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11.55

SUPERVISOR'S USE ONLY

Level 1 Agricultural and Horticultural Science, 2011

90921 Demonstrate knowledge of livestock management practices

9.30 am Thursday 17 November 2011

Credits: Five

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate knowledge of livestock management practices.	Demonstrate in-depth knowledge of livestock management practices.	Demonstrate comprehensive knowledge of livestock management practices.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

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**Low
Excellence**

TOTAL

22

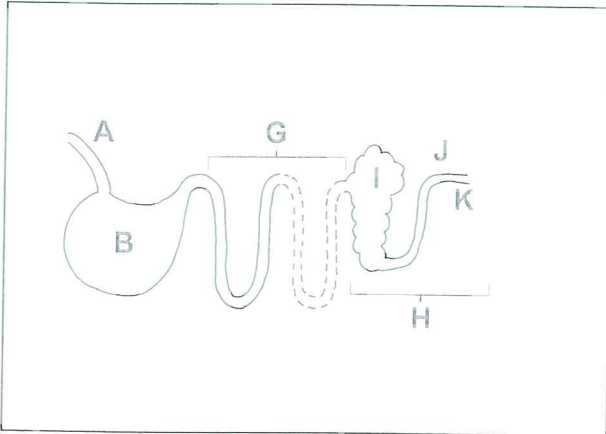
ASSESSOR'S USE ONLY

You are advised to spend 60 minutes answering the questions in this booklet.

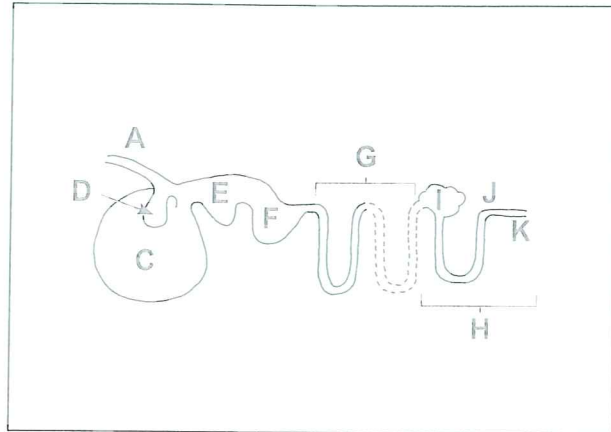
QUESTION ONE: LIVESTOCK NUTRITION

Farmers need to understand the type of digestive system of their livestock in order to provide them with correct nutrition. A key is provided under the diagrams below to identify the parts.

Digestive system of a pig



Digestive system of a sheep



Key to labels for BOTH diagrams above

A	oesophagus	E	omasum	I	caecum
B	stomach	F	abomasum	J	rectum
C	rumen	G	small intestine	K	anus
D	reticulum	H	large intestine		

- (a) Select *EITHER* a pig *OR* a sheep and explain how it digests its food. You may use information from the diagrams above to help you answer this question.

In your answer you should:

- describe where and how food is digested (broken down in size)
- describe where nutrients are absorbed from the digestive system
- explain how the surface area for nutrient absorption is increased in the digestive system.

Selected animal: Sheep. The food goes down the oesophagus and into the rumen. There micro-organisms ferment the food using enzymes to VFA. ~~then~~ The VFA is absorbed through the papilla in the rumen and into the bloodstream where it is transported around the body. ^{Further fermentation of water removed} As the remaining food comes along past the reticulum, omasum and the abomasum, ^{protein digest} it reaches the small intestine where further absorption is done ~~through~~ of the nutrients through the villi and into the bloodstream for transportation around the body. The surface area for nutrient absorption is increased by the adding and removing of saliva to the nutrients.

Good description of ruminant digestion explanation lacks detail

For weaned pigs and lambs to achieve fast growth rates, the farmer feeds them different types of feed as shown in the table below.

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Animal	Feed type	% protein	Energy value (MJME)
Indoor reared and weaned pigs	Weaner meal concentrate	21	13.5
Weaned lambs	Fresh leafy pasture	21	11.5

(b) Using the information in the table, explain why the types of feed given to weaned pigs and lambs are different.

