



**General Certificate of Secondary Education
2023**

Agriculture and Land Use

Unit 2

Animals on the Land

[GAU21]

THURSDAY 22 JUNE, AFTERNOON

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses.

Assessment objectives

Below are the assessment objectives for GCSE Agriculture and Land Use.

Candidates must:

- recall, select, and communicate their knowledge and understanding of agriculture and land use in the environment and land-based industries (AO1);
- apply skills, knowledge and understanding of agriculture and land use in the environment and land-based industries and other contexts (AO2); and
- analyse and evaluate evidence, make reasoned judgements and draw conclusions based on evidence (AO3).

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If an answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range for any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Marking Calculations

In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response

Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another. In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.
- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.
- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Quality of written communication

Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is basic.

Level 2: Quality of written communication is good.

Level 3: Quality of written communication is excellent.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below:

Level 1 (Basic): The candidate makes only a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 (Good): The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is some use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning clear.

Level 3 (Excellent): The candidate successfully selects and uses the most appropriate form and style of writing. Relevant material is organised with a high degree of clarity and coherence. There is widespread and accurate use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a sufficiently high standard to make meaning clear.

			AVAILABLE MARKS	
1	(a)	pig to 114 days; cow to 280 days; sheep to 150 days;	[3]	6
	(b)	first milk from its mother; contains antibodies/boosts immune system/provides extra nutrients/ extra vitamins/extra energy/warming effect/laxative effect;	[2]	
	(c)	alert/skin and coat condition/suckling its mother/AVP;	[1]	
2	(a) (i)	A – Small intestine; B – Anus/rectum; C – Stomach;	[3]	7
	(ii)	Mouth – grinding up food; Large Intestine – water absorbed here;	[2]	
	(b) (i)	monogastric;	[1]	
	(ii)	concentrate/meal;	[1]	
3	(a) (i)	too much air pollution/ammonia emissions;	[1]	6
	(ii)	Any two from: trailing shoe; dribble bar; injection systems; downward splash plate; (not umbilical system)	[2]	
	(b)	Any two from: No spreading: during closed period (October 15th to January 31st); close to waterways; on frozen ground; on waterlogged soils; when heavy rainfall is expected; AVP from the 'Nutrient Action Programme'; help reduce water pollution/reduce chance of eutrophication;	[3]	

		AVAILABLE MARKS
4	<p>(a) Any three from: have a clear exit route; don't turn his back on the animals; have somebody with him; announce his presence; stay away from kicking area; [3]</p> <p>(b) Any three from: dosage rate; how to give medicine; withdrawal periods; animal appropriate; within use by date; animal is safely restrained; [3]</p>	6
5	<p>(a) (i) total number of pigs has increased; total number of herds has decreased; correct comparative data; [3]</p> <p>(ii) 620 000 [1] 310 [1] [1] mark for method [1] mark for 2000 (correct answer = [4] marks) [4]</p> <p>(iii) increased mechanisation; more intensive farming; [1]</p> <p>(b) (i) 12; [1]</p> <p>(ii) no longer feeding on milk; [1]</p> <p>(iii) One advantage from: don't need farrowing crates/less knowledge needed/less labour/farmer can specialise/quicker turnaround of batches;</p> <p>One disadvantage from: have less control over costs/have to buy in piglets/ more transport costs/more likely to bring in disease; [2]</p>	12

6 [1] mark for **Feature** and [1] mark for **benefit to the animals**
(mark for a repeated benefit will be given if relevant and the feature is not repeated)

AVAILABLE
MARKS

lots of light/allow natural behaviour/can see to move around

fans/good ventilation; to reduce spread of disease/keeps animals cool

feeders/drinkers; to ensure animals have maximum access to food or water/
reduce bullying

bedding; to ensure animals are comfortable/can behave naturally/reduce disease
spreading/keep animals clean/stimulus

smooth walls; to reduce spread of disease

large space; to ensure safety of animals/reduce bullying/allow natural behaviour

enclosed/secure; keeps wild animals out; improves biosecurity/reduces fear

heaters; to keep animals warm/allow natural behaviour; [8]

8

7 (a) (i) Any **two** from:
better hygiene/teats are washed; cluster wash;
no over/under milking of each quarter;
cow gets milked whenever she wants/milked multiple times per day;
detects mastitis in milk/monitors yield; [2]

(ii) expensive to buy;
can breakdown/specialist needed to fix equipment;
higher running costs;
some cows may have to be sold/cows are hard to train;
harder to manage grazing outdoors;
animals will not be used to human interaction; [2]

- (b) Advantages:
 choose different bulls/choose certain traits/choose characteristics/named feature;
 choose sexed semen;
 can plan calving dates/tight calving period;
 don't have to buy a bull/no bull upkeep costs;
 safer for workers if no bull/safer for animals;
 can AI many cows per day;
 semen can be easily transported;

- Disadvantages:
 less chance of working (lower conception rate);
 expertise needed/specialist equipment needed;
 straws are expensive;
 more labour;
 must monitor **heat** in cows;
 more stressful for cow;

- Methods:
 pedometer/activity monitors/tail paint/teaser bull;
 good nutrition/feed minerals/correct body condition/minimise stress;
 give hormones;

Band	Response	Mark
3	Candidates demonstrate a detailed and comprehensive knowledge and understanding of AI by giving at least three advantages, at least two disadvantages, at least one method and at least one other marking point. 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 AI by giving at least two advantages, at least one disadvantage and at least one other marking point. 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 AI. 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]

13

- 8 (a) changing the farm business to a new business/to provide different income sources; [1]
- (b) Any **three** from:
 open farm/farm tours/petting zoo;
 renewable energy production;
 distillery;
 caravan park/accomodation/glamping;
 farm shop;
 forestry;
 food processing;
 AVP [3]
- (c) Any **two** advantages from:
 more profit/more turnover;
 less transport costs/less food miles;
 family members employed;
 traceability;
 supports local economy;
- Any **two** disadvantages from:
 high capital cost/running costs;
 biosecurity risk;
 more risk/milk might not sell;
 more time/more labour; [4]

AVAILABLE
MARKS

8

9 Symptoms:
lethargic; purple combs; decreased appetite; diarrhoea; death; swollen joints;

Impacts:
increased veterinary/drug costs; loss in productivity or yield/reduced profits; more labour/management costs; cull infected stock/disease spreads;

Biosecurity methods:
good hygiene of staff/foot baths/vehicle hygiene; limited visitors; vermin control/
wild animals kept away; animals kept in separate batches; monitoring stock/
swabs of buildings; cull infected stock (only award 'infected stock' once);
vaccination; clean and sterilise houses/good ventilation;

Band	Response	Mark
3	Candidates demonstrate a detailed and comprehensive knowledge of the salmonella disease in poultry. They should include at least two symptoms, at least two impacts on the farm business, at least two biosecurity methods plus one other marking point. 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 of the salmonella disease in poultry. They should include at least one symptom, at least one impact on the farm business, at least one biosecurity method plus one other marking point. 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 salmonella. 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

AVAILABLE
MARKS

9

75