cause damage. The land also comprises of hills which is why it wasn't used for cropping or dairying in the past. ~~and~~ The land is also very wet and sheep farmers did not want to run the risk of foot rot.

- (b) Justify the decision to scale back the conversion of forestry land to dairy farms by comparing and contrasting the two land uses.

In your answer, consider:

- the local economy
- the environment
- social aspects.

The ~~the~~ Taupo forestry land attracts many tourists who visit the town. The forestry is almost a form of identity for Taupo and it offers many recreational events in certain places such as biking, walking, orienteering and more. The local economy of Taupo would prefer the location to benefit ~~an~~ everyone and do not want to lose a symbol of history and identity. The forestry also is home to a couple of waterways which, would be threatened by the high levels of nitrates and phosphates released by the dairy farms. This land is reasonably susceptible to leaching and therefore could cause serious damage to the waterways. The land is also prone to erosion and with a lack of tree roots to hold the soil ~~firm~~ firm, the land could be scarred beyond repair and may be unable to be used again. //

ASSESSOR'S
USE ONLY

MS

QUESTION TWO: AVOCADOS

ASSESSOR'S
USE ONLY

Dairy farms are being converted to avocado orchards in the Auckland and Northland regions as the industry gears up for major expansion. Avocados achieved new records for volume and value in the 2016–17 season, and investors keen to capitalise on the increasing demand for avocados are planning large-scale plantings.

It is an exciting time to be growing avocados, New Zealand Avocado chairman Ashby Whitehead said.

Source (adapted): <https://www.stuff.co.nz/business/farming/94626504/Dairy-farms-make-way-for-avocados-in-north>.

- (a) Identify a traditional land use in Northland, and explain reasons for this land use.

Land in Northland is traditionally used for dairy farms as they have consistent rainfall and therefore little need for irrigation since it can grow the grass well. It is also used for orchards and arable crops as it has fertile soils and high sunshine hours. //

- (b) Explain why Northland's environmental and economic conditions are suitable for subtropical fruit such as avocados.

Environmental factors

As previously stated the location gets high amounts of sunshine hours and is reasonably warm. There is also a lot of flat and gradual rolling hills which are ideal for avocado orchards as machinery can be used to help with on farm tasks. //

Economic factors

Northland has many places available for people from overseas. For example, when workers from overseas like Samoa come to work on Northland orchards, they always have a place to stay, and a place to eat. These overseas workers benefit the economy as ~~they~~ ^{they} ~~are not~~ ^{want to} pick the fruit. Which is an essential task. //

- (c) Evaluate the impact of conversion from a traditional land use to avocado orchards in Northland.

ASSESSOR'S
USE ONLY

In your answer, consider:

- the economy
- workforce supply
- the environment.

Orchards ~~are~~ contribute a high amount of money to New Zealand and are very good for the economy. However New Zealand struggles to find local workers to pick the fruit. If the fruit is not picked then there will be a supply shortage being exported overseas, ~~and~~ which will negatively impact the New Zealand economy. Therefore New Zealand ~~a~~ hire workers to come from overseas and spend a season picking fruit. This allows New Zealand orchards to ~~pay~~ ~~the~~ have their fruit picked without having to pay ~~\$~~ extremely high prices. This also benefits the overseas workers as they enjoy their job and they take the money back to their home community. It also benefits the areas in New Zealand as they get more people in their restaurants, hotels etc. which ~~is~~ is also good for the economy. //

M6

QUESTION THREE: IRRIGATION

ASSESSOR'S
USE ONLY

The Manuherikia catchment in Central Otago is made up of two principal valleys and a number of dividing hills, and has a total area of approximately 3,000 square kilometres, of which 60,000 hectares are suitable for irrigation. Of this area, currently 15,000 hectares are fully irrigated and 10,000 hectares are partially irrigated.

Source (adapted): <http://www.centralotagonz.com/economic-development/key-sectors/irrigation>.

Farmland around Lake Dunstan, near Cromwell, Central Otago



Source: <https://www.google.co.nz/maps/@-44.977413,169.2110126,6025m/data=!3m1!1e3>.

- (a) Identify the main agricultural and horticultural uses of land in the Central Otago region, and explain the reasons behind these uses.

The hills in Central Otago are ideal for Merino ~~and~~ and Corriedale sheep as they are high country. ~~are~~ rocky and are cold, which is country merinos thrive in. The flat land and rolling hills are often used for stonefruit as there are high sunshine hours and frosts, which are essential for the establishment of the fruit. //

- (b) Explain how irrigation technology has allowed land use to change.

The irrigation has allowed farms such as sheep and beef to increase their stock numbers as they have a guaranteed feed source ~~on~~ the flats. This allows farms to carry ~~all~~ more stock through the //

Winter if required. This is beneficial as in certain places in Central Otago it can get very dry. and feed can become scarce. //

- (c) The establishment of new irrigation schemes is controversial. Discuss the expansion of irrigation with respect to the environment, the economy, and politics.

The politics have played a big role in the irrigation in Central Otago. ~~is~~ ~~many~~ This is because many people are against the expansion of irrigation. Because of this, certain places have been turned down and there are extensive rules and regulations for people using irrigation. ~~There~~ The farms that have been allowed irrigation are clearly in need of it and the irrigation can increase the farms economic return to the country. The regulations put in place have been done to ensure that there is no negative effect on the environment. //

ML

Merit Exemplar 2018

Subject	Level 2 Agricultural and Horticultural Science		Standard	91297	Total score	18
Q	Grade score	Annotation				
1	M6	This student obtained a high merit for their answer due to adequately explaining in detail two factors which have influenced the decision to scale back conversions of forestry to dairy. To have gained an Excellence, the student would have need to the have a deeper discussion using comparison.				
2	M6	This question is borderline M6, but due to the student being able to give an explanation, using three factors as to how Northland's environment is able to promote the growth of avocados and pasture and included a discussion about the use of New Zealand's established use of overseas workers to pick fruit, they were awarded a merit. To have gained an Excellence grade, the student would have needed to have included discussion about the conversion of a traditional land use to avocados.				
3	M6	This student could explain in detail the reasoning behind Central Otago's choice of farm types for the region, using words such as, 'high sunshine hours and frosts which are essential for stone fruit; and irrigation allows for increased stock number and guaranteed feed, increasing the farms economic return'. To have gained an Excellence, comprehensive evidence would have been needed as to how irrigation has impacted at least one of the factors, environment, economy and politics.				