In your answer you should:

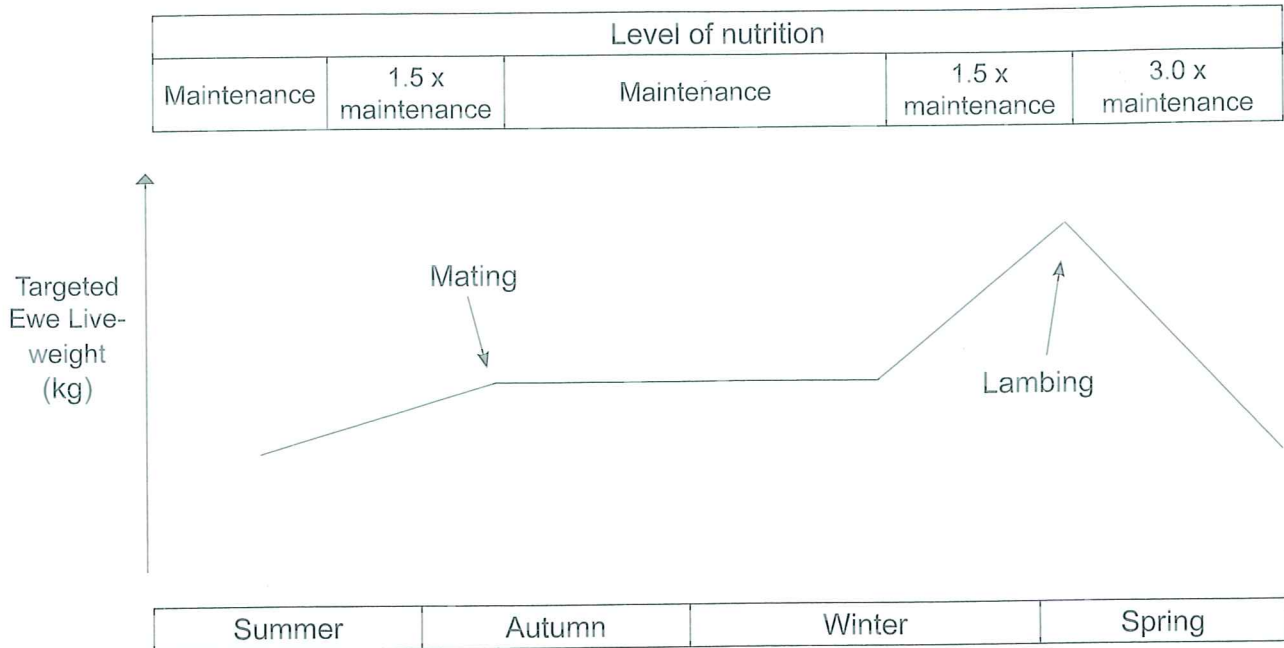
- explain how their digestive systems allow them to best use the type of feed provided
- explain how the feed produces fast growth rates in both pigs and lambs.

Since pigs only have ^{one} ~~one~~ stomach, they cannot digest cellulose that is in pasture. ~~So instead~~ Pigs would end up not being able to digest the cellulose, they would excrete it out. Their digestive systems let them best use meal concentrate because they can digest the starch or wheat in meal and can use the energy effectively. Whereas lambs have 4 stomachs (ruminant) and can digest cellulose so leafy or pasture can be digested. They get ~~the most energy out of cellulose~~ and digestive systems best use pasture because cellulose ~~is a~~ is good source of metabolisable energy. Meal produces fast growth rate in pigs because they get all the energy out of it and has a high metabolisable energy count (MJME) giving them fast growth. Sheep enjoy pasture because they get the energy out of the cellulose and can obtain a good growth rate. Good comparisons + contrasts in both digestive systems along with a focus on growth.

The diagram below shows the changing feed requirements for breeding ewes throughout the year.

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Feed requirements measured by ewe target liveweights



(c) Justify the changing levels of nutrition for breeding ewes throughout the year.

In your answer you should:

- explain why feed requirements change throughout the year
- explain how the changes in feed requirements are important for getting high returns from lambs.

The feed requirements ~~change~~ increase in late winter because of the cold conditions and pregnancy. They need high maintenance to support the lamb and fight the cold. The maintenance level drops in Spring because they are calving but don't want to over feed in case the lamb gets too big and have issues giving birth. Plus its starting to warm up. Maintenance is increased between summer and autumn because flushing is happening. The high supplementary feed is bought in and the lambs are out. This is trying to get the lamb pregnant and requires high maintenance. These changes are important for returns so you get a good birth success rate (lamb survival) and so no issues or stress are inflicted on the ewes.

