



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2020

**AGRICULTURAL SCIENCES P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 9 pages.

SECTION A**QUESTION 1**

1.1	1.1.1	C ✓✓		
	1.1.2	A ✓✓		
	1.1.3	C ✓✓		
	1.1.4	B ✓✓		
	1.1.5	D ✓✓		
	1.1.6	A ✓✓		
	1.1.7	B ✓✓		
	1.1.8	C ✓✓		
	1.1.9	B ✓✓		
	1.1.10	D ✓✓	(10 x 2)	(20)
1.2	1.2.1	E ✓✓		
	1.2.2	F ✓✓		
	1.2.3	C ✓✓		
	1.2.4	A ✓✓		
	1.2.5	H ✓✓	(5 x 2)	(10)
1.3	1.3.1	Equilibrium point / Market equilibrium ✓✓		
	1.3.2	Entrepreneurs ✓✓		
	1.3.3	Strategic risk management ✓✓		
	1.3.4	Labour productivity ✓✓		
	1.3.5	Sex-linked trait ✓✓	(5 x 2)	(10)
1.4	1.4.1	Demand ✓		
	1.4.2	Cash flow ✓		
	1.4.3	Allele ✓		
	1.4.4	Inbreeding depression ✓		
	1.4.5	Mutagen ✓	(5 x 1)	(5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING**

- 2.1 2.1.1 **Identification of price determining factor**
Supply ✓ (1)
- 2.1.2 **Explanation of how factors will cause a shift in the supply curve**
(a) Technology – Better technology can result in reduced production costs ✓ resulting in improved supply ✓
(b) Environmental conditions – Conducive environmental conditions will result in higher yields ✓ leading to increase in supply ✓ (4)
- 2.1.3 **Factors influencing supply**
• Price ✓
• Production costs ✓
• Subsidies ✓
• Seasonality ✓
• Competitive products ✓
• Legislation (Any 2) (2)
- 2.2 2.2.1 **Name of process**
Agri-business chain / Marketing chain ✓ (1)
- 2.2.2 **Marketing channel shown by the arrow**
• A – Farm gate marketing ✓
• B - Fresh produce markets ✓ (2)
- 2.2.3 **Advantage of marketing channel A to the consumer**
Prices are lower than retail prices ✓ (1)
- 2.2.4 **Methods of dealing with factors hampering the marketing chain**
(a) Processing products close to where they are produced ✓ (1)
(b) Using cold storage / refrigerated transport / processing ✓ (1)
- 2.2.5 **Description of how the following affect the agri-business chain**
(a) Increases transportation costs ✓ (1)
(b) Seasonality of produce interrupts the market's demand for consistent supply ✓ and increases storage costs ✓ (2)

- 2.3 2.3.1 **Identification of marketing approaches**
A – Niche marketing ✓
B – Mass marketing ✓
C – Multi-segment marketing ✓ (3)
- 2.3.2 **Identification of a marketing approach with high prices**
A ✓ (1)
- 2.3.3 **TWO reasons to support your answer**
Consumers are prepared to pay high prices for unique products ✓
There is less competition ✓ (2)
- 2.4.2 **Methods of promoting products that are suitable for marketing approach B**
• Newspapers ✓
• Television ✓
• Radio ✓
• Billboards
• Magazines ✓
• Electronic media ✓ (Any 2) (2)
- 2.4 2.4.1 **Name of marketing system**
Cooperative marketing ✓ (1)
- 2.4.2 **Principles cooperative marketing**
• Voluntary and open membership ✓
• Democratic member control ✓
• Autonomy and independence ✓
• Concern for community ✓
• Risk is shared by all members ✓ (Any 2) (2)
- 2.4.3 **Benefits of cooperative marketing**
• Economies of scale ✓
• Increased bargaining power ✓
• Reduced risk due to risk-sharing ✓
• Ability to meet market requirements for volume and consistent supply ✓
• Access to funding ✓
• Access to better infrastructure ✓ (Any 2) (2)

2.4.4 **Name of document**
Business plan ✓ (1)

2.4.5 **Components of a business plan**

- Title page ✓
- Contents page ✓ / Summary of enterprise details ✓
- Executive summary ✓
- Overview of the industry ✓
- Overview of the business ✓
- Organisational structure and ownership ✓
- Human resources plan ✓
- Marketing plan ✓
- Financial plan ✓
- SWOT analysis ✓ (Any 2) (2)

(NB: All components of business plan accommodated) - Not sure I understand what is meant here??

2.5 **Aspects of a SWOT analysis**

- A. Opportunity ✓
- B. Strength ✓
- C. Threat ✓ (3)
- [35]

QUESTION 3: PRODUCTION FACTORS

- 3.1 3.1.1 **Meaning of the following economic characteristics of land**
- (a) Industrial and residential areas reduce the amount of land available for agriculture ✓ (1)
- (b) The amount of land available for agriculture in a country does not increase ✓ (1)
- (c) The decrease in the marginal output of a production process ✓ as the amount of a single factor of production is incrementally increased, ✓ while the amount of all other factors of production remain constant (2)
- 3.1.2 **Methods of increasing the productivity of land**
- Consolidation of uneconomic farming units ✓
 - Use of scientific farming methods ✓
 - Water management ✓
 - Use of farming methods that are suited to the area ✓ (Any 3) (3)
- 3.2 3.2.1 **Deduction of type of farm workers**
- A – Seasonal workers ✓
- B – Permanent worker ✓ (2)
- 3.2.2 **Motivation for answers to QUESTION 3.2.1**
- A – Harvesting is a seasonal activity ✓
- B – Office / paper work is done by a farm manager who is a permanent employee ✓ (2)

