

Assessment Schedule – 2020

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

Assessment Criteria

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 comparing and contrasting or justifying management practices.

Evidence

Question ONE	Evidence
(a) <i>Demonstrates knowledge of how vaccination of pregnant ewes is carried out.</i>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> • 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, or cysts do not form from the needle (Merit). • Check expiry date of vaccine. Do not 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 or injection site (Merit). • Check that the vaccination gun is correctly calibrated (Achievement). • Read instructions for the vaccine (Achievement), so you know the dosage rate for the species and administration subcutaneously or intramuscular (Merit). • Put sheep in a race (Achievement), to ensure that all sheep receive the vaccination (Merit).
(b) <i>Demonstrates knowledge of why a farmer would choose to finish lambs on a crop.</i>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> • Lambs are ruminant animals, which means they have four parts to their stomach (Achievement) and are able to digest and gain nutrients from plant material (Merit). • Crops are often higher in protein and energy (Achievement), which allow for faster muscle and bone development (Merit). Energy allows a more even fat coverage over the animal (Merit). • Lambs transitioning from a milk to a pasture diet need a feed that is palatable to encourage them to eat more (Merit). Crops are often more palatable to young animals and are more easily digested (Merit). • Energy and the nutritional value of grass drops off at the end of spring or start of summer (Achievement). Crops such as Lucerne and Plantain support significant lamb growth rates during this time (Merit).

<p>(c) <i>Demonstrates knowledge of why a farmer would use purebred Texel rams rather than purebred Texel ewes.</i></p>	<p>Describes (Achievement) / Explains (Merit) / Justifies (Excellence)</p> <p>Purebred Texel ram</p> <p>Advantages</p> <ul style="list-style-type: none"> • One ram can service many ewes (Achievement), which means the genetics can be introduced to the flock faster (Merit), increasing the value of the flock (Merit). • Cheaper to buy several rams than many ewes (Achievement), which lowers the production costs and allows the farmer to increase the profit (Merit). • Rams are purebred (homozygous dominant) (Achievement), which means desired traits (better meat) will be passed on to all offspring (Merit). • Hybrid vigour can be achieved (Merit) meaning increased growth rates in lambs, which allows for increased profit (Merit). <p>Disadvantages</p> <ul style="list-style-type: none"> • Rams can be costly to buy (purebred more so) (Achievement), which can reduce the profit made (Achievement). • Rams will need to be replaced regularly (1–2 years) (Achievement) to prevent inbreeding with replacement ewes (Merit). 	<p>Purebred Texel ewe</p> <p>Advantages</p> <ul style="list-style-type: none"> • Can guarantee that the offspring will carry the genes (Achievement). • Ewes are cheaper to buy as individuals than rams (Achievement), which is okay if only a few ewes need to be bought (Merit). • Ewes are purebred (homozygous dominant) (Achievement), which means desired traits (better meat) will be passed on to all offspring (Merit). <p>Disadvantages</p> <ul style="list-style-type: none"> • Have to buy many ewes to ensure that all the lambs have the desired trait (Achievement). • Replacement ewes with the desired trait take longer to enter the breeding flock (Merit). • May still also need a ram with the desired gene to increase production (Merit). • Higher mutton prices can increase the price that farmers have to pay for ewes (Achievement).
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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 given by comparing and contrasting.	Fully justifies the method given by comparing and contrasting.

N0 = No response; no relevant evidence.