Sound description but lack of detail regarding high returns

7

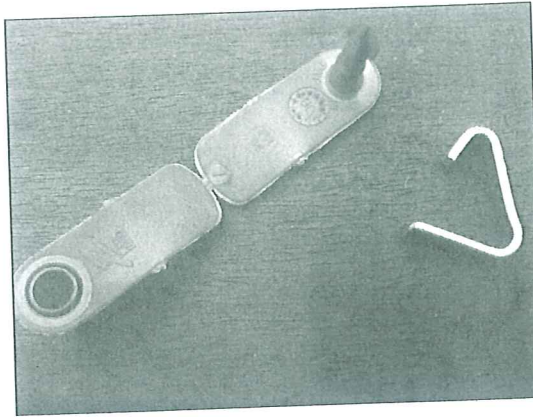
QUESTION TWO: BREEDING PROGRAMME

A high country farmer of fine wool merino sheep considers two key factors in a successful breeding programme to decrease fine wool fibre diameter.

These two factors are:

- identification using ear tags
- ram selection.

Ear tag



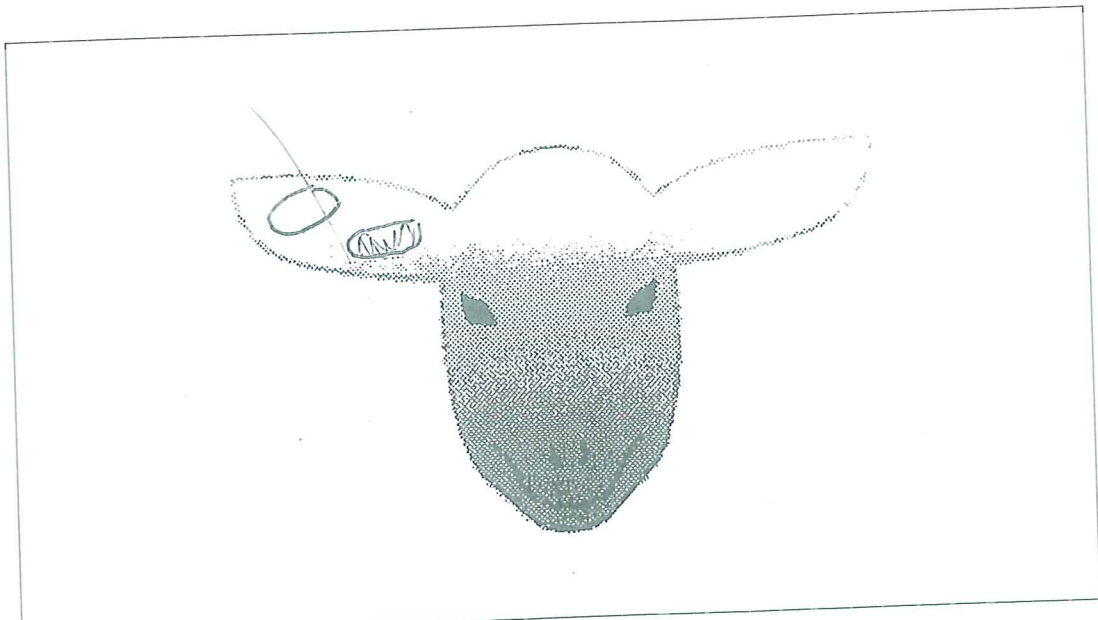
(a) Describe the process (practice) of putting in an ear tag.

In your answer you should:

- show on the diagram below where the ear tags should be positioned
- state the information that should be shown on the ear tag(s) that the breeder would find useful.

The number or code of the sheep should be on the tag.
 The ram she is to be with for breeding
 The area or location she should be.

Good Answer



The other factor the high country farmer uses in the breeding programme to produce fine wool is the **selection** of suitable rams.

- (b) Explain why more emphasis is placed on the selection of rams than the selection of ewes in the breeding programme.

Because the rams characteristics are what the lamb is going to look like. You want to pick the ram that has the right wool type or colour you want to reproduce. You also want to pick a ram that wants to be with the ewes and disease free and has been used to a certain type of land.

The high country farmer wants to produce better quality wool from the merino flock, which is free of foot rot. The farmer has the choice of buying rams from two breeders:

Breeder 1 farms on lower country which has rams producing better quality wool, but the flock has a problem with foot rot.

