



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**SEPTEMBER 2019**

**AGRICULTURAL SCIENCES P2  
MARKING GUIDELINE**

**MARKS: 150**

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This marking guideline consists of 9 pages.

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

1.1	1.1.1	D ✓✓		
	1.1.2	B ✓✓		
	1.1.3	C ✓✓		
	1.1.4	C ✓✓		
	1.1.5	B ✓✓		
	1.1.6	C ✓✓		
	1.1.7	A ✓✓		
	1.1.8	A ✓✓		
	1.1.9	D ✓✓		
	1.1.10	D ✓✓	(10 x 2)	(20)
1.2	1.2.1	G ✓✓		
	1.2.2	D ✓✓		
	1.2.3	A ✓✓		
	1.2.4	E ✓✓		
	1.2.5	F ✓✓	(5 x 2)	(10)
1.3	1.3.1	cross breed ✓✓		
	1.3.2	marketing chain/agri-business chain ✓✓		
	1.3.3	elasticity ✓✓		
	1.3.4	risk sharing ✓✓		
	1.3.5	overhead costs ✓✓	(5 x 2)	(10)
1.4	1.4.1	segmentation ✓		
	1.4.2	eco-labelling ✓		
	1.4.3	mix ✓		
	1.4.4	analytical ✓		
	1.4.5	recombinant ✓	(5 x 1)	(5)

**TOTAL SECTION A: 45**

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

- 2.1    2.1.1    **Letter representing demand curve**  
A ✓ (1)
- 2.1.2    **Description of what would happen on the market**  
 • Price P1 – There will be a surplus/oversupply ✓  
 • Price P3 – There will be a shortage ✓ (2)
- 2.1.3    **Ways of dealing with oversupply**  
 • Establish new markets ✓  
 • Process produce ✓ (2)
- 2.1.4    **Factors influencing supply**  
 • Technology ✓  
 • Production costs ✓  
 • Subsidies ✓  
 • Environmental conditions ✓ (Any 2) (2)
- 2.2    2.2.1    **Identification of the marketing systems**  
 • Controlled marketing ✓  
 • Free marketing ✓ (2)
- 2.2.2    **Disadvantage of a free market**  
 • Price fluctuations / movements ✓  
 • Many unknown factors ✓ (Any 1) (1)
- 2.2.3    **Advantages of a free marketing system**  
 • Intermediaries are eliminated ✓  
 • Entrepreneurship is rewarded ✓  
 • Consumers benefit from better products due to competition ✓ (Any 2) (2)
- 2.3    2.3.1    **Phases of the entrepreneurial process**  
 • Phase 1 – Identifying and evaluating the opportunity ✓  
 • Phase 2 – Determining the resources required ✓  
 • Phase 3 – Developing the business plan ✓  
 • Phase 4 – Starting and managing the enterprise ✓ (4)
- 2.3.2    **Questions to ask when evaluating the feasibility of a business idea**  
 • Is there a market for the goods or services ✓  
 • Are the skills needed to start and run the business present ✓  
 • Are the resources to start and run the business available ✓ (3)

- 2.3.3 **Importance of a business plan in entrepreneurship**
- Enables determination of financial needs ✓
  - Guides daily operations ✓
  - To foresee problems ✓
  - To secure funding ✓
  - Gives an insight about market opportunities and competitors ✓
  - Allows farmers to test the feasibility of their business idea ✓
- (Any 2) (2)
- 2.3.4 **Use of electronic resources in drawing up a business plan**
- Obtaining business plan templates ✓
  - Gather information about the business from the internet ✓
  - Get advice from online business planning experts ✓
  - Get financial formulae that do calculations automatically to get accurate figures ✓
- (Any 2) (2)
- 2.3.5
- Confidence / positive attitude / Identifying opportunities ✓
  - Enthusiasm ✓
- (2)
- 2.4 2.4.1 **Appropriate marketing approaches for each farmer**
- **Farmer A** – Niche marketing ✓
  - **Farmer B** – Mass marketing ✓
- (2)
- 2.4.2 **Methods that could be used by farmer B to advertise**
- Newspapers ✓
  - Television ✓
  - Radio ✓
  - Billboards ✓
  - Magazines ✓
  - Electronic media ✓
- (Any 2) (2)
- 2.4.3 **Advantages of niche marketing**
- Consumers are willing to pay higher prices ✓
  - Less competition from established businesses ✓
- (2)
- 2.5 2.5.1 **Ways of implementing sustainable marketing**
- (a) Using sustainable farming practices / organic fertilisers / biological control ✓ (1)
- (b) Using recycled/recyclable materials in packaging ✓ (1)
- 2.5.2 **Disadvantages of sustainable marketing**
- Green products are usually expensive ✓
  - Organic farming is not as productive as conventional farming ✓
- (2)

