

Assessment Schedule – 2022**Agricultural and Horticultural Science: Demonstrate knowledge of livestock management practices (90921)****Assessment Criteria**

Achievement	Achievement with Merit	Achievement with Excellence
Describes livestock management practices and related structural features, functions and concepts.	Explains why livestock management practices or steps are carried out. Explanation includes understanding of related structural features, functions and / or concepts.	Applies knowledge of livestock management practices to given situations. This includes comparing and contrasting or justifying.

Evidence**Question One: Breeding**

Evidence		Achievement	Achievement with Merit	Achievement with Excellence
(a) (i)	<p><i>How would a farmer flush ewes prior to tupping (mating)?</i></p> <ul style="list-style-type: none"> • Increase in the quality and quantity of feed. • Given 2–6 weeks prior to placing the ram in. • Flush ewes that are <u>under BCS 3</u>. 	Describes how a farmer would flush ewes.		
(ii)	<p><i>Why would a farmer choose to flush ewes?</i></p> <p>Flushing increases liveweight and <u>BCS</u> of the ewe, <u>which increases the ovulation rate</u>, and therefore there is a higher chance of <u>getting pregnant or having multiples</u>.</p>	Explains why a farmer would flush ewes with little detail.	Explains why a farmer would choose to flush including <u>underlined</u> -type evidence.	
(b)	<p><i>Identify three actions or steps taken when collecting and / or storing bull semen.</i></p> <ul style="list-style-type: none"> • An artificial vagina is used, <u>which helps stimulate ejaculation</u>. • Electrical stimulation of the bull via a rectal probe, <u>which stimulates ejaculation</u>. • Semen is collected in a test tube and labelled. • A bull mounts a steer instead of a cow for collection as: <ul style="list-style-type: none"> - <u>steers are larger and can cope with large bulls mounting them</u> - <u>the bull doesn't rely on them being 'on-heat'</u> - ensures collection of the sample as there is no vagina to enter. 	Identifies actions or steps in the collection or storage of semen, with little detail.	Explains why the actions or steps are taken when collecting or storing semen, including <u>underlined</u> -type evidence.	

	<ul style="list-style-type: none">• Semen is diluted; <u>as it is being inserted directly into the uterus, it does not have to be so concentrated.</u>• Semen is placed in straws <u>that have a number corresponding to the sire. This ensures traceability.</u>• Frozen / stored in liquid nitrogen (at -196°C), <u>so semen can be used later and easily transported.</u>• Use of a teaser, <u>induces excitement to encourage ejaculation.</u>									
(c)	<p><i>Which of the two practices identified is best for controlling internal parasites? Explain why you have chosen one over the other.</i></p> <table><tr><th colspan="2">Breed for resistance</th></tr><tr><th>Advantages</th><th>Disadvantages</th></tr><tr><td><ul style="list-style-type: none">• Resistance breeding means animals will pass on the resistance to their offspring, <u>which improves replacement stock.</u>• Will eventually have a resistant herd, <u>so there will be no need for treatments long term.</u>• Will not have to pay for drenching, both product and labour, <u>which means money can be used elsewhere.</u></td><td><ul style="list-style-type: none">• Can take a long time to build up a resistant herd.• Sires need to be purchased from a proven breeder, <u>so can be expensive to purchase, especially if there is high demand for the trait.</u>• Will need to replace the bulls used to avoid inbreeding with replacements and <u>will need to continue to purchase resistant bulls.</u>• Labour intensive, <u>as data will need to be collected on each offspring that is headed for the replacement herd so breeding or cull decisions can be made.</u>• <u>Short term, a combination of drenching and selective breeding needs to be done.</u></td></tr></table>	Breed for resistance		Advantages	Disadvantages	<ul style="list-style-type: none">• Resistance breeding means animals will pass on the resistance to their offspring, <u>which improves replacement stock.</u>• Will eventually have a resistant herd, <u>so there will be no need for treatments long term.</u>• Will not have to pay for drenching, both product and labour, <u>which means money can be used elsewhere.</u>	<ul style="list-style-type: none">• Can take a long time to build up a resistant herd.• Sires need to be purchased from a proven breeder, <u>so can be expensive to purchase, especially if there is high demand for the trait.</u>• Will need to replace the bulls used to avoid inbreeding with replacements and <u>will need to continue to purchase resistant bulls.</u>• Labour intensive, <u>as data will need to be collected on each offspring that is headed for the replacement herd so breeding or cull decisions can be made.</u>• <u>Short term, a combination of drenching and selective breeding needs to be done.</u>	Describes advantages and disadvantages of the practice/s.	Explains advantages and disadvantages of the practice/s, including <u>underlined</u> -type evidence.	Justifies which practice they would recommend by comparing and contrasting it with the other.
Breed for resistance										
Advantages	Disadvantages									
<ul style="list-style-type: none">• Resistance breeding means animals will pass on the resistance to their offspring, <u>which improves replacement stock.</u>• Will eventually have a resistant herd, <u>so there will be no need for treatments long term.</u>• Will not have to pay for drenching, both product and labour, <u>which means money can be used elsewhere.</u>	<ul style="list-style-type: none">• Can take a long time to build up a resistant herd.• Sires need to be purchased from a proven breeder, <u>so can be expensive to purchase, especially if there is high demand for the trait.</u>• Will need to replace the bulls used to avoid inbreeding with replacements and <u>will need to continue to purchase resistant bulls.</u>• Labour intensive, <u>as data will need to be collected on each offspring that is headed for the replacement herd so breeding or cull decisions can be made.</u>• <u>Short term, a combination of drenching and selective breeding needs to be done.</u>									

