



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2019

**AGRICULTURAL SCIENCES P1
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists 10 pages.

SECTION A**QUESTION 1**

1.1	1.1.1	D √√		
	1.1.2	B √√		
	1.1.3	B √√		
	1.1.4	C √√		
	1.1.5	A √√		
	1.1.6	C √√		
	1.1.7	D √√		
	1.1.8	B √√		
	1.1.9	B √√		
	1.1.10	D √√	(10 x 2)	(20)
1.2	1.2.1	B only √√		
	1.2.2	B only √√		
	1.2.3	None √√		
	1.2.4	Both A and B √√		
	1.2.5	A only √√	(5 x 2)	(10)
1.3	1.3.1	Agro-ecology √√		
	1.3.2	Evaporation/water vapour √√		
	1.3.3	Food security √√		
	1.3.4	Amendment √√		
	1.3.5	By product √√	(5 x 2)	(10)
1.4	1.4.1	Artificial pastures √		
	1.4.2	Meat Safety Act √		
	1.4.3	Dual purpose breed √		
	1.4.4	Cold blooded horses √		
	1.4.5	Herbivores √	(5 x 1)	(5)
TOTAL SECTION A:				45

SECTION B

QUESTION 2: AGRO-ECOLOGY

2.1 Table that shows different organisms living in an ecosystem

2.1.1 **The primary consumer**
Springbok ✓ (1)

2.1.2 **A reason for your answer in QUESTION 2.1.1**
Springbok can only feed on the grass/plants. ✓ (1)

2.1.3 **The type of competition that will take place between the lion and the hyena during hunting**
Interspecific competition ✓

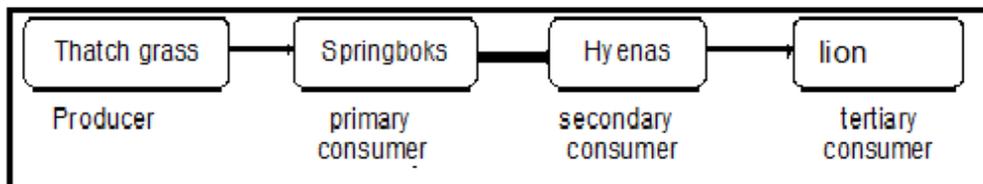
Explanation of the answer
Organisms of different species compete for food ✓ (2)

2.1.4 **The reason why lions have more chances of survival in a ecosystem**

- Lion is a tertiary consumer ✓
- Very little chances of lion to be killed by other organisms ✓
- Lion is a strong predator ✓

(Any 2 x 1) (2)

2.1.5 **Use the list of organisms on the table to draw a food chain to show four trophic levels of energy flow in the ecosystem**



Criteria for marking the food chain

- Food chain ✓
- Organisms from the table ✓
- Correct sequence of food chain ✓
- Correct number of trophic levels ✓

(4)

2.2 The diagram below shows a very important nutrient cycle that takes place in an ecosystem

2.2.1 The nutrient cycle represented by the diagram

Water cycle ✓

(1)

2.2.2 Processes A, B and C in the diagram

A – Evaporation ✓

(1)

B – Condensation ✓

(1)

C – Transpiration ✓

(1)

2.2.3 The component of the ecosystem which water belongs to

Abiotic ✓

(1)

2.3 Pictures of pastures of different farms that were taken by Grade 10 learners

2.3.1 The pastoral condition of Farm A and B

A – Good condition ✓

B – Bad/poor condition ✓

(2)

2.3.2 Farming practice that led to the pasture condition of FARM B

- Overstocking ✓
- Selective grazing ✓
- Grazing repeatedly in one season ✓
- Continuous grazing ✓
- Repeatedly burning of veld ✓

(Any 2 x 1) (2)

2.3.3 The veld management practice applied by FARM A in the following situations

(a) Grazing system/Rotational grazing ✓

(1)

(b) Stocking rate ✓

(1)

(c) Animal ratio ✓

(1)

2.3.4 TWO advantages of communal farming

- Different animals graze together and this results in crossbreeding ✓
- There is a common drinking point for livestock ✓
- It is cheaper because of the number of camps used ✓
- Less veld management time is required ✓

(Any 2 x 1) (2)

2.3.5 Reasons why pasture management is important

- Cheap, nutritious food for livestock on ongoing basis ✓
- Increased livestock health and productivity ✓
- Reduced need for supplementary feeding ✓
- Reduced risk of pests and diseases in livestock ✓
- Reduced soil erosion ✓
- Increased income for the farmer and the economy of the country ✓