Breeder 2 runs a high country farm in a different area. The wool quality of the rams is the same as the farmer's flock, but Breeder 2's flock is free of foot rot.

- (c) The farmer decides to buy rams from Breeder 2 rather than from Breeder 1. Justify the farmer's decision.

In your answer you should:

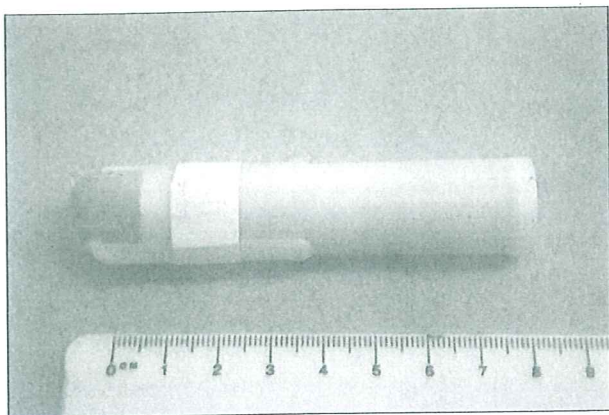
- explain the impact of the environment on producing fine wool
- discuss the economic factors.

The breeder 2's ram is up in the high country for most of its life. So it will be used to the life on the high country. Whereas breeder 1's ram has been down on the lower country and may find it harder or a little different up in the high country. Breeder 2 has been previously in a flock that is free of foot rot. Since the farmer clearly wants wool free from foot rot, that would be the choice. Whereas breeder 1 has been in a flock that has better wool, but has had a history with foot rot. Breeder 2 would be recommended, even though the wool wouldn't sell for as much as the Breeder 1, you would get more money economically because the ^{better} ~~higher~~ wool with no foot rot won't sell for as much. But with Breeder 2 you get a less quality wool, but foot rot free selling all at the same price and eventually earning more money than Breeder 1.

Good explanation & discussion regarding economic factors

QUESTION THREE: ORAL DRENCHING

There are different oral drenching methods used to control internal parasites in sheep. Two examples are shown in the photographs below.

100-day drench capsule**Oral liquid drench**

Select ONE of the methods farmers could use to control internal parasites.

Selected method: Oral liquid drench

(a) Explain how to drench using the selected method.

In your answer you should:

- describe the steps involved in drenching
- explain why each step is carried out.

Oral liquid drench should be applied at the side of the mouth, in the gap in the teeth and onto the base of the tongue. It is placed in the side of the mouth ~~because~~ so they don't get any resistance or bitten by trying to place it in. In the gap in the teeth so they don't have to lift the mouth open to apply it. It's applied on the base of the tongue so they don't ~~reg~~ spit it back up and is swallowed properly.

Excellent describe & explain answer

(b) (i) Describe the effects that internal parasites have on sheep.

Stomach worm steals nutrients from the sheep and causes irritation.

Lung worms gives the sheep difficulty to breathe and causes stress.

Good descriptions here

- (ii) Explain how drenching improves sheep production and lamb growth rates.

Because they don't get in any pain or stress that makes them not want to eat, ^{or the way} so they eat fully increasing production + growth. Nutrients isn't stolen from them from stomach worm, giving them the ability to use all of their nutrients all for production and growth or the inability not to walk to their food.
Killing parasites is inferred.

Two neighbouring hill country sheep farmers were discussing the best method for controlling internal parasites on their farms. Both farms have 4000 mixed-aged ewes.

Farmer 1 gives ewes a 100-day drench capsule before lambing.

Farmer 2 drenches ewes before and after lambing with an oral liquid drench.

- (c) Justify the use of different drenching methods by each farmer.

In your answer you should consider:

- the ease of management of each method
- the possibility of parasite resistance
- the cost-effectiveness of each method.

Giving ewes a 100-day drench capsule is alot easier to manage than drenching before and after lambing. This is because with the capsule you just stick them in and essentially forget about them where as you have to do oral drenching twice. However the 100-day capsule could possibly cause parasite resistance because its slow releasing for 100 days giving them the opportunity to build a resistance. Where as with oral drenching twice you can drench one brand before lambing, and then drench with a different brand/chemical family after lambing. This will kill any attempt of parasite resistance. The 100-day capsule will cost more than the oral drench because your placing one individual capsule in each lamb which can be pricy. Where as oral drenches you can by in a giant container and use one container to drench the 100's of sheep. Good/Sound justification. could have expanded the cost effectiveness component but overall an E student.