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**QUESTION 3: PRODUCTION FACTORS**

- 3.1 3.1.1 **Part of the graph which shows diminishing returns**  
C ✓ (1)
- 3.1.2 **Effect of input application rates on enterprise profitability**
- An increase in inputs does not result in an increase in yield ✓
  - This results in high input costs not matched by increase in yield ✓
  - Resulting in reduced profits ✓ (3)
- 3.1.3 **Economic functions of land**
- Land provides physical space for agricultural activities ✓
  - Land provides food for humans and animals ✓
  - Land is a source of minerals ✓
  - Land can be used as collateral ✓ (Any 2) (2)
- 3.2 **Applicable Acts of Parliament**
- 3.2.1 C ✓ (1)
- 3.2.2 D ✓ (1)
- 3.2.3 A ✓ (1)
- 3.2.4 B ✓ (1)
- 3.3. 3.3.1 **Benefits of record keeping**
- Improves profitability ✓
  - Makes management easier ✓ (2)
- 3.3.2 **Records for managing the following assets**
- (a) An inventory ✓ (1)
- (b) Breeding records ✓ (1)
- 3.4 3.4.1 **Identification of the budget**  
Cash flow budget ✓ (1)
- 3.4.2 **Figure A**  
R420 000 ✓ (1)
- 3.4.3 **Figure B**
- R50 000 ✓ – R377 000 ✓
  - = - R327 000 ✓ (3)
- 3.4.4 **Deduction of the quarter during which the farmer needs to borrow money**
- 4<sup>th</sup> quarter ✓
- Reason**
- farmer has negative cumulative net cash flow / farmer's expenses are more than income ✓ (2)

- 3.5 3.5.1 **Identification of the overcapitalising farmer**  
Farmer B ✓ (1)
- 3.5.2 **Justification of answer to QUESTION 3.5.1**
  - Farmer B purchased a bakkie ✓
  - A luxury considering the value of the loan ✓(2)
- 3.5.3 **Examples**  
**Movable capital** – livestock / bakkie ✓  
**Floating capital** – feeds / remedies ✓ (2)
- 3.5.4 **Challenges associated with capital**
  - High interest rates ✓
  - Scarcity of capital ✓(2)
- 3.6 3.6.1 **Classification of risk source**  
Technical risk ✓ (1)
- 3.6.2 **Risk management strategies that could have been used by the farmer**
  - Better scientific agricultural practices ✓
  - Insurance ✓
  - Diversification(2)
- 3.6.3 **Deduction of type of force**  
External force ✓ (1)
- 3.6.4 **Three main management principles**
  - Planning ✓
  - Implementation ✓
  - Control ✓(3)
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**QUESTION 4: BASIC AGRICULTURAL GENETICS****4.1 4.1.1 Type of dominance described in the passage**

Co-dominance ✓

(1)

**4.1.2 Justification of the answer in QUESTION 4.1.1**

- The characteristics of both parent plants ✓
- Are expressed fully in the phenotype of the offspring ✓

(2)

**4.1.3 Punnet square**

	R	R	✓
W	RW	RW	
W	RW	RW	✓

✓

Rubric

Punnet square with gametes and offspring ✓

Correct parental gametes ✓

Correct offspring genotype ✓

(3)

**4.1.4 Phenotypic ratio**

1 : 2 : 1 ✓

(1)

**4.2 4.2.1 Breeding method**

Upgrading ✓

(1)

