



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

AGRICULTURAL SCIENCES P2

NOVEMBER 2009

MEMORANDUM

MARKS: 150

This memorandum consists of 9 pages.

SECTION A

QUESTION 1

QUESTION 1.1

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

(10 x 2) (20)

QUESTION 1.2

	ONLY A	ONLY B	A and B	NONE
1.2.1			X✓✓	
1.2.2			X✓✓	
1.2.3			X✓✓	
1.2.4		X✓✓		
1.2.5		X✓✓		

(5 x 2) (10)

QUESTION 1.3

- 1.3.1 Processing/Value-adding ✓✓
- 1.3.2 Short term/Production ✓✓
- 1.3.3 Law of diminishing returns ✓✓
- 1.3.4 Genetics ✓✓
- 1.3.5 Cloning ✓✓

(5 x 2) (10)

QUESTION 1.4

- 1.4.1 Elasticity ✓
- 1.4.2 Supply ✓
- 1.4.3 Credit/Loan ✓
- 1.4.4 Diversification ✓
- 1.4.5 Dominant ✓

(5 x 1) (5)

TOTAL SECTION A: 45

SECTION B**QUESTION 2****2.1 Demand graph for spinach**

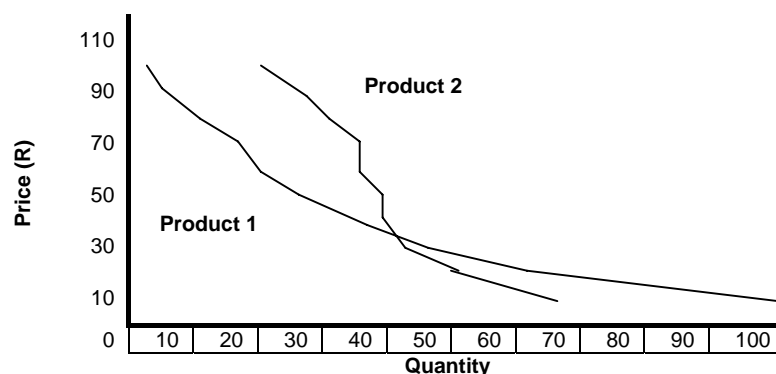
- 2.1.1 Demand curve ✓ (1)
- 2.1.2 R15,00 ✓ (1)
- 2.1.3 The demand for spinach will rise/be higher ✓
There might be less quantities to sell ✓
The higher demand will increase the price ✓ (Any 2) (2)
- 2.1.4 The point where the supply of an agricultural commodity ✓
is equal to the demand for that commodity ✓ (2)
[6]

2.2 Indigenous processing

- 2.2.1 **Processing/Agro-processing:** to change a primary product to have more value/the process or action taken on converting a primary (raw) agricultural product into consumable commodities ✓
Indigenous processing: Applying indigenous/traditional knowledge or practices ✓
to change a primary (raw) agricultural product to have more value/into consumable commodities ✓ (3)
- 2.2.2 Every part of the carcass has value ✓
and should be used and processed ✓ (2)
- 2.2.3 Tender meat ✓
Good colour ✓
Absence of bones ✓
Less fat ✓
No contamination/no diseases/no parasites ✓ (Any 2) (2)
[7]

2.3 Demand curve

- 2.3.1 Heading: The graph for the prices compared to quantities for Products 1 and 2



CRITERIA	YES: 1	NO: 0
1. Line graph		
2. Both curves are labelled		
3. Curves are accurate		
4. Prices indicated		
5. Quantities indicated		
6. Heading visible		

(6)

2.3.2 Any values between **33 and 36** ✓ (1)

2.3.3 45 – Value in 2.3.2 = Any values between **9 and 12** ✓ (1)

2.3.4 The higher the demand for an agricultural product, the higher the price ✓
The higher the price the larger the supply would become ✓ (2)

2.3.5 (a) **Quality**
High quality products will be highly demanded ✓
Lower quality will be less demanded ✓ (2)

(b) **Tradition**
Certain products will only be demanded ✓ during the festive periods making the demand higher during these periods ✓ (2)
[14]