Question TWO	Evidence
<p>(a) <i>Demonstrates knowledge of the effect that external parasites have on chickens.</i></p>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> • External parasites such as mites and lice, cause skin irritation and itching (Achievement), which can reduce production and growth (Merit). • They suck / remove blood from chicks (Achievement), which can reduce chicken health and growth (Merit). • Parasites can cause feather loss (Achievement), which can cause stress (Merit). It also means chickens have to use more energy to stay warm rather than growing (Merit). • Large numbers can cause sickness and eventually death (Achievement). • Parasites can easily spread to other chickens (Achievement) because of the close proximity of housed chickens (Merit).
<p>(b) <i>Demonstrates knowledge of the why farmers keep chickens indoors.</i></p>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> • The farmer keeps the same age groups together (Achievement) so the same feed, temperature, etc are easily monitored / kept the same for the group (Merit), which makes for more even growth within the flock (Merit) and less competition for food, water, etc (Merit). • Protects the birds from predators (Achievement), which can easily pick up or kill a small chick (Merit). • Protects young animals from the elements or environment (Achievement), meaning they are always in the most suitable conditions for optimum growth (Merit). • Easier for the farmer to ensure the temperature, etc (Achievement), is correct for both young chicks and older poultry (Merit). • No co-mingling with outside birds (Achievement). This reduces the risk of disease (Merit).

<p>(c) <i>Demonstrates knowledge of the best feed type for lactating sows.</i></p>	<p>Describes (Achievement) / Explains (Merit) / Justifies (Excellence)</p> <p><i>Note: Feed B is the recommended feed type for this question and candidates would need to select this for E8.</i></p> <p><i>An excellence answer will discuss the feed and energy requirements of lactating sows and link the feed constituents / components to specific production requirements.</i></p> <ul style="list-style-type: none"> • Pigs are monogastric (Achievement). 		
	<p>Feed A</p>	<p>Feed B</p>	<p>Feed C</p>
	<p>Advantages</p> <ul style="list-style-type: none"> • High energy levels (13.2 MJME). Lactating animals require food that is high in energy to allow for milk production without condition loss. <p>Disadvantages</p> <ul style="list-style-type: none"> • High fibre content (18%) means that the food has a lower digestibility. Having a low digestibility feed, means the food takes longer to travel through the digestive tract and the pig will struggle to eat enough to get energy requirements. • Low protein levels (11%). Protein is needed for lactating sows. Low protein could reduce the amount in milk available for piglets. • Low fat (1.8%). Fat is used as a source of energy for lactating animals. Low fat reduces energy available. 	<p>Advantages</p> <ul style="list-style-type: none"> • Highest energy levels (14.4 MJME) of the three feed options. Lactating animals require food that is high in energy to allow for milk production without condition loss. Lactation has the highest energy stages in a sow's life cycle. • Highest protein levels (19.5%), which will allow the sow to produce milk that has high protein levels for her piglets and promote their growth. Pigs are monogastric and must have protein added to their diet. • High fat levels (3.5%) provide for extra energy, which is likely to be required by the sow during lactation. <p>Disadvantages</p> <ul style="list-style-type: none"> • Lowest fibre content (12.7%) means the food is the most digestible so will move through a sow's digestive tract the fastest. May mean the animals eat more food. 	<p>Advantages</p> <ul style="list-style-type: none"> • High energy levels (13.0 MJME). Lactating animals require food that is high in energy to allow for milk production without condition loss. • Protein content (16.5%) is higher than A. Pigs need protein added to their diet. Barley provides more, and this will mean that the piglets receive more protein. • Lower fibre content (17.2%) than the others. Pigs can eat more feed, as it moves through digestive tract quickly, so they will get more energy for milk production. <p>Disadvantages</p> <ul style="list-style-type: none"> • Energy levels are the lowest for the three feed options.

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 by comparing and contrasting.	Fully justifies the method chosen by comparing and contrasting.

N0 = No response; no relevant evidence.

