# Assessment Schedule – 2019

## Agricultural and Horticultural Science: Demonstrate knowledge of livestock management practices (90921)

**Assessment Criteria**

**Question One: Sheep**

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| Demonstrate knowledge requires **describing** how livestock management practices are carried out. | Demonstrate in-depth knowledge requires **explaining** why livestock management practices, or steps within practices, are carried out. | Demonstrate comprehensive knowledge requires **applying knowledge** of livestock management practices to given situations. This may involve comparing and / or contrasting, or justifying management practices. |

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Describes ONE idea at Achievement level. | Describes TWO ideas at Achievement level. | Describes THREE ideas at Achievement level. | Describes FOUR ideas at Achievement level. | Explains THREE ideas at Merit level. | Explains FOUR ideas at Merit level. | Justifies the use of the two methods. | Fully justifies the use of the two methods. |
| **N0** = No response; no relevant evidence. | | | | | | | |

## Evidence

| Q1 | Evidence |
|---|---|
| (a) | **Describes** (Achievement) flushing and **explains** (Merit) how it affects ovulation.<br>• Flushing is when the farmer feeds the ewe more of a higher quality feed (Achievement) so that she gains weight and improves condition before mating (Merit). Usually 4 – 6 weeks before the ram is put in (Achievement), which will increase the number of eggs that the ewe ovulates (Merit). This will increase the number of lambs or lambing percentage (Merit).<br>• Flushing can be done by feeding crops, meal, other supplements, or better quality pasture (Achievement), which will increase the ewe weight or condition before the rams are put out (Merit).<br>• Flushing has more effect early in the breeding season (Achievement) as if affects ovulation, so will not have any effect once fertilisation occurs (Merit).<br>• Mature ewes respond better to flushing than hoggets (Achievement). |

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<tr><td>(b)</td><td>

**Describes** (Achievement), **explains** (Merit) why the feed quality and stocking rate are different for ewes carrying twins.

- Ewes with twins need better quality feed (Achievement), when ewes are given better quality feed they don't have to eat as much (Achievement) because the ewe is maintaining two lambs (Merit). Quality feed allows the twins to develop efficiently (Merit).
- Having a lower stocking rate means the ewes get more feed (Achievement) because they don't have to compete as much for the feed (Merit).
- Ewes with twins benefit from a lower stocking rate because it allows the ewe to get more feed (Achievement). This means that they maintain better condition throughout pregnancy and into birthing (Merit), and produce better quality milk and more of it (Merit).

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**Describes** (Achievement), **explains** (Merit), **justifies** (Excellence) the combination of the two methods to prevent flystrike.

- Preventing flystrike and other external parasites from establishing will improve the health and production of the sheep. Both crutching and dipping are best used as preventative measures for flystrike, although dipping will also kill lice, maggots, and fly eggs.
- Health and production of sheep will be improved by prevention and / or cure as the animal will not be using energy to fight external parasites.

*Discussion around how each practice is done, and when it is done, will provide the bulk of evidence towards a comprehensive understanding.*

*Excellence would have several arguments from each method, and then discuss how they would work together to prevent flystrike.*

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*Dipping*

- Sheep are put through a chemical shower / spray or pour-on (Achievement) to kill external parasites such as ticks, lice, maggots (Merit).
- The chemical product label should be followed (Achievement) to ensure the correct application rate is used (Merit), and safety procedures are followed (Merit).
- It is important to ensure that the sheep receives good coverage of the chemical (Achievement) so that all areas of the animal are treated or all external parasites are killed (Merit).
- There is usually a withholding period with dips (Achievement); this ensures the chemicals are not consumed by humans (Merit).
- Only sheep that are in good health should be dipped (Achievement).
- Sheep can be yarded overnight before dipping to allow them to empty out (Achievement), which minimises faecal contamination of the dip (Merit).
- The dip chemical concentration should be maintained (Achievement) to ensure that the dip works properly and efficiently (Merit).