(Any 2 x 1) (2)

- 2.4 2.4.1 **ONE example of fauna found in South African biomes**
- Elephant ✓
 - Antelopes ✓
- (Any 1 x 1) (1)
- 2.4.2 **South African biomes characterised by underlined phrases**
- Forest biome (tall trees) ✓
 - Grassland biome (different types of grasses) ✓
- (2)
- 2.4.3 **TWO South African biomes not mentioned in the scenario**
- Fynbos biome ✓
 - Thicket biome ✓
 - Nama karoo biome ✓
 - Succulent karoo biome ✓
 - Savannah biome ✓
- (Any 2 x 1) (2)
- 2.4.4 **Function of Savannah biome in agriculture**
- Growing citrus fruit and subtropical fruit ✓
 - Grazing of beef cattle, game animal and goats ✓
- (Any 1 x 1) (1)
- 2.5 2.5.1 **ONE cause of climate change**
- Changes in the amount of energy released by the sun ✓
 - Volcanic eruptions ✓
 - Changes in ocean currents ✓
 - Changes in the level of greenhouse gases in agriculture ✓
- (Any 1 x 1) (1)
- 2.5.2 **Impact of climate change on agriculture**
- Reduced crop yield ✓
 - Reduced livestock production ✓
 - Reduced areas suitable for agriculture ✓
 - Reduced soil fertility ✓
 - Increased pest attraction ✓
 - Reduced labour force ✓
- (Any 1 x 1) (1)
- 2.5.3 **ONE way which farmers in South Africa can adapt to climate change**
- Use water wisely ✓
 - Look after the soil ✓
 - Choosing suitable farming practice ✓
- (Any 1 x 1) (1)
- [35]

QUESTION 3: AGRI-INDUSTRY**3.1 3.1.1 The food that is mostly used in rural areas**

- Maize ✓ (1)

3.1.2 The reason for the answer to QUESTION 3.1.1

- Maize is a staple food ✓
- Easily accessible/cheap ✓
- Maize is 82% ✓ (Any 1 x 1) (1)

3.1.3 The class which corned meat and fruit belong to

- Corned meat – processed food ✓
- Fruit – fresh food ✓ (2)

3.1.4 Calculate the difference in the use of maize between rural and urban areas

- Maize use in rural areas – maize use in urban areas ✓
 = 82 – 24 ✓
 = 58% (difference) ✓ (3)

3.1.5 The table that shows the information about patterns of food use

Food use and how often used	Rural (%)	Urban (%)
Maize	82	24
Chicken	16	83
Corned meat	2	52
Fruit	6	80

Criteria/rubric/marketing guidelines

- Correct heading ✓
- Correct labelling of food use ✓
- Correct unit (%) ✓
- Correct rural use ✓
- Correct urban use ✓ (5)

3.2 3.2.1 The knowledge on the picture is indigenous or scientific

- Indigenous knowledge ✓ (1)

3.2.2 The reason to support your answer in QUESTION 3.2.1

- It is a set of traditional skills ✓
- The method used is traditional ✓
- People use cattle to cultivate the soil ✓ (Any 1 x 1) (1)

- 3.2.3 **How indigenous knowledge is used in agriculture in the following situations**
- (a) Intercropping ✓ (1)
 - (b) Crop rotation ✓ (1)
- 3.2.4 **TWO constraints of using indigenous knowledge in agriculture**
- Many new diseases and pests have recently emerged for which IK there is no treatment ✓
 - There are no farm records ✓
 - It is associated with ignorance, illiteracy and poverty ✓
 - Low input equals low output ✓
 - Labour intensive ✓
 - The methods are time-consuming ✓ (Any 2 x 1) (2)
- 3.3 3.3.1 **Resource from the picture (A–D) which is protected by the following laws**
- (a) Cattle ✓ (1)
 - (b) Veldt/River ✓ (1)
 - (c) River ✓ (1)
 - (d) Forest/Veldt ✓ (1)
- 3.3.2 **TWO aims of agricultural legislation**
- Conserve agricultural resources ✓
 - Protect the environment ✓
 - Ensure consumer safety ✓
 - Protect the rights of farm workers ✓ (Any 2 x 1) (2)
- 3.4 3.4.1 **Definition of the term *urbanisation***
Urbanisation is the movement of people from rural ✓ to urban areas ✓ (2)
- 3.4.2 **THREE negative effects of population growth on the agriculture sector**
- Demand of food increases ✓
 - Mechanisation increases and less labour needed ✓
 - Urbanisation increases ✓
 - Agricultural land is used ✓
 - Increased deforestation ✓ (Any 2 x 1) (2)
- 3.5 3.5.1 **Relate the type of land ownership or type of land tenure with the following statements**
- (a) Lease hold ✓ (1)
 - (b) Foreign land ✓ (1)
 - (c) State land ✓ (1)
 - (d) Labour tenancy land ✓ (1)

