



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

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**AGRICULTURAL SCIENCES P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 11 pages.

SECTION A**QUESTION 1.1**

1.1.1 A ✓✓

1.1.2 C ✓✓

1.1.3 B ✓✓

1.1.4 A ✓✓

1.1.5 D ✓✓

1.1.6 A ✓✓

1.1.7 B ✓✓

1.1.8 C ✓✓

1.1.9 C ✓✓

1.1.10 D ✓✓ (10 x 2) (20)

QUESTION 1.2

1.2.1 G ✓✓

1.2.2 D ✓✓

1.2.3 A ✓✓

1.2.4 J ✓✓

1.2.5 B ✓✓ (5 x 2) (10)

QUESTION 1.3

1.3.1 Selective breeding ✓✓

1.3.2 Equilibrium price ✓✓

1.3.3 Hedging ✓✓

1.3.4 Labour contract/contract ✓✓

1.3.5 Polyploidy ✓✓ (5 x 2) (10)

QUESTION 1.4

1.4.1 Sex linkage ✓

1.4.2 Outsourcing ✓

1.4.3 Net income/profit ✓

1.4.4 Green products ✓

1.4.5 Marketing chain ✓ (5 x 1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING****2.1 2.1.1 Reasons why tomatoes are protected in boxes**

- For easy handling during distribution/transportation. ✓
- For protection against mechanical damage. ✓
- For easy storage and packaging. ✓ (Any 2 x 1) (2)

2.1.2 Important packaging information that could attract tomato buyers.

- Produce name ✓
- Brand of the produce ✓
- Size ✓
- Variety ✓
- Net weight ✓
- Count ✓
- Producer ✓
- Shipper ✓
- Country of origin ✓ (Any 2 x 1) (2)

2.1.3 Reason why materials used for packaging vegetables must not contain chemicals.

- Toxic chemicals can be transferred to the vegetables. ✓
- Vegetables may contaminate/absorb chemical odour/unpleasant smell. ✓ (Any 1 x 1) (1)

2.2 2.2.1 The law of supply

The higher the supply, the more goods will be supplied. ✓✓ (2)

2.2.2 Functions of agricultural marketing factors affecting supply

- Price of the product – the higher the price, the more producers will be willing to supply. ✓
- Competitive products – if cheaper products enter the market, the farmer may reduce production. ✓
- Environmental conditions such as pest infestation can affect supply. ✓
- Political instability such as war. ✓
- Expectation of future price changes. ✓
- When the demand for the product declines, producers will switch to produce other things. ✓
- Technology – new technology may increase production. ✓
- Production cost – the higher the cost of production, the less profit will be made. ✓
- If government subsidises production, supply is likely to increase. ✓ (Any 2 x 1) (2)

2.2.3 How the following factors affect the demand of a product.

(a) **Advertisement**

Advertisement can inform consumers of a new or improvement in a product. ✓ This can increase the demand for that product. ✓

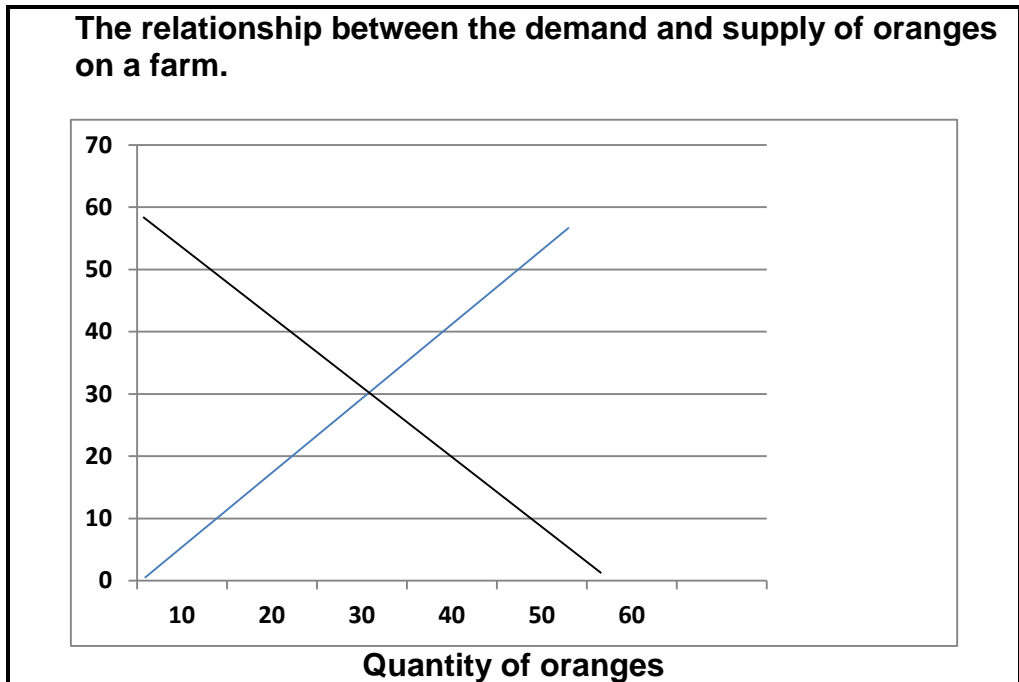
(2)

