



Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sportontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko

NORTH WEST PROVINCE

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P2

SEPTEMBER 2019

MARKING GUIDELINES

MARKS: 150

**These marking guidelines consist of 9 pages
and 4 pages of cognitive levels.**

SECTION A**QUESTION 1.1 Multiple choice**

- 1.1.1 A✓✓
- 1.1.2 D✓✓
- 1.1.3 B✓✓
- 1.1.4 C✓✓
- 1.1.5 B✓✓
- 1.1.6 D✓✓
- 1.1.7 C✓✓
- 1.1.8 A✓✓
- 1.1.9 C✓✓
- 1.1.10 B✓✓

(10 x 2) (20)

QUESTION 1.2 Column A and B

- 1.2.1 D✓✓
- 1.2.2 F✓✓
- 1.2.3 A✓✓
- 1.2.4 E✓✓
- 1.2.5 B✓✓

(5 x 2) (10)

QUESTION 1.3 Terminology

- 1.3.1 Processing/ Value adding✓✓
- 1.3.2 Selection✓✓
- 1.3.3 Monohybrid✓✓
- 1.3.4 Short term credit✓✓
- 1.3.5 Atavism✓✓

(5 x 2) (10)

QUESTION 1.4 Term replacement

- 1.4.1 Chromosome✓
- 1.4.2 Upgrading✓
- 1.4.3 Alleles✓
- 1.4.4 Management✓
- 1.4.5 Distribution✓

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2: AGRICULTURAL MANAGEMENT AND MARKETING****2.1 Different types of agricultural marketing****2.1.1 Identification of the marketing types**

A - Corporative marketing✓

B - Free marketing✓

C - Controlled marketing✓

(3)

2.1.2 TWO advantages of free marketing

- No transport costs✓
- Sales are usually in cash which is more convenient✓
- The producer can show initiative and drive✓
- Cheaper because there are no intermediaries/middlemen/
marketing costs✓
- Farmers control how much profit they can make by analysing
the demand✓
- Producers are motivated to work harder✓
- Farmers/ Producers receive cash on the spot✓
- Producers sell where they want✓
- Sell at their own price✓

(Any 2) (2)

2.2 Distinction between *farm gate marketing* and *internet marketing***Farm gate:**

- Marketing done by the farmer at the place where the product is
produced/from the farm✓
- directly to consumers✓

Internet:

- Goods are advertised✓
- and sold on the internet via email and online media✓

(4)

2.3 Components of phases in entrepreneurship process

2.3.1 Evaluation of the opportunity✓

(1)

2.3.2 Planning/developing a business plan✓

(1)

2.3.3 Resource mobilisation✓

(1)

2.4 SWOT analysis and identification of**2.4.1 TWO strengths**

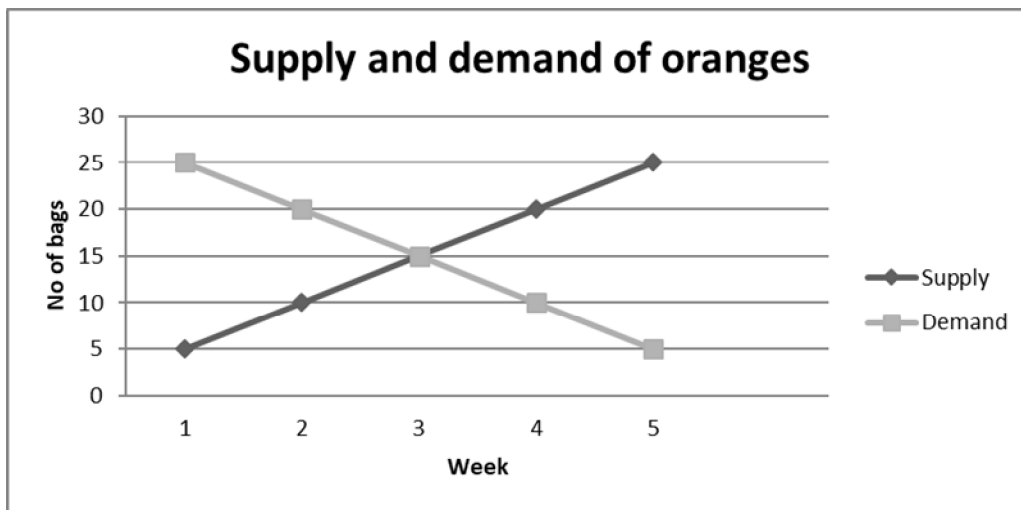
- Human resource✓
- Availability of land✓
- Make use of the extension officer✓

(Any 2) (2)

