education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P2

EXEMPLAR 2009

MEMORANDUM

MARKS: 150

This memorandum consists of 8 pages.

SECTION A

QUESTION 1.1

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

(10 x 2) (20)

QUESTION 1.2

1.2.1	**G**√√
1.2.2	**F**√√
1.2.3	**H**√√
1.2.4	**B**√√
1.2.5	**A**√√

(5 x 2) (10)

QUESTION 1.3

1.3.1 Value adding/ Processing ✓✓

1.3.2 Grading ✓✓

1.3.3 Entrepreneurship ✓✓

1.3.4 Mutation/genetic engineering ✓✓

1.3.5 Cloning ✓✓

(5 x 2) (10)

QUESTION 1.4

1.4.1 Working ✓ (1)

1.4.2 Pool ✓ (1)

1.4.3 Seasonal ✓ (1)

1.4.4 Monohybridism ✓ (1)

1.4.5 Exotic ✓ (1)

(5 x 1) (5)

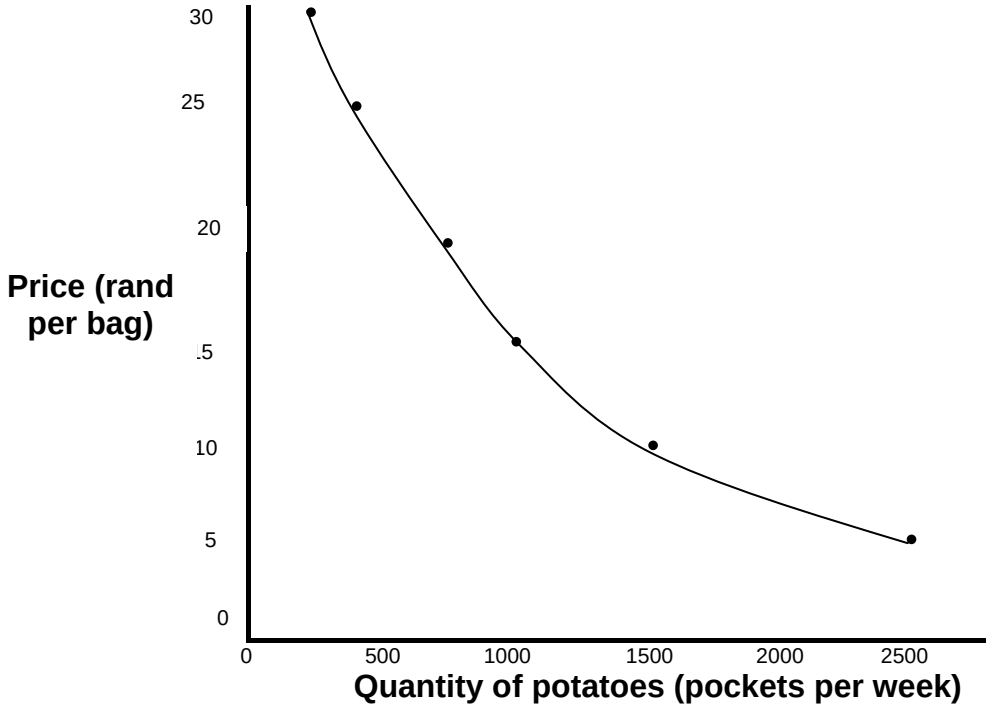
TOTAL SECTION A: 45

SECTION B

QUESTION 2

2.1 Demand ,Supply and Price

2.1.1 **Graph for different prices and quantities of potatoes sold**



Mark graph with the following checklist:

Criteria	Yes: 1	No: 0
1. line graph		
2. axes are labelled		
3. points are plotted accurately		
4. units are indicated		
5. values and correct headings		
6. correct measured distances		

(6)

2.1.2 R 5-00 √ – because 2 500 pockets were bought by consumers √ (2)

2.1.3 Less demand leads to low price √
More demand leads to high price √ (2)

2.2 Marketing of tomatoes

2.2.1 Introducing another crop √
Processing excess products √ (2)

2.2.2 Some may be lost due to perishability √
Decrease in price/loss of profit √ (2)

2.2.3 Use of hydroponics/green houses √
Introducing/adapting irrigation system √
fertilisation √
soil analysis √
soil cultivation √ (Any 2) (2)

2.3 **Soil as a production factor**

2.3.1 Soil is subject to the law of diminishing return √√ (2)

2.3.2 The yield increases constantly √√ (2)

2.3.3 The production does not increase at the same rate between 10 – 15 as is 5 – 10 quantities √√ (2)

2.3.4 Applying crop rotation √
Mulching √
Addition of organic material √
Scheduled irrigation/water provision √ (Any 2) (2)

2.4 **Free marketing of agricultural products**

2.4.1 Directly to consumers √
Food processing factories √
Wholesalers √
Retailers √
Through intermediaries √ (Any 2) (2)

2.4.2 Surplus/shortage/quantity √
Real income of consumers √ (2)

2.4.3 Average prices guaranteed √
Protects against variation √
More time for farming activities √
Direct contact with consumers/Feedback from consumers √ (Any 2) (2)

