



Province of the  
**EASTERN CAPE**  
EDUCATION



# **NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**SEPTEMBER 2022**

## **AGRICULTURAL SCIENCES P2 MARKING GUIDELINE**

**MARKS: 150**

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This marking guideline consist of 9 pages.

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**SECTION A****QUESTION 1**

1.1	1.1.1	C ✓✓		
	1.1.2	A ✓✓		
	1.1.3	C ✓✓		
	1.1.4	D ✓✓		
	1.1.5	C ✓✓		
	1.1.6	C ✓✓		
	1.1.7	B ✓✓		
	1.1.8	B ✓✓		
	1.1.9	C ✓✓		
	1.1.10	D ✓✓	(10 x 2)	(20)
1.2	1.2.1	D ✓✓		
	1.2.2	G ✓✓		
	1.2.3	C ✓✓		
	1.2.4	B ✓✓		
	1.2.5	F ✓✓	(5 x 2)	(10)
1.3	1.3.1	Labour ✓✓		
	1.3.2	Entrepreneurship ✓✓		
	1.3.3	Niche marketing ✓✓		
	1.3.4	Mutagen ✓✓		
	1.3.5	Prepotency ✓✓	(5 x 2)	(10)
1.4	1.4.1	Marketing ✓		
	1.4.2	Overhead ✓		
	1.4.3	Capital ✓		
	1.4.4	Vision ✓		
	1.4.5	Polygenes ✓	(5 x 1)	(5)

**TOTAL SECTION A: 45**

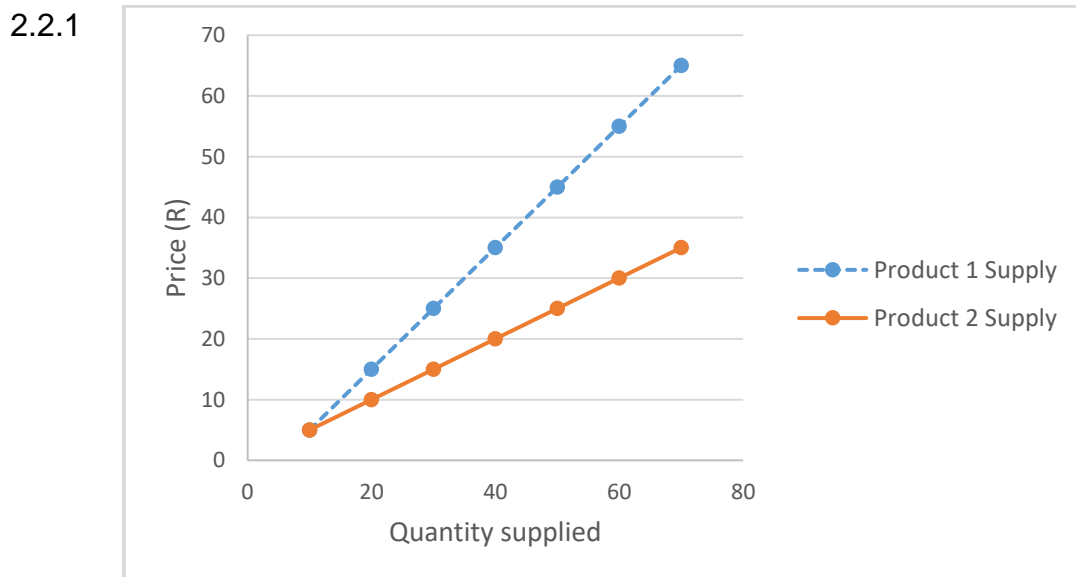
**SECTION B**

**QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING**

- 2.1 2.1.1 **Identification of marketing functions**
  - B – Processing ✓ (1)
  - C – Packaging ✓ (1)
- 2.1.2 **Role of marketing function B**
  - Create employment ✓
  - Reduce oversupply ✓ (2)
- 2.1.3 **Environmentally sustainable packaging guidelines**
  - Packaging must be recyclable ✓
  - Packaging must be biodegradable ✓ (2)
- 2.1.4 **Comparison of the value of the product at points A and D**

At point **A** the product has a lower value ✓ while at point **D** it has a higher value. ✓ (2)

