

External assessment 2025

Multiple choice question book

# Agricultural Science

## Paper 1

### General instruction

- Work in this book will not be marked.



Queensland  
Government

**QCAA**

Queensland Curriculum  
& Assessment Authority

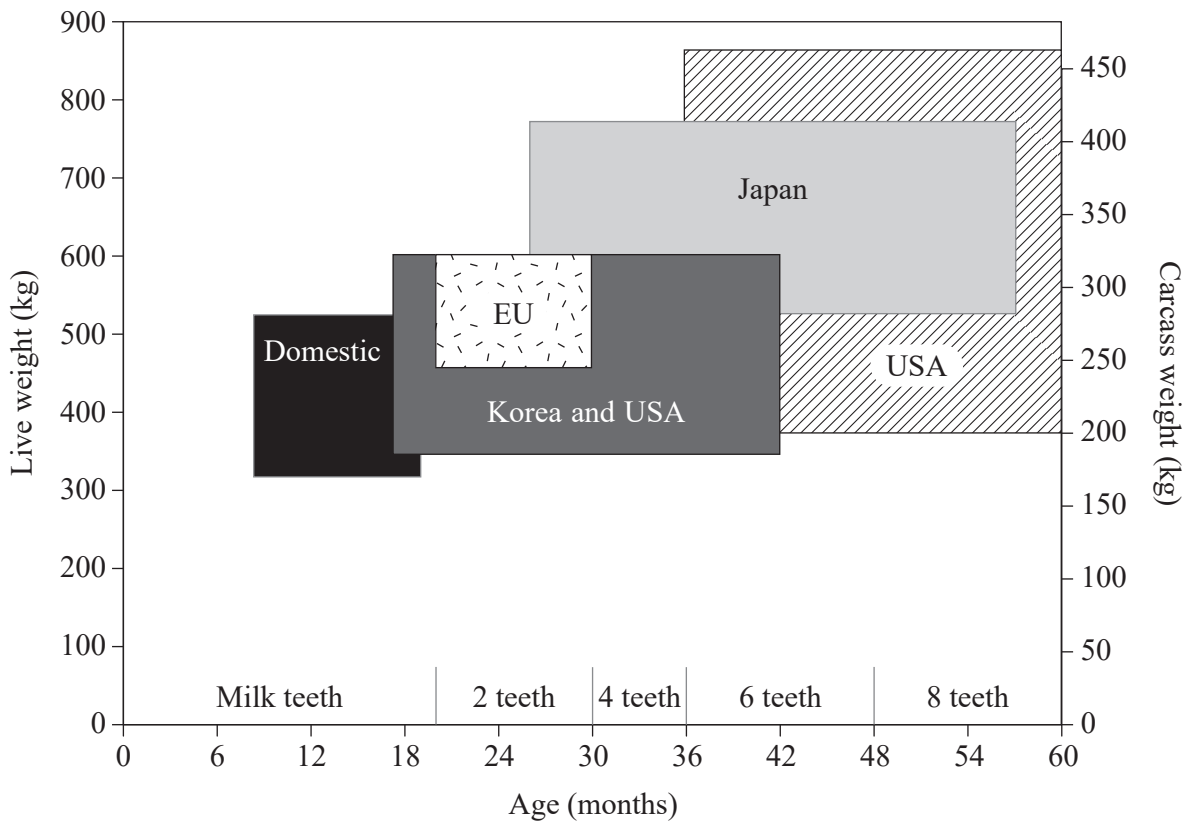
### Section 1

#### Instruction

- Respond to these questions in the question and response book.

#### QUESTION 1

The graph shows the weight and age requirements for domestic and export beef markets.



Which relationship best describes the market requirements for the EU market?

- (A) an animal at the 2-tooth stage with a carcass weight of 300 kg
- (B) a live weight of 400 kg and carcass weight of 230 kg
- (C) a carcass weight of 400 kg at 28 months of age
- (D) a live weight of 500 kg at 36 months of age

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**QUESTION 2**

Which option describes a role of the hormone gibberellin in plant production?

- (A) cell division
- (B) fruit maturation
- (C) shoot and root growth
- (D) transition of ovaries into fruits

**QUESTION 3**

Identify the two physical characteristics preferred for a beef animal bred in a tropical environment.

	<b>Physical characteristics</b>	
(A)	short ears	loose flap of skin under neck
(B)	tight skin under neck	long ears
(C)	loose flap of skin under neck	hump on back
(D)	hump on back	tight skin under neck

**QUESTION 4**

Identify the characteristics specific to a cooperative agricultural enterprise.

	<b>Characteristics</b>		
(A)	owned by one family	limited bargaining power	succession planning included
(B)	multiple family farms brought together	improved bargaining power	value-added products produced
(C)	shared resources and machinery	limited bargaining power	board of directors
(D)	public or private	board of directors	resources to draw on

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**QUESTION 5**

The figure shows a process to produce seed for a new maize variety.

