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91294



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Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 2 Agricultural and Horticultural Science 2025

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

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.

Do not write in the margins (//////). This area will be cut off when the booklet is marked.

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

Excellence

TOTAL 21

INSTRUCTIONS

Choose THREE **different** types of livestock to answer the questions.

Read ALL the questions first, so you can choose which livestock you will use to answer each question.

QUESTION ONE: Livestock health

Livestock for Question One:

Identify a specific health issue common in your chosen livestock.

Health issue:

(a) Explain how the specific **health issue** impacts growth and development of your chosen livestock.

B I U     

Internal parasites can be a major problem in terms of growth and development of the sheep. As these parasites will more likely to 'steal' the nutrients that should support the sheep's growth. Since the sheep are not getting enough nutrients because of these parasites inside their gut, the growth of the sheep will be stunted which means that its growth will be slower. If it's not cured then these parasite will continue to take the nutrients there are supposed to help the sheep for its growth and development, the growth and development of the sheep will be stunted and slowed down, in worst case scenario the sheep might die. There are several ways to prevent this type of issue such as drenching. Drenching can be done orally, that kills the parasites inside the gut, therefore will keep the sheep's gut healthy.

(b) Evaluate an effective management practice that could be used to prevent or control the chosen health issue in terms of **quantity** and **economics of production**.

Refer to growth and development to support your answer.

B I U     

Drenching is the best way to prevent this type of health issue of the sheep. Drenching is done orally with medications that will eliminate the parasites inside the sheep's gut. This management practice will also make the gut healthy so that the sheep can digest its food and use the nutrients of the feed to help them grow faster. Drenching is mostly done with lambs as they are more vulnerable for parasites from the pasture, if lambs are drenched then they can just graze and focus on their growth and development as they are still young, they will need a lot of feed and nutrients to support their growth and development. For ewes, they are drenched to eliminate the internal parasites in them to maintain their peak body condition. If their body condition is at peak, then they will produce more eggs as they are healthy also supporting the lamb inside them. They will use their energy to produce more milk because there are no parasites that 'steals' them. Therefore resulting a healthy lamb. Drenching will have a positive impact in terms of quality and economics of production in the sheep farm. Drenching allows the ewes to maintain their peak body condition which will result producing more eggs resulting high fertility rate. They can be pregnant with healthy twins or single lamb. If there are no parasites in their body they will support the lamb's need during pre natal growth-- delivering healthy lambs. They are also able to produce more milk because they are drenched, meaning all the nutrients and energy is being used up for the feed of the lambs. This means that the lamb/s will have a good quality of feed supporting their growth and development. Therefore, drenching supports increase in fertility rates of sheep, meaning there are less dry sheep in the farm. If most of the sheep are fertile, this means the production of lamb for replacements or meat production will increase as well, providing overall flock productivity and profitability. Overall, drenching supports the increase in quantity of lambs in the farm and also making the meat of the sheep be more profitable for the farm.

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QUESTION TWO: Livestock stress

Choose **different** livestock to answer this question.

Livestock for Question Two:

Identify a management practice that would reduce stress in your chosen livestock.

Management practice:

(a) Explain how the management practice would **reduce stress** in your chosen livestock to benefit growth and development.

B I U     

Temperature control will reduce the stress of the chicken. It is carried out using a heat lamp or heaters in the shelter. It is useful to reduce the stress to the chickens because it can maintain the chick's desired temperature(32-35 degrees celcius) this lowers as the chick grows. If temperature control is not installed then they will focus on maintaining their desired body heat temperature rather than using their energy for growth and development. If it is too chilly for them, the cortisol rises as they concentrate to use their energy to maintain their body heat temperature. And if it's too hot for them, the enzymes in the chicken will slowly degenerate which then result in sickness for the birds as cortisol rises and in worse case scenario, it might cause death for the chickens. Therefore, temperature control keeps them in an environment with their desired temperature which stress is less likely to occur.

(b) Justify the effectiveness of the management practice to improve **quality** and **economics of production**.

Refer to growth and development in your answer.