(b) **Quality of a product**

Demand of a product will increase if the quality of the product is good. ✓ If the quality is bad, the demand will decrease/decline. ✓

(2)

2.3 2.3.1



- Correct heading ✓
- Correct plotting of values ✓
- Labelling and units (Price in Rands) on Y-axis ✓
- Labelling and units (Quantity of oranges) on X-axis ✓
- Demand and supply curves ✓

(5)

2.3.2 Price at market equilibrium

- R30,00 ✓

(1)

2.3.3 Why demand for oranges is low at R50,00

The price is very high / the higher the price, the lower the demand. ✓

(1)

2.4 2.4.1 Free marketing

It is the marketing of products in an uncontrolled way. ✓✓

(2)

2.4.2 The main channels of free marketing

- Farm gate marketing ✓
 - Fresh produce markets
 - Stock sales ✓
 - Direct marketing ✓
 - Internet marketing ✓
 - Auction ✓
- (Any 2 x 1) (2)

2.4.3 Disadvantages of free marketing.

- Price fluctuates considerably ✓
 - Market cost are high ✓
 - The producer is responsible for the marketing of the products ✓
 - The producer has limited bargaining power ✓
 - Producer decision may lead to big financial loss
 - Very often cartels are formed and the consumers are exploited ✓
- (Any 2 x 1) (2)

2.5 2.5.1 Marketing cost that could affect the price of the product

- Product preparation and packaging costs ✓
 - Handling cost ✓
 - Transport cost ✓
 - Product cost ✓
- (Any 3 x 1) (3)

2.5.2 Factors that hamper the marketing of agricultural products

- Perishability nature of farm produce like meat ✓
 - Agricultural products have high volume with relative low unit value ✓
 - Seasonal fluctuations in production ✓
 - Standardisation of size, taste and appearance vary ✓
 - Local restrictions of agricultural production ✓
 - Intermediaries required for the marketing of agricultural products ✓
 - Long production time of certain crops such as wood ✓
- (Any 2 x 1) (2)

2.5.3 Ways to streamline and improve the agri-business chain

- Improve the competitiveness of commercial farmers ✓
 - Increase government control over inferior agricultural products from overseas ✓
 - Improve transportation ✓
 - Promote farmer cooperatives ✓
 - Provide access to market information ✓
 - Improve access to storage facilities ✓
 - Improve training and skill development ✓
 - Improve local marketing infrastructure and local marketing networks ✓
- (Any 2 x 1) (2)

2.6 **Possible problems that may arise when compiling agri-business plan.**

- Insufficient research ✓
- Leaving gaps / being vague / providing too much information ✓
- Insufficient technical detail ✓
- Overambitious or unrealistic assumptions and projections ✓
- Incomplete financials ✓
- Not highlighting potential competition ✓
- Hiding weakness and risks ✓
- Using the incorrect format ✓

(Any 2 x 1) (2)

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QUESTION 3: PRODUCTION FACTORS

3.1 3.1.1 **Production factor that could be used as a collateral**

Land ✓ (1)

3.1.2 **Justification**

- The value of land appreciates with time ✓
- Land ownership is easily transferable ✓
- The value of land can be convertible ✓
- Land can easily be sold at any time ✓

(Any 2 x 1) (2)

3.1.3 **Explanation of “the availability of land for agricultural purposes is limited”.**

- Land for cultivation/tillage/production or agricultural purposes is restricted ✓ to specific areas. ✓
- Land for agricultural purposes cannot be produced. ✓
- It is fixed. ✓

(Any 2 x 1) (2)

3.1.4 **Economic characteristics of land**

- It is a primary factor of production ✓
- It is indestructible ✓
- It varies in production potential ✓
- It can be bought and sold ✓
- Its value appreciates ✓
- It is a passive factor of production ✓

(Any 2 x 1) (2)

- 3.2 3.2.1
- | Skilled labourer | Semi-skilled labourer | Unskilled labourer |
|------------------|------------------------|--------------------|
| Veterinarian ✓ | Unqualified mechanic ✓ | Apple picker ✓ |
- (3)
- 3.2.2 **Worker who could be in highest demand by a livestock farmer**
- Veterinarian ✓ (1)
- 3.2.3 **Reason**
- Skilled workers are scarce and demand for them is high. ✓
 - It takes a long time to train a veterinarian. ✓
 - Only the veterinarian is more useful to the livestock farmer. ✓
(Any 1 x 1) (1)
- 3.2.4 **Methods to improve the economic conditions of the apple picker**
- Provide him with incentives ✓
 - Pay higher salary ✓
 - Pay bonuses ✓
 - Entering into partnership deals with the worker ✓
 - Provide medical insurance ✓
 - Supply farm products such as milk ✓ (Any 2 x 1) (2)
- 3.2.5 **The legislation that can best help the apple picker**
- Basic Conditions of Employment Act/Skills Development Act ✓ (1)
- 3.3 3.3.1 **The type of document in 3.3.**
- Enterprise budget ✓ (1)
- 3.3.2 **Justification of answer to QUESTION 3.3.1.**
- The record is a plan or a record of the money spent on and earned ✓ by only one enterprise (tomato). ✓ (2)
- 3.3.3 **Two types of capital with examples**
- Movable capital e.g. tractor ✓
Working capital e.g. fertiliser, tomato seedlings, insecticides storage boxes ✓ (2)