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**High
Excellence**

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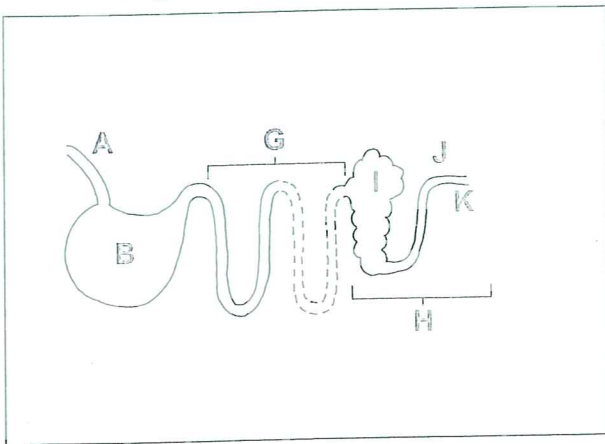
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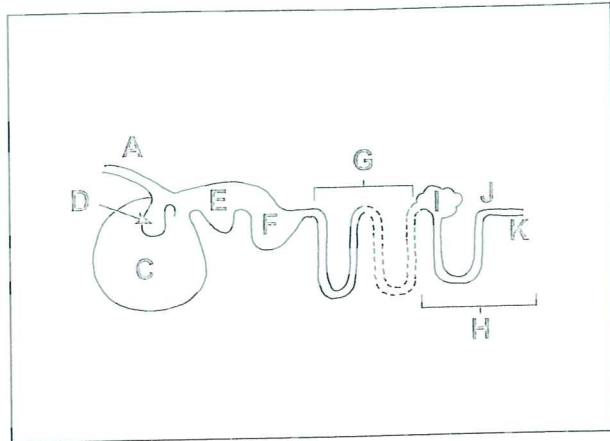
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- describe where and how food is digested (broken down in size)
- describe where nutrients are absorbed from the digestive system
- explain how the surface area for nutrient absorption is increased in the digestive system.

Selected animal: sheep

In sheep large particles of grass are broken down into small particles by a process called rumination. This increases the surface area for microbes and enzymes so it speeds up digestion and also is more efficient. In a sheep volatile fatty acids are absorbed by finger like projections in the rumen called papilli which increase the surface area for absorption.

Good descriptions of ruminant digestion with link to increased surface area. Back page.

For weaned pigs and lambs to achieve fast growth rates, the farmer feeds them different types of feed as shown in the table below.

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(b) Using the information in the table, explain why the types of feed given to weaned pigs and lambs are different.

In your answer you should:

- explain how their digestive systems allow them to best use the type of feed provided
- explain how the feed produces fast growth rates in both pigs and lambs.

As sheep you can feed them fresh leafy pasture which has cellulose in it. They have four stomach and the first 3 (rumen, reticulum, omasum) use microbial digestion to break down cellulose and turn it into microbial protein. But with pigs they cannot do this as they only have one stomach (abomasum) which is chemical digestion. So pigs have to be fed a feed that is high in energy and protein but low in plant fibre. Each feed allows each animal to grow at fast rates as they have protein for muscle growth and lots of energy.

