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91294



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NEW ZEALAND QUALIFICATIONS AUTHORITY  
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## Level 2 Agricultural and Horticultural Science, 2018

### 91294 Demonstrate understanding of how NZ commercial management practices influence livestock growth and development

9.30 a.m. Wednesday 28 November 2018  
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of how management practices influence livestock growth and development in commercial production in New Zealand.	Demonstrate in-depth understanding of how management practices influence livestock growth and development in commercial production in New Zealand.	Demonstrate comprehensive understanding of how management practices influence livestock growth and development in commercial 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.

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

**Achievement**

**TOTAL**

**10**

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This examination requires you to discuss **THREE** different livestock of your choice, such as sheep, salmon, cattle, deer, pigs, poultry, insects, horses, or alpacas. **Before** selecting your livestock, carefully read **ALL** the questions to ensure that your selection will allow you to meet **ALL** the requirements.

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### QUESTION ONE: PRODUCTION MONITORING AND TIMING

Select your livestock for this question. The livestock you select for this question **must** be different to those you select for Question Two and Question Three.

Selected livestock: \_\_\_\_\_

Pigs

Feed utilisation in livestock can be monitored using practices such as weighing, measuring, or condition scoring. The results of this can be used by the farmer to make management decisions that have an effect on the growth and development of the livestock.

#### Measuring



Source: <https://caseagrants.ucsd.edu/sites/default/files/Coho%20Smolt.JPG>.

#### Condition scoring



Source: <https://www.agric.wa.gov.au/sites/gateway/files/Fat%20Cow.JPG>.

(a) Describe how farmers monitor the growth and development of your chosen livestock.

Majority of piggerys in New Zealand are indoors to manipulate environmental changes, and other things that would hinder a pigs growth outdoors, to monitor weight gains in pigs to ensure they meet the christmas market, farmers weigh ~~and~~ the pigs, drafting out any that are lighter than desireable. the lighter pigs are run in smaller groups to ensure faster weight gains of good quality.



- (b) Explain how this management practice can be used to improve the growth and development of your livestock.

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Weighing the pigs regularly allows the farmer to have good control and understanding of the timeframe needed to meet the market. pig farmers use add libb feed, using a high protein feed such as one with  $>45\%$  protein,   
 after weighing the pigs, the farmer can organize the mobs into order of weights with the lighter mobs being smaller groups to allow maximum growth and development. Splitting them up means the bigger pigs won't control the smaller ones and hog all the feed. being indoors also means they can be sheltered from environmental changes that could slow down growth and development.

- (c) Justify the use of this management practice by discussing the economic impact and the effect on production timing.

by weighing and controlling feed and mob size, the farmer can guarantee to meet the timeframe for the christmas market. This is guaranteed profit as everyone wants a leg of ham at christmas. Weighing the pigs allows the farmer to have an exact record of each pig and therefore contributes to breeding in the future, as the ones that did slower weight gains may be from a particular sow or boar which is critical information for production profit. weighing also allows the farmer to have good time.

More space for this answer is available on the next page.



// to Split mobs into size order and focus on the lighter pigs reaching the market in time. By providing all mobs with odd lb feed that they can access 24/7 and high protein feed to support muscle growth and repair, the meat can be to high quality with little fat. The better the quality of meat, the more high end market can be reached. //



## QUESTION TWO: BREEDING

Select your livestock for this question. The livestock you select for this question **must** be different to those you select for Question One and Question Three.

Selected livestock:

Dairy cows

Selective breeding management practices are used to improve the characteristics of livestock, so that the product produced fully meets the demands of the buyer. For example, thoroughbred sires are chosen for traits that enable their offspring to run fast.

**Racehorse**



<https://www.nzracing.co.nz/OnHorseFiles/News%20Images/Burgundy.jpg>

**Breeding bull**



[http://www.silverstreamcharolais.co.nz/wordpress/wp-content/uploads/2015/09/IMG\\_6181-e1448096026418.jpg](http://www.silverstreamcharolais.co.nz/wordpress/wp-content/uploads/2015/09/IMG_6181-e1448096026418.jpg)

- (a) Describe how farmers/producers select the breeding stock for your chosen livestock.