**2.2 Relationship between price and supply of PRODUCTS 1 and 2.**



Checklist

- Correct heading ✓
  - *x*-axis correctly calibrated with label (Quantity supplied) ✓
  - *y*-axis correctly calibrated with label (Price) ✓
  - Graph type (Line graph) ✓
  - Correct units (R) ✓
  - Accuracy ✓ (6)
- 2.2.2 **Identification of price inelastic product**  
Product 2 ✓ (1)
- 2.2.3 **Motivation of answer to QUESTION 2.2.2**  
Change in price ✓ results in a small change in supply. ✓ (2)

- 2.2.4 **TWO reasons from the diagram**
- The production period of agricultural products is very long ✓
  - Perishability of agricultural products ✓
  - Harvesting and marketing of agricultural products is seasonal ✓
- (Any 2 x 1) (2)
- 2.3 2.3.1 **Identification of marketing systems**  
A – Controlled marketing ✓  
B – Free marketing ✓ (2)
- 2.3.2 **Marketing system that results in:**  
(a) A (1)  
(b) B (1)
- 2.3.3 **Disadvantages of marketing system A to consumers**
- Standardisation ✓
  - Stable prices ✓
  - Secure market outlets
  - Orderly marketing (Any 2 x 1) (2)
- 2.3.4 **Marketing channels available to farmers**
- Farm gate market ✓
  - Fresh produce markets ✓
  - Stock sales ✓
  - Direct marketing ✓
  - Internet marketing ✓ (Any 2 x 1) (2)
- 2.4 2.4.1 **The document described in the passage**  
Business plan ✓ (1)
- 2.4.2 **Importance of the document described in the passage**
- Obtaining financing ✓
  - Attracting investors ✓
  - Guide daily operations ✓
  - Outline roles and responsibilities of individuals involved ✓
  - Plan for capital requirements ✓ (Any 2 x 1) (2)
- 2.4.3 **Common mistakes committed when drafting the document described in the passage**
- Insufficient technical detail ✓
  - Incomplete financials ✓
  - Unrealistic assumptions ✓
  - Being vague ✓
  - Ignoring risks ✓ (Any 2 x 1) (2)

2.4.4 **Attributes of a successful entrepreneur**

- Perseverance ✓
- Motivation ✓
- Leadership ✓
- Commitment ✓
- Hard-working ✓
- Innovative ✓
- Risk taking ✓
- Positive attitude ✓

(Any 3 x 1) (3)  
**[35]**

**QUESTION 3: PRODUCTION FACTORS**

- 3.1 3.1.1 **Explanation of economic characteristics of land**  
 A – Urbanisation limits the amount of land available ✓ for agriculture ✓  
 B – Initially, an increase in input results in a proportional increase output ✓ until a point is reached where any further increase in input does not result in an increase in output. ✓ (4)
- 3.1.2 **Economic functions of land**
- Enables production of food ✓
  - Provides physical space for human settlements ✓
  - Provides physical space for agricultural activities ✓
  - It is an asset that can be used as collateral ✓
  - It is a source of minerals ✓ (Any 2 x 1) (2)
- 3.1.3 **Methods that can be used to improve the productivity of land**  
 (a) Water management/irrigation/rainwater harvesting ✓  
 (b) Restoring the land's potential ✓ (2)
- 3.2 3.2.1 **Classification of labour types based on period of employment**  
 A – Permanent workers ✓  
 B – Seasonal workers ✓  
 C – Casual workers ✓ (3)
- 3.2.2 **The document signed between employee and employer**  
 Labour contract ✓ (1)
- 3.2.3 **Importance of a labour contract**
- Protects employees from exploitation ✓
  - Protects employers as it regulates employee behaviour ✓
  - Prevents disputes between employers and their employees ✓ (Any 2 x 1) (2)
- 3.2.4 **Labour legislation applicable to circumstances**  
 (a) Unemployment Insurance Fund / Act 63 of 2001 (1)  
 (b) The Skills Development Act / Act 97 of 1998 (1)  
 (c) Occupational Health and Safety Act / Act 85 of 1993 (1)
- 3.2.5 **Two strategies that can be used by the farmer to retain labour**
- Motivating labourers ✓
  - Having the right type and number of labourers ✓
  - Upskilling the workforce ✓ (Any 2 x 1) (2)
- 3.3 3.3.1 **Identification of financial record**  
 Balance sheet ✓ (1)
- 3.3.2 **Examples of capital types:**  
 (a) Farmland/Building and improvements ✓ (1)  
 (b) Vehicles/Machinery and equipment/Breeding stock ✓ (1)