Good explanations for digestive systems ruminant < microbial < 4 stomach

monogastric < one stomach < chemical

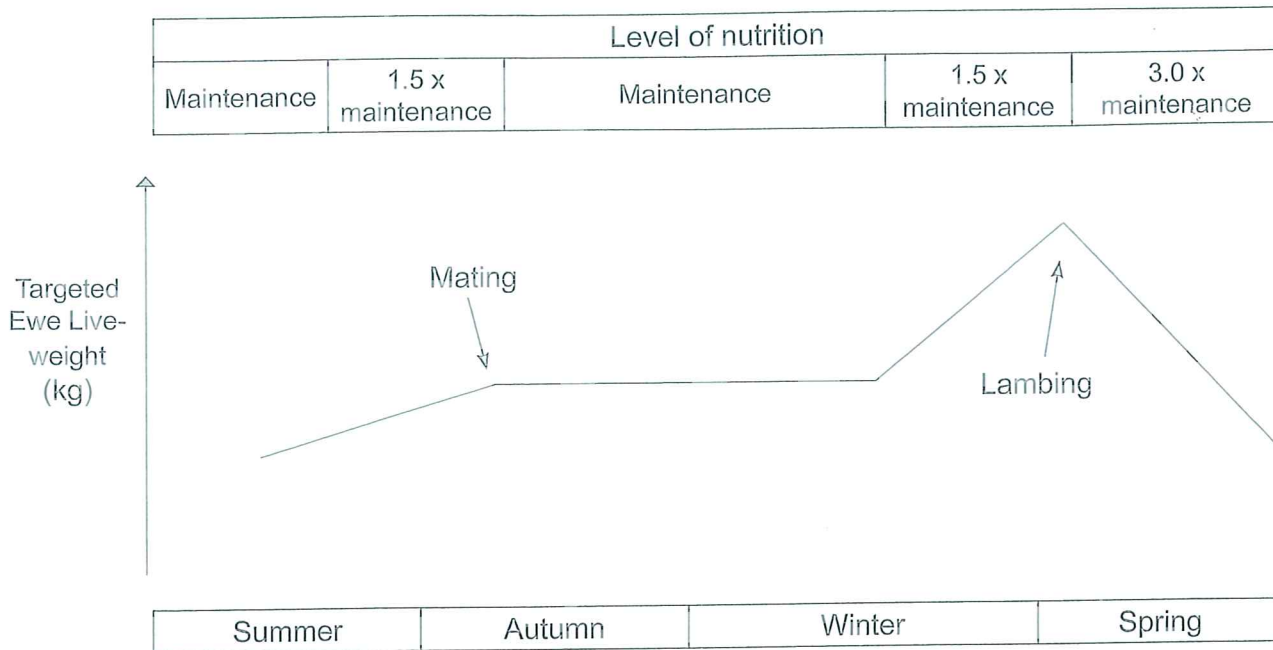
Links → Protein for Energy with muscle growth

Excellent Answer

The diagram below shows the changing feed requirements for breeding ewes throughout the year.

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Feed requirements measured by ewe target liveweights



(c) Justify the changing levels of nutrition for breeding ewes throughout the year.

In your answer you should:

- explain why feed requirements change throughout the year
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In early summer ewes are feed enough just to maintain their weight as they are dry and have no lambs in side them. late summer early spring you are giving them extra feed so that they saper ovulate as it is coming up to mating, this is called tupping. Which incvoases the ewes condition so that she produces more eggs and therefore more lambs. As a healthy ewe will produce more eggs then an under condition ewe. from middle of autumn to late winter ewes are feed

Good explanations why increased feed supply is necessary with linkage to high returns on back page.

ES

QUESTION TWO: BREEDING PROGRAMME

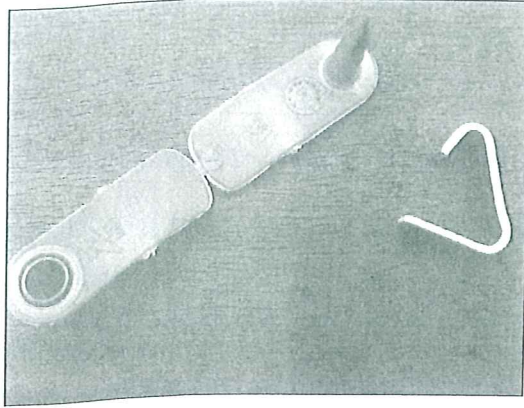
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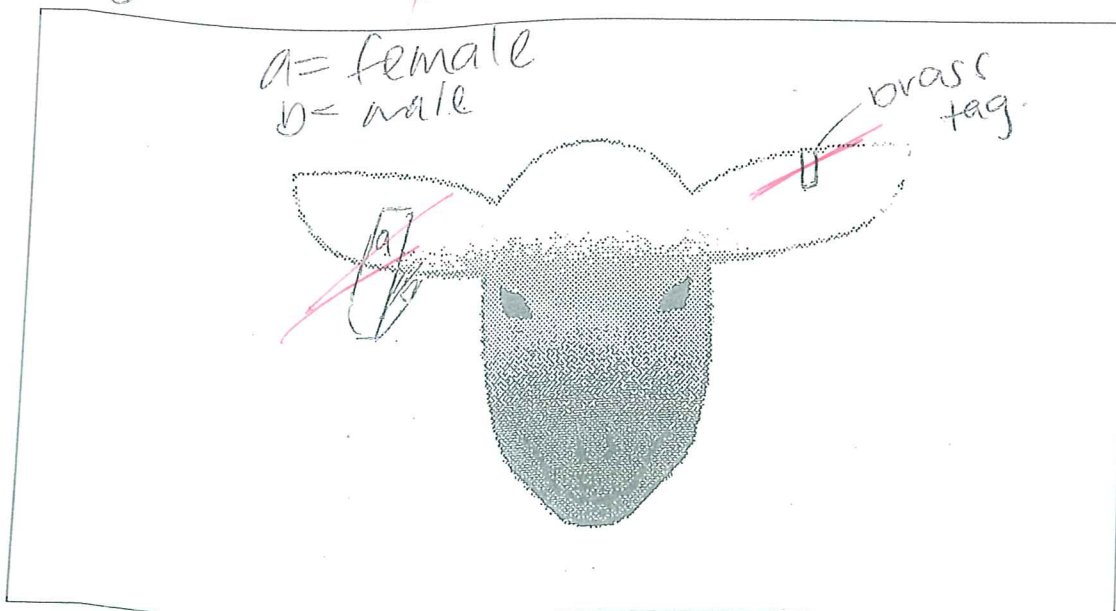