Dairy cows are bred for milk production, artificial insemination is a common practice with traits of milk fat percentage, whey percentage and growth quality of the animal and milk literage produced. <sup>from past years</sup> farmers use artificial insemination because of the higher in calf rate and also control of traits from the bull. the farmer picks a sire that has excellent breeding characteristics that will match well with the herd.



- (b) Explain how farmers/producers use this selective breeding practice to improve the growth and development of your chosen livestock.

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Artificial insemination allows for only good characteristics to be bred with and every year the farmer uses AI, they will improve their herds breeding worth. Milk production will be improved however adequate animal feed and add lib feed is crucial to milk production as well as growth and development. Artificial insemination allows for a compact calving to therefore increase production with longer time in milk and makes it easier for staff dealing with calves of relative size and age, therefore improving replacement cows in the future. ~~as calves can be~~

- (c) Evaluate the effectiveness of this breeding programme by explaining how it would improve the quality and economics of production for your chosen livestock.

Artificial insemination allows the farmer to know exactly what traits the bull sire has which is crucial to improving herd production and replacement heifers. Artificial insemination allows a compact calving and all the calves to be of similar age and stage therefore rumen development and adequate feeding doesn't lose quality in ~~as~~ as they are all of ~~but~~ close age. A compact calving also means the whole herd can be back in milk production quickly and the farmers job is easier as colostrum cows and late calvers will be back in the herd faster.

More space for this answer is available on the next page.





### QUESTION THREE: LIVESTOCK HEALTH

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Select your livestock for this question. The livestock you select for this question **must** be different to those you select for Question One and Question Two.

Selected livestock:

Sheep

Ensuring that livestock receive necessary healthcare is important in order to maximise growth and development. For example, dairy goats need to have their feet trimmed frequently. This is partly due to our pastoral farms lacking the hard and stony ground of the environment they prefer.

Goat hoof-trimming



[www.youtube.com](http://www.youtube.com).

Treatment of bees against mites



<http://scientificbeekeeping.com/the-learning-curve-part-3-the-natural-miticides/>.

- (a) Explain how a health management practice is carried out on your chosen livestock, and how it improves livestock growth and development.

Docking or Tailing Sheep/Lambs is an essential practice to stop sheep getting fly blown. Lambs are brought into the yards at around six to eight weeks old, commonly during weaning. The lambs are run up a race way into a crush or caught in the pen and a rubber ring is put on  $3/4$  of the way up their tail. The rubber ring cuts off blood supply to the lower half of the tail and eventually falls off in the paddock. Removing a sheep's tail allows its bum to stay cleaner as dogs don't get stuck to the stub and therefore prevent the sheep from getting fly blown and having to be treated or culled.



- (b) Justify the use of this health management practice by discussing how it improves the quality, quantity, and economics of livestock production.

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Tailing allows the sheep's bum to stay a lot cleaner than if it had a tail, preventing fly blow and maggots that eat away at the flesh and therefore decrease the health and condition of the sheep. Tailing also means less time and labour during crutching as there are a lot less dags to be shaven off. Tailing means the farmer can save money not having to draft out infected sheep and pay for treatment. Overall the flock can focus energy from feed on growth and development rather than immunity and fighting infection. This means <sup>more</sup> wool and meat can be produced and to a high standard with adequate feed and shelter. //

A3

## Achievement Exemplar 2018

Subject	Level 2 Agricultural and Horticultural Science		Standard	91294	Total score	10
Q	Grade score	Annotation				
1	A4	<p>The candidate does not fully describe how livestock measurement is carried out, but does show an understanding by discussing that the lighter livestock will be drafted out to ensure faster weight gain (growth rate).</p> <p>The candidate could have improved their response by explaining that the smaller livestock could have been provided with increased feed intake to ensure that their weight increased at a faster rate to bring them up to par with the heavier livestock.</p>				
2	A3	<p>The candidate correctly discusses artificial insemination as a selective breeding practice and some of the traits that dairy farmers are selecting for.</p> <p>To improve, the candidate could have linked these better genetics to an increase in growth rate in the calves or an increase in milk quality or volume in heifers.</p>				
3	A3	<p>The candidate correctly describes how the health management practice is carried out with detailed steps.</p> <p>The response could have been improved by linking the prevention of flystrike to an increase in growth rate for the livestock.</p>				