

91294



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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Level 2 Agricultural and Horticultural Science, 2013
91294 Demonstrate understanding of how NZ commercial management practices influence livestock growth and development

2.00 pm Friday 29 November 2013
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 2–8 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.

Excellence

TOTAL

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You are advised to spend 60 minutes answering the questions in this booklet.

QUESTION ONE: LAMB PRODUCTION

The health of the lambs is important during their growth and development. Most farmers vaccinate their lambs to prevent diseases such as scabby mouth.

- (a) Explain how vaccinating lambs affects their growth and development for meat production.

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If a lamb gets a disease then it seriously affects their growth and development as they put all energy into fighting that disease. This means there is no energy to grow and develop and means that that lamb loses value and overall profit for the farmer.
If they are vaccinated and don't get disease they can grow and develop faster and achieve better live weight gains per day and the feed is not wasted on keeping a poor lamb alive but used to grow profitable lambs. //

Selecting the breed of sheep is one of the most important management practices on any farm. Since 2003, the Alliance Group meat processing plants have been scanning lamb carcasses. The scan measures the meat in the loin, leg, and shoulder, minus the bone and fat, to find the best meat yield. This information is given back to the farmer to assist in sheep breeding decisions.

(b) Justify the use of scanning at the meat processing plants to enable farmers to make sheep breeding decisions that will improve the quantity of lamb meat sold.

In your answer, consider:

- how the breed of sheep and breeding decisions influence the growth and development of sheep for meat production
- the information that can be provided to the farmer from scanning
- how scanning can affect the quantity of lamb meat produced.

Different breeds of sheep have different growth and development rates and different meat characteristics like eye muscle area. The gene of a sheep make up what potential that sheep can grow to. Scanning measures muscle in the different value cuts and how much fat and bone the carcass have so the overall yield. This shows the farmer what lambs have ideal characteristics and he can then see what ram and ewe produced it and can identify what ram has the best potential and maximise production by using the best rams/ewes. Scanning will eventually increase the quantity of lamb produced by knowing which genes/breed have the most potential. and This means higher carcass yield and more lamb being produced. But not higher quantities of lambs just higher meat quantities. //

QUESTION TWO: PASTURE UTILISATION IN BULL BEEF PRODUCTIONASSESSOR'S
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Most bull beef farmers use pasture as their main source of feed to increase the liveweight of their bulls. Pasture monitoring and topping are two management practices that improve the quality and utilisation of the pasture.

- (a) Explain how the use of ONE of these management practices (pasture monitoring OR topping) improves the growth and development of the bulls.

Pasture monitoring like techno-grazing system means that pasture is used the best with less wastage and that pasture is kept in stage 2 of growth where it is high MSME/kg and can recover by leaving a residual. This can achieve growth gains of over 1kg per day if done correctly. This is because they get high quality feed with very little wastage. Techno grazing is intense grazing in small areas.

Stocking rate influences livestock growth and development. The table below shows the effect of stocking rate on production and profit for a bull farm.

Table 1 Effect of stocking rate on production and profit

Stocking Rate (bulls/ha)	2.5	3.5	4.5
End liveweight (kg)	530	495	455
Sale price (per bull)	\$1019	\$949	\$874
Profit (per bull)	\$579	\$509	\$434
Profit (per ha)	\$1447	\$1781	\$1953
Pasture utilisation (%)	59	74	81
Liveweight gain (kg/ha)	825	1033	1150

Using the information in the table above, select the stocking rate that you consider will optimise profit for the bull farmer.

Selected stocking rate: 4.5

(b) Justify your selected stocking rate over ONE of the other stocking rates by comparing pasture utilisation and profit to the farmer.

In your answer, consider:

- how the stocking rate would influence the growth and development of bulls
- efficient pasture utilisation
- financial returns to the farmer.

A higher stocking rate means more profit per ha to the farmer and less wastage. A higher stocking rate means that there is less gain per bull but overall higher gain. This is because of more effective pasture utilisation and less wastage as wasted pasture is wasted money. 4.5 gives a profit of \$1953 per ha compared to \$1447 of 2.5 stock rate. Also a 81% pasture utilisation and 59% for 2.5 which is high wastage. This gives a higher return for the farmer per ha and more liveweight gain per ha and overall more profit. This is maximum feed conversion //

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QUESTION THREE: BROILER PRODUCTION

In commercial broiler production for chicken meat, the chickens are kept in environmentally controlled sheds.

Broiler production shed

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- (a) Explain how environmentally controlled sheds would influence the growth, development, and yield of broiler chickens.

The controlled environment of the sheds means that chickens can maximise growth by using energy to grow not to ~~be at~~ change temperature or ~~wait~~ scavenge for food and also minimise wastage. High quarantine means no disease and a controlled temp of 35°C for a start then 18-20°C after 4 weeks. This allows for maximum growth and feed conversion and minimum wastage.

To stock the environmentally controlled sheds, the broiler chickens are hatched in incubators.

- (b) Justify the importance of using incubators in commercial poultry production over the use of broody hens.

In your answer, consider:

- growth and development of the chicken embryo
- providing environmental consistency
- the financial impact of timing of hatching and maturity for the market.

The incubators control ventilation, temperature, the turning of the egg and humidity which is important for the growth and development of the chicken embryo. This means that eggs are chilled to stop growth then incubated at the same time for consistency. This means chicks hatch at the same/similar time. They get turned, have the same temperature, ventilation and humidity to have consistency allow all chicken embryos to develop at the same time and rate. Broody hens have too much variation and means that chickens will be different and won't hatch at the same time. Broiler chickens need to be all ready at the same time and same maturity as they don't get drafted off they get killed at once so consistency is very important as they need to be similar size and similar structure as that is what the market demand and having consistency means high profit. //

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

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NUMBER

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The page contains a large grid of horizontal lines for writing answers. A diagonal line crosses the grid from the bottom left towards the top right. The grid is bounded by a vertical line on the left and a horizontal line at the bottom.