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NZQA

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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.

Excellence

TOTAL 24

ASSESSOR'S USE ONLY

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 farmer can look at the bulls records to see how his offspring weights were at birth and also too see how it's calving ease numbers are, if the number is low inside calving ease it means the bull is easy calving, also choosing a breed of bull that naturally carries genetics for low birthweight and calving ease will mean calves will be born easier and at lower birth weights thus other breeds. Also increasing the inheritable percentage of carrying the genes for low birthweight easy calving will improve what line to select//

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

//low calf birthweight and calving ease will mean the heifers will be able to push out the calves in labour through their narrower pelvises, so calves won't grow too big for them and get stuck during birth. This will mean the calve have a greater chance of survival during birth so can then grow and develop by feeding off their mothers milk, which is high in protein to improve quick growth weights and development if they are too big though, they could get stuck and die, or the farmer will have to help the heifer during calving which will increase the stress during birth and being a first time calve she could reject the calf due to too much stress thus the calf will have less chance of survival and won't grow or develop as well as if it

(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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//using low birthweight and calving-ease sires is very effective as it means the heifers who are smaller will be able to push out their calves so labour won't be stressful or cause death in calf and/or heifer this will mean a greater number of calves will survive birth and can thus grow to maturity. They can then grow quickly from drinking their mothers high energy and protein milk, so the farmer will have a greater number of calves which survive birth. This will improve the yield of the product as the calves are the product of the system. The calves will be able to catch up to the other calves born from the older cows by drinking the high energy and protined milk which can be easily converted into growth. This practice will improve the economics of production as the easier calvings will mean less vet bills required to pull out too big calves from the heifer and also less deaths will occur so the breeding cows won't die thus be able to be put back in calf again and the product - the calves won't die either during birth meaning the farmer will have a higher yield of heifer calves to sell and/or use for replacement heifers later on. As the heifer calves are the future for breeding it's vital they survive and also the bulls and surplus heifers can be sold with more surviving birth meaning he will receiving higher profits thus increasing the economics of production. Also the bull calves born will carry the favourable genetics for low birthweight and calving ease so they could be sold as breeding bulls which will go for high profits as they are desirable by the market. Thus using low birthweight and calving-ease sires will improve the calf numbers and economics of the production making it an effective practice.//

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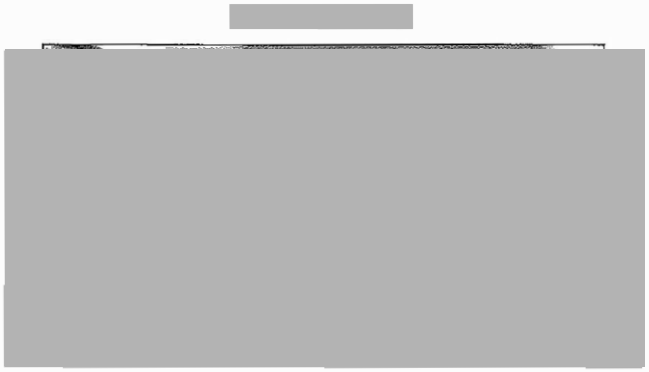
QUESTION TWO: NAIT TAGGING OF LIVESTOCK

ASSESSOR'S USE ONLY

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 tags assist in the health of cattle and deer by being able to monitor where each animal is in the country. So if a disease broke out then all animals can be traced which will mean all animals in the outbroken area will be able to be found thus diseases being spread can be ~~spotted~~ easily in risk. Also for each farm they can use these tags themselves by scanning it with a scanner which picks up the waves let out by the unique code in each tag. So each animal is ~~all~~ assigned to a unique code and tag. So during all the management practices like weighing, drenching or vaccinating the farmer can scan the tag and all it's records will pop up on a computer. This means that a farmer can track how well the animal is growing and developing. If it's not growing quick enough to the required growth curve then the farmer can ~~spe~~ separate the animal and give it extra feed to make sure that it can grow and develop quicker to then meet the market deadlines that the system is trying to meet. Also any diseases of the animal can be monitored by using these NAIT tagging thus it can be pulled off if it'll spread or culled if it's not meeting the growth and development curve.//

(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.