2.4 Marketing fruit and vegetables

2.4.1 **Importance of marketing:**
- Ensure that produce is sold/income for the farmer ✓
- At the highest/best price ✓
- Awareness is created about this agricultural product ✓
- Costs of selling product is minimised ✓ (Any 2) (2)

2.4.2
• Farm gate sales ✓
• Local area sales/village marketing/communal marketing ✓
• Factory contracts/direct marketing/contract marketing ✓ (Any 2) (2)

2.4.3
• Farmers can take advantage of less fluctuation in prices ✓
• Factory contracts normally give a larger sum of cash/money/returns ✓
• The contract is for a longer term ✓
• Volumes of sales are guaranteed ✓
• Marketing margins could be reduced ✓ (Any 3) (3)

2.4.4 Bakkie trade ✓ (1)

[8]

[35]

QUESTION 3**3.1 Managerial skills****3.1.1 Farmer A ✓**

Farmer A has good technical skills ✓

The humanitarian skills are low compared to Farmer B but not that bad ✓

Conceptual skills will assist Farmer A in managing workers ✓

NOTE: If Farmer B is chosen with a correct explanation the learner will be credited (Farmer B because he has more humanitarian capabilities and would run his labour force more effectively)

(4)

3.1.2 (a) Economic conditions

- Provide incentives for workers ✓
- Higher salaries ✓
- Extra bonuses ✓
- Partnership deals ✓
- Medical and pension support ✓
- Farm products at reduced prices ✓

(Any 2)

(b) Environmental conditions

- Improved working conditions/adequate leave ✓
- Provide free transport ✓
- Better housing ✓
- Provide sports facilities ✓
- Provide special protective clothing ✓
- Provide water, food and energy (wood) ✓

(Any 2)

(c) Educational conditions

- Training of farm workers ✓
- Retraining of workers ✓
- Skills development programmes ✓
- Specialisation of workers ✓
- Free schooling to children of farm workers ✓

(6)

(Any 2)

[10]

3.2 Production factors: labour**3.2.1 Thorny issues from the report**

- Evictions ✓
- Failure to adhere to legislation ✓
- Farm safety ✓
- Poor social life on farms ✓

(3)

(Any 3)

- 3.2.2 **One malpractice experienced by women and children on farms**
- Abuse ✓
 - Excessively long working hours ✓
 - Very low salaries ✓
 - Poor living conditions ✓
 - No maternity leave ✓
 - No sick leave ✓
 - Child labour practices ✓ (1)
- (Any 1)
- 3.2.3 **TWO solutions for evictions**
- DLA (Dept. of Land Affairs) must make provisions like shelters for evicted farm workers ✓
 - More clear legislation in this regard ✓
 - Goodwill promoted between farmers and workers ✓
 - Officials to ensure law enforcement ✓
 - Perpetrators must be prosecuted or highly fined ✓
 - Housing subsidies for farm workers ✓
 - Development of Agricultural Villages (Agri-villages) through partnership between the farmer, government and the farm worker ✓
 - Farmers to comply with prevention of illegal evictions and unlawful occupation of land. ✓ (Any 2) (2)
- 3.2.4 **Health and Labour Acts**
- The Occupational Health and Safety Act of 1993 ✓ (1)
- 3.2.5 **Legislation/Act to resolve differences**
- Labour Relations Act of 1995 ✓
 - Basic Conditions of Employment Act of 1997 ✓ (Any 1) (1)
- 3.2.6 **Unskilled labour solution**
- Taking part in the skills development fund ✓
 - Taking labourers for training with accredited training institutions/AgriSETA ✓
 - Retraining labourers on the farm ✓
 - Recruiting labourers from other sectors ✓ (Any 2) (2)
- [10]

3.3 Entrepreneurship

- 3.3.1 Characteristics of entrepreneurs
- Commitment/Hard-working ✓
 - Financially proficient ✓
 - Innovation/Creative ✓
 - Organisational characteristics ✓
 - Leadership/Motivation characteristics ✓
 - Human relations characteristics ✓ (3)

(Any 3)

