

## Assessment Schedule – 2012

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

#### Evidence Statement

#### Question One – Drenching cattle

Not Achieved		Achievement		Achievement with Merit		Achievement with Excellence	
Describes how livestock management practices are carried out.				Links ideas to explain why livestock management practices, or steps within practices, are carried out.		Applies knowledge of livestock management practices to given situations. This may involve <b>comparing and contrasting</b> or <b>justifying</b> management practices.	
N1	N2	A3	A4	M5	M6	E7	E8
Describes ONE idea at the Achievement level.	Describes TWO ideas at the Achievement level.	Describes THREE ideas at the Achievement level.	Describes FOUR ideas at the Achievement level.	Explains THREE ideas at the Merit level.	Explains FOUR ideas at the Merit level.	Justifies the method chosen.	Fully justifies the method chosen by comparing and contrasting.

**N0** = No response; no relevant evidence.

#### Examples of evidence for answers may include:

- In (a) describes (Achievement) actions to carry out when administering drench, and explains (Merit) why each action is performed this way:
- Cattle are weighed and drench is administered to the heaviest animals (Achievement). This prevents under-drenching of stock (Merit).
  - Administer the drench amount as per instructions on the pack (Achievement). This ensures that stock receive the required amount (Merit).
  - **Position the drench gun to the back of the throat (Achievement). This prevents the animal from spitting out the drench (Merit).**
  - Alternate drench types with each drenching (Achievement) to prevent build-up of resistant parasites (Merit).
  - Have stock in the race (Achievement) for easier and safer handling (Merit).
  - Lean over the top of the race (Achievement) to prevent injury from crushing (Merit).
  - Ensure all animals are drenched (Achievement). This ensures that live parasites will not contaminate fresh grass (Merit).

In (b) explains (Merit) why cattle are drenched regularly:

- Drenching kills or reduces the number of internal parasites (Achievement). Internal parasites can take the nutrients from digested food before it is absorbed into the animals' bloodstream. (Merit)
- 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)
- Parasites reduce the production/growth rates of stock (Achievement), so that they need to eat more, which costs more/lowers profit margin. (Merit)
- 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/reduced profits for the farmer. (Merit)

In (c) describes/explains/justifies why one practice is preferable to the other.

Drench is administered in the race, so it is easier to manage stock and to see where you have been.

Oral drenching	Pour-on drench
<p>Advantages</p> <ul style="list-style-type: none"> <li>• Walk from front to back, to avoid getting kicked when approaching from behind.</li> <li>• Easier to do with smaller stock.</li> <li>• Provides a good opportunity to make a visual check of the animal's mouth.</li> <li>• Oral drench is cheaper.</li> </ul>	<p>Advantages</p> <ul style="list-style-type: none"> <li>• Safer for farmers, because they are positioned above the stock.</li> <li>• Less stressful for stock, as the farmer is not moving around amongst them.</li> <li>• Can fit more in the race, so less movement of stock and hence less chance of missing or double-dosing.</li> <li>• Easier for farmers to see where they have been, because they are positioned above the stock.</li> <li>• Faster application, because you don't have to physically open the animal's mouth.</li> <li>• Loading, drenching, and release from the race are all done from outside the race.</li> <li>• <b>Quick and easy to administer.</b></li> </ul>
<p>Disadvantages</p> <ul style="list-style-type: none"> <li>• More danger of being injured by the stock.</li> <li>• Can hurt the animals' mouths, making them less likely to be willing to be in the yards again.</li> <li>• Harder to keep track of where you've been, so could miss or double-dose some animals.</li> <li>• Difficult and dangerous to do with large stock.</li> </ul>	<p>Disadvantages</p> <ul style="list-style-type: none"> <li>• Pour-on drenches tend to cost more.</li> <li>• Difficult to make a visual check of stock.</li> <li>• <b>Not rain-proof.</b></li> </ul>

**Question Two – Feed management**

Not Achieved		Achievement		Achievement with Merit		Achievement with Excellence	
Describes how feed management practices are carried out.				Links ideas to explain why feed management practices, or steps within practices, are carried out.		Applies knowledge of feed management practices to given situations. This may involve <b>comparing and contrasting</b> or <b>justifying</b> management practices.	
N1	N2	A3	A4	M5	M6	E7	E8
Describes ONE idea at the Achievement level.	Describes TWO ideas at the Achievement level.	Describes THREE ideas at the Achievement level.	Describes FOUR ideas at the Achievement level.	Explains THREE ideas at the Merit level.	Explains FOUR ideas at the Merit level.	Justifies the method chosen.	Fully justifies the method chosen by comparing and contrasting.

**N0** = No response; no relevant evidence.

**Examples of evidence for answers may include:**

In (a) describes (Achievement) the different pasture or stocking ratios / explains (Merit) why the two mobs have different requirements:

- The multiple births will occur on more and/or better quality pasture (Achievement), because they have higher nutritional requirements (Merit).
- Better pasture for the multiple-birth mob (Achievement) will ensure that the lambs are born at a good size / multiple lambs are of comparable size to single lambs (Merit).
- Better pasture for the multiple-birth ewes (Achievement) means that the ewe is less likely to lose condition during lambing / they will be in better condition for lambing (Merit).
- Less pasture / higher stocking ratio for single pregnancies (Achievement) means that the lambs are not born too big (Merit).
- Lambs in each mob will be a good / healthy size, so less difficulty during lambing (Merit).
- Farmer can regularly check the health status of the pregnant ewes (Achievement). Multiple births tend have a higher percentage of birthing / health problems (Merit).

