



General Certificate of Secondary Education
2019

Agriculture and Land Use

Unit 2

Animals on the Land

[GAR21]

FRIDAY 21 JUNE, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example where there is no absolute correct response – all teachers will be familiar with making such judgements.

			AVAILABLE MARKS	
1	(a) (i)	Freedom from thirst/pain/injury/hunger/freedom to express normal behaviour	[1]	9
	(ii)	clots in milk; swollen udder	[2]	
	(b) (i)	Lower milk yield; loss in condition; coughing; swollen jaw; lethargic; dull coat; loss of appetite; scour	[2]	
	(ii)	worms; lice; mites; maggot; tick; lice	[1]	
	(iii)	footbath; disinfectant; restricted access; vermin control; isolate new stock; double fencing; culling	[3]	
2	(a)	~ 5 months (144–152 days); 3 months; 3 weeks; 3 days (110–120 days)	[2]	10
	(b)	make yourself known; use race/crush; keep ram in front; have an escape route; no sudden movements; have help; mobile phone	[2]	
	(c)	Fertiliser; could burn your skin; wear gloves/PPE/safe handling machinery/tractor; could tip or crash leading to injury; monitor weather/ground conditions/drive up and down hill/ diagonally across hill (not across)/no passengers/training/maintenance/do not overload tractor PTO; risk of entanglement; guards/clips/no loose clothing/keep people away/training/maintenance Heavy bags; could fall on you and cause injury; safe handling/secure load Fertiliser; overapplication/leaching into waterways; correct application point/don't spread near waterways/spread in suitable weather	[6]	
3	(a) (i)	10 months	[1]	11
	(ii)	cow B	[1]	
	(iii)	10	[1]	
	(iv)	more meal/higher energy diet; breed; higher genetic merit; healthier cow; age	[2]	
	(b) (i)	DMI is the total amount of food taken in after water has been removed;	[1]	
	(ii)	it is useful because it is a reliable intake figure; useful to compare with targets; allows comparison of foods	[1]	
	(iii)	$4 \times 35/100 = 1.4$; $0.3 \times 90/100 = 0.27$; 1.67 kg	[3]	
	(iv)	no meal fed/grass only diet/maintenance ration/fed less	[1]	
4	(a)	silage = £360; meal = £750; water = £20 (3 correct 2 marks 1/2 = 1 mark)	[2]	5
	(b)	7000–13000	[1]	
	(c)	saves time/allows farmer to do other tasks; less machinery needed; quicker; more professional job/better silage made; less ground compaction; AVP	[2]	

- 5 (a) (i) renewable energy; government payments; creates local jobs; carbon neutral fuel; produces fertiliser; doesn't use fossil fuels; reduces waste [2]
- (ii) dribble bar; shallow injection; spread on dry days; don't spread in the frost; 10m away from open water source [2]
- (iii) biological oxygen demand [1]
- (b) (i) bloodworm; leech; sludgeworm; red tailed maggot [1]
- (ii) dragonfly **nymph**; caddisfly **larva**; mayfly **larva** [1]

- 6 (a) A = air cell
B = yolk
C = chalaza [3]
- (b) (i) monogastric [1]
- (ii) rumen; reticulum; omasum [2]

7 Indicative content
Consumer: Increased demand; better for the environment; higher price for product; grants

Differences: lower stocking rate; cannot use artificial fertiliser; cannot use sprays; minimal drug use; less inputs

Drawbacks: Lower yields; smaller market size; need to be certified with an Organic body; more weeds

Band	Response	Mark
3	Candidates demonstrate a detailed and comprehensive knowledge and understanding of consumer influence, at least one reason, at least three differences and two drawbacks of the organic system. Quality of written communication is excellent. Relevant material is organised with a high degree of clarity and coherence. Presentation, spelling, punctuation and grammar are of a high standard with appropriate use being made of specialist vocabulary.	[7]–[9]
2	Candidates demonstrate an adequate knowledge and understanding of consumer influence, two differences and one drawback. Quality of written communication is good. Relevant material is organised with some clarity and coherence. Presentation, spelling, punctuation and grammar are of a reasonable standard to make meaning evident. There is some use being made of specialist vocabulary.	[4]–[6]
1	General statements provided about the organic system chosen. Quality of written communication is basic. The organisation of the material lacks clarity and coherence. Presentation, spelling, punctuation and grammar are at a basic level with little use of specialist vocabulary.	[1]–[3]
	No creditable comments.	[0]

[9]

AVAILABLE
MARKS

7

6

9

8 (2 marks for how it works and 1 mark for an advantage)

Pedometer – monitors animal movement/step meter attached to cow; sends information to farmer/computer;
Advantages – better heat detection/less time spent checking/reduced calving interval/detects mobility issues

Robotic Milker – laser detects teats/machine cleans teats; milks cow automatically; feeds cow concentrate; sends information to farmer/computer
Advantages – less labour/less stress on cow/more milk/less mastitis/cow enters when it wants

Automatic calf feeder – identifies calf (electronically); prepares milk; feeds milk automatically; monitors feed intake
Advantages – saves labour; less bullying; calf feeds when it wants; better individual calf management

Embryo Transfer – donor animal is superovulated; donor animal is artificially inseminated; synchronisation of surrogates; embryos are flushed; embryos put into surrogate mother
Advantages – many embryos from desired cow; improves genetics/better calves; cheaper than buying animals; faster herd improvement [6]

AVAILABLE
MARKS

6

- 9 (a) Holiday accommodation; farm shop; ice cream; cheese; garden centre; dog kennels; renewable energy; adventure park [3]
- (b) Relevant to their chosen example, indicative content:
 Benefits to farmer: income stream; can receive Grant aid; spreads risk/creates sustainable farm business; employs family members; develops new skills; spreads workload
 Benefits to consumer: expanded choice; experience countryside and rural life/feel good factor; reduced food miles/smaller carbon footprint; perceived better quality
 Future improvements: expand range of produce; expand premises; advertising/marketing plan; further investment; improve mechanisation of process; employ more people AVP

AVAILABLE
MARKS

Band	Response	Mark
3	Candidates demonstrate a detailed and comprehensive knowledge and understanding of a farm business's diversification. At least three benefits to the farmer and two benefits to the consumer are explained in detail and at least one suggestion is discussed as to how further improvements could be made. Quality of written communication is excellent. Relevant material is organised with a high degree of clarity and coherence. Presentation, spelling, punctuation and grammar are of a high standard with appropriate use being made of specialist vocabulary.	[7]–[9]
2	Candidates demonstrate a detailed and comprehensive knowledge and understanding of a farm business's diversification. At least two benefits to either the farmer or the consumer are explained in detail and at least one suggestion is discussed as to how further improvements could be made. Quality of written communication is good. Relevant material is organised with some clarity and coherence. Presentation, spelling, punctuation and grammar are of a reasonable standard to make meaning evident. There is some use being made of specialist vocabulary.	[4]–[6]
1	General statements are given about the diversified business example, with limited discussion on the diversification. Quality of written communication is basic. The organisation of the material lacks clarity and coherence. Presentation, spelling, punctuation and grammar are at a basic level with little use of specialist vocabulary.	[1]–[3]
	No creditable comments.	[0]

[9]

Total

12

75