3.5.2 **The difference between *land redistribution* and *land tenure reform***

- Land redistribution is meant to give poor and disadvantaged people access to land ✓
- Land tenure reform is meant to secure farm labourers' living rights on the land ✓

(2)

3.5.3 **ONE role of agricultural organisations**

- Conduct research ✓
- Serve as lobby group for farmers ✓
- Provide support to farmers ✓

(Any 1 x 1)

(1)

[35]

QUESTION 4: ANIMAL STUDIES

4.1 4.1.1 **TWO exotic beef breeds in the diagram**

- Hereford ✓
 - Brahman ✓
- (2)

4.1.2 **The breed with the following qualities**

- (a) Jersey breed ✓ (1)
- (b) Friesland/Holstein breed ✓ (1)
- (c) Simmentaler breed ✓ (1)

4.1.3 **Types of beef breeds not mentioned in the diagram**

- Sussex ✓
 - Charolais ✓
 - Aberdeen angus ✓
 - Drakensberger ✓
 - Bonsmara ✓
 - Afrikaner ✓
- (Any 3 x 1) (3)

4.1.4 **Distinguish between *exotic* breed and *indigenous* breed**

- Exotic breed originating in a distant foreign country ✓
 - Indigenous breed originated naturally in a particular place ✓
- (2)

4.2 4.2.1 **Names for male and female sheep**

- Male sheep – ram ✓
 - Female sheep – ewe ✓
- (2)

4.2.2 **Tabulate the visible differences between sheep A and B under the following headings**

Sheep A / Ram	Sheep B / Ewe
• big ✓	• small ✓
• broad with horns ✓	• narrow with no horns ✓

(2)

(2)

4.2.3 **THREE main sheep breeds based on their utilisation and products derived from each**

- Wool breed ✓
 - Meat breed ✓
 - Dual purpose breed ✓
 - Pelt breed ✓
- (Any 3 x 1) (3)

4.3 4.3.1 **A reason why farmers in the Eastern Cape should continue producing Angora rams**

- Angora goat farmers are able to get together ✓
 - They network during selection days and auctions ✓
- (Any 1 x 1) (1)

- 4.3.2 **The name of the main product an Angora goat produces**
 • Mohair ✓ (1)
- 4.3.3 **TWO goat breeds a farmer can use to produce dairy products**
 • Saanen ✓
 • Toggenburg ✓ (2)
- 4.3.4 **The reason why Angora goats must be kept in an area with moderate climate**
 • Angora goats are very sensitive to cold ✓
 • Cold weather is harmful when they have been sheared ✓
 • Angora goats can die from the cold ✓ (Any 2 x 1) (2)
- 4.3.5 **The name of a meat goat breed with a red colour and developed in South Africa**
 • Red Kalahari goat ✓ (1)
- 4.4 4.4.1 **TWO main products of pigs**
 • Meat ✓
 • Bacon ✓ (2)
- 4.4.2 **The purpose for slaughtering pigs with mass 45 kg and 90 kg**
 (a) Pork ✓ (1)
 (b) Bacon/Sausage ✓ (1)
- 4.4.3 **THREE characteristics of improved pig breeds that make them suitable for commercial farming**
 • Long bodies for more meat ✓
 • Heavy hindquarters ✓
 • Produce meat of high quality ✓
 • Have high feed conversion ratio ✓
 • Bred for higher fertility and larger litter size ✓ (Any 3 x 1) (3)
- 4.5 **TWO facilities a farmer can use to control the temperature in a house of chickens**
 • Ventilators ✓
 • Bedding ✓
 • Insulators ✓
 • Heaters ✓
 • Air conditioners ✓
 • Fans ✓ (Any 2 x 1) (2)

[35]

TOTAL SECTION B: 105
GRAND TOTAL: 150