- 2.4.2 **ONE weakness**
- Lack of skills✓
 - Lack of capital✓ (Any 1) (1)
- 2.4.3 **ONE opportunity**
- Services of the extension officer✓
 - Identified market✓ (Any 1) (1)
- 2.4.4 **TWO threats**
- Lack of funds/capital✓
 - Unreliable weather✓
 - Lack of skills✓
 - Competition from another project/Flourishing project in a nearby village✓ (Any 2) (2)
- 2.5 **TWO ways to improve and streamline the agri-business chain**
- Grading and standardisation of products✓
 - Facilitate marketing and pricing✓
 - Using cold storage and refrigerated transport to prevent spoilage✓
 - Improving road infrastructure✓
 - Providing storage facilities for agricultural produce to prevent oversupply✓
 - Providing access to finance to cover working capital✓
 - Improving access to market information✓
 - Marketing collectively by combining loads from producers✓
 - Processing products close to where they are produced✓ (Any 2) (2)
- 2.6 **The role of legislation**
- 2.6.1 Agricultural Product Standards Act (No. 119 of 1990)✓ (1)
- 2.6.2 Meat Safety Act (No. 40 of 2000)✓ (1)
- 2.6.3 Consumer Protection Act (No. 68 of 2008)✓ (1)
- 2.7 **Difference between mass and niche marketing**
- Mass marketing**
- Promoting the same product✓ in different ways to different groups of people✓
- Niche marketing**
- Involves selling a product✓ to a small segment of the market✓ (4)

2.8 The price, supply and demand for oranges over a period of five weeks.

2.8.1 Graphs on the supply and demand of oranges



Criteria/rubric/marketing guidelines

- Correct heading✓
- X-axis correctly calibrated✓
- Y-axis correctly calibrated✓
- Correct units (Bags/Week)✓
- Line graphs for supply and demand✓
- Accuracy✓

(6)

2.8.2 Reason for higher demand

- Price per bag of oranges was low (R10) in Week 1✓
but higher (R30) in Week 5✓

(2)

[35]

QUESTION 3: PRODUCTION FACTORS

3.1 THREE functions of land as production factor

- Source of minerals that can be used to make fertilisers✓
- Provides space for agricultural activities✓
- Provides food for humans and animals/Food security✓
- Can be used as a collateral/guarantee✓
- Provides raw materials/resources✓

(Any 3)

(3)

3.2 Improving the productivity of land

3.2.1 C✓

(1)

3.2.2 A✓

(1)

3.2.3 B✓

(1)

3.3 Labour legislation

- 3.3.1 Occupational Health and Safety Act (No. 85 of 1993)✓ (1)
- 3.3.2 Compensation for Occupational Injuries and Disease Act (No. 130 of 1993)✓ (1)
- 3.3.3 Skills Development Act (No. 97 of 1998)✓ (1)

3.4 Strategic risk management**3.4.1 Definition of *strategic risk management***

- Long term management that allows a business to adapt✓ to possible future changes and challenges✓

OR

- The process of developing strategies that allow a business to achieve its vision, mission and objectives✓ and adapt to changing conditions✓ (2)

3.4.2 Identification of the risk management strategy

- Diversification✓✓ (2)

3.4.3 Justification of the answer in QUESTION 3.4.2

- There are a number of enterprises✓ in one farm✓ (2)

3.4.4 Management skill a farmer should have

- Analytic skills✓
- Interpersonal/communication✓
- Co-ordination/organisational✓
- Problem-solving skills✓ (Any 1) (1)

3.4.5 TWO examples of production risks

- Financial✓
- Legal✓
- Human resource✓
- Market/price✓
- Technical✓
- Production✓ (Any 2) (2)

3.5.1 FOUR impacts of HIV/AIDS on the productivity

- Planning becomes difficult because of the unplanned absenteeism✓
- Agricultural activities cannot be completed on time✓
- Loss of skills and experience and there are increased costs of training new staff✓
- Farm workers often become sick and at the later stage of the disease productivity declines✓
- Emotional trauma for family members and friends✓ (Any 4) (4)

3.5.2 Increasing the productivity of farm workers**(a) Educational levels**

- Skills development✓
 - Supporting specialisation of workers✓
 - Providing free schooling or bursaries✓
- (Any 2) (2)

(b) Working conditions

- Provide basic services✓
 - Adequate leave✓
 - Free transport between home and work✓
 - Better housing that is safe and secure✓
 - Recreational facilities✓
 - Mechanisation✓
- (Any 2) (2)

3.6 Income and expenses on a farm**3.6.1 Identification of the statement**

- Income Statement✓✓ (2)

3.6.2 Calculation of net cash

- Profit = Income - Expenses/Expenditure✓
= R147 000 - R95 057✓
= R51 943✓ (3)

3.7 Distinction between fixed and variable costs**Fixed costs**

- Costs that do not vary✓ with the level of production✓

Variable costs

- Costs that vary✓ with the level of production✓ (4)
- [35]**

QUESTION 4: BASIC AGRICULTURAL GENETICS**4.1 Crossing between a heterozygous pea plant (G) and a pure-bred plant (g)****4.1.1 Genotype of each parent in the first crossing**