**3.3.3 Types of capital required to finance capital types in****QUESTION 3.3.2**

Fixed capital – long term credit ✓

Movable capital – medium term credit ✓

(2)

**3.3.4 Calculation of net worth**

Net worth = Assets – liabilities ✓

$$= (R100\ 000 + R80\ 000 + R600\ 000 + R1\ 200\ 000 + R150\ 000) \checkmark - (R285\ 000 + R300\ 000) \checkmark$$

$$= R2\ 130\ 000 - R585\ 000$$

$$= R1\ 545\ 000 \checkmark$$

(4)

**3.3.5 Comment on enterprise viability**

The enterprise is viable ✓ since it has a substantial net worth. ✓

(2)

**3.4 Identification of risk management strategy**

3.4.1 Diversification ✓

(1)

3.4.2 Flexibility ✓

(1)

3.4.3 Risk sharing ✓

(1)

**3.5 Identification of principles of management**

3.5.1 Planning ✓

(1)

3.5.2 Implementation ✓

(1)

**[35]**

**QUESTION 4: BASIC AGRICULTURAL GENETICS**

4.1 4.1.1 **Mechanism of inheritance depicted in the diagram**  
Codominance ✓ (1)

4.1.2 **Motivation of answer to QUESTION 4.1.1**  
The characteristics of both homozygote parents ✓ are fully expressed  
in the phenotype of the heterozygous offspring. ✓ (2)

4.1.3 **Punnet square to determine F<sub>2</sub>-generation genotype**

	$C^R$	$C^W$ ✓
$C^R$	$C^R C^R$	$C^R C^W$
$C^W$ ✓	$C^R C^W$	$C^W C^W$ ✓

Rubric

Punnet square with gametes and offspring genotypes ✓  
Correct male gametes ✓  
Correct female gametes ✓  
Correct offspring genotype ✓ (4)

4.1.4 **F<sub>2</sub> phenotypic ratio**  
1 Red : 2 Red and white : 1 white ✓ (1)

4.1.5 **Patterns of inheritance that lead to different phenotypes**

- Incomplete dominance ✓
- Multiple alleles ✓
- Polygenes ✓
- Epistasis ✓

(Any 2 x 1) (2)

4.2 4.2.1 **Definition of variation**  
Refers to differences that exist ✓ among individuals of the same  
species ✓ (2)

4.2.2 **Advantage of variation from the passage**  
Allows adaptation to pest and environmental stressors ✓ (1)

4.2.3 **External causes of variation in plants**

- Sunlight ✓
- Water ✓
- Temperature ✓
- Soil ✓
- Pests and diseases ✓

(Any 2 x 1) (2)



- 4.3 4.3.1 **Identification of selection types**  
 A – Natural selection ✓  
 B – Artificial selection ✓ (2)
- 4.3.2 **Methods of selection type B**
- Pedigree selection ✓
  - Mass selection ✓
  - Progeny selection / Pure line selection ✓
  - Family selection ✓ (Any 2 x 1) (2)
- 4.3.3 **Requirements for characteristics used in selection type B**
- Characteristics should be heritable ✓
  - Characteristics should be of economic importance ✓
  - Characteristics should be measurable ✓ (Any 2 x 1) (2)
- 4.4 **Identification of breeding method**
- 4.4.1 Cross breeding ✓ (1)
- 4.4.2 Upgrading ✓ (1)
- 4.4.3 Inbreeding ✓ (1)
- 4.4.4 Species crossing ✓ (1)
- 4.5 4.5.1 **Identification of genetic modification technique**  
 Electroporation ✓ (1)
- 4.5.2 **Motivation to QUESTION 4.5.1 above**  
 An electric current is used to create pores into the cell membrane ✓  
 through which genetic material can access the nuclei ✓ (2)
- 4.5.3 **Suitability of modern plant improvement in African countries**  
 They are not suitable ✓ since African countries lack the technical  
 know-how / the technology is expensive ✓ (2)
- 4.5.4 **Aims of genetic modification techniques**
- Improve crop yield ✓
  - Improve commercial properties ✓
  - Increasing nutritional value of crops ✓
  - Producing pharmaceutical crops ✓ (Any 2 x 1) (2)
- 4.5.5 **Potential risks associated with plant improvement methods like  
 the one depicted above**
- Food safety risks ✓
  - Environmental risks ✓
  - Socio-economic risks ✓ (3 x 1) (3)

**[35]**

**TOTAL SECTION B: 105**  
**GRAND TOTAL: 150**