



**LIMPOPO**  
PROVINCIAL GOVERNMENT  
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF  
**EDUCATION**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**AGRICULTURAL SCIENCES P2**

**SEPTEMBER 2026**

**MARKING GUIDELINES**

**MARKS: 150**

**These marking guidelines consist of 11 pages**

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

|                         |        |                                                  |          |             |
|-------------------------|--------|--------------------------------------------------|----------|-------------|
| 1.1                     | 1.1.1  | C ✓✓                                             |          |             |
|                         | 1.1.2  | A ✓✓                                             |          |             |
|                         | 1.1.3  | A ✓✓                                             |          |             |
|                         | 1.1.4  | B ✓✓                                             |          |             |
|                         | 1.1.5  | D ✓✓                                             |          |             |
|                         | 1.1.6  | D ✓✓                                             |          |             |
|                         | 1.1.7  | A ✓✓                                             |          |             |
|                         | 1.1.8  | C ✓✓                                             |          |             |
|                         | 1.1.9  | B ✓✓                                             |          |             |
|                         | 1.1.10 | B ✓✓                                             | (10 x 2) | (20)        |
| 1.2                     | 1.2.1  | I ✓✓                                             |          |             |
|                         | 1.2.2  | E ✓✓                                             |          |             |
|                         | 1.2.3  | A ✓✓                                             |          |             |
|                         | 1.2.4  | B ✓✓                                             |          |             |
|                         | 1.2.5  | F ✓✓                                             | (5 x 2)  | (10)        |
| 1.3                     | 1.3.1  | Business plan ✓✓                                 |          |             |
|                         | 1.3.2  | Management ✓✓                                    |          |             |
|                         | 1.3.3  | Polyploidy ✓✓                                    |          |             |
|                         | 1.3.4  | Family selection ✓✓                              |          |             |
|                         | 1.3.5  | Genetic engineering/Manipulation/Modification ✓✓ | (5 x 2)  | (10)        |
| 1.4                     | 1.4.1  | Market research ✓                                |          |             |
|                         | 1.4.2  | Overcapitalisation ✓                             |          |             |
|                         | 1.4.3  | Dihybrid ✓                                       |          |             |
|                         | 1.4.4  | Heritability ✓                                   |          |             |
|                         | 1.4.5  | Quantitative ✓                                   | (5 x 1)  | (5)         |
| <b>TOTAL SECTION A:</b> |        |                                                  |          | <b>[45]</b> |

**SECTION B****QUESTION 2: AGRICULTURAL MARKETING AND MANAGEMENT****2.1 Marketing systems****2.1.1 The marketing functions:**

A - Transportation ✓

B - Storage ✓

(2)

**2.1.2 TWO advantages of processing**

- Easy to transport ✓
- Convenience ✓
- Easy storage ✓
- Provides job opportunities ✓
- Reduces wastage of excess produce ✓
- It is a way of overcoming over-supply ✓
- Increases profitability/revenue ✓
- Add value to farm products ✓
- Prevents spoilage/improves shelf life ✓
- The product is available throughout the year ✓
- The product is available throughout the year ✓ (Any 2) (2)

**2.1.3 TWO guidelines of packaging**

- Packaging should not contain chemicals that could be toxic to the products ✓
- Packaging must be recyclable ✓
- Enclose the product in convenient units for handling ✓
- Identify and provide useful information about the product ✓
- Ensure the product is protected from mechanical damage ✓ (Any 2) (2)

**2.2 Marketing systems****2.2.1 Identification of marketing system**

Cooperative marketing ✓

(1)

**2.2.2 THREE benefits of cooperative marketing**

- Lower marketing costs ✓
- Risk sharing ✓
- Cheaper services ✓
- More bargaining power ✓
- Easy access to funding/support ✓
- Time saving/time for farming activities ✓
- Higher average price/dividends ✓
- Producers can secure larger contracts ✓ (Any 3) (3)

**2.2.3 TWO types of cooperatives**

- Production cooperatives ✓
- Service cooperatives ✓
- Marketing cooperatives ✓
- Purchasing cooperatives ✓
- Consumer cooperatives ✓

(Any 2) (2)