Question THREE	Evidence
<p>(a) <i>Demonstrates knowledge of how heat detection is carried out in dairy cows.</i></p>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> Heat detection can be carried out by tail painting, Kamar heatmount detectors, scratch pads, GPS tracking, or observing bulling (Achievement). <p>Tail paint</p> <ul style="list-style-type: none"> Check that the area is clean, dry, and free of any loose hairs (Achievement) as this will allow the paint to stick better (Merit). Apply the paint forward along the top of the tail and base of the spine (15cm long and 5cm wide) (Achievement). If the tail paint has been rubbed off (Achievement), it indicates that the cow is on heat because it shows that she has stood to be ridden by another animal (Merit). <p>Kamar heatmount detectors</p> <ul style="list-style-type: none"> Check that the tail head is clean, dry, and free of any loose hairs (Achievement) as this will allow the detection pad to stick better (Merit). Glue the Kamar heatmount detector onto the tail head of the animal (Achievement). When the cow has been mounted for more than three seconds, the detector turns from white to red (Achievement). This shows that the animal was ready to be mated as she was standing to be ridden, so is therefore on heat (Merit).
<p>(b) <i>Demonstrates knowledge of the benefits of artificially inseminating (AI) dairy cows.</i></p>	<p>Describes (Achievement) / Explains (Merit)</p> <ul style="list-style-type: none"> Farmers are able to select different bulls to inseminate the herd (Achievement). This means that they can tailor specific cows with specific traits for their offspring (Merit), enabling them to select replacement offspring or smaller calving weights, etc (Merit). Can select for specific traits without having the bull on site / farm (Achievement), which although costly, is cheaper than feeding the bulls (Merit) or dealing with the trouble / damage they may cause through fighting / agonistic behaviour (Merit). AI increases the chances of pregnancy because the semen is placed into the uterus (Achievement) and so less is lost getting through the (convoluted) cervix (Merit). Cows will not get injured through mating (Achievement) and will not get sexually transmitted disease (Achievement). One ejaculate can service / impregnate many cows (Achievement), because the semen is diluted before putting into the straws (Merit).

<p>(c) <i>Demonstrates knowledge of using both practices to treat mastitis.</i></p>	<p>Describes (Achievement) / Explains (Merit) / Justifies (Excellence)</p> <p><i>Excellence would involve a robust discussion around the advantages and disadvantages of both methods and how they work together to reduce mastitis outbreaks on the farm. E8 would acknowledge that treatment is preferable, or the first option, but cows that repeatedly get mastitis are culled.</i></p> <p>Treating with antibiotics</p> <p>Advantages</p> <ul style="list-style-type: none"> • Do not have to cull cows (Achievement). Do not lose good producers or high-quality genetics out of a herd (Merit). • In the short term, antibiotics treat the mastitis, reducing the number of cows with mastitis (Achievement) and improving the overall health of a herd (Merit). • Antibiotic milk can be fed to calves or other farm animals (Achievement), which means it is not wasted (Merit). <p>Disadvantages</p> <ul style="list-style-type: none"> • Vet or technician needs to come in and do it. It is expensive (Achievement), as you have to pay for their time and the product (Merit). • No guarantee that antibiotics will kill all of the bacteria (Achievement). There is a chance that some bacteria will remain at the beginning of the milking season to be passed on to other animals (Merit). • Treating animals with mastitis during the milking season can have a negative impact on production and income, as antibiotic milk cannot be sold to dairy companies (Merit). • Mastitis could be caused by a lack of hygiene in the shed (Achievement), so the cow could become re-infected (Merit). <p>Culling cows with repeated infections</p> <p>Advantages</p> <ul style="list-style-type: none"> • Culls cows that have clinical cases of mastitis from the herd (Achievement). This means that they cannot pass the mastitis infection on to any other animal at the start of the next season (Merit). • Farmers get paid for animals that are culled (Achievement), which means an increase in profit, and provides another source of income (Merit). • Do not have to pay a vet or technician to come in and give the herd antibiotics (Achievement), which reduces costs (Merit). • High-bulk milk somatic cell counts can lead to farmers receiving a lesser grade (less money for their milk) (Merit). Removing cows that could cause this could lead to an increase in the income the farmer receives (Merit). • Cows that get mastitis once have an increased chance of re-infection the following season (Merit). Overall, herd health is improved in the long term by removing the infected cow (Merit). <p>Disadvantages</p> <ul style="list-style-type: none"> • Potential loss of good producing animals or good genetics from the herd (Achievement) means loss of income in the next season (Merit), or the cost of replacing them (Merit). • Have to replace culled animals and this can be expensive (Merit).
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N0 = No response; no relevant evidence.

Cut Scores

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