2.5 **Business planning/diversification**

2.5.1 Wood industries/paper factories√ (1)

2.5.2 Equipment √
Transport √
Workers √
Clothing √ (Any 2) (2)

2.5.3 Employment and better salary ✓ (2)
[35]

QUESTION 3

3.1 Case study: natural resources

3.1.1 Aspects to be investigated
- Slope ✓
- Soil texture ✓
- Soil depth ✓
- Rockiness ✓
- Erosion ✓
- Availability of water for irrigation ✓ (Any 3) (3)

3.1.2 Negative impacts on the environment
Water contamination with agro chemicals and fertilisers, soil erosion ✓
Salination of soil from irrigation ✓ (2)

3.1.3 They may not care about the land , because it doest not belong to them ✓ (1)

3.1.4 Conservation of Agric Resources Act of 1983 (CARA) ✓
National Water Act of 1998 ✓
National Veld and Forest Fire Act of 1998 ✓
Suitable Utilisation of Agric Resources Bill of 2000 ✓ (Any 2) (2)

3.2 Production factors

3.2.1 (a) A ✓ (1)
(b) C ✓ (1)
(c) D ✓ (1)

3.2.2 E ✓– labour ✓ (4)
F✓ - land ✓

3.2.3 Land/F✓ – land cannot be replaced ✓ (2)

3.3 Farm labour

3.3.1 Working hours ✓
Leave ✓
Payment/remuneration ✓ (3)

3.3.2 Seasonal workers are employed to do repetitive tasks on a farm such as harvesting/shearing and are released after completion of the task √√
Casual workers are employees engaged temporarily throughout the year and carrying out a single task(fencing, building) √√ (4)

3.3.3 HIV/Aids results in loss of skills and experience, hence drop in agricultural production √√ (2)

3.4 **Intensive sheep farming enterprise**

3.4.1 Fixed cost – cost that is incurred regularly/constant(rent) √ (2)
Running cost – cost incurred occasionally/related to production output/fluctuates(production costs)√

3.4.2 Total cost for 10 000 = R220 000 / R3 022 000 x 100/1 = 7,2%√

Total cost for 20 000 = R220 000 / R6 220 000 x 100/1 = 3,5%√

Total cost for 30 000 = R220 000 / R9 220 000 x 100/1 = 2,3%√
(3)

3.4.3 The percentage of fixed costs decreased the more the number of sheep in the feedlot increased√ (1)

3.4.4 Total cost: = R6000 000 + R220 000 = R6 220 000√
Income = 20 000 sheep x 350 = R7 000 000√
Profit = R7 000 000 – R6 220 000 = R780 000√ (3)
[35]

QUESTION 4

4.1 **Schematic representation of genotypes**

4.1.1 Female (AA) √ (2)

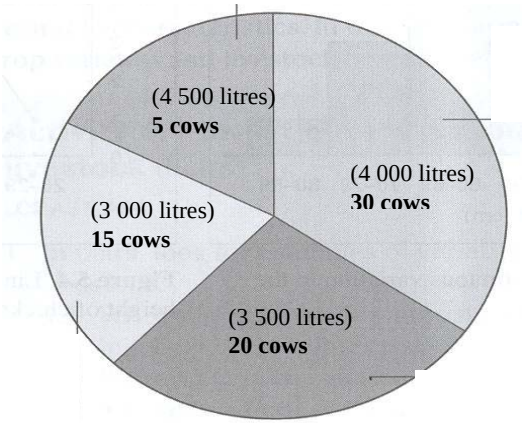
4.1.2 Somatic cells are diploid(double number of chromosomes) √
Reproductive cells are haploid(single chromosome/reduced) √ (2)

4.1.3 25% homozygotic(dominant) √
75% heterozygotic√
25% homozygotic(recessive) √ (3)

4.1.4 Recessive trait does not appear in the phenotype(physical appearance) √
Dominant trait appears in the phenotype(physical appearance) √ (2)

4.2 **Average milk yield**

4.2.1



Mark graph with the following checklist:

Criteria	Yes: 1	No: 0
1. pie graph		
2. charts are labelled		
3. chart divided accurately		
4. percentages indicated		
5. correct headings		
6. correct litres indicated		

(6)

4.2.2 All cows with average and above average milk yield √√ (2)

4.2.3 4 000 litres √ (1)

4.2.4 Continuous variation √ (1)

4.3 **Broiler production**

4.3.1 Temperature √ (2)
Diseases √

4.3.2 Growth rate – directly linked to production output/income √√ (2)

4.3.3 Manipulates growth/leads to accelerated growth √√ (2)

4.4 Cattle breeding

4.4.1	Cross breeding√		(1)
4.4.2	Develop new breeds √ Adapt better in varying conditions/better vitality √ More resistance to diseases √ Gain in mass in relation to food intake √ Leads to heterosis √	(Any 2)	(2)
4.4.3	He may make money by selling bulls/sell to farmer A√		(1)

4.5 Genetically modified crops

4.5.1	In 2002√ – there was sharp decrease production/yield √		(2)
4.5.2	Unexpected long term effects on food √ Unfavourable environmental impact √ Socio-economic concerns/expensive √	(Any 1)	(1)
4.5.3	More productive √ Reduce the need for chemicals √ Resistance to herbicide √ Tolerant /adapt to conditions √ Better flavour, colour, texture and nutritional value √	(Any 3)	(3) **[35]**

TOTAL SECTION B: 105

GRAND TOTAL: 150