- 3.3.2 Keep a comprehensive record of income and expenditure ✓
They are losing money because their records are mixed up and not up to date ✓
It will show records of the money spent and earned (traceability of income and expenses) ✓ (Any 2) (2)
- 3.3.3 They could account for their profit and losses ✓ (1)
- 3.3.4
- Two-way radio ✓
 - Cellphone (SMS) ✓
 - Computer technology/Internet ✓
 - Fax ✓
 - Telephone (land line) ✓
 - Letters ✓ (Any 2) (2)
- 3.3.5 TWO important skills of a successful entrepreneur
- Marketing skills ✓
 - Financial skills ✓
 - Organisational skills/conceptual skills ✓
 - Human relation skills/humanitarian skills ✓
 - Leadership skills
 - Technical skills for the enterprise ✓ (Any 2) (2)
- [10]

3.4 Production factors

- 3.4.1
- Land/soil ✓
 - Labour ✓ (2)
- 3.4.2
- Capital ✓
 - Management ✓ (2)
- 3.4.3
- Capital – loans from the government/Land Bank/commercial banks/grants from the Department of Land Affairs (DLA) ✓
- OR**
- Management – take part in a skills development programme ✓
 - Support from the officials (extension officer) from the Department of Agriculture ✓
 - Training programme ✓ (Any 1) (1)

[35]

QUESTION 4**4.1 Hybrid crossing in goats**

- 4.1.1 A = Bb ✓✓ (2)
B = Bb ✓✓ (2)
- 4.1.2 1 = brown ✓
2 = brown ✓
3 = brown ✓ (3)
- 4.1.3 50% heterozygous for brown coat colour ✓✓ (2)
[9]

4.2 Cross-breeding of tomato cultivars

- 4.2.1 Heterosis/hybridisation ✓ (1)
- 4.2.2 Principle of dominance ✓
and recessiveness ✓ (2)
- 4.2.3 External variation
 - Environmental factors (drought, light intensity etc.) not passed on to the offspring ✓
 - Non-hereditary variation ✓ (Any 1)
- Internal variation
 - Genetic factors lead to recombination of genes ✓ (2)
 - Crossing over of chromosomes and mutation ✓ (Any 1)
- 4.2.4 A lot of expertise is required to prevent cross-pollination/each flower has to be attended to. ✓ (1)
- 4.2.5 Round and fleshy fruit ✓
Medium shoots ✓
Longer shelf life ✓
Simultaneous ripening ✓ (4)
[10]

4.3 Genetic modification in cotton

- 4.3.1 Bollworm resistance/insect resistance/pest resistance ✓ (1)
- 4.3.2 Techniques used to genetically modify plants:
 - Agrobacterium ✓
 - Electroporation ✓
 - Micro-injection ✓
 - Gene gun ✓ (Any 2) (2)

- 4.3.3 Potential benefits of GM crops
- More productive with higher yield ✓
 - Resistant to pests and diseases/reduce the need for chemical sprays ✓
 - Resistant to herbicides ✓
 - Tolerant to adverse environmental conditions ✓
 - Longer shelf life ✓
 - Better flavour, colour, texture and nutritional value ✓ (Any 2) (2)
- 4.3.4 (a) Environmental impact of GM crops
- Genes from GM crops could spread to other plants like weeds to form herbicide-resistant super weeds ✓
 - Beneficial insects as well as pests could be killed when they feed on GM crops ✓
 - Not much research has been done on the impact of weeds on the environment ✓ (Any 2) (2)
- (b) Health risk
- People with allergies could be harmed if they consume food with foreign genetic material ✓
 - Not much is known about the possible health risk of GM food/very new science ✓ (Any 1) (1)
- (c) Ethical impact
- Poor countries that need this technology cannot afford it ✓ (1)
[9]

4.4 Heredity in sheep

- 4.4.1 Fleece weight ✓
Lowest heredity characteristic of 17% ✓ (2)
- 4.4.2 (a) Post-weaning gain ✓ (1)
(b) Birth weight ✓ (1)
(c) Fleece weight ✓ (1)
- 4.4.3 Housing (environmental factor) ✓
Nutrition (environmental factor) ✓
Pests and diseases ✓ (Any 2) (2)
[7]
[35]

TOTAL SECTION B: 105

GRAND TOTAL: 150