- 3.2.3 (a) **Farm worker that is most likely to be exploited**
Farm worker A ✓ (1)
- (b) **Justification of answer to QUESTION 3.2.3 (a)**
Because they are the least educated / they have less bargaining power due lack of formal training ✓ (1)
- 3.2.4 **Piece of legislation that protects Farm worker A from exploitation.**
Basic Conditions of Employment Act ✓ (1)
- 3.3. 3.3.1 **Benefits of record keeping**
A – variable costs ✓
B – Overhead costs ✓
C – Gross margin ✓
D – Net profit ✓ (4)
- 3.3.2 **Importance of an enterprise budget**
 - Enables a farmer to determine the viability of an enterprise ✓
 - Enterprise budgets can be used to help make decisions such as pricing products / comparing production practices ✓
 - Enterprise budgets can be used to develop a product mix that matches business goals ✓
(2)
- 3.4 3.4.1 **Deduction of capital type**
A – movable ✓
B – floating / running / working ✓
C – fixed ✓ (3)
- 3.4.2 **Capital item funded through medium term credit**
A ✓ (1)
- 3.4.3 **Problems associated with capital**
 - Scarcity of capital ✓
 - High interest rates / expensive capital ✓
 - Overcapitalisation ✓
 - Undercapitalisation ✓
 - Depreciation ✓
(Any 2) (2)
- 3.4.4 **Methods of creating capital**
 - Savings ✓
 - Credit ✓
 - Production ✓
(2)

- 3.5 3.5.1 **Management principles expressed in the passage**
- Planning ✓
 - Implementation ✓
 - Control ✓
- (3)
- 3.5.2 **Management skills possessed by the manager**
- Financial management skills ✓
 - Labour management skills ✓
 - Planning skills ✓
 - Organisation skills ✓
- (2)
- 3.5.3 **Motivation for answers to QUESTION 3.5.2**
- Financial management skills – The farmer drafted budgets ✓
 - Labour management skills - Decide which activities are going to be done by who ✓
 - Planning skills – Prepares production plans / drafts budgets ✓
 - Organisation skills – Decided which activities are going to be done by who, when and how ✓
- (2)
- [35]**

QUESTION 4: BASIC AGRICULTURAL GENETICS

- 4.1 4.1.1 **Mechanism of inheritance described in the passage**
Epistasis ✓
- (1)
- 4.1.2 **Motivation of the answer in QUESTION 4.1.1**
A separate gene controls the expression of the pigment production gene ✓
- (1)
- 4.1.3 **Phenotypes of animals with the following phenotypes**
A – Albino ✓
B – Brown ✓
- (2)
- 4.1.4 **Genotypes of the ram's gametes**
- (a)
- AC ✓
 - Ac ✓
 - aC ✓
 - ac ✓
- (Any 2) (2)
- Phenotypic ratio**
- (b) 9:3:3:1
- (1)

4.2 4.2.1 **Punnet square**

♀	♂	R	r ✓
r		Rr	rr
r ✓		Rr	rr ✓

Rubric

Punnet square with gametes and offspring genotypes ✓

Correct male gametes ✓

Correct female gametes ✓

Correct offspring genotype ✓

(4)

4.2.2 **Phenotypic ratio** $\frac{2}{4} \times 100$ black : $\frac{2}{4} \times 100$ white ✓ = 50% black : 50% white ✓

(2)

4.3 4.3.1 **Advantage of indigenous over exotic breeds**

More resistant to ticks and diseases such as heartwater ✓

(1)

4.3.2 **Identification of breeding method**

Cross breeding ✓

(1)

4.3.3 **Name given to products of breeding method used in the passage**

Hybrids ✓

(1)

4.3.4 **Disadvantages of breeding system described in the passage**

- Hybrids vary greatly and can be disappointing ✓
- Can lead to calving problems ✓
- Requires knowledge and experience ✓

(Any 2) (2)

4.4 4.4.1 **Meaning of the acronym EBV**

Estimated Breeding Value ✓

(1)

4.4.2 **Implication of EBV figure for weaning weight**

The animal in question will produce offspring ✓ with a weaning weight of 10 kg above the flock average ✓

(2)

4.4.3 **Conclusion that can be drawn from a heritability of 85%**

The characteristic is influenced more by genes ✓ than the environment ✓

(2)

4.4.4 **Type of variation shown by the traits in the table**

Continuous ✓

(1)

4.4.5 Bar graph showing the relationship between EBV and heritability



Checklist

- Correct heading ✓
- X axis correctly calibrated with label (Trait) ✓
- Y axis correctly calibrated with label (EBV/Heritability) ✓
- Graph type (Bar graph) ✓
- Correct units (kg and %) ✓
- Accuracy ✓ (6)

4.5 4.5.1 **Deduction of an environmental benefit from the passage**
 Reduces the risk associated with overuse of fertilisers and pesticides ✓ (1)

4.5.2 **Explanation of how genetic engineering reduces pollution from fertilisers and pesticides**

- With genetic modification crops can be made to be pest resistance ✓ reducing the need for pesticides ✓

OR

- With genetic modification nutrient use efficiency in crops can be improved ✓ resulting in less need for fertilisers, therefore less pollution from fertilisers ✓ (2)

4.5.3 **Social risks associated with the use of genetically modified seeds**

- Poor developing countries will become dependent on developed countries for seed ✓
- Farmers cannot retain seeds resulting in high seed costs ✓
- Some people think it's ethically unacceptable to produce GM crops ✓ (Any 2) (2)

[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150