



NATIONAL SENIOR CERTIFICATE EXAMINATION  
NOVEMBER 2019

## AGRICULTURAL MANAGEMENT PRACTICES

Time: 3 hours

200 marks

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### PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 14 pages. Please check that your question paper is complete.
  2. This question paper consists of TWO sections.
  3. Answer ALL the questions.
  4. Read all the questions carefully and make sure that you answer only what is being asked.
  5. Start EACH question on a NEW page.
  6. Number your answers exactly as the questions are numbered.
  7. Non-programmable calculators may be used.
  8. ALL calculations must be rounded off to TWO decimal places unless stated otherwise.
  9. It is in your best interests to write legibly and to present your work neatly.
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**SECTION A****QUESTION 1**

1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write down the question number and the letter that corresponds to your answer in the ANSWER BOOK, for example 1.1.11 B.

1.1.1 The fertiliser that must be applied to correct the high pH of soil with an excess of sodium salts is ...

- A lime.
- B urea.
- C gypsum.
- D ammonium sulphate.

1.1.2 The employment of capital in an enterprise with the expectation of making a profit is called ...

- A profit.
- B gross farming income.
- C investment.
- D input terms.

1.1.3 The addition of organic matter to soils especially improves the ...

- A soil structure.
- B soil reaction.
- C soil depth.
- D soil texture.

1.1.4 A ... is issued to confirm that money was received by the enterprise.

- A credit sales invoice
- B receipt
- C cheque
- D debit note

1.1.5 The ... is where money is kept for expenses such as coffee, envelopes, etc.

- A cheque
- B cash book
- C diary
- D petty cash

- 1.1.6 The primary tilling implement that is used to deeply till soil to break down a restrictive layer to improve water infiltration and drainage is a ...
- A rotavator.
  - B chisel plough.
  - C disc plough.
  - D ripper.
- 1.1.7 The following is NOT a technological aid used in precision farming:
- A global positioning system (GPS)
  - B geographic information system (GIS)
  - C yield monitors
  - D cation-exchange capacity (CEC)
- 1.1.8 The soil characteristic determining and affecting most soil qualities is ...
- A soil structure.
  - B soil depth.
  - C soil texture.
  - D soil reaction.
- 1.1.9 The most economic source of animal feed is ...
- A natural veld.
  - B established pastures.
  - C grain crops.
  - D pastures under irrigation.
- 1.1.10 The term ... means that not a single living organism is present in a product.
- A pasteurised
  - B sterilised
  - C heated
  - D preserved

(20)

1.2 Choose a description from COLUMN B that matches a term from COLUMN A. Write down only the question number and the letter that corresponds to your choice in the ANSWER BOOK, for example: 1.2.11 A. Each description in COLUMN B may be used only ONCE.

COLUMN A	COLUMN B
1.2.1 production risk	A the economic phenomenon where the income from certain equipment does not justify the monetary cost of that equipment
1.2.2 monopoly	
1.2.3 global positioning system	B the rendering of services to the farmer
1.2.4 groundwater capacity	C a resource that is used to obtain all the data and prices of equipment
1.2.5 control	D assists a farmer in determining the area of a field
1.2.6 inventory	E the loss in value of a movable asset because of wear and tear
1.2.7 depreciation	F the ability of soil to hold water against gravitation
1.2.8 information	G a list of all the assets on the farm
1.2.9 undercapitalisation	H drought and unforeseen weather phenomena in a production season
1.2.10 tertiary agriculture	I the type of price fixing in a market with one seller and many buyers
	J the management function that ensures that all the daily work gets done
	K when too little capital is available to obtain maximum production

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- 1.3 Give the correct agricultural term for each of the following descriptions. Write down only the question number and the correct term in the ANSWER BOOK, for example 1.3.11 sodium.
- 1.3.1 The type of vegetation that grows in alkaline soil in a low-rainfall area.
- 1.3.2 The setting of a spray pump to function at the correct rate.
- 1.3.3 The precision farming technology that is used to assist the farmer in technologically controlling the amount of harvesting input that is required by a crop on a specific area.
- 1.3.4 The management function that is required before any task on a farm can start or without which no activity is possible.
- 1.3.5 Refers to the particle size of the soil particles.
- 1.3.6 The process that the farmer follows to get the product from the farm to the consumer.
- 1.3.7 The production of various specialised products from the basic product.
- 1.3.8 The type of pest control system in which the farmer uses biological and chemical control as well as efficient farming methods.
- 1.3.9 The successive cultivation of different crops on the same piece of land.
- 1.3.10 The most basic natural resource in the agricultural industry. (10)

<b>50 marks</b>
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**SECTION B****QUESTION 2      RESOURCE UTILISATION, LAND USE AND FARMING SYSTEMS**

2.1 Study the fact box below and then answer the questions that follow:

- Together with water, soil can justly be regarded as one of the most important natural resources.
- Soil suitability or the uses of soil are determined by soil characteristics related to soil qualities.
- The soil structure influences the soil aeration.
- Soil texture and soil depth determine the water-holding capacity of the soil.
- The cation exchange capacity of soil determines the soil fertility.
- The soil fertility in turn determines the soil colour and soil temperature.
- Information (a human resource) on soil characteristics and soil qualities is therefore essential for determining the suitability of soil for irrigation, grazing, cultivation, etc.