- Parent 1 . Gg✓
- Parent 2 - gg✓ (2)

4.1.2 Punnet square determining possible genotype of the offspring in the first crossing

Gametes	G	g✓
g	Gg	gg✓
g	Gg	gg

- Punnet square with gametes and offspring✓

Marking Guideline/Criteria

- Complete Punnet square with gametes and offspring✓
- Correct gametes✓
- Correct offspring✓ (3)

4.1.3 Type of dominance in the cross

Complete dominance✓ (1)

4.1.4 Calculation of the percentage of heterozygous offspring

$2/4 \times 100$ ✓
= 50%✓ (2)

4.2 Explanation of Mendel's law of independent assortment

- During gamete formation, segregating pairs of alleles✓ assort independently of each other✓ (2)

4.3 Role of epistatic gene in prepotency**4.3.1 Epistasis**

Prepotency is the ability of one parent to pass its genetic characteristics ✓ to its offspring ✓ The gene that cause the expression of one gene to controlled by another gene is called the epistatic gene ✓ (3)

4.3.2 Prepotency

Comb forms of chickens✓
Fur color of Labradors dogs✓
Fur color of Charolais cattle✓

(Any one) (1)

4.4 Causes of variation

4.4.1 Deletion✓ (1)

4.4.2 Crossing over✓ (1)

4.4.3 Mutation✓ (1)

4.5 Methods of plant and animal improvement**4.5.1 Method that uses on-farm records**

Line breeding✓ (1)

4.5.2 Identification of the method: more offspring, more accurate

Breeding value✓✓ (2)

4.5.3 Identification of the method that incorporated genes from *Bacillus*

Genetic Modification/GM✓✓ (2)

4.5.4 THREE socio-economic benefits of GM crops

- GM crops provide foods with better quality✓
- Farmers use less pesticides✓
- It allows for no tillage farming✓
- Crops could have a longer shelf life✓
- Crops are tolerant to salinity, cold or drought✓
- Crops are resistant to pests and diseases✓
- Reduce the amount of labour needed, thus reduce operational costs✓ (Any 3) (3)

4.5.5 TWO potential environmental risks posed by genetically plants

- Creation of herbicides resistance weeds/ superweeds✓
- Excessive use of herbicides may damage the soil✓
- Genes might spread GM crops into wild plants✓
- Beneficial insects and pests could be killed✓ (Any 2) (2)

4.6 Heritability of the characteristics in sheep**4.6.1 Heritability of the fleece weight**

50%✓ (1)

4.6.2 Primary factor influencing birth weight

Genes✓ (1)

4.6.3 TWO reasons the post-weaning weight cannot be recommended

- Low heritability✓
- Environment has a huge influence in the outcome of the characteristics✓ (2)

4.6.4 Distinction between heritability and biometrics**Heritability**

- The degree to which a characteristic✓ is determined by genes✓/Proportion of variation in the population✓ that is due to genetic influence✓

Biometrics

- The use of statistics✓ for analysis of biological data✓/Analysis of biological data✓ by mathematical or statistical methods✓ (4)

[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150

MEASURING GRID FOR AGRICULTURAL SCIENCES

Paper 2 NW AGRS P2 - PREP

WEIGHTING OF QUESTIONS IN TERMS OF ABILITY LEVELS, AIMS & OBJECTIVES SKILLS AND KNOWLEDGE AREAS: AGRICULTURAL SCIENCES PAPER 2

Q.No	Marks		Bloom's Taxonomy			Level of difficulty			Knowledge area			Aims and objectives		Total			Skills / Type of Questions (Use a Tick)						
	Marks	Knowledge (L1)	Comprehension (B) / Application (L2)	Analysis (C) / Synthesis (C) / Evaluation (L3)	Easy (E)	Medium (M)	Difficult (D)	Management and marketing	Production factors	Basic agricultural genetics	Management and care of the environment	Problem solving mechanisms	Social and economic development	Informed and responsible citizens	Agricultural indigenous knowledge	Number of marks allocated to question	Ability to follow instructions	Identifying labels / Labeling drawings / diagrams/ schematic representations	Plotting and interpretation of graphs/data	Working out and interpreting calculations	Organizing /recording and categorizing data	Extraction and/or manipulation and/or evaluation of data	Hypothesis testing/using scientific methods
1.1.1	2	2				2			2			2			2	✓							
1.1.2	2	2			2			2					2		2	✓							
1.1.3	2	2			2					2				2	2	✓							
1.1.4	2		2			2		2					2		2	✓							
1.1.5	2	2			2				2				2		2	✓							
1.1.6	2		2			2				2	2				2	✓							
1.1.7	2	2			2				2				2		2	✓							
1.1.8	2	2			2				2				2		2	✓							
1.1.9	2		2		2					2	2				2	✓							
1.1.10	2			2			2	2					2		2	✓							
1.2.1	2	2			2			2					2		2	✓							
1.2.2	2	2				2		2						2	2	✓							
1.2.3	2		2			2		2						2	2	✓							
1.2.4	2		2			2			2				2		2	✓							
1.2.5	2	2			2					2	2				2	✓							
1.3.1	2	2				2		2				2			2	✓							
1.3.2	2	2			2					2		2			2	✓							
1.3.3	2		2				2			2				2	2	✓							
1.3.4	2	2				2		2				2			2	✓							
1.3.5	2		2			2				2	2				2	✓							

