Assessment Schedule – 2016

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

Assessment Criteria

Question One: Dairy cows

Not Achieved		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 method chosen.	Fully justifies the method chosen by comparing and contrasting.

N**0** = No response; no relevant evidence.

Evidence Statement

Describes (Achievement) actions taken for the collection and storage of semen and **Explains** (Merit) why each action is carried out in that way.

- Sire selection is important (Achievement) to get the most desirable genes (Merit).
- Artificial vagina is used (Achievement) to 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˚C) (Achievement), so semen can be used fresh / alive later and / or easily transported (Merit).

Describes (Achievement) / **Explains** (Merit) the advantages of artificial insemination.

- Can synchronise oestrus (Achievement), so that all cows are pregnant at the same time (Merit).
- All cows are pregnant at the same time / all cows are dry at the same time (Achievement), so calving is close together (Merit), and therefore most of the herd begins milking at the same time (Merit).
- No need to purchase a bull (Achievement), so no need to maintain a bull throughout the year (Merit); no chance of injury to the cows from the bull (Merit).
- Can select sires with desired genes (Achievement) to breed for small calves – to reduce problems during calving (Merit), or high yield replacement cows (Merit).
- Can easily use several sires (Achievement) to have different traits in the herd, e.g. some calves to bring on as replacement herd or fatten to sell as yearlings, etc (Merit).

Describes (Achievement) / **Explains** (Merit) / **Justifies** (Excellence) why the use of feed pads is preferable to supplementary feeding in the paddock.

Feed pads:

- Better utilises the feed / less feed is wasted (Achievement), because all the feed is placed into troughs / bins that are fixed and can't be knocked over (Merit); feed / nutrients is not lost into the ground / the cows can eat all that has been put out (Merit).
- More efficient use of feed per cow / each cow is more likely to eat her share (Achievement), because the troughs are long and stable, so all the cows can access the feed, regardless of hierarchy (Merit).
- Has less of a negative impact on the environment (Achievement), because effluent is better managed / can be collected (Merit) and there are no unwanted seeds or plant matter left to grow in the paddock (Merit); high nutrient concentrates are not leaching nutrients into the ground (Merit); stock are not standing on / pugging ground during wet periods (Merit).
- Milk production is increased at lower cost (Achievement), because cows are eating their own share and none is being wasted (Merit).

Paddock:

- Land is not being taken out of grazing to build the feed pad (Achievement), so there is more pasture / paddock available for grazing / making hay / paddock rotations (Merit), which means that stock spend less time in one area, so are less likely to pug / overgraze an area (Merit).
- Feed pads are costly to build (Achievement) – this money could be spent on more supplementary feed / other farm projects (Merit).
- Stock can damage their feet on feed pads (Achievement) if they are left on them too long (Merit), or the surface is of poor quality / not maintained (Merit).

Question Two: Deer

Not Achieved		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.	Compares and contrasts the methods.	Comprehensively compares and contrasts the two methods.

N**0** = No response; no relevant evidence.

Evidence Statement

Describes (Achievement) / **Explains** (Merit) why electronic ear tags are used in New Zealand.

- The data gives better traceability (Achievement), so that data is accurate and easily transferred if stock is sold on (Merit), and so that the product can be tracked through all processes from birth to slaughter / packing (and / or retail outlets) (Merit).
- Traceability of disease (Achievement), so an outbreak can be sourced, prevented, or quarantined (Merit).
- So that accurate records for that animal / specific animals are kept (Achievement), including vaccinating / drenching times, types, and amounts (Merit); weight gains / growth can be tracked (Merit).
- Pedigree / to trace lineage (Achievement), to help with future mating to improve herd quality (Merit).

Describes (Achievement) ways in which internal and / or external parasites can affect animal production.

- Parasites reduce the production / growth rates of stock and eventually weaken the animal.
- Internal parasites can take the nutrients from digested food before it is absorbed into the animal's bloodstream.
- Internal parasites can do irreversible damage to internal organs.
- External parasites can affect hide / pelt quality.
- High concentrations of external parasites can weaken the animal / make it sick, reducing production.

Describes (Achievement) / **Explains** (Merit) / **Compares and contrasts** (Excellence) the two methods of parasite control.