Drenching (pour on)				
Advantages	Disadvantages			
<ul style="list-style-type: none"> • Cheap cost, compared to the outlay of changing the genetics of the flock. • Only have to do if there is an internal parasite burden, <u>as it is a treatment, not prevention.</u> • The effect (treatment) is immediate. 	<ul style="list-style-type: none"> • Costs money, both product and labour. • Drench resistance can occur, and <u>therefore treatment is ineffective.</u> • May have to do it more than once a year, <u>which can increase stress through handling on the animal.</u> • Best to use in combination with safe pasture rotation, <u>28-day gap between grazing to ensure internal parasite lifecycle has completed.</u> 			

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.	Justifies the method chosen by comparing and contrasting the other method.

N0 = No response; no relevant evidence.

Question Two: Feeding

Evidence		Achievement	Achievement with Merit	Achievement with Excellence
(a) (i)	<p><i>Name a type of supplementary feed given to deer and describe how it is fed to them.</i></p> <ul style="list-style-type: none"> • Baleage / Silage – tractor can be used to place spread out in paddock. • Hay – can be placed into a feeder. • Grain (cereals) – fed in a feeder to reduce spoilage. • Forage crops – break feed. 	Names supplementary feed for deer and describes how it is fed out.		
(ii)	<p><i>Why would a farmer provide supplementary feed?</i></p> <ul style="list-style-type: none"> • <u>Supplementary feeds are often fed out when there is low pasture availability which can be due to droughts, or season, e.g. winter – slow growing.</u> • <u>The other reason deer might need supplementary feed is due to their nutritional demands, e.g. gestation or lactation or growth or finishing.</u> • <u>Need to slowly introduce into the diet of the animal.</u> This allows rumen microbes time to adjust to the new feed type. 	Explains why a farmer would need to provide supplementary feed, few details.	Explains why a farmer would need to provide supplementary feed, including <u>underlined</u> -type evidence.	
(b)	<p><i>Why is colostrum important for newborn livestock?</i></p> <ul style="list-style-type: none"> • Colostrum is the first milk. • Colostrum is high in nutrients and antibodies, which <u>helps the growth and development of the newborn livestock.</u> • Newborn livestock are born with a non-developed immune system and <u>must absorb antibodies received from the colostrum.</u> • Antibodies in colostrum provide newborn livestock <u>with their initial immune protection.</u> 	Describes why colostrum is important.	Explains why colostrum is important, including <u>underlined</u> -type evidence.	

