

The University of Melbourne
Semester 1 Assessment 2004
School of Agriculture and Food Systems
208-303
Animal Production Systems

Reading Time: Fifteen (15) minutes

Exam Duration: Three (3) hours

This paper has 4 pages

Authorised materials:

None are permitted.

Instructions to invigilators:

Six (6) script books for each student

Instructions to students:

There are 10 questions. Answer **SIX (6)** questions **ONLY**.

INCLUDE AT LEAST ONE QUESTION FROM EACH SECTION.

Each question should be answered in a **SEPARATE** script book.

All questions carry equal marks

This paper may be held by Baillieu Library

SECTION A: APPLIED NUTRITION

1. Write concise notes on TWO of the following:
 - (a) Factors influencing intake in ruminants
 - (b) Describe one physical and one chemical method in feed processing. Include in your answer, advantages and disadvantages of each
 - (c) List and discuss three feed values, which are frequently used by applied animal nutritionists. For each, describe what it measures and how it is used – its relevance to the animal's requirements.
(10 X 2 = 20 marks)

2. Outline your approach to providing recommendations for a nutritional problem in animal production. Use specific examples to illustrate your approach
(20 marks)

SECTION B: GENETICS AND BREEDING

3. Markets for beef cattle vary in the specifications that they require. Explain, with examples, how beef cattle producers can use breed choice and crossbreeding to help them target specific markets.
(20 marks)

4. "Fertility traits have low heritability and so it is not possible to improve them by selection of genetically superior animals as parents." Critically discuss this statement with reference to cattle, sheep and pigs.
(20 marks)

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SECTION C: APPLIED REPRODUCTION

5. The reproductive performance of a herd or flock can have a significant impact on the profitability of most livestock production systems. However, measuring reproductive performance is often “too little, too late” and occurs when ewes fail to lamb or cows to calve. The dairy industry has recently addressed this problem and produced recommended measures for reproductive performance for cows in seasonally calving dairy herds. Answer ALL of the following:

- (a) Define the two main primary measures for reproductive performance in seasonally calving dairy herds in Victoria.
- (b) Also define the measurement of the two main factors that influence these primary measures.
- (c) List at LEAST FIVE (5) of the factors that the InCalf study showed as accounting for 72% of the differences in the reproductive performance between 124 seasonally calving herds.

(20 marks)

6. Reproductive technologies are widely used for a range of reasons to improve or modify the profitability of a livestock enterprise. Answer ALL of the following:

- (a) List at least six (6) reasons why these technologies may be used in the management of a herd or flock within a Victorian livestock enterprise.
- (b) List at least three (3) forms of reproductive technology that could be used to achieve some of the objectives listed in (a).
- (c) In a single paragraph, describe the application of ONE (1) of these forms of reproductive technology.

(20 marks)

SECTION D: PRODUCT QUALITY

7. At the Chamberlain Abattoirs, the incidence of dark cutting beef carcasses has risen significantly over the past two months.

- (a) What causes dark cutting meat?

(5 marks)

- (b) Describe the steps you would take including information you would seek to identify the source(s) of the problem

(15 marks)

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8. Outline current payment schemes for milk and discuss ways in which producers can increase milk income.

(20 marks)

SECTION E: RISK IN ANIMAL PRODUCTION SYSTEMS

9. Variability in pasture growth between seasons and years can significantly affect the profitability of pasture-based livestock production systems. Answer ALL of the following, using examples where appropriate:

- (a) Describe the major environmental factors that cause within-year (seasonal) and between-year variability in pasture production
- (b) With reference to the strategic decisions that must be made concerning livestock policies in farm businesses, explain why variability in pasture growth outcomes has such a large potential effect on farm operating profit
- (c) What are some of the management practices and responses that producers can adopt to help mitigate the effects of variability?

(20 marks)

10. “More-accurate seasonal climate forecasts could significantly improve the ability of producers to manage business risk in pasture-based livestock production systems.” Critically discuss this statement, with reference to the sources of business risk in livestock enterprises, the strategic and tactical decisions that are commonly made in the management of livestock enterprises, the current ‘state of the art’ in climate forecasting, and prospects for improvements in climate forecasting skill.

(20 marks)

END OF EXAMINATION