This content has been redacted for copyright purposes.

Redacted image can be viewed online:  
Redacted image is a modified version of Fig 2 (bottom image of hybrid seed removed) in Setimela, P., & Kosina, P. (Eds.). (2006). Strategies for strengthening and scaling up community-based seed production. CIMMYT. <http://hdl.handle.net/10883/791>

The process shown is

- (A) inbreeding.
- (B) tissue culture.
- (C) hybridisation.
- (D) genetic modification.

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**QUESTION 6**

The table shows feed conversion data for three of four chicken breeds.

Breed	Food eaten (kg)	Mass gained (kg)	Feed conversion ratio (FCR)
Dark Cornish	1.8	1.1	1.63
Delaware	1.7	0.9	1.89
Orpington	1.5	1.0	1.5
White Rocks	1.5	1.1	

Identify the two chicken breeds most efficient at converting feed into body weight.

- (A) Dark Cornish and Orpington
- (B) Delaware and Dark Cornish
- (C) Orpington and White Rocks
- (D) White Rocks and Delaware

**QUESTION 7**

The use of quality assurance programs in agriculture supports

- (A) a premium price paid to producers.
- (B) a competitive advantage for farmers over other producers.
- (C) the uniformity of agricultural produce to meet minimum market standards.
- (D) the enforcement of animal welfare practices to meet environmental standards.

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**QUESTION 8**

The table shows the total income and variable costs of barley and wheat enterprises.

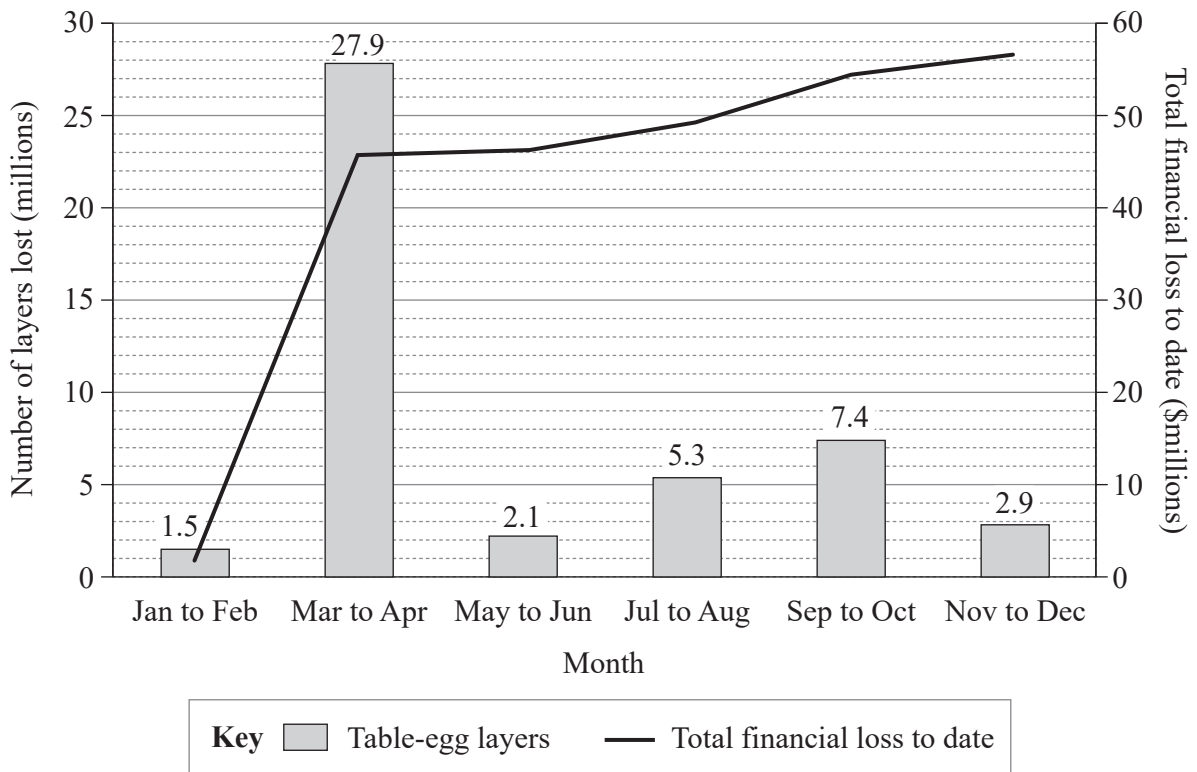
	<b>Barley (\$/ha)</b>	<b>Wheat (\$/ha)</b>
<b>Total income</b>	504.50	510.00
<b>Variable costs</b>		
Sowing	68.00	49.50
Fertiliser	164.50	175.50
Herbicide	71.92	50.05
Insecticide	0.00	34.00
Contract-harvesting	68.45	68.45
Levies	13.90	16.80
Crop insurance	15.50	20.25
Cartage, grading and bagging	0.00	0.00
<b>Total variable costs</b>		
<b>Gross margin</b>		

Determine which enterprise has the highest gross margin.

