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91294



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NEW ZEALAND QUALIFICATIONS AUTHORITY
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QUALIFY FOR THE FUTURE WORLD
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SUPERVISOR'S USE ONLY

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.

Excellence

TOTAL

24

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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.

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: Deer

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.

The farmer can monitor the growth and development of their deer by weighing them on scales. This is done by standing the deer on a set of scales. It should be done ~~throughout~~ at different times during the animals growth to monitor its growth rates. //

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

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For deer that are being ~~fed~~ produced for venison it is important to monitor growth and development. The farmer can assess their plan and adjust his ~~the~~ when he is feeding the deer so ~~that~~ based on their growth rates so he can maximise their growth rates. This will result in better utilisation of pasture and therefore higher feed intake. Higher feed intake ~~results in better~~ increase the digestion and absorption of nutrients, digestible energy and protein required for growth and muscle and tissue development, resulting in faster growth rates and higher live weight gains.

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

Faster growth rates and higher live weight gains increase financial returns as ~~more~~ deer can be sent to slaughter sooner at higher live weights resulting in higher financial returns per animal. Getting rid of the animals sooner is good for the timing of production as it frees up grass for other stock or for new stock. This ~~will~~ result in higher financial returns per year if more stock can be fattened and sold per year.

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

Weighing the animals ~~helps~~ ~~feed~~ helps
 to ensure these higher liveweight gains.
 It enables the farmer to manage his
 pasture and supplement feed based on the
 deers growth rates so he can maximise
 these growth rates. This results in better
 utilisation of pasture and higher feed
 intake. Higher feed intake increases the
 digestion and absorption of nutrients, digestible
 energy and protein required for growth and
 muscle and tissue development. This results in
 faster growth rates and higher liveweight
 gains. //

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 Cattle

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

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

Dairy Sires are chosen on Breeding worth (BW) and production ~~worth~~ ^{much better} (PV). Breeding worth is judged on how good the genetics are compared to the average NZ dairy cow. Production worth is ~~then~~ judged on how much better or worse its daughters will be based on the average NZ dairy cow. Sires are also chosen on other traits such as calving size and daughter proven traits such as how the offspring behaves in the cowshed, the position of the teats and speed of milking out. //

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

ASSESSOR'S
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Farmers pick sires on these traits to improve the genetics of their herd, to improve their production and for calving ease. Calves with good genetics will grow and develop better and eat more and produce more. Calves that are born with no calving issues receive more colostrum and therefore get a better start to life. Higher feed intake results in increased absorption of nutrients digestible energy and protein required for growth and muscle and tissue development. Therefore resulting in faster growth rates and higher live weight gains.

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

Dairy cows with good genetics are better converters of feed into milk. Therefore they are better producers increasing the herd's production. Cows that behave better in the crush are also less susceptible to diseases such as mastitis which they could get from not getting milked out properly if they always kick the cups off. Dairy cows with good genetics also produce higher quality milk. Dairy cows that have

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

these genetics ~~for~~ increase productivity
 as for the same amount of grass eaten
 as the average cow they will produce
 more milk. They will also be better foragers
 and eat more further increasing production.
 Higher feed intake increases the digestion
 and absorption of nutrients digestible
 energy and protein required for milk
 production and growth and development.
 This improves the profitability of the farm
 as more milk production can be achieved
 off of the same amount of feed.
 If high quality milk is also produced
~~for~~ for example if the cows are bred to
 produce A2 milk the farmer is paid
 more for this milk. //

QUESTION THREE: LIVESTOCK HEALTH

ASSESSOR'S
USE ONLY

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.

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.

Drenching lambs keeps them parasite free throughout their growth and development. It is carried out using a drench gun to orally drench the sheep. Keeping the sheep parasite free increases conversion of feed to energy and increases feed intake. It also prevents the sheep from dying from internal parasites. Increased feed intake increases the digestion and absorption of digestible energy and protein required for growth and muscle and tissue development. Increasing growth rates and liveweight gain.

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

ASSESSOR'S
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Drenching lambs for internal parasites keeps the animals parasite free improving both the quality and quantity of production. It improves quantity as more meat is produced per sheep and more sheep are kept alive. As sheep are eating more and converting more of this feed into energy higher slaughter weights are achieved. Higher feed intake increases the digestion and absorption of digestible energy and protein required for growth and muscle and tissue development. This results in higher growth rates and liveweight gains. This means lambs can be sent to slaughter sooner at higher liveweights. This improves the economics of production as more money is made per sheep and the quality is also increased as there is more meat per sheep. Sending them to the works sooner frees up feed for other stock or new stock. This can improve yearly income as more stock can be grown and sold per year. //

E8

Excellence Exemplar 2018

Subject	Level 2 Agricultural and Horticultural Science		Standard	91294	Total score	24
Q	Grade score	Annotation				
1	E8	<p>The candidate fully describes how the management practice is carried out and links this to feed utilisation and energy intake to growth rate.</p> <p>The candidate justifies the use of weighing to ensure that more stock are sent to slaughter sooner and more are sold each year to improve the producers income.</p> <p>To improve the response, the candidate could have evaluated the cost of the scales and the labour requirements to carry out the weighing.</p>				
2	E8	<p>The candidate fully describes how the sire is chosen taking into consideration the breeding worth and production worth.</p> <p>The candidate correctly linked the quality genetics of the offspring to an increase in feed utilisation and energy intake, therefore increased growth rate.</p> <p>The economic aspects are well covered however the candidate could have justified the cost associated with artificial insemination.</p>				
3	E8	<p>The candidate fully explains how the management practice is carried out and links this to increased feed intake, increased digestion and absorption of digestible energy and protein.</p> <p>The management practice is justified through an increase in the quality of meat produced and quantity of sheep surviving.</p> <p>The income gains are well discussed however the candidate could have evaluated the costs associated with drenching, including the labour requirements.</p>				