**2.3 Demand and supply of agricultural products****2.3.1 THREE factors that influence supply**

- Production/labour/input costs ✓
- Subsidies/taxation ✓
- Possibilities of increasing the supply of products ✓
- Demand for the product ✓
- Environmental conditions/nature ✓
- Availability of the product ✓
- Competitive products ✓
- Profit margin of the product ✓
- Stability of the product ✓
- Knowledge of the product/research ✓
- Political stability ✓
- Number of suppliers ✓
- Legislation ✓
- Seasonality ✓

(Any 3) (3)

**2.3.2 Naming of condition in a market**

Market equilibrium/Equilibrium point ✓

(1)

**2.3.3 The law of demand**

The higher the price the lower the quantities of mangoes demanded ✓✓

The lower the price the higher the quantities of mangoes demanded ✓✓

(Any 1) (2)

**2.4 Identification of marketing approaches**

2.4.1 Mass marketing ✓

(1)

2.4.2 Green marketing ✓

(1)

2.4.3 Niche marketing ✓

(1)

2.4.4 Multi-segment marketing ✓

(1)

**2.5 Marketing of agricultural products****2.5.1 Identification of marketing factors**

- (a) Picture **A** - Accident ✓ (1)
- (b) Picture **B** - Poor infrastructure/poor roads ✓ (1)

**2.5.2 Other TWO factors that hamper the marketing of agricultural products**

- Lack of capital ✓
- Perishability of the product ✓
- Ineffective control of production ✓
- Wide distribution of products/distance to the markets ✓
- Low value in relation to volume ✓
- Seasonal fluctuation in production ✓ (Any 2) (2)

**2.5.3 TWO roles of legislation for effective marketing of products.**

- Promoting /optimising efficient marketing of products ✓
- Increasing market accessibility to all participants ✓
- Enhancing the viability of agricultural sector ✓
- Promotes meat safety at abattoirs ✓
- Controls the export of perishable products from South Africa ✓
- Assists in making sure that there are minimum marketing interventions ✓
- Regulate/quality control on import/export products ✓
- Prevent unfair marketing practices/consumer exploitation ✓
- Ensure that product information is given in a simple language ✓
- Set and maintain national standards at processing sites ✓
- Regulate market agents and improve their functioning ✓
- Authorising the establishment and regulations for marketing ✓
- Promotes a fair/sustainable market place for consumer products and services ✓ (Any 2) (2)

**2.6 Entrepreneurship****2.6.1 Definition of entrepreneurship**

Entrepreneurship refers to the process of bringing together the resources and assets to make use of an opportunity to create a business venture ✓✓ (2)

**2.6.2 Entrepreneurial success factors**

- (a) Leadership ✓ (1)
- (b) Interpersonal skills ✓ (1)
- (c) Perseverance ✓ (1)

**2.7 TWO external factors of a SWOT analysis**

Opportunities ✓

Threats ✓ (2)

**[35]**

**QUESTION 3: PRODUCTION FACTORS****3.1 Land as production factor****3.1.1 TWO economic functions of land**

- Land provides food ✓
- Land can be used as a collateral ✓
- Land provides space agricultural activities ✓ (Any 2) (2)

**3.1.2 Economic characteristic of land**

Land is subject to the law of diminishing return ✓ (1)

**3.1.3 Explanation of the Law of diminishing returns**

- An increase in the application of fertilizers ✓ result in increase in output in a decreasing rate.

**OR**

- The yield increase declined ✓ despite the increase in fertilizer application. ✓ (Any 1) (2)

**3.1.4 TWO ways to increase land productivity**

- Improving water management/water provision ✓
- Changing cropping system/intercropping/ Use of scientific methods ✓
- Restoring land potential/halting erosion ✓
- Consolidating small uneconomic land units ✓ (Any 2) (2)

**3.2 Labour****3.2.1 Identification of tasks performed by labourers**

- (a) Removal of the trees and shrubs ✓ (1)
- (b) Weeding/harvesting ✓ (1)
- (c) Manage the farm ✓ (1)

**3.2.2 Labour legislations**

- (a) Basic Conditions of Employment Act/BCEA (Act 75 of 1997) ✓ (1)
- (b) Labour relations Act/LRA (Act 66 of 1995) ✓ (1)
- (c) Compensation for Occupational Injuries and Diseases Act/COIDA (Act 130 of 1993) ✓ (1)

**3.2.3 TWO problems associated with farm workers**

- Lack of training/skills/educational opportunities ✓
- Low wages ✓
- Competitions with other industries ✓
- Poor working conditions/safety ✓
- Social problems ✓
- Lack of benefits ✓
- Workers not working regularly ✓
- Poor labour management ✓
- Farm workers are scarce/Scarcity ✓
- Labour unrests/strikes ✓