B I U     

Temperature control in chicken farming has great impact in terms of quality and economics of production. If the optimum temperature for chicks are between 32-35 degrees celcius If the temperature is maintained, the chick will grow faster as it would not use its energy to maintain its body heat temperature. The bird will then use its energy for growth and development stress free. Temperature control has a great is great in not causing stress to the chickens because the temperature is maintained in their desired range. Not having temperature control will result stress in the birds and slow their growth and also decrease the quality of their meat. Temperature control prevents them from chilling and being stressed because the temperature is too high for them. If it cold, they will use their energy to maintain body heat temperature rather than being used for growth and development. If the quality is too high for them, the enzymes in their body will degenerate which will be crucial for the farmer because the chicken will get sick or in worse case scenario, the chicken will die. Temperature control helps the chickens to use their energy for growth and development, the chick will reach the desirable market weight(3-5kgs) faster which means less time of chicken in the farm and less money spent on their feed. The quality of their meat will be good as well because they are not focus on maintaining their body heat because the temperature control does it for them, which meas their cortisol level is low. Cortisol is the stress hormone, it is released when the animal is stressed and it will decrease the quality of the meat. Therefore, temperature control increase the quality and the economic of production of chicken farming. Helping the chickens to grow much faster-- low cost to feed them because they will reach the desired market weight faster. And will improve the meat quality as they are not stressed to maintain their body heat as the temperature control does it for them.

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QUESTION THREE: Breeding

Choose **different** livestock to answer this question. It must be **different** from livestock used in Questions One and Two.

Livestock for Question Three:

Name a breeding management practice.

Breeding management practice:

(a) Explain how farmers carry out the breeding management practice for **growth and development** of their livestock.

B I U     

Artificial Insemination is done using an AI gun with the sperm of a chosen bull is with it. The farmer/technician usually demonstrates AI when the cows are in heat and are fertile. First they get the AI gun, and then get the sperm from the cooler(where the sperm is freeze to keep the sperm alive). The gun is inserted into the cervix of the cow and the sperm is delivered to it. The system repeats for the other cow. Artificial Insemination allows the farmer to choose a certain that has superior genetics that farmer think will be suitable for their farm. The farmer will have the chance of choosing their desired genetics that will support the growth and development of the calves. The farmer can choose trait ei. immunity against parasites, this will support the calf's growth and development because it has the genes to be immuned against parasites, therefore, the calf will just focus on eating and using the energy from the feed to support its growth and development. And because it has high immunity against parasites, all of the nutrients will just be focus on its post natal growth where it can grow faster because there's no parasites that 'steals' the nutrients from the calf's feed.

(b) Evaluate the effectiveness of this management practice to increase the **quantity** and the **timing of production**.

B I U     

AI can increase the quantity and production of a dairy farm as it is accurate which means the number of empty cows are less compared to keeping a bull in the herd. Accurate insemination means more cows are getting pregnant and less number of empty cows, therefore, more calves production for the farm. Artificial insemination allows the herd to get fertile in sync. Therefore, allowing the herd to have a short period of calving time frame. This also help the farmer because they will have a short period of timing calving season as the the cattle's pregnancy period are in sync. The timing of AI can be crucial as well, although it will be great factor/increase for economic production if it is done in the right time. The cows milk production peak when they calf, then if the farmer has done AI 9/10 months before spring then the milk production of the farm will increase. This is because the grass grow the fastest during spring. Giving high quantity of feed for the cows also providing high/enough nutrients/MJME for them. Peak lactation of the cows plus fast growth of grass for them to eat will result in higher milk production for the farm. The nutrients that they eat will be used to produce milk resulting an increase in the economic production of the dairy farm. Therefore, the quality and quantity of milk production will increase with the help of Artificial Insemination and right timing of demonstrating this management practice.

Excellence

Subject: Agricultural and Horticultural Science

Standard: 91294

Total score: 21

Q	Grade score	Marker commentary
One	E7	Drenching is described and linked to treatment of internal parasites. The candidate has explained how internal parasites can have a negative impact on the growth and development of both ewes and lambs and gone on to justify the use of this management practice in terms of ewes fertility rates and increased quantity of lambs.
Two	E7	The candidate has made clear links between temperature control and the minimisation of stress in growing chickens. Specific figures are used to support their response. Stress and the quality of meat are linked and justification is made in terms of the economics of production with the time to meet market weight and the time spent on farm.
Three	E7	Artificial insemination (AI) has been described, and specific genetics or traits farmers may select for in dairy cattle, have been identified. The candidate has justified the use of AI in regard to timing with reference to both calving spread and aligning peak milk production with high grass growth. Quantity of milk produced has also been mentioned.