(c)

Justify whether you would recommend a farmer set stock or rotational graze during the lambing period by comparing one practice to the other.

Set Stocking

Set stock grazing is when livestock graze a pasture for an extended amount of time with no rest. Typically, with stock units (SUs) per paddock (ha) being reduced.

Advantages	Disadvantages
<ul style="list-style-type: none">Ewes can be drafted <u>based on lambing period, and / or feed requirements</u>.Do not have to move – muster – pregnant ewes, or ewes with lambs, <u>decrease the stress, or chance of mismothering</u>.Smaller mobs, so can leave the ewes and <u>check on a needs basis</u>.Enables the ewe to control where, when and which plants it eats.	<ul style="list-style-type: none">Not enough rest for the plants from grazing, <u>could lead to reduced recovery time and growth rate</u>.Ewes will be selective, and <u>graze most palatable pasture species first, which could leave less palatable and digestible for when they are requiring a high-feed requirement at lactation</u>.Labour intensive to set stock ewes.

Rotational Grazing: Rotational grazing involves moving livestock through a series of paddocks so when they have finished grazing the last paddock in the series, the first paddock has recovered to allow the rotation to recommence.

Advantages	Disadvantages
<ul style="list-style-type: none">Allows for better urine and faeces distribution.Plants are grazed for short periods of time, <u>which will encourage growth</u>.Ewes are not brought into the yards 1–2 weeks before lambing, <u>less stress</u>.	<ul style="list-style-type: none">As moving paddocks regularly, <u>each paddock needs to have water and access to shade</u>.Higher grazing pressure of rotational grazing means the animals <u>have less ability to choose</u>.Need to move animals frequently, pregnant ewes or ewes with lambs, <u>increase the stress, or chance of mismothering</u>.Less space for the ewe to move away from the mob for lambing.

Describes the grazing systems' advantages and disadvantages.

Explains the grazing systems' advantages and disadvantages, including underlined-type evidence.

Justifies which practice they would recommend to the farmer by comparing it with the other.

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.	Justifies the method chosen by comparing and contrasting with the other method.

N0 = No response; no relevant evidence.

Question Three: Animal health

Evidence		Achievement	Achievement with Merit	Achievement with Excellence
(a)	<p><i>Identify three actions or steps taken when drenching lambs. Explain why each action or step is taken.</i></p> <ul style="list-style-type: none"> Lambs are weighed, and drench is administered to the heaviest animals. <u>This prevents under-drenching of stock.</u> Administer the drench amount as per instructions on the pack. <u>This ensures that stock receive the required amount.</u> Position the drench gun to the back of the throat, <u>preventing the lamb from spitting out the drench reducing the amount it consumes.</u> Have stock in the race <u>for easier and safer handling.</u> Alternate drench types with each drenching, <u>to reduce resistance.</u> Do a FEC, so <u>targeted drench can be used.</u> Ensuring all lambs are drenched ensures that <u>live parasites will not contaminate fresh grass.</u> 	Describes steps taken when drenching lambs, with some detail.	Explains why the steps are taken when drenching, including <u>underlined</u> -type evidence.	
(b)	<p><i>Why would a farmer carry out a faecal egg count (FEC) before drenching?</i></p> <ul style="list-style-type: none"> To know what type of internal parasites are present, therefore can <u>use a targeted (specific) drench instead of using a broad spectrum which can increase the chance of drench resistance.</u> <u>If a FEC is low then treatment may not be necessary.</u> <u>Drenching when not required, can increase the chance of resistance.</u> 	Describes why a faecal egg count would be conducted before drenching, in some detail.	Explains why a faecal egg count would be conducted before drenching, including <u>underlined</u> -type evidence.	