3.3.4 Profit or loss of the farmer.

Total income = 15 250,92 ✓
 Expenditure = 4 521,25 ✓
 Profit = R15 250,92 – R4 521,25 = R10 729,67 ✓ (3)

3.3.5 Sources of capital to the farm worker

- A commercial bank that supplies credit to the general public ✓
- Financial institutions such as land bank or Ithala Development Finance Corporation Ltd ✓
- A trust company ✓
- A potential business partner ✓
- Agricultural cooperatives and agribusinesses ✓ (Any 2 x 1) (2)

3.4 3.4.1 Definition of *farm management*

Application of basic business principles and scientific principles of agriculture ✓ to the farm business. ✓ (2)

3.4.2 Components of strategic management

- Developing a vision ✓
- Developing a mission ✓
- Setting goals and objectives ✓ (3)

3.4.3 Explanation of conceptual skills

Conceptual skills allow you to reflect on changes in the industry or in farm circumstances ✓ and develop strategies to address them. ✓ (2)

3.4.4 Socio-cultural forces that affect businesses

- Population demographics – age, gender and race composition ✓
- Education levels can affect the labour availability to the farm ✓
- Culture and religion and the values and lifestyle choices of your customers ✓
- Attitudes to environmental issues will affect demand for your product ✓
- HIV and Aids can affect your consumers available cash and the availability of labour ✓ (Any 3 x 1) (3)

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QUESTION 4: GENETICS

- 4.1 4.1.1 **Genotype in K**
SsQq ✓ (1)
- 4.1.2 **Phenotype in L**
Black Short ✓ (1)
- 4.1.3 **Ratio of white and long hair in the crosses**
1 ✓ : 16 ✓ (2)
- 4.1.4 **Percentage of black and short hair in the phenotype**
Total of the phenotypes = 9 + 3 + 3 + 1 ✓ = 16 ✓
Black and short hair = 9
Percentage of black and short hair = $\frac{9}{16} \times 100$ ✓
= 56,25% or 56,3% ✓ (4)
- 4.2 4.2.1 **Qualitative characteristics**
These are characteristics that can take only a few fixed forms. ✓
They are controlled by one pair of genes. ✓ (2)
- Quantitative characteristics**
Quantitative characteristics can take on a whole series of values without clear boundary lines between the different classes. ✓ They are usually determined by a number of genes. ✓ (2) (4)
- 4.2.2 (a) Gender of a bull – qualitative characteristic ✓ (1)
(b) Body size of the bull – quantitative characteristic ✓ (1)
- 4.3 4.3.1 **Limitations of traditional breeding**
- It is not precise. ✓
 - Many unwanted traits can be transferred. ✓
 - Not suitable for the production of vaccines. ✓
 - Recombined genetic traits within species and between related ones. ✓
 - It is time-consuming – takes several years. ✓ (Any 2 x 1) (2)

4.3.2 Current uses of genetically modified plants

- Improving the shelf life of many fruiting plants. ✓
 - Improving the nutritional value of food. ✓
 - Improving resistance to diseases and pests. ✓
 - Improving resistance to weed killers. ✓
 - Improving resistance to viral disease. ✓
 - Increasing resistance of plants to negative environmental influences such as drought. ✓
- (2)

4.4 (a) Prepotency

The ability of a parent to pass its genetic characteristics ✓ on to its offspring. ✓

(2)

(b) Pedigree selection

Pedigree selection focuses on the quality of the ancestors, ✓ rather than on the individual. ✓

(2)

4.5 4.5.1 The type of breeding that could take place on the farm.

- Cross breeding ✓
- (1)

4.5.2 Reason for answer in QUESTION 4.5.1.

- It involves the mating of two pure-bred animals ✓ of different breeds. ✓
- (2)

4.5.3 Characteristics of crossbred animals

- They produce heterosis/hybrid vigor ✓
 - The offspring are heterozygous ✓
 - It helps to improve characteristics that have low heritability ✓
 - Progeny is more resistant to diseases ✓
 - Offspring have more vitality ✓
 - Better adaptability to varying environmental conditions ✓
- (Any 3 x 1) (3)

4.5.4 One genetic terminology for the offspring

Progeny ✓

(1)

4.6 4.6.1 **Calculation of milk yield**

aabbcc = 3 000 litres of milk

B = 200 litres of milk ✓

C = 200 litres of milk ✓

AaBbcC = 3 000 + 200 + 200
= 3 400 ✓ litres of milk ✓

(4)

4.7 4.7.1 Crossing over ✓✓

(2)

[35]**TOTAL SECTION B: 105****GRAND TOTAL: 150**