Describe the process (practice) of putting in an ear tag.

In your answer you should:

- o show on the diagram below where the ear tags should be positioned
- o state the information that should be shown on the ear tag(s) that the breeder would find useful.

what year the animal was born.
 what number the animal is for identification.
 so he can record data about it and also
 he can select what Ram to mate with her
 by the data!!



The other factor the high country farmer uses in the breeding programme to produce fine wool is the **selection** of suitable rams.

- (b) Explain why more emphasis is placed on the selection of rams than the selection of ewes in the breeding programme.

because in a lifetime rams have more offspring than ewes. And a ram and ewe both pass on 50% of genetics. So rams have more emphasis as they can mate have 50-100 lambs a season when a ewe will have about 6-12 in her life time. So increasing your genetics by 50-100 lambs a season is better than 1-3 if you focused on ewes.

The high country farmer wants to produce better quality wool from the merino flock, which is free of foot rot. The farmer has the choice of buying rams from two breeders:

Breeder 1 farms on lower country which has rams producing better quality wool, but the flock has a problem with foot rot.

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- (c) The farmer decides to buy rams from Breeder 2 rather than from Breeder 1. Justify the farmer's decision.

In your answer you should:

- explain the impact of the environment on producing fine wool
- discuss the economic factors.

animals producing fine wool especially merino are quite likely to get foot rot. That's why they are mostly found on extensive favoring systems as it is not as humid and soil is dryer. Also ~~they~~ choosing rams from the same sort of farming system are more likely to get more ewes pregnant. As the ones from lower ground as not use to the steep as country. Also the farmer does not want to bring rams that are susceptible to

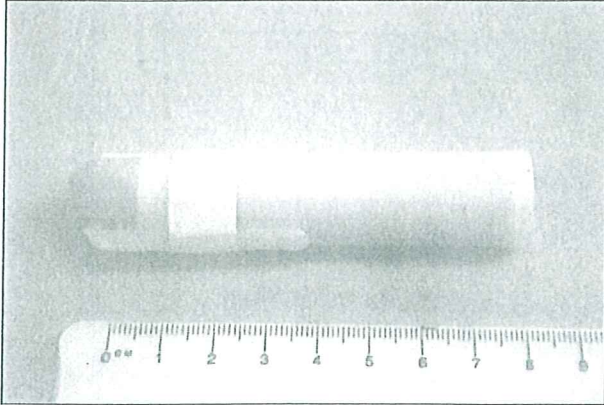
Sound explanation with links to economic factors

QUESTION THREE: ORAL DRENCHING

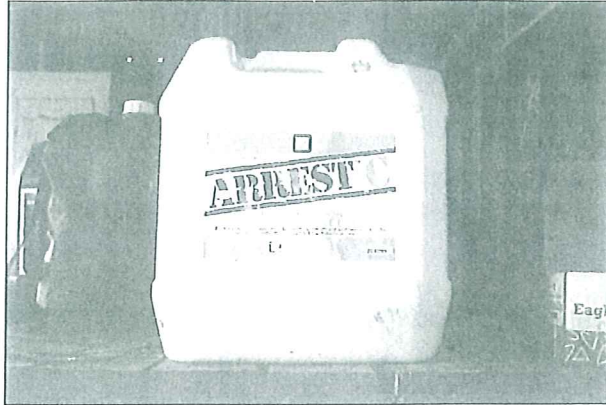
ASSESSOR'S
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100-day drench capsule



Oral liquid drench



Select ONE of the methods farmers could use to control internal parasites.