- Farm worker migration ✓
- Lack of opportunities/promotion ✓
- Dreadful diseases/TB/HIV/AIDS/Covid 19 ✓ (Any 2) (2)

### 3.3 Capital

#### 3.3.1 Identification of the type of capital

- (a) **B** - Fixed capital ✓ (1)
- (b) **C** - Movable capital ✓ (1)
- (c) **A** - Working/production/floating capital ✓ (1)

#### 3.3.2 Indication of the letter of the capital item that depreciates Letter – C ✓

(1)

#### 3.3.3 TWO methods of creating capital excluding credit/loan

- Savings ✓
- Production ✓
- Grants/donations/sponsors ✓
- Trust funds/inheritance ✓
- Partnerships ✓ (Any 2) (2)

#### 3.3.4 Explanation of the long term-credit

It is used to purchase long-term assets✓ and repayable over a period of 10 to 20 years ✓ (2)

### 3.4 Budget

#### 3.4.1 Type of budget

Enterprise budget ✓ (1)

#### 3.4.2 Reason

It shows the estimates of the expected income and expenditure of the enterprise ✓ (1)

#### 3.4.3 Calculation of the value of A

$A = R28\,000 + R17\,500 + R11\,400 + R12\,000 + R23\,700 + R19\,600$  ✓ (2)  
 $= R112\,200$  ✓

#### 3.4.4 Calculation of profit or loss

Profit/loss = Total income – Total expenditure ✓  
 $R181\,860 - R112\,500$  ✓  
 $= R69\,360$  ✓ (3)

**3.5 Farm with different operations****3.5.1 Identification of the risk management strategy**

Diversification ✓

(1)

**3.5.2 Reason**

There are different production enterprises on the farm/risk is spread amongst many farming enterprises/it is a way of managing risk ✓

(1)

**3.5.3 ONE source of risk**

- Production risk ✓
- Technical risk ✓

(Any 1) (1)

**3.5.4 The management skills**

(a) Planning ✓

(1)

(b) Analytical skill ✓

(1)

**[35]****QUESTION 4: BASIC AGRICULTURAL GENETICS****4.1 Mendelian study****4.1.1 Genetic terms**

Heredity ✓

(1)

**4.1.2 Mendel's law of Independent Assortment**

Different pairs of genes separate independently of the members of other pairs ✓ when two or more characteristics are involved ✓

**OR**

During gamete formation, ✓ segregating pairs of alleles assort themselves independently of each other ✓

(Any 1) (2)

**4.2 Monohybrid crossing****4.2.1 Breeding pair with dominant alleles**

Pair 1 ✓

(1)

**4.2.2 Punnet square**

| Gametes | D  | d ✓  |
|---------|----|------|
| D ✓     | DD | Dd   |
| d       | Dd | dd ✓ |

**Marking rubric**

- Correct gametes of male parent ✓
- Correct gametes of female parent ✓
- Correct genotype of the offspring ✓
- Correct populated punnet square ✓

(4)

**4.2.3 Calculation of the percentage of red offspring**

$$\% \text{ Red offspring} = \frac{1}{4} \times 100 \checkmark$$

$$= 25\% \checkmark$$

(2)

**4.3 Pedigree diagram****4.3.1 Indication of a dominant characteristic**Brown  $\checkmark$ 

(1)

**4.3.2 Determination of the genotype of individual**bb  $\checkmark$ 

(1)

**4.3.3 Phenotypic ratio of F<sub>1</sub> offspring for parents 1 and 2**1 brown : 1 black  $\checkmark$ 

(1)

**4.3.4 Indication of whether individual 2 is homozygous or heterozygous - Heterozygous  $\checkmark$** 

(1)

**4.3.5 Reason for the answer:**It produced individual 3 that is homozygous recessive which shows that individual 2 is a carrier of recessive allele  $\checkmark$ 

(1)

**4.3.6 Indication of the number of generations**3  $\checkmark$ 

(1)

**4.4 Polygenic inheritance****4.4.1 Identification of the pattern of inheritance**Polygenic inheritance  $\checkmark$ 

(1)

**4.4.2 Justification:**Height is determined by many pairs of genes  $\checkmark$ 

(1)

