

GAUTENG DEPARTMENT OF EDUCATION  
SENIOR CERTIFICATE EXAMINATION

APPLIED AGRICULTURAL SCIENCE SG

TIME: 3 hours

MARKS: 300

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**INSTRUCTIONS:**

- This question paper consists of THREE questions. Answer all the questions as follows:

QUESTION 1: Dairy farming  
QUESTION 2: Maize production  
QUESTION 3: Processing of farm produce

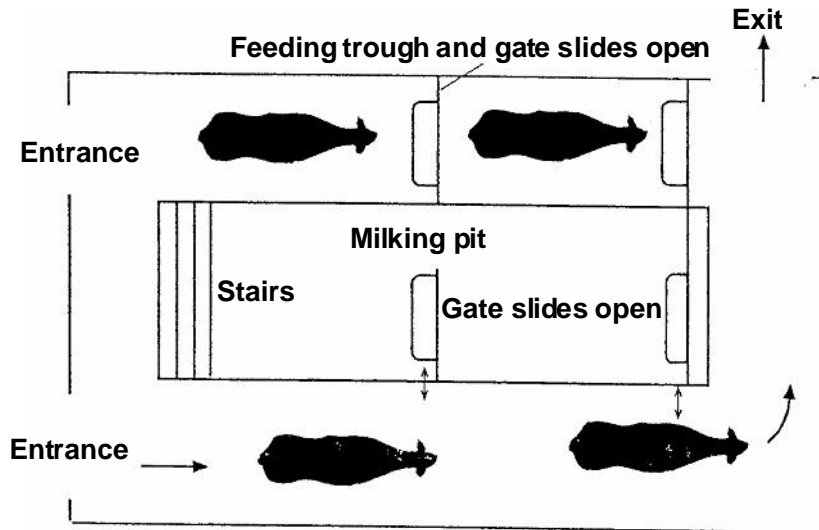
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**QUESTION 1  
DAIRY FARMING**

- 1.1 Briefly explain the factors that influence milk production. (8)
- 1.2 What are the advantages of using artificial insemination for a farmer? (7)
- 1.3 Briefly discuss the requirements for a good udder in a dairy cow. (6)
- 1.4 What are the adverse effects of heat on reproduction? (5)
- 1.5 Briefly explain the following concepts:
- 1.5.1 Lactation period
- 1.5.2 Mastitis
- 1.5.3 Gestation period (6)

1.6 Carefully study the figure, then answer the questions that follow.

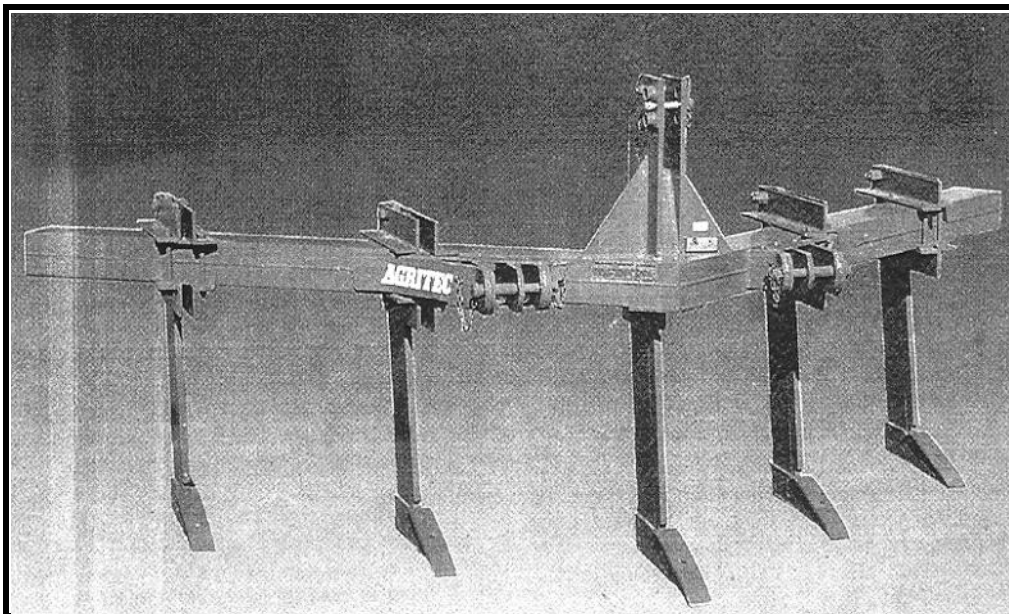


- 1.6.1 What system is indicated by the figure? (2)
- 1.6.2 What are the advantages of this system? (4)
- 1.6.3 What are the disadvantages of this system? (5)
- 1.7 Give the international classification of roughages and concentrates. (8)
- 1.8 Briefly explain the causes of bloat. (8)
- 1.9 Briefly discuss the causes of taints and odours in milk. (7)
- 1.10 What are the benefits of computerised feeding stations? (8)
- 1.11 Name the floor requirements of an intensive housing system for animals. (7)
- 1.12 Mention the factors that determine the price of milk for a farmer. (5)
- 1.13 Explain how the following is done:
- 1.13.1 Dehorning with dehorning bud (6)
- 1.13.2 Castrating with Burdizzo (5)
- 1.14 Name any THREE dipping methods. (3)