2.1.1 In each of the cases below, explain how the relevant soil characteristics would affect the stated soil quality.

- (a) The effect of a clayey soil texture on water infiltration. (2)
- (b) The effect of a single-grain soil structure on the tillability of the soil. (2)
- (c) The effect of shallow soil on the aeration of the soil. (2)
- (d) The effect of low soil temperatures on plants' absorption of water and nutrients. (2)

2.1.2 Discuss the ...

- (a) mineral content and drainability of soil with a red colour. (2)
- (b) growth rate of plants and the microbe population of soil with a pH of 4. (2)

## 2.2 Study the case study below and then answer the questions that follow:

A farmer has a mixed farming enterprise. The farm has tillable soil for cultivating grain, established perennial pastures and orchards under irrigation. The seeds for planting the grain and pastures are bought from recognised seed producers to ensure good germination. The work on the farm is done by a farm manager and eight labourers who receive their remuneration monthly, live on the farm, share in the profits and maintain a 45-hour work week. The labourers also get regular training to develop their skills.

The water for irrigating the fruit and established pastures comes from a borehole and is pumped to a reservoir. The reservoir was erected by an experienced contractor and a team of labourers. The water also serves as drinking water for the intensive stock farming. The farmer attempts to use only organic farming practices and markets his fruit and meat in the local shopping centres as "organic". The farmer uses labourers from the local community as well as contract workers to help harvesting the fruit.

- 2.2.1 Give TWO examples from the case study of ...
- (a) fixed capital. (2)
  - (b) movable capital. (2)
  - (c) operating capital. (2)
- 2.2.2 List THREE problems associated with capital as a factor of production. (3)
- 2.2.3 List THREE methods that the farmer could use to improve the productivity of his farmland. (3)
- 2.2.4 Explain from the case study what is meant by ...
- (a) mixed farming. (2)
  - (b) organic farming. (1)
- 2.2.5 Discuss intensive **stock farming** in terms of ...
- (a) population density. (2)
  - (b) animal feed. (2)
  - (c) labour costs. (2)
- 2.2.6 Give ONE sentence from the case study that suggests that the farmer is a commercial farmer. (1)

- 2.2.7 List THREE advantages of a camp system in animal production should the farmer decide to divide the pastures into camps. (3)
- 2.2.8 Name the TWO types of temporary labour that the farmer uses and also give an example of each. (4)
- 2.2.9 Give TWO pieces of evidence that the farmer attempts to increase the productivity of his labourers. (2)
- 2.2.10 Name the labour law applicable to the "45-hour work week". (1)

2.3 Study the photograph below and then answer the questions that follow.



[Photo: *Landbouweekblad*, 14 April 2017]

- 2.3.1 Identify the poor farming technique that caused the conditions to the right of the fence in the photograph above. (1)
- 2.3.2 Name TWO reasons why a pasture should get enough time to rest between grazing periods. (2)
- 2.3.3 Define the term *carrying capacity*. (3)

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- 3.2 After a young farmer has read the alpaca article, he decides to start farming with alpacas. The farmer visits several of the alpaca farms in the Free State and Western Cape to conduct research and gather information on alpacas. But before he buys any animals, he first compiles a business plan.
- 3.2.1 Give FOUR reasons for compiling a business plan. (4)
- 3.2.2 In compiling the business plan he also conducts a SWOT analysis. Explain what is meant by a SWOT analysis by referring to its components. (4)
- 3.2.3 Name TWO requirements or principles with which the setting of production objectives for the intended alpaca enterprise should comply. (2)
- 3.3 The farmer in Question 3.2 may justly be regarded as an agritourist.
- 3.3.1 Explain what is meant by the term *agritourist*. (3)
- 3.3.2 Identify the following types of agritourism:
- (a) Tourists visiting the alpaca farm to conduct research on alpaca breeding. (1)
- (b) Tourists visiting the farm to follow the route to see how alpaca products are being processed. (1)
- 3.3.3 List THREE ways in which agritourism may benefit the local community. (3)
- 3.4 The table below shows the number of bags of potatoes supplied and sold per week at different prices at a local market. Each bag weighs 10 kg. Study the table and then answer the questions that follow.