**4.2.2 Motivation of answer to QUESTION 4.2.1**

- The farmer crossed an inferior cow ✓
- with a superior through bred bull ✓

(2)

**4.2.3 Advantages of upgrading to communal farmers**

- Economic way to raise the stock to pedigree level ✓
- Rapid results in the first and second generations ✓

(2)

**4.2.4 Other breeding methods that farmers can use**

- Cross breeding ✓
- Outbreeding ✓

(2)

**4.2.5 Disadvantages of breeding methods given in QUESTION 4.2.4**

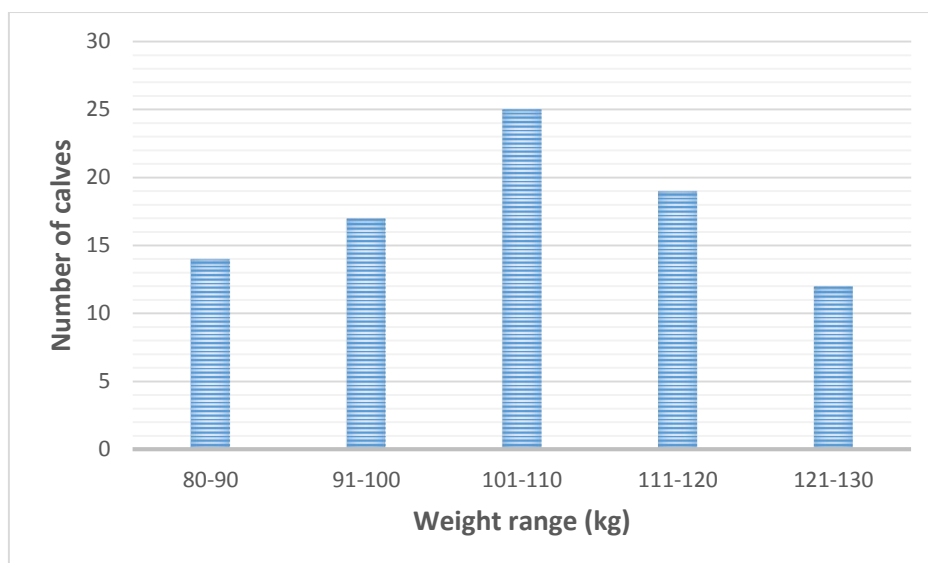
Cross breeding – Hybrids vary greatly and can be disappointing /

Can lead to calving problems ✓

Outcrossing – Undesired traits may also be inherited ✓

(2)

4.3 4.3.1 Bar graph showing the weight ranges of weaners on a farm



Checklist

- Correct heading ✓
  - X-axis: correctly calibrated with label (Weight range) ✓
  - Y-axis: correctly calibrated with label (Number of calves) ✓
  - Graph type (bar graph) ✓
  - Correct unit (kg) ✓
  - Accuracy ✓
- (6)

4.3.2 **Deduction of type of variation on the graph**

Continuous variation ✓

(1)

4.3.3 **Number of calves owned by the farmer**

Total number of calves =  $14 + 17 + 25 + 19 + 12$  ✓  
 $= 87$  ✓

(2)

4.4 4.4.1 **Identification of techniques**

Technique A – Recombinant DNA techniques/Agrobacterium tumefaciens ✓

Technique B – Biolistic/Gene gun ✓

(2)

4.4.2 **Advantages of modern plant improvement methods**

- They are precise ✓
- They are not limited to individuals of the same species ✓
- They are fast ✓

(3)

4.4.3 **Social concerns regarding GMOs**

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

(3)



4.4.4 **Implications of the use GMO technology to improve plants in South Africa**

- Herbicide resistance in maize/cotton/soya beans/tobacco/canola ✓
- Resistance to corn borers in maize/cotton bollworm in cotton/ Bt gene ✓
- Resistance to diseases ✓
- Improved oil quality in canola ✓
- Longer shelf-life in tomatoes and apples ✓
- Beta-carotene producing rice ✓
- Improved starch quality in potatoes ✓

(2)  
[35]

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