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*Dagging or crutching*

- Dagging or crutching is the cutting away of dirty, wet wool from around the tail and anus of the sheep (Achievement). The wet dirty wool attracts flies, especially the blowflies (Achievement) which lay their eggs on the wool (Merit) and in one or two days the maggots hatch, burrow into the skin and feed on the flesh of the sheep (Merit), causing pain, suffering, and reduced production (Merit).
- Crutching is carried out before the fly season – summer (Achievement). Crutching may be carried out at 6–8 week intervals (Achievement) to prevent reoccurrence of the dirty wool (Merit), and to prevent the flies from re-establishing (Merit).
- It is usually carried out in a shearing shed using electric or blade shears (Achievement). The crutchers / shearers will sit the sheep between their legs and shear the required portion of the sheep (Achievement), leaving the main fleece to continue growing (Merit).
- There are many varieties of crutching cradles, which allow the sheep to be crutched (Achievement) with less stress on the sheep (Merit) and less physical strain to the operator (Merit).

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**Question Two: Deer**

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Describes ONE idea at Achievement level. | Describes TWO ideas at Achievement level. | Describes THREE ideas at Achievement level. | Describes FOUR ideas at Achievement level. | Explains THREE ideas at Merit level. | Explains FOUR ideas at Merit level. | Justifies the chosen method. | Fully justifies the chosen method. |
| **N0** = No response; no relevant evidence. | | | | | | | |

| Q2 | Evidence |
|---|---|
| (a) | **Describes** (Achievement) the steps to carry out when drenching deer and **explains** (Merit) why it is done in this way.<br>• Deer are weighed, and then drench is administered to the heaviest animals (Achievement); this prevents under-drenching of stock (Merit).<br>• The drench amount is administered as per instructions on the pack (Achievement); this ensures that stock receive the required amount (Merit).<br>• Pour-on drench is administered along the length of the deer's back (Achievement), so that it is absorbed into the bloodstream (Merit).<br>• Drench types are alternated with each drenching (Achievement) to prevent build-up of resistant parasites (Merit).<br>• Stock are put in a race / crush in a darkened shed (Achievement) for easier and safer handling (Merit).<br>• To prevent injury, the drencher / handler should lean over the top of the race / crush (Achievement).<br>• All animals must be drenched (Achievement); this ensures that stock do not re-infect each other (Merit). |
| (b) | **Describes** (Achievement), **explains** (Merit) why it is important that deer do not have a worm burden.<br>• Parasites reduce the production or growth rates of stock (Achievement). Internal parasites can take the nutrients from digested food before it is absorbed into the animals' bloodstream (Merit) and / or they can damage internal organs, e.g. liver (Merit).<br>• Parasites cause a decrease in appetite (Achievement), which results in a loss of condition (Merit).<br>• Parasites absorb nutrients before stock get benefit from it (Achievement). This means that the animal will need to be fed more to maintain high production (Merit).<br>• Internal parasites eventually weaken the animal (Achievement) and medical intervention may be required, which could cause a withholding period, reducing production, and increasing costs through veterinary care, as well as reduced profits for the farmer (Merit). |

(c) **Describes** (Achievement), **explains** (Merit), **justifies** (Excellence) the better stag to breed with the hinds.

- Both stags have been genetically tested (proven) using the records from offspring collection using the Deer Select database (Achievement) and therefore have high quality, desirable traits (Merit) that are proven to be expressed in offspring of the sire (Merit). However, Sire A has the better traits for velvet production (Achievement).
- If offspring are going to reach their full genetic potential, then they also need good nutrition and health care (Merit).

