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NZQA

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Level 2 Agricultural and Horticultural Science, 2016

91290 Demonstrate understanding of techniques used to modify physical factors of the environment for NZ plant production

2.00 p.m. Monday 14 November 2016
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of techniques used to modify physical factors of the environment for commercial plant production in New Zealand.	Demonstrate in-depth understanding of techniques used to modify physical factors of the environment for commercial plant production in New Zealand.	Demonstrate comprehensive understanding of techniques used to modify physical factors of the environment for commercial plant 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.

TOTAL

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QUESTION ONE: ORGANIC MATTER IN SOILS

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Adding organic matter to soil improves its physical factors. One technique to increase the organic matter in soils on a dairy farm is to spread effluent.

Source: http://www.farmtrader.co.nz/features/1511/how-to-make-your-farm-effluent-compliant/

(a) Describe how spreading effluent, to increase organic matter, modifies physical factors of the soil.

(b) Explain how the addition of organic matter affects plant production and improves pasture yield.

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(c) Justify a farmer's decision to spread effluent on dairy pasture, taking into account the environmental and economic impact of this technique.

QUESTION TWO: HAIL

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Hail is an undesirable climatic factor when growing fruit such as apples or cherries for an export market. Covers are often used to protect the fruit from hail.

Source: http://www.teara.govt.nz/en/photograph/17244/hail-damage

(a) Describe an alternative technique which can be used to reduce the impact of hail on fruit for export.

(b) Explain how the technique you have described in (a) modifies physical factors of the environment to improve the crop yield and quality for export.

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(c) A grower will generally choose covers. Justify this choice by comparing and contrasting covers with the technique you have described in (a) and (b).

In your answer:

- describe how covers modify physical factors of the environment
- explain how covers improve the crop yield and quality for export
- compare the two techniques, taking into account the social and economic impact.

QUESTION THREE: DROUGHT

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Source: https://www.goift.com/news/20130531-pulse-feature-argentinas-historic-drought-higgins/

Next year, 2017, is predicted by many to be a drought year. Evaluate the techniques a producer could use to reduce the impact of drought on plant production, in relation to timing, quality, and yield.

In your answer:

- describe the effect of drought on plant production
- explain two drought management techniques a producer could use to reduce the impact of drought
- explain how each technique affects plant processes and reduces the impact on the timing, quality, and yield of crops produced
- justify the use of each technique in terms of their environmental and economic impact.

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Extra space if required.
Write the question number(s) if applicable.

QUESTION NUMBER

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