Q.No	Marks		Bloom's Taxonomy			Level of difficulty			Knowledge area			Aims and objectives			Total			Skills / Type of Questions (Use a Tick)					
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1.4.1	1	1			1					1		1			1	✓							
1.4.2	1			1						1	1				1	✓							
1.4.3	1	1			1					1	1				1	✓							
1.4.4	1		1					1	1				1		1	✓							
1.4.5	1	1						1					1		1	✓							
Sub Tot	45	27	15	3	20	18	7	17	11	17	10	9	17	9	0	45	45	0	0	0	0	0	0
2.1.1	3		3		3			3					3		3	✓							
2.1.2	2		2		2			2					2		2	✓							
2.2	4			4	4			4					4		4	✓							
2.3.1	1	1				1		1				1			1	✓							
2.3.2	1	1				1		1				1			1	✓							
2.3.3	1	1				1		1				1			1	✓							
2.4.1	2	2			2			2				2			2		✓						
2.4.2	1	1			1			1					1		1	✓							
2.4.3	1		1		1			1				1			1	✓							
2.4.4	2		2		2			2				2			2	✓				✓			
2.5	2	2						2	2			2			2	✓							
2.6.1	1	1			1			1					1		1	✓							
2.6.2	1	1						1	1				1		1	✓							
2.6.3	1	1			1			1				1			1	✓							
2.7	4		4			4		4					4		4	✓							
2.8.1	6			6				6	6					6					✓				
2.8.2	2		2			2		2					2		2						✓		
3.1	3	3			3				3				3		3		✓						

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3.2.1	1		1			1			1					1	1	✓							
3.2.2	1		1			1			1		1				1	✓							
3.2.3	1		1			1			1		1				1						✓		
3.3.1	1	1			1				1				1		1						✓		
3.3.2	1	1			1				1				1		1						✓		
3.3.3	1	1			1				1				1		1	✓							
3.4.1	2		2			2			2		2	2	2		2	✓							
3.4.2	2		2			2			2			2	2		2	✓						✓	
3.4.3	2	2			2				2				2		2	✓						✓	
3.4.4	1	1			1				1			1			1	✓						✓	
3.4.5	2	2			2				2			2	2		2	✓					✓		
3.5.1	4		4			4			4		4	4	4	4	4	✓					✓	4	
3.5.2a	2			2		2			2			2	2	2	2	✓					✓		
3.5.3b	2			2		2			2			2	2	2	2	✓					✓		
3.6.1	2		2			2			2		2	2	2		2	✓					✓		
3.6.2	3			3	3				3		2	2		2	3	✓			✓	✓	✓	✓	
3.7	4			4			4		4		4	4	4		4	✓					✓		
4.1.1	2			2		2				2		2			2	✓			✓				
4.1.2	3			3			3			3		3			3	✓			✓		✓		
4.1.3	1		1			1				1		1		1	1	✓			✓			✓	
4.1.4	2			2		2				2		2		2	2	✓				✓		✓	
4.2	2			2	2					2		2	2		2	✓					✓		
4.3	4			4			4			4		4	4	4	4	✓						✓	
4.4.1	1		1			1				1		1			1	✓			✓		✓	✓	

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4.4.2	1		1		1					1		1			1	✓		✓		✓	✓	
4.4.3	1		1			1				1	1				1	✓		✓		✓	✓	
4.5.1	1		1			1				1	1		1		1	✓		✓		✓	✓	
4.5.2	2	2					2			2	2		2		2	✓		✓		✓	✓	
4.5.3	2		2			2				2		2			2	✓					✓	
4.5.4	3		3			3				3	3		3	3	3	✓				✓		
4.5.5	2	2				2				2	2		2	2	2	✓				✓		
4.6.1	1	1			1					1			1		1	✓		✓		✓		
4.6.2	1	1			1					1			1		1	✓		✓		✓		
4.6.3	2			2			2			2			2		2	✓		✓		✓		
4.6.4	4		4		4					4			4		4	✓				✓	✓	
TOT	150	55	56	39	60	59	31	52	46	52	31	57	64	68	1	150						