



*Rewarding Learning*

**General Certificate of Secondary Education  
2014**

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## **Agriculture and Land Use**

**Unit 2**

**Animals on the Land**

**[GAL21]**

**FRIDAY 13 JUNE, AFTERNOON**

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**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.

- 1 (a) glossy coat; interested in food [2]
- (b) Any **three** from:  
 Approach cautiously/make no sudden movements or noises;  
 Announce your presence/do not surprise;  
 Avoid the kicking region of the animal;  
 Use approved handling facilities, for example crush yard/restrict animals movement;  
 Wear protective clothing or example stated;  
 avoid bright colours;  
 carry mobile phone;  
 Ensure clear exit path.  
 Accept other response with appropriate explanation [3]
- (c) (i) Hazards: chemical; fumes [1]
- (ii) chemical skin burns [1];  
 inhaling fumes [1]  
 Accept alternative valid response [2]
- (iii) use of suitable equipment/wearing appropriate protective clothing or mask [1]

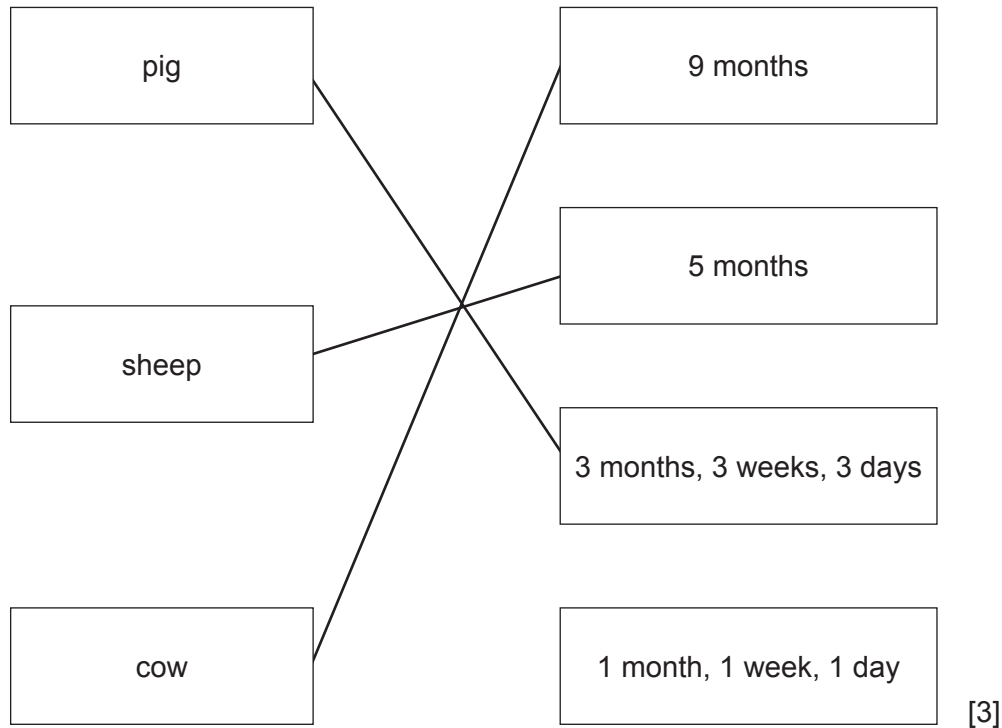
AVAILABLE  
MARKS

9

2 (a)

Animal

Gestation period



- (b) (i) Artificial insemination: where male semen is introduced into the female by artificial methods/without the male animal being present. [1]  
Embryo transfer: is where embryos are transplanted into the female (using artificial methods). [2]
- (ii) to control the characteristics of the offspring/select more favourable traits/increase pedigree stock. [1]
- (iii) too expensive to use artificial methods with upland sheep flocks/  
easier to access ewes during the mating season/more difficult to determine when they are in heat/more difficult to access ewes during the mating season. [1]
- (c) Liver fluke can be harmful to **sheep**. One cause of liver fluke is eating grass containing **parasites**. A symptom of this disease is **reduced growth**. **Drenches** are used to treat liver fluke. [4]

AVAILABLE MARKS

11

3 (a)

Statement	Advantage	Disadvantage
Direct payments provide a stable income to farmers	✓	
A lot of paperwork is required to receive financial support		✓
Farmers who care for the environment receive more money	✓	

[3]

(b) Any **two** from: medicine/feed/housing/labour/bedding/alternative valid response

[2]

(c) (i)

	Business Area	
	Lowland sheep	Suckler cows
	Income per sheep (£)	Income per cow (£)
Lamb/calf sales	136	440
Wool sales	3	0
<b>Total income (£)</b>	<b>139</b>	<b>440</b>

	Cost per sheep (£)	Cost per cow (£)
Straw bedding	4	48
Concentrate meal	18	154
Forage	9	58
Medicine	7	38
Casual labour	5	25
Other costs	11	15
<b>Total cost (£)</b>	<b>54</b>	<b>338</b>

<b>Profit (£) =</b>	<b>85</b>	<b>102</b>
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[4]

(ii) Any **two** from:

- cow meal feeding could be reduced; as this is the highest cost
- improve cow health; to reduce cost of medicine
- graze more/more forage; so less need for concentrate
- improve silage quality; to reduce need for concentrate
- extend grazing season; to reduce winter feeding/housing costs

Or other suitable answer.