PRICE (R/BAG)	NUMBER OF BAGS SUPPLIED	NUMBER OF BAGS SOLD
R60,00	100	5
R45,00	80	25
R40,00	70	30
R35,00	70	45
R30,00	60	50
R25,00	50	50

- 3.4.1 Draw a line graph to represent the relationship between the number of bags of potatoes supplied and sold at a given price. (6)
- 3.4.2 Explain how the price of a bag of potatoes in the table above affects its supply and demand. (3)
- 3.4.3 From the table above it is clear that the price of potatoes affects its demand. List THREE other factors that would also influence the demand for potatoes. (3)

- 3.4.4 Explain what the concept *market equilibrium* implies. (2)
- 3.4.5 Which marketing method do the farmers use in the example (Question 3.4) above? (1)
- 3.4.6 List THREE marketing methods other than the method in Question 3.4.5 that farmers could use to market their products. (3)
- 3.4.7 List THREE marketing costs in the production of an agricultural product. (3)
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**QUESTION 4 FARM MANAGEMENT, FINANCIAL PLANNING AND ADDING VALUE TO HARVESTS**

4.1 Income statements, balance sheets and budgets are very important documents in the financial management of a farming enterprise. The budget below shows the estimated financial aspects of the sheep production enterprise for the 2018/2019 financial book year of a vineyard, wheat and sheep production enterprise. Study the information below and then answer the questions that follow.

ESTIMATED EXPENSES		ESTIMATED INCOME	
ITEM	AMOUNT (R)	ITEM	AMOUNT (R)
Veterinary/Medicine	9 300,00	Sales of livestock directly from the farm	470 000,00
Feed	33 345,00	Manure sales	7 500,00
Feed supplements	8 800,00		
Labour	35 500,00		
Electricity	4 308,00		
Maintenance of feeding pen/feed lot	19 500,00		
Chemical pest control	8 756,00		
Fuel	3 500,00		
Total costs		Total proceeds	

- 4.1.1 Calculate the possible profit or loss that the farmer can generate from this enterprise. Show all the calculations. (4)
- 4.1.2 Name TWO ways in which the income can be increased. (2)
- 4.1.3 Name TWO environmentally friendly measures that this farmer could implement. (2)
- 4.1.4 Is the budget above a whole-farm, operational or partial budget? (1)
- 4.1.5 Give ONE reason for your answer to Question 4.1.4. (1)
- 4.1.6 Name the type of budget that is used to compare two branches of a farming enterprise with each other. (1)
- 4.1.7 Define the following terms:
  - (a) budget (3)
  - (b) income statement (3)
  - (c) balance sheet (3)

- 4.2 In the decision-making process an entrepreneur uses the break-even analysis to assist him in evaluating the dynamic ratio between cost, volume, income and profit. Study the scenario below and then answer the questions that follow.

An entrepreneur would like to use precision farming in his intended beef cattle enterprise, but he first wants to determine how much it is going to cost for an animal to gain enough weight before he will make a profit. The fixed cost amounts to R520,00 per animal. The variable cost amounts to R0,70 per kilogram. The price that the entrepreneur will get is R3,50 per kilogram live weight.

- 4.2.1 Use an applicable formula to calculate the break-even point. Show the formula as well as all the calculations. (4)
- 4.2.2 Name ONE management skill from the scenario above that this entrepreneur should possess to possibly establish a successful enterprise. (1)
- 4.2.3 Give THREE ways in which this entrepreneur can use precision farming in his beef cattle enterprise. (3)

- 4.3 Study the text below and then answer the questions that follow:

Handling agricultural products is very important to ensure that the consumer gets a product of good quality. The process already starts on the farm by applying the correct management practices during the growth process and harvesting, handling, storing and packaging the products.

Fruit for the fresh produce market is usually harvested manually, and for the processing market, mainly mechanically. Transporting the product from the orchard to the storeroom on the farm should take place as quickly as possible. Cooling the product during transportation and in the storeroom is of the utmost importance.

Grain products are often stored in bulk by companies investing a lot of capital in the maintenance and technological development of their handling and storage facilities. These companies perform several important value-adding functions such as the grading and sorting of the product. The presence of foreign substances, the presence of broken/damaged grains, the presence of diseases/insects and the moisture content at storage are important factors that must be taken into account by companies to ensure that the consumer gets a product of good quality.

- 4.3.1 Give TWO reasons and substantiate each of the reasons why products for the fresh produce market should rather be harvested manually and not mechanically. (4)

- 4.3.2 In the text, reference is made to the grading of grain products.
- (a) Define the term *grading*. (1)
  - (b) Give THREE visible criteria from the text on the previous page for the grading of grain products. (3)
- 4.3.3 Explain the advantages that the packaging, storage, grading and sorting of products as value-adding functions can possibly have for the consumer. (3)
- 4.3.4 According to the text, the cooling of the products during transportation and in the storeroom is of the utmost importance.
- (a) Defend the statement above by referring to the effect of temperature on living microorganisms and enzymes that are present on products. (2)
  - (b) List THREE types of cooling methods that may be used to protect products against spoilage. (3)
- 4.3.5 Storing products in small quantities on the farm have various advantages and disadvantages for the producer. Give THREE disadvantages of storing products in small quantities. (3)
- 4.3.6 For which THREE reasons are products mainly packaged? (3)
- [50]**

<b>150 marks</b>
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**Total: 200 marks**