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NEW ZEALAND QUALIFICATIONS AUTHORITY
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SUPERVISOR'S USE ONLY

Level 2 Agricultural and Horticultural Science, 2016

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

2.00 p.m. Monday 14 November 2016
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.

Achievement

TOTAL

9

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QUESTION ONE: CALVING BEEF HEIFERS

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The most effective management practice available to beef cattle farmers to minimise assisted calvings in first-calving, two-year-old beef heifers is to select sires with a genetic tendency for low birthweight and calving ease.



Source: <http://newsroom.unl.edu/announce/beef/5031/28973>

- (a) Describe how selecting sires with favourable genetics for low birthweight and calving ease is carried out.

The sires of the off-spring are selected through DNA testing, previous records through the ~~no~~ bulls ~~genetics~~ genetics and a selection of a smaller breed of bull which will allow for the calf to carry a lower birthweight.

- (b) Explain how low calf birthweight and calving ease in heifers improves overall calf growth and development.

A calf born with a lower-birthweight and with no ~~stress~~ ^{stress} impact during the calving process allows for the calf to be a lot ~~healthier~~ healthier because they wouldn't have had any added stress, been allowed for added nutrients to grow and develop, therefore as it gets older the calf will grow much larger and develop ~~more~~ ^{more} ~~quicker~~ ^{quicker} than those born to big.

- (c) Evaluate the effectiveness of using low birthweight and calving-ease sires by explaining how it improves calf numbers and its effect on the economics of production.

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// By selecting sires specific to allowing for lower birthweight and calving-ease the farmer is able to increase calf numbers as more live calves are born and will live longer as they ~~are able to have~~ ^{more easily} been given nutrients ~~the~~ and have had no added stress from being born, larger calves are often ~~added~~ stress due to oxygen deprivation a longer birthing time and possible help from the farmer which increases stress and often leads to the calves not doing as well. Because the farmer has chosen a specific genetic line from the sire to cover the heifers the growth and development of the young stock is much ~~higher~~ ^{newer} ~~the~~ ^{size} the stock are usually in a larger ~~breed~~ due to lower fatality rates at calving and other health issues that may arise. This in turn means that the farmer is able to sell the stock and get a higher price for quality cattle or ~~can~~ continue to ~~reproduce~~ ^{reproduce} the newer bloodlines for better ~~genetics~~ ^{genetics} on farm/ in the ~~herd~~ ^{herd} //

QUESTION TWO: NAIT TAGGING OF LIVESTOCK

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It is compulsory in New Zealand for all cattle and deer to be tagged with National Animal Identification and Tracing (NAIT) approved radio frequency identification device (RFID) ear tags.

- (a) Explain how using NAIT tagging assists in monitoring the health, growth, and development of cattle or deer.

//NAIT tagging is a management practice that has been brought in to help farmers record and monitor ~~then~~ each animal individually.//

//The farmer is able to load the electronic tag with necessary DNA records and any changes that may occur to the cow such as a change in environment, drenches (when they were given) age and maturity.//

//~~But~~ If a cow is sent to the ^{meat} works the operator and ~~truck~~ transporter are able to track ~~any movement~~ where the animal has come from and each of its ~~many~~ management practices that may have been performed by the farmer to keep the ~~the~~ health of the animal at a higher standard.//

- (b) Justify the use of NAIT tagging to improve the quality of New Zealand's national cattle or deer herd with reference to the economics of production.

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NAIT tagging can improve the quality of New Zealand's national cattle/deer herds because consumers and ~~by~~ buyers both internationally of meat and livestock as well as nationally are able to track exactly where the meat/velvet and livestock ~~original~~ originated from. This ~~includes~~ includes the farm, records of the animal (DNA and health management) of that particular material. This is important because it is able to increase the quality of stock being exported and distributed round the country allowing for ~~ex~~ higher income.

With ~~the~~ the NAIT tags being electronic it can be an expensive operation with specific gear needed to record weights, DNA etc within the tag. the purchase of the tag and devices so the ~~tag~~ tags can be read, but return is made by the ~~ability~~ quality of the material sold.

QUESTION THREE: VELVET PRODUCTION IN STAGSASSESSOR'S
USE ONLY

Stag velvet is a low-volume, high-value product which must be handled with care, both on and off the animal. Velvet production is based on beam size, thickness, weight, and blood component. There are a number of management practices prior to the removal of the velvet that affect the growth and quality of velvet in stags.



- (a) Explain two animal management practices that minimise potential damage to the velvet as it develops, and that ensure the quality of the product.

Two animal management practices that minimise potential damage to the velvet as it develops and ensures a high quality of the product include minimising handling stress. By minimising the stress during handling of the deer, using quiet steady movements and dark covered yards/sheds during the time the deer are brought in it minimises any breaks or bruising to the velvet of the antlers. Another management practice is to keep the animals in safe paddocks and environments ensuring the animal is unable to get stuck in any fencing or wires again minimising breaks tears and bruising to the velvet.

Velvet antler is harvested for human consumption. Timing of the removal of the velvet, safe removal practices, and hygienic handling during storage and freezing ensure a high-quality export product.

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- (b) Justify these management practices by explaining how they promote a high-quality export product and good economic returns.

//The management practices promote a high-quality export product and ^{good} economic returns because the velvet being brought and consumed is of a higher value and quality making it more attractive for ^{consumers} ~~patients~~ and buyers. By lowering stress factors and damage that can be done to the velvet the beam size, thickness, weight and blood component is much higher and if the timing for the harvesting is right for the market and all removal practices, ~~handling~~ and hygiene ^{are all} during the handling and freezing stages ~~the quality~~ upto standard the ~~end~~ result is high quality product resulting in good economic returns //

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

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QUESTION
NUMBER

91294

Annotations

Achievement exemplar

Subject:	Agricultural and Horticultural Science	Standard:	91294	Total score:	9
Q	Grade score	Annotation			
1	3	The candidate describes how sires can be selected using DNA testing. The candidate could have improved their response by linking low birthweight and calving-ease to improved calf growth rate.			
2	3	The candidate correctly states that NAIT helps farmers record and monitor details of individual animals. The candidate also describes how NAIT is used to trace the movement of cattle. The candidate could have linked NAIT records to monitoring livestock growth rates through weight records.			
3	3	The candidate describes how minimising stress and eliminating poor fencing helps prevent damage to velvet. The candidate could have linked these practices to increased velvet quality or growth.			