| *Sire A* | *Sire B* |
|---|---|
| • Despite having offspring with lower average birthweight and carcass weight, Sire A's offspring will have a better velvet growth rate or overall velvet yield (Achievement). This means more velvet grown (Merit), and therefore increased production and profit for the farmer (Merit).<br>• Velvet production is the desired trait. Therefore, all other traits are irrelevant, or not as important (Merit).<br>• The sire will produce offspring with a higher genetic potential to produce velvet (Achievement), which will result in better velvet production in the offspring (Merit).<br>• There will be a larger increase in the genetic potential of the herd to produce velvet (Achievement), which will result in better velvet production and an increase in the gene pool in future generations (Merit).<br>• Lower birthweight means that there are less complications or deaths during birth (Merit). However, young may not be as resilient and therefore lower survivability (Merit). | • Less genetic potential for velvet production (Achievement). However, higher genetic potential to produce more venison (Achievement), should the farmer choose to send the deer to slaughter, if the offspring is female or not suitable for velvet (Merit).<br>• There will be less of an increase in genetic potential in the herd (Achievement), therefore less genetic gain in future generations (Merit).<br>• Higher birthweight means more chance of complications or death during birth (Achievement), which results in fewer deer reaching maturity (Merit).<br>• Young that are born successfully are stronger (Achievement) and therefore more likely to reach maturity (Merit). |

**Question Three: Cattle**

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Describes ONE idea at Achievement level. | Describes TWO ideas at Achievement level. | Describes THREE ideas at Achievement level. | Describes FOUR ideas at Achievement level. | Explains THREE ideas at Merit level. | Explains FOUR ideas at Merit level. | Justifies by comparing and contrasting. | Fully justifies by comparing and contrasting. |
| **N0** = No response; no relevant evidence. | | | | | | | |

| Q3 | Evidence |
|---|---|
| (a) | **Describes** (Achievement) what a withholding period is.<br>• A withholding period is a period of time after treatment that the meat, milk, offal etc cannot be used for human consumption (Achievement).<br>• A period of time in which the animal cannot be sold to the works to be killed (Achievement) because the meat could be contaminated by the vaccine (Achievement). |
| (b) | **Describes** (Achievement) / **Explains** (Merit) how the information stored through NAIT can be used to improve production and prevent the spread of *M.bovis*.<br>• All data gives better traceability (Achievement). However, the data must be uploaded to the NAIT database (Achievement) and this data is easily transferred, and accurate, if stock is bought or sold on (Merit), giving traceability of *M.bovis* or other diseases (Achievement), so can source, or prevent, any outbreak (Merit).<br>• Traceability for temporary movement, e.g. if animals are sent away for grazing or A&P shows (Merit).<br>• Data about every animal is stored on a national database, which means it is available to the farmer (Achievement). Data on NAIT database is available to the seller and the purchaser (Merit).<br>• Drenching or vaccinating times are stored (Achievement), which means accurate records for that animal or special animals (Merit). |

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Describes (Achievement) the two digestive systems and explains (Merit) how their digestion differs and justifies (Excellence) the links to their feed requirements.<br><br>
Both animals require nutrients for growth and repair, nutrients from the digest food are absorbed in the bloodstream in the small intestine. Excellence requires comprehensive discussion around the two digestive systems, linking their physiology to their ability to break down cellulose.
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<td>Cattle<br>• Cattle are ruminants – they have four parts to their stomach (Achievement). Feed is digested by microbial action in the rumen and reticulum (Merit). Excess water is absorbed by the omasum (Achievment) and proteins are digested by enzyme activity in the abomasum (Merit).<br>• This enables cattle to live on a diet high in cellulose or plant matter (Achievment). Papillae also increase the surface area in the rumen (Achievement), which is where fatty acids are absorbed in the bloodstream (Merit).</td>
<td>Pigs<br>• Pigs are monogastrics (non-ruminants) (Achievement) and digest food by chemical action (acids and enzymes) in the stomach (Merit).<br>• Caecum is located between the small and large intestine, so cellulose is quite far down the digestive system before it is broken down (Merit).<br>• Microbial digestion of cellulose or plant matter occurs in the caecum of monogastrics (Merit), and because of this, they are unable to thrive on a diet high in plant matter or roughage alone (Merit), so require feed that is low in cellulose, roughage, or fibre (Merit).<br>• The monogastric system is not able to easily digest cellulose (Achievement), so a pig needs a diet that is high in protein – processed foods or high energy foods that are easily digested (Merit).</td>
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## Cut Scores

| Not Achieved | Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|---|
| 0 – 6 | 7 – 12 | 13 – 18 | 19 – 24 |