**4.4.3 TWO genotypes of a plant with 75 cm height**

- AABbdd  $\checkmark$
- aaBBDd  $\checkmark$
- aaBbDD  $\checkmark$
- AaBbDd  $\checkmark$

(Any 2) (2)

**Calculation of the height of a plant**

$$\text{4.4.4 } \text{AaBbDD genotype} = 60 \text{ cm} + 5 + 5 + 5 + 5 \checkmark$$

$$= 80 \text{ cm} \checkmark$$

(2)

**4.5 Breeding systems in cattle****4.5.1 Identification of breeding system**

- (a) Line breeding ✓ (1)  
(b) Cross breeding ✓ (1)

**4.5.2 Breeding system that promotes heterosis**

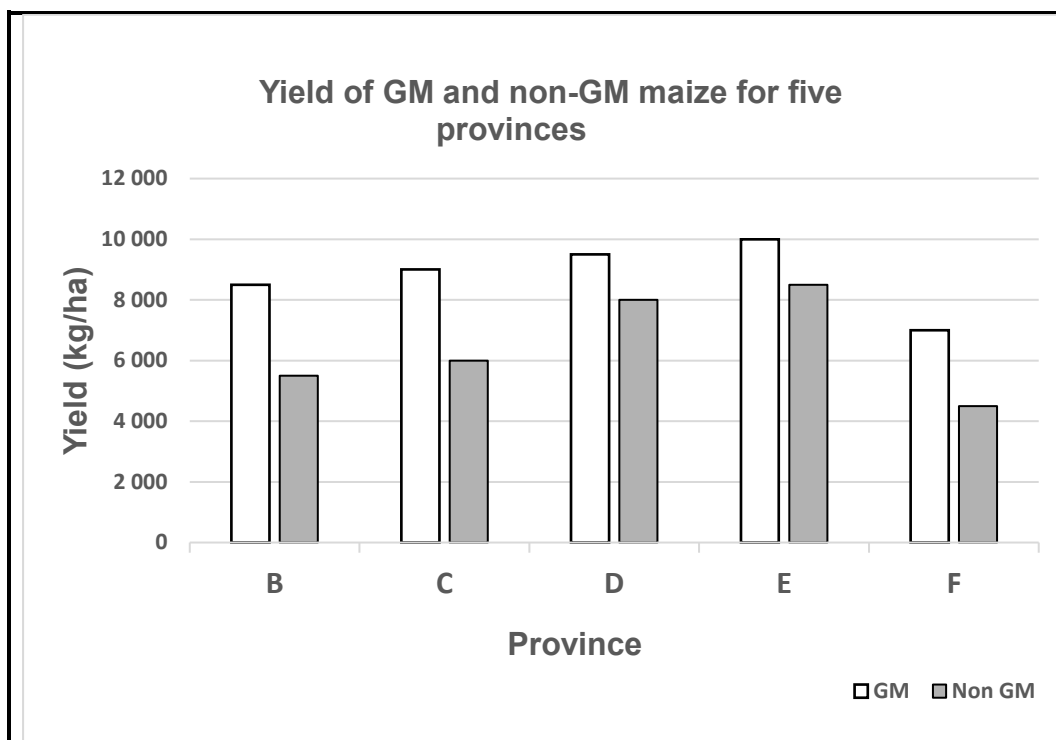
Crossbreeding/Breeding system 1 ✓ (1)

**4.5.3 TWO disadvantages of inbreeding**

- Inbreeding depression/decreases in animal performance ✓
- Lead to the expression of lethal genes/deformities ✓
- Reduced vitality ✓
- Low resistance to diseases ✓
- Poor adaptability ✓
- Loss of variation ✓
- Undesired genes are made homozygous ✓ (Any 2) (2)

## 4.6 Genetic Modification

### 4.6.1 Bar graph showing the yield of the GM and non-GM maize for five provinces



#### CRITERIA/RUBRIC/MARKING GUIDELINES

- Correct heading with both variables ✓ (1)
- X-axis: Correctly calibrated and labelled (Province) ✓ (1)
- Y-axis: Correctly calibrated and labelled (Yield) ✓ (1)
- Correct units (kg/ha) ✓ (1)
- Combined bar graph ✓ (1)
- Accuracy (80% + correctly plotted) ✓ (1)

### 4.6.2 TWO potential risks for genetically modified crops

- Health risks ✓
  - Environmental risks ✓
  - Economic/financial risks ✓ (Any 2) (2)
- [35]**

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