

# *Study & Master*

**Support Pack | Grade 12**



## **Module 5 Units 6 – 7**

# **Agricultural Sciences**

### **Animal reproduction**

This support pack for the **Animal reproduction** module in the **Agricultural Sciences Grade 12 CAPS curriculum** provides valuable revision activities. All activities have the answers provided. Learners can work through these individually at home or these could form the basis of a catch-up class or online lesson. You have permission to print or photocopy this document or distribute it electronically via email or WhatsApp.

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## Module 5 – Animal reproduction

### Unit 6 Milk production (lactation)

#### Short questions

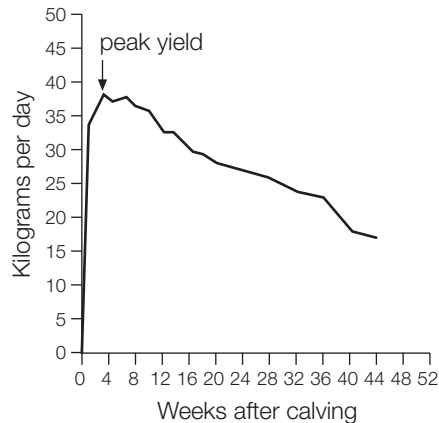
1. Various possible answers are provided for the following questions. Write only the correct letter (A–D) next to the question number.
  - 1.1 Milk production is a process that follows a path through the udder until milk is released from the teat opening. Select the correct order of the path through the udder.
    - A alveoli – gland cavity – milk tubes – teat cavity
    - B milk tubes – alveoli – gland cavity – teat cavity
    - C alveoli – milk tubes – gland cavity – teat cavity
    - D gland cavity – alveoli – milk tubes – teat cavity
  - 1.2 The hormone that is released from a gland in the brain responsible for the milk letdown reflex is .....
    - A oxytocin
    - B oestrogen
    - C FSH
    - D progesterone
  - 1.3 The ..... folds over the teat canal and acts as a defence mechanism against mastitis.
    - A teat cistern
    - B Furstenberg's rosette
    - C teat sphincter
    - D teat cistern
  - 1.4 The hormone responsible for the milk ejection reflex is secreted by the ..... gland.
    - A pituitary
    - B hypothalamus
    - C mammary
    - D adrenalin
  - 1.5 Which ONE of the following is incorrect with regard to the normal lactation curve of a lactating dairy cow?
    - A At peak milk production butterfat content is at its lowest quantity.
    - B Milk production drops prior to the drying-up of the cow.
    - C An increase in milk production causes a drop in the butterfat percentage.
    - D The butterfat content of milk is at its lowest prior to the drying-up of the cow. 5 × 2 (10)
2. In the table below a description and TWO possible answers are given. Decide whether the description in column B relates to A only, B only, both A and B or neither A nor B of the answers in column A.

| Column A |   |                   | Column B  |
|----------|---|-------------------|---|
| 2.1      | A | Oxytocin          | Hormone released when the cow experiences stress with a resultant drop in milk ejection             |
|          | B | Adrenalin         |   |
| 2.2      | A | Gland cistern     | Synthesis of milk in the udder of the cow during lactation  |
|          | B | Alveolus          |   |
| 2.3      | A | Lymphatic         | System responsible for the removal of waste products from the udder                                 |
|          | B | Alimentary        |   |
| 2.4      | A | Lobule            | Forms part of the teat of the udder of a female animal  |
|          | B | Lobe              |   |
| 2.5      | A | Antibodies        | Characteristic of the milk produced in the weeks prior to parturition that ceases after parturition |
|          | B | Rich in nutrients |   |

5 × 2 (10)

## Longer questions

3. The milk produced by the cow within the first three days of lactation differs from the normal milk produced by the cow thereafter. Answer the questions that follow.
- 3.1 Identify the first milk released. (1)
- 3.2 Describe TWO ways how this milk differs from the normal milk produced after three days. (2)
- 3.3 Name TWO negative impacts that would occur if the newborn calf did not receive this milk. (2)
4. The graph below illustrates the milk production of a dairy cow over a period of time.



- 4.1 Identify the curve illustrated above. (1)
- 4.2 Referring to the graph, indicate the time (in weeks) when the following occurred:
- 4.2.1 drying-up of the cow
- 4.2.2 calving
- 4.2.3 largest feed intake
- 4.2.4 peak milk production
- 4.2.5 time of conception if the cow needs to calf again eight weeks after she has dried up (5)
- 4.3 State THREE factors that will influence the quantity of milk produced during the cow's peak production period. (3)
- 4.4 Name TWO stimuli that will encourage the cow to release milk from her udder. (2)
- 4.5 How can the dairy farmer ensure that the cow produces milk at maximum levels during the full duration of the lactation period? (3)
- 4.6 Which TWO environmental conditions will have a negative effect on a dairy cow's milk production? (2)

## Memorandum

### Unit 6

#### Short questions

- 1.1 C                      1.2 A                      1.3 B                      1.4 A                      1.5 D (10)
- 2.1 B                      2.2 B                      2.3 A                      2.4 Neither A nor B
- 2.5 A and B (10)

#### Longer questions

- 3.1 Colostrum/beestings (1)
- 3.2 Differences between colostrum and normal milk (any two):
- More yellow in colour than normal milk
  - Higher fat content/creamier/more concentrated/nutritious/thicker
  - Contains antibodies (2)

- 3.3** Negative impacts of calf not receiving colostrum (any two):
- Energy loss
  - Susceptibility of calf to diseases/low resistance
  - Stunted/slow growth
  - Uncleansed system/malfunctioning of alimentary canal
  - Insufficient nutrients
- (2)
- 4.1** Lactation curve
- (1)
- 4.2.1** 44 weeks
- 4.2.2** 0 weeks/8 weeks after she was dried up
- 4.2.3** 4 weeks
- 4.2.4** 4 weeks
- 4.2.5** 16 weeks
- (5)
- 4.3** Factors determining peak period (any three):
- Type of breed
  - Age of animal
  - Nutrition
  - Health condition
  - Type of system/housing/shelter/environmental control
  - Environmental conditions
- (3)
- 4.4** Stimuli that affect milk release (any two):
- Massaging the cow's udder
  - Washing the udder with warm water
  - Milking by hand or machine
  - Whistling
  - Playing a musical instrument to calm the cow
- (2)
- 4.5** Measures to ensure maximum milk production:
- Correct nutrition
  - Proper control of diseases
  - Providing proper housing
- (3)
- 4.6** Environmental conditions that affect milk production:
- Extreme heat
  - Extreme cold
- (2)