Breeding resistance	**Regular drenching**
Advantages • Will eventually have a resistant herd (Achievement), so there will be no need to treat for parasites (Merit). • Resistant animals will pass on their resistance to their offspring (Achievement), thereby improving future stock (Merit). • Will not have to pay for drench every few months (Achievement), so the cost of the resistant stags is outweighed by those savings in the long term (Merit). • Less labour needed (Merit).	*Advantages* • The effect is immediate (Achievement), so don't have to wait for fawns to be born resistant / resistance to be bred in (Merit). • You know the entire herd / mob has been treated (Achievement) and can target specific parasites / alternate drenches (Achievement) to prevent parasites developing a resistance (Merit). • Relatively cheap compared to buying in stags that need ongoing feed and care (Achievement).
Disadvantages • Takes time to build a resistant herd. • Animals and production can be affected / reduced while resistance is bred in. • Will still have to drench until all stock are resistant. • Can be costly to buy in resistant stags / purchase resistant sperm for AI. • Have to feed and provide ongoing care if choice is to buy stags.	*Disadvantages* • Cost is still significant. • Have to drench every couple of months. • It is another job to do / labour-intensive. • Not permanent (Achievement), so parasites can re-occur and infect pasture or other stock (Merit).

Question Three: Sheep

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N**0** = No response; no relevant evidence.

Evidence Statement

Describes (Achievement) how sheep and pigs' digestive systems differ and **Explains** (Merit) how this influences their feed requirements.

Sheep

Sheep are ruminants – they have four parts to their stomach (Achievement); feed is digested by microbial action in the rumen (Merit), enabling sheep to live on a diet high in cellulose (Achieved). Papillae also increase the surface area in the rumen (Achievement), which is where fatty acids are absorbed into the bloodstream (Merit).

Pigs

Pigs are monogastrics / non-ruminants (Achievement) and digest food by chemical action (acids and enzymes) in the stomach (Merit). Microbial digestion of cellulose / 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 / roughage alone (Merit).

Describes (Achievement) / **Explains** (Merit) how vaccinating is carried out in sheep.

- Measure vaccine dose to the highest weight in the flock (Achievement), so that no sheep are under-dosed (Merit).
- Create a tent of skin in the neck area (Achievement), to ensure that the injection is under the skin but not into the muscle (Merit).
- Inject into the neck area (Achievement), so that valuable meat is not damaged / cysts don't form from the needle (Merit).
- Check expiry date of vaccine / don't use old vaccine (Achievement), as vaccines can lose their effectiveness if old or expired (Merit).
- Avoid wet conditions (Achievement), as vaccinating in the wet can result in infection at the wound / injection site (Merit).
- Check that the vaccination gun is correctly calibrated (Achievement), so that sheep are not under-dosed (Merit).
- Read instructions for the vaccine (Achievement), so that sheep are not under-dosed (Merit).
- Put sheep in a race (Achievement), to ensure that all sheep receive the vaccination (Merit).

Describes (Achievement) / **Explains** (Merit) / **Justifies** (Excellence) why one method is the better method for improving lambing percentages.

Supplementary feeding	**Reducing stocking numbers**
Advantages • Ewes will still get flushed (Achievement), and the lambing percentages will be high (Merit). • Can buy highly nutritious feed to target weight gain. • It takes only a short period of time to flush the ewes (Achievement), then they can have less feed once (initially) pregnant (Merit). • Takes grazing pressure off some paddocks, as the ewes are not eating as much grass (Achievement), so the other stock can eat it (Merit) or it has time to regrow (Merit).	*Advantages* • More feed will be available to flush remaining stock (Achievement), and their lambing percentages will be high (Merit). • Takes long-term pressure off the pasture (Achievement), making it last longer for the remaining stock (Merit) or recover more quickly from grazing (Merit). • Grazing pressure will be less. • Sell the less productive and / or older stock (Achievement), thereby improving overall flock quality (Merit).
Disadvantages • Costly. • It needs to be supplied to the ewes for several weeks. • Could still have too little grass going into winter (Achievement), meaning there may be an ongoing feed shortage for the property (Merit).	*Disadvantages* • Less stock to get pregnant (Achievement), so overall lamb numbers will be down (Merit). • Could have to sell breeding or replacement stock (Achievement), which would mean fewer ewes to breed from in future seasons (Merit).

Cut Scores

Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
0 – 7	8 – 13	14 – 18	19 – 24