Selected method: Oral liquid drench.

(a) Explain how to drench using the selected method.

In your answer you should:

- describe the steps involved in drenching
- explain why each step is carried out.

Description + explanation both sound.

First you read instructions weigh your animals ^{zoo don't build resistance.} to work out your heaviest. Then you read instructions and check the dosage. Then you check to see if your equipment is working properly and dosage is correct. To see if it is working correctly. Then you drench them by pulling their heads back putting through the side of their mouth and squeezing and giving them a dosage of drench.

(b) (i) Describe the effects that internal parasites have on sheep.

Internal parasites decrease their appetite which if left untreated affects their growth rate milk production and health as they can kill if left untreated for too long. *3 Descriptions provided.*

- (ii) Explain how drenching improves sheep production and lamb growth rates.

drenching improves growth and production by animals having good appetites being efficient and also not being killed at turning cellulose into protein. Also the amount of deaths will be decreased.

Explanation needs to talk about parasites being killed.

Two neighbouring hill country sheep farmers were discussing the best method for controlling internal parasites on their farms. Both farms have 4000 mixed-aged ewes.

Farmer 1 gives ewes a 100-day drench capsule before lambing.

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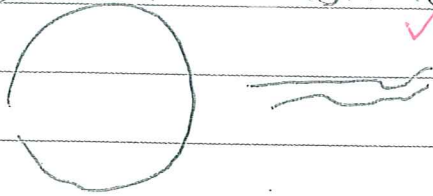
100 day capsules are better if you have a small amount of yards around your farm and animals do not come in very often. Oral liquid if you have to drench more often but the possibility of resistance is not as high. With 100 day capsules you as it gets close to the end the amount being released is lower so internal parasites have a chance parasite resistance, cost effectiveness explained along with some ease of management.

Extra space if required.
Write the question number(s) if applicable.

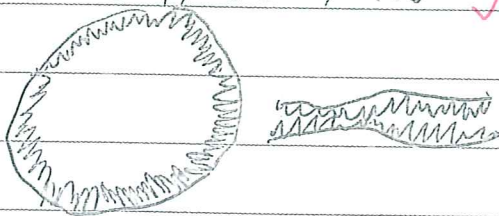
QUESTION
NUMBER

Q1 also nutrients are absorbed in the small intestine by also finger like projections that increase the surface area called villi.

villi and papilli increase the surface area by not making it flat. Making it sort of like a towel so it can absorb more nutrients so instead of the surface of rumen and small intestine looking like this



they look like this ✓



Q1 c) just enough feed to maintain there weight so t condition ✓ so that the lambs do not grow to big and cause lambing difficulties. but also ewes ~~eat~~ with twins and triplets need more than ewes with singles. In late winter feed increases as you are increasing the condition of the ewe so as soon as the lamb is born she is in good condition to produce milk (lactate). After lambing ewes feed is also increased so that she can produce more ✓

Extra space if required.

Write the question number(s) if applicable.

QUESTION
NUMBER

milk for her lambs so they grow faster and bigger.

All these feed changes are to increase the lambing percentage and lamb growth weight so the farmer earns more ~~produmoney~~ money by producing more lambs and at a heavy weight.

Q3 a) then holding their head up till they swallow so that you know they didn't spit it out.

Q3 c) of survival. And resistance to that sort of capsules may happen. But both of these methods allow more antibodies to be passed into the lambs through colostrum which lasts 2 weeks so ~~so they allow your lambs not to keep~~ to grow faster and better. But in conclusion 100 day capsules are good if you don't have many yards but they are also very expensive and oral drench is good if you have lots of yards around as it is cheaper and harder for resistance to build as each dosage is correct.

over
page.

Q2 c) footrot as they may pass it on to offspring.
and since ~~both~~ rams wool quality is
the same Breeder 2 is the better option.
And if a ram has foot rot he will not
mate so farmer will have decreased lambs
and then decreased wool production.