2 × [2]

[4]

AVAILABLE  
MARKS

13

- 4 (a) Any **one** from:
- poisonous gases/hydrogen sulfide; can cause death
  - machinery/P.T.O shaft; can cause injury/death
  - risk of falling in; at access point
- 1 × [2] [2]

- (b) Any **two** from:
- silage effluent/run-off
  - (artificial) fertilisers
  - dirty yard water
  - (animal) manure
  - burning plastic
- Alternative valid response [2]

- (c) increased algal growth;  
algae die/bacteria decompose (algae);  
use up oxygen/leading to fish death.  
**or**  
increased algal growth;  
blocks out light to other plants;  
which decompose/no longer release oxygen. [3] 7

- 5 (a) (i) A – Oesophagus  
B – Rumen  
C – Reticulum [3]

(ii)

Poultry only	Poultry and Pig	Pig only
Proventriculus Crop Gizzard	small intestine	stomach

[1] per correct answer entered into the table [5]

- (b) (i) concentrate/meal  
accept nuts [1]

- (ii) forage/silage/hay/haylage [1]

- (c) Any **two** of the following:
- Organic is a higher cost system
  - Organic produces a more expensive end product
  - Feed costs are more expensive
  - Growing cycle is longer
  - Use of medicine is restricted in organic systems
  - Animals are given more natural conditions in organic systems, such as straw bedding, space, and outdoor access to grass
  - Restrictive use of all pesticides
  - Plant more clover in pasture
  - No artificial fertilisers allowed
  - Alternative valid response [2] 12

## 6 Indicative content

AVAILABLE  
MARKS

### Processing:

#### Quality control of milk

- cooling
- filtering
- sampling
- food safety levels, e.g. somatic cell count
- assesses milk hygiene status/test for antibiotics

#### Pasteurisation

- milk is pasteurised by heating for a specified time to kill bacteria
- ensures milk is safe for human consumption

#### Homogenisation

- milk is homogenised to prevent cream settling out

### Preservation:

- drying – milk is dried to form powder for use in a range of food products, e.g. baby milk formula, powder milk
- vacuum packing
- canning/tinning – condensed and evaporated milk

Other possible answers: freezing, refrigeration, UHT (Ultra High Temperature)  
– ice cream, yoghurt, butter, cheese

Band	Response	Mark
3	Candidates demonstrate a detailed and comprehensive knowledge and understanding of at least two processing stages and at least two methods of preservation for milk. They discuss two preservation methods linked to relevant dairy products. 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 reasonable knowledge of processing stages and methods of preservation for milk. They are able either to describe two processing stages and one preservation method <b>or</b> one processing stage and two preservation methods for milk. 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 given about processing and preservation, with no discussion. 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]

9

7 (i) DMI ration A = 21 [1]  
DMI ration B = 16 [1]

[2]

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MARKS

(ii) • Ration A

[1]

higher silage intake/higher concentrate meal intake;

*accept less straw/fibre in Ration A*

to meet higher energy needs/to meet higher protein needs/for milk  
production;

[2]

5



## 8 Indicative content

### Examples

- Farm shop selling meat/vegetables/local produce
- Tourism – agritourism/farm visits/holiday cottages/accommodation/ecotourism/glamping/open farms
- Food products – yoghurt/cheese/ice cream
- Recreation – walks/mountain bike trails
- Rare breeds
- Traditional crafts
- Kennels

### Benefits to farmers

- Income stream
- Possible grant aid
- May have minimal set-up costs
- Can make a living so can stay on farm
- Sustainable employment in countryside
- Family involvement in diversified farm business
- Spreading business risks

### Benefits to consumers

- Greater choice
- Experience rural life
- Niche market products
- Added value
- Buying local/reduced food miles
- Traceability
- Sustainability

Band	Response	Mark
3	Candidates give a detailed discussion of <b>three</b> farm diversifications and evaluate the benefits to farmers <b>and</b> consumers. 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 discuss <b>two or three</b> diversifications and describe the benefits to farmers <b>or</b> consumers. 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 diversified business example(s), with no discussion of the benefits to the farmer or the consumers. 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**