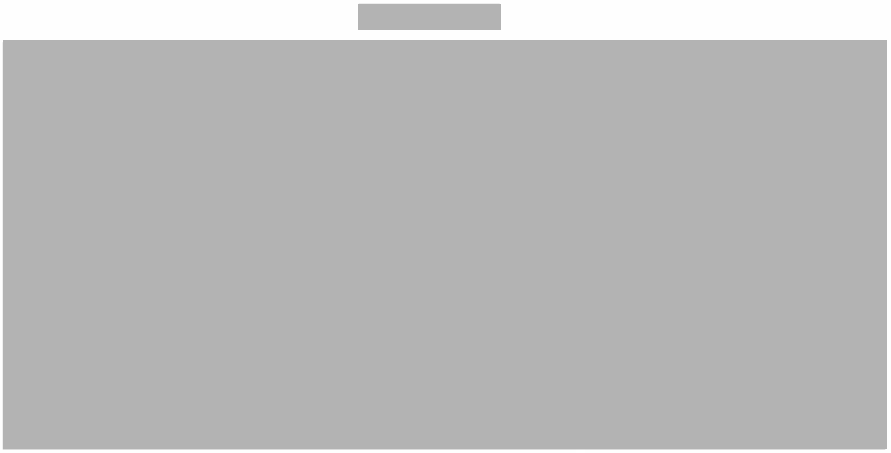
ASSESSOR'S USE ONLY

If the quality of all national deer and cattle can be improved by NAIT tagging as any disease outbreaks can be stopped as all animals can be traced this means any stock in the out broken area can be treated or culled, thus the quality of the stock is improved nationally as stock can't be moved about without NAIT tagging monitoring it, this means that diseases are less likely to spread so the quality of national cattle and deer remains high, as if NAIT tags wasn't used and a disease broke out not all the animals could be traced so the outbreak could spread throughout New Zealand and effect all of the stock which would be economically damaging because of the cost of treatment or because of culling and as New Zealand relys heavily on meat export as profit it could be economically damaging nationally. Also each farms can trace back to where the stock has been using NAIT tags so this will prevent the farms buying stock that could be from infected areas that are for example got a high risk of TB NAIT tags can monitor where the cattle has been moved about the and sold to, thus if they are from an area with high risk of TB the buyer can track this up and thus won't buy it, meaning their herds quality won't be effected improving the economics of their system as it would be downgraded in profit by getting the whole herd infected by the disease. So the cost of vet bills and disease outbreaks will be reduced by using NAIT tags so infected stock can be traced and not sold in which would reduce quality of the herds that buy infected stock which would reduce profits thus be economically damaging to the farms production. So NAIT tagging is cheap to install but has great returns. E8

QUESTION THREE: VELVET PRODUCTION IN STAGS

ASSESSOR'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.

One is too ensure the stags are kept in an environment which won't cause them to damage their velvet, for example if stags are put together their agnostic behaviour could increase especially during the mating and rutting season. This would mean the stags will fight with one another which could damage the velvet by making it ripped and bleed this would reduce the quality of the velvet as it's been damage so now it'll be worthless or be very low in value, so by keeping stags in small herds of hinds separately, or removing the hinds well away from the stags, it will lower the agnostic behaviour between the stags, so the risk of fighting will decrease thus improve the quality and therefore profit of the product. Also insuring the stags are feed high quality feed will insure that the extra protein and energy will go into velvet development. As the Stags body will prioritise the energy and protein to go into muscle growth and bone growth, so providing plenty of high quality food will mean the velvet will be of high quality. Also insuring the stags can't scratch of the velvet the farmer should ensure no sharp objects can be reached by the stags, so trees can be teached off so

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.

ASSESSOR'S USE ONLY

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

//By timing the removal of the velvet the farmer will be able to remove the velvet when its at the correct beam size, thickness, weight and blood component which is required for export. If the farmer didn't time the removal of the velvet it may not be developed enough or it may be too matured that it is no longer desirable for market velvet has a small window when it's of high-quality for human consumption by timing it the correct time to harvest it will mean it will be of high quality for human consumption thus be exported for high value making the farmer will receive greater profits thus the economic returns are worthwhile. by ensuring it is hygienically handled it can be sold for human consumption. If it is not been hygienically handled then the market will refuse to buy it as human consumption markets require hygiene handling for safety reasons. If not handled hygienically the velvet will be down graded thus won't be sold if at all thus it's quality will be reduced making the farmers economic returns will be lowered resulting in lower profit so less efficient farming system. Also the same is for storage and freezing if not handled hygienically it will no longer be food safe for consumption so it won't meet the markets requirements thus lowering the quality for export making profits are lowered thus the economic returns won't be good lowering the profit for the farmer. So for high value returns to justify the cost of the production of velvet these timing and hygiene handling are vital for velvet to remain high-quality thus high value for justified cost of production.//

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Annotations

Excellence Exemplar 2016

Subject:	Agricultural and Horticultural Science	Standard:	91294	Total score:	24

Q	Grade score	Annotation
1	8	The candidate comprehensively evaluates the importance of using low birthweight and calving-ease sires and its effect on production by explaining the economic impacts of increased calf survival. The profits and costs are explained.
2	8	The candidate comprehensively justifies the use of NAIT tagging to improve New Zealand's national cattle or deer herd. They explain the importance of tracking stock for disease control purposes and the implications of an outbreak on the New Zealand economy.
3	8	The candidate comprehensively justifies the timing of removal, safe removal practices, and hygienic handling in ensuring a high-quality export product. They link all three of these aspects to improving the international market perception of New Zealand velvet and to increasing the economic value of the velvet.