[100]

**QUESTION 2**  
**MAIZE PRODUCTION**

- 2.1 Discuss the economic importance of maize production in South Africa. (8)
- 2.2 Explain the development of the last five growth stages of the maize plant. (10)
- 2.3 Explain each of the following and the effect of soil tillage on the properties of soil:
- 2.3.1 Texture and structure (3)
- 2.3.2 Bulk density and porosity (3)
- 2.3.3 Hydraulic properties (3)
- 2.4 Carefully study the figure, then answer the questions that follow.



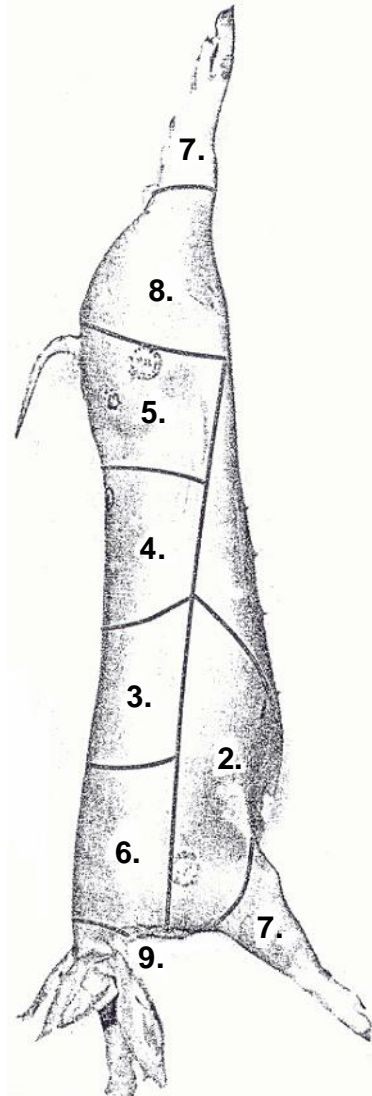
- 2.4.1 Name the implement in the above picture. (2)
- 2.4.2 Is it used for primary or secondary tillage? Substantiate your answer. (2)
- 2.4.3 What are the advantages of using this implement? (2)
- 2.4.4 Under what conditions should it not be used? Give reasons to support your answer. (3)

- 2.5 Mention the disadvantages of a no- or nil-tillage system. (7)
- 2.6 Briefly discuss the important guidelines to be considered when cultivar planning. (10)
- 2.7 Explain the taking of a soil sample where residual nutrients and soil acidity are unevenly distributed. (6)
- 2.8 Calculate the percentage of nutrients in the following fertilizer mixture:  
**2 : 3 : 1 (24)** (6)
- 2.9 Mention and explain the purpose of the different chemical adjuvants. (12)
- 2.10 Explain why crop rotation is a good practice. (8)
- 2.11 Explain why growth stages zero and one are very critical for maize production. (8)
- 2.12 Give a description of the black maize beetle and the damage it causes. (7)
- [100]**

**QUESTION 3**  
**PROCESSING OF FARM PRODUCE**

- 3.1 Give the composition of the edible portion of the whole egg. (4)
- 3.2 Explain the commercial pasteurization of eggs. (6)
- 3.3 Give the classing of table birds under the following headings:
- 3.3.1 Young tender chickens (4)
- 3.3.2 Turkeys (5)
- 3.4 Explain the deboning process (step by step) in the correct order. (12)
- 3.5 Discuss the nutritive value of milk under the following headings:
- 3.5.1 Proteins (4)
- 3.5.2 Carbohydrates (3)
- 3.6 Give the composition of milk. (5)
- 3.7 Briefly explain the storage of milk at home. (8)
- 3.8 What are the effects of sterilisation on milk? (5)
- 3.9 Discuss the factors that could lead to failure when making butter. (9)

- 3.10 List the more general sources of bacterial contamination of meat. (5)
- 3.11 Give the fat categories of meat. (6)
- 3.12 Provide labels for the parts numbered 1 to 9. (9)



- 3.13 Discuss the preservation of meat under the following headings:
  - 3.13.1 Smoking (4)
  - 3.13.2 Salting (4)
- 3.14 What qualities must be observed in order that meat may be stored (preserved) for a long period of time? (7)

[100]

TOTAL: 300

END