In (b) describes (Achievement) / explains (Merit) why supplementary feeds are introduced gradually:

- Microbes in the rumen take a while to build up (Achievement); slow introduction of feed gives the stock a chance to build up microbes that can break down that feed (Merit).
- Ruminants have microbes in their rumen to help break down organic matter / cellulose (Achievement); slowly introducing the feed gives the microbes a chance to build up, so that all the feed can be digested (Merit).
- Allows microbe population to build up (Achievement), otherwise much of the feed passes through the system unabsorbed (Merit).
- Feed may not be initially palatable to stock (Achievement); gradual introduction means they will become accustomed to the feed and therefore eat more (Merit).

In (c) describes/explains/justifies why one feed type is preferable to the others.

Ideally, multinuts would be selected, as they have the highest protein content, metabolisable energy, and digestibility.

<p style="text-align: center;"><b>Grains</b></p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• High in dry matter, so stores well.</li> <li>• High protein content, which promotes muscle growth.</li> <li>• High in metabolisable energy, so lambs have high energy for growth and repair.</li> </ul> <p>Disadvantages</p> <ul style="list-style-type: none"> <li>• Low digestibility, so takes longer/more energy to break down.</li> <li>• A lot of feed may pass through the digestive system of young stock undigested.</li> <li>• Can be costly.</li> </ul>	<p style="text-align: center;"><b>Multinuts</b></p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• High in dry matter, so stores well.</li> <li>• Very high in protein, which is good for rapid muscle growth.</li> <li>• Highly digestible, so most of the feed is digested, which maximises absorption of nutrients into the blood.</li> <li>• Highest metabolisable energy, so lambs are in the production zone of growth.</li> </ul> <p>Disadvantages</p> <ul style="list-style-type: none"> <li>• Expensive.</li> </ul>
<p style="text-align: center;"><b>Pasture hay</b></p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• High in dry matter, so stores well.</li> <li>• Cheap, as it can be made on the farm, not bought in.</li> <li>• Good use of pasture conservation.</li> </ul> <p>Disadvantages</p> <ul style="list-style-type: none"> <li>• Low digestibility, low protein, and very low metabolisable energy, so not good for production – more of a maintenance feed.</li> </ul>	<p style="text-align: center;"><b>Pasture silage</b></p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• High digestibility, so readily digested and absorbed.</li> <li>• Low in dry matter, so it is moist and palatable.</li> <li>• Cheap, as it can be made on the farm, not bought in.</li> <li>• Good use of pasture conservation.</li> </ul> <p>Disadvantages</p> <ul style="list-style-type: none"> <li>• Low in dry matter, so it rots more easily/is harder to store.</li> <li>• Low protein and very low metabolisable energy, so not good for production – more of a maintenance feed.</li> </ul>

**Question Three – Breeding**

Not Achieved		Achievement		Achievement with Merit		Achievement with Excellence	
Describes how livestock management practices are carried out.				Links ideas to explain why livestock management practices, or steps within practices, are carried out.		Applies knowledge of livestock management practices to given situations. This may involve <b>comparing and contrasting</b> or <b>justifying</b> management practices.	
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**N0** = No response; no relevant evidence.

**Examples of evidence for answers may include:**

In (a) describes (Achievement)/explains (Merit) how semen is collected and stored for artificial insemination (AI):

- Sire selection is important (Achievement) to get the most desirable genes (Merit).
- Artificial vagina is used (Achievement) to simulate/stimulate ejaculation (Merit).
- Semen is collected into a test tube and labelled (Achievement) to ensure that the semen can be tracked (Merit).
- Semen is diluted (Achievement); because it is being inserted directly into the uterus, it does not have to be so concentrated (Merit).
- Placed in straws that have a number corresponding to the sire (Achievement) to ensure tracking (Merit).
- Frozen/stored in liquid nitrogen/at  $-196^{\circ}\text{C}$  (Achievement), so semen can be used fresh/alive later (Merit).

In (b) describes (Achievement) how cattle are artificially inseminated, and explains (Merit) why each step in the process is performed this way:

- Technician ensures that all equipment/gloves are sterile (Achievement). This ensures that infections that cause ill health are not introduced into the reproductive organs (Merit).
- Ensure that cow is on heat (Achievement), otherwise there will be no egg to fertilise (Merit).
- Technician places hand in the anus to guide the straw through the cervix (Achievement). This ensures that the semen is deposited into the uterus (Merit).
- Straw is guided into the uterus by hand in anus (Achievement), so there is little danger of puncturing the uterus/cervix (Merit).
- Semen is deposited into the uterus (Achievement); there is less wastage/the sperm are more likely to locate the egg/fertilisation will occur (Merit).

In (c) describes/explains/justifies why AI is preferable to putting a bull in with the herd.

**Artificial insemination**

- Accurate.
- Can synchronise oestrus.
- Technician is skilled, and there is some level of guarantee.
- All cows are pregnant at the same time.
- All cows are dry at the same time.
- Calving is close together, so most of the herd begins milking at the same time.
- No need to maintain a bull throughout the year.
- Can select genes from sire for small calves, to reduce problems during calving.
- No need to purchase a bull.
- Can easily use several sires if the farmer wishes to have some calves to bring on as replacement herd, fatten to sell as yearlings, etc.
- No chance of injury to the cows from the bull.

**Putting a bull in with the herd**

- Costly to feed and maintain bull(s) throughout the year.
- More than one bull is needed with a big herd.
- Pregnancies are more spread out.
- Danger of injury to cow and/or bull/people during mating.
- Need to replace bulls as they age, or if different traits are desired.
- Takes time to remove/isolate the bull from the herd at milking times.