(c)	<p>Which of the three ways of adding magnesium would you recommend using to prevent milk fever? Explain why you have chosen this method by comparing it to one other.</p> <p>Place in the water source: Magnesium added to trough water as sulphate or chloride.</p> <table><tr><th>Advantages</th><th>Disadvantages</th></tr><tr><td><ul style="list-style-type: none">• Troughs are already set up for paddocks, already spread around the property.• Easy to mix into water in troughs and <u>be targeted so only water needs to be added to troughs where animals are located.</u>• Labour low, <u>which will reduce cost as stock will be checked on regularly, and when moved Mg can be added to trough water.</u></td><td><ul style="list-style-type: none">• Not all animals will drink the same amount of water, so therefore <u>may not receive the required amount of Mg.</u>• <u>As troughs refill the solution will dilute.</u>• Needs to be drunk every day.• If the water content in the pasture is high, <u>then the amount of water consumed will be reduced.</u>• When animals move paddocks, the troughs in those paddocks need Mg added.• Taste may put some animals off, <u>reducing intake, which can have a negative impact on nutrient absorption.</u></td></tr></table>	Advantages	Disadvantages	<ul style="list-style-type: none">• Troughs are already set up for paddocks, already spread around the property.• Easy to mix into water in troughs and <u>be targeted so only water needs to be added to troughs where animals are located.</u>• Labour low, <u>which will reduce cost as stock will be checked on regularly, and when moved Mg can be added to trough water.</u>	<ul style="list-style-type: none">• Not all animals will drink the same amount of water, so therefore <u>may not receive the required amount of Mg.</u>• <u>As troughs refill the solution will dilute.</u>• Needs to be drunk every day.• If the water content in the pasture is high, <u>then the amount of water consumed will be reduced.</u>• When animals move paddocks, the troughs in those paddocks need Mg added.• Taste may put some animals off, <u>reducing intake, which can have a negative impact on nutrient absorption.</u>	<p>Describes advantages and disadvantages of management practices when adding Mg to the diet.</p>	<p>Explains advantages and disadvantages of management practices when adding Mg to the diet, including <u>underlined-type</u> evidence.</p>	<p>Justifies which practice they would recommend to the farmer by comparing it with one of the others.</p>
Advantages	Disadvantages							
<ul style="list-style-type: none">• Troughs are already set up for paddocks, already spread around the property.• Easy to mix into water in troughs and <u>be targeted so only water needs to be added to troughs where animals are located.</u>• Labour low, <u>which will reduce cost as stock will be checked on regularly, and when moved Mg can be added to trough water.</u>	<ul style="list-style-type: none">• Not all animals will drink the same amount of water, so therefore <u>may not receive the required amount of Mg.</u>• <u>As troughs refill the solution will dilute.</u>• Needs to be drunk every day.• If the water content in the pasture is high, <u>then the amount of water consumed will be reduced.</u>• When animals move paddocks, the troughs in those paddocks need Mg added.• Taste may put some animals off, <u>reducing intake, which can have a negative impact on nutrient absorption.</u>							

Capsules:

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> Guarantees that Mg will enter the body and <u>ensures the correct dosage is received.</u> Need to do it in the yards, <u>but can check the animal's health, physical structure, and BCS when there.</u> Long lasting, so <u>can be certain animals are receiving the Mg for that duration of time.</u> 	<ul style="list-style-type: none"> Expensive to purchase and <u>will need additional labour as it is intensive for administering the capsule.</u> Needs to be administered correctly.

Powder applied to pasture: Pasture dusting with magnesium oxide

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> <u>Powder has more elemental Mg than that of the one placed into troughs.</u> Can be blended with hay or silage feed-outs. 	<ul style="list-style-type: none"> Dependent on how much the animal consumes; if consuming less pasture will consume less Mg. Needs to be applied early morning, <u>to ensure that it is consumed throughout the grazing period.</u> Challenging on windy or wet days, <u>as some areas may end up with more applied (spread). heavy rain will reduce the amount.</u>

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.	Justifies the method chosen by comparing and contrasting with another method.

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