	<b>Enterprise</b>	<b>Gross margin (\$)</b>
(A)	wheat	95.45
(B)	barley	102.23
(C)	barley	906.77
(D)	wheat	924.55

QUESTION 9

The graph shows the effect of avian influenza on financial and physical losses in the commercial egg industry from January to December 2023.



Which statement is supported by the graph?

- (A) The highest total income loss occurred from May to June 2023.
- (B) The lowest physical loss of birds occurred from May to June 2023.
- (C) The highest financial and physical loss occurred from March to April 2023.
- (D) The lowest financial and physical loss occurred from November to December 2023.

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**QUESTIONS 10–11**

Questions 10–11 refer to the table, which shows antibiotic use in animals in two countries and the percentage of animal meat sold to export markets. The frequency of antibiotic use is greater in intensive animal production.

<b>Animal</b>	<b>Antibiotic use Country A (mg/kg)</b>	<b>Antibiotic use Country B (mg/kg)</b>	<b>Country B / Country A ratio</b>	<b>Export % Country A</b>	<b>Export % Country B</b>
Pigs	183	349	1.9	50	10
Chickens	17	52	3.1	0	0
Turkeys	86	479	5.6	70	30
Cattle	25	237	9.5	65	20

**QUESTION 10**

Which statement supports the antibiotic use data in the table?

- (A) Pigs have the highest difference in antibiotic use between country A and B.
- (B) Cattle in country B have the highest proportional difference in antibiotic use.
- (C) Turkeys have the smallest proportional difference in antibiotic use between country A and B.
- (D) Chickens in country B have the highest use of antibiotics compared to all the animals in country A.

**QUESTION 11**

Which characteristics best describe the type of agricultural management and marketing for animals from country A and B?

	<b>Country A</b>	<b>Country B</b>
(A)	Most pigs are grown under extensive conditions and sold on the export market.	High levels of antibiotic use may restrict opportunities for the pig meat export market.
(B)	All chickens are grown under extensive conditions and sold on the domestic market.	Most chickens are grown under intensive conditions and sold on the export market.
(C)	Most turkeys are grown under intensive conditions and sold on the domestic market.	High levels of antibiotic use may restrict opportunities for the turkey meat export market.
(D)	Most cattle are sold on the export market.	Most cattle are grown under intensive conditions and sold on the domestic market.

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### QUESTION 12

Human activities can have an impact on soil and surface water. The diagrams show the impact that tree clearing can have on the natural landscape.

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Redacted image can be viewed online:

Redacted image is a modified version of the salinity diagram on page 4 of Moore Catchment Council (2020) *Natural Resource Management information guide for the Moore River catchment* <https://www.moorecatchment.org.au/wp-content/uploads/2020/03/Moore-nrm-shire-guide-March-2020-Web.pdf>

The removal of trees has led to

- (A) a rise in the underground water table and increased soil salinity.
- (B) greater opportunities for sustainable animal production.
- (C) degradation of soil and underground water supplies.
- (D) a greater supply of available water for irrigation.

### QUESTION 13

The primary function of bacteria, protozoa and fungi in the ruminant digestive system is

- (A) digestion of fats.
- (B) fighting of infection.
- (C) release of carbon dioxide.
- (D) production of volatile fatty acids.

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**QUESTION 14**

Identify the site of fat absorption in the ruminant digestive system and a product of fat digestion.

	<b>Site of fat absorption</b>	<b>Product</b>
(A)	omasum	glucose
(B)	small intestine	fatty acids
(C)	rumen	amino acids
(D)	reticulum	volatile fatty acids

**QUESTION 15**

Which option is an appropriate risk management strategy for a vegetable farm in a high rainfall area to minimise direct damage caused by flood waters to crops?

- (A) installing adequate drainage to low-lying zones
- (B) installing water tanks off large roof structures
- (C) planting crops that are resistant to root rot
- (D) having filled sandbags ready to use

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## References

### Question 1

Modified from FutureBeef. (2024). *Am I selling or marketing cattle?* <https://futurebeef.com.au/resources/am-i-selling-or-marketing-cattle/>

Used under terms at <https://futurebeef.com.au/about-us/>

### Question 5

Setimela, P., & Kosina, P. (Eds.). (2006). *Strategies for strengthening and scaling up community-based seed production*. CIMMYT. <http://hdl.handle.net/10883/791>

### Question 12

Moore Catchment Council (2020) *Natural Resource Management information guide for the Moore River catchment* <https://www.moorecatchment.org.au/wp-content/uploads/2020/03/Moore-nrm-shire-guide-March-2020-Web.pdf>



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