education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL MANAGEMENT PRACTICES

MEMORANDUM

NOVEMBER 2008

MARKS: 200

This memorandum consists of 42 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of 19 questions.

2. **Answer any FOUR questions in this question paper.**

   Answer:

   ONE crop production and THREE animal production enterprises

   OR

   TWO animal production and TWO crop production enterprises

   OR

   ONE animal production and THREE crop production enterprises

3. Study the questions carefully and make sure you answer what is required.

4. Start each production enterprise on a NEW page in the ANSWER BOOK.

5. Number the answers correctly according to the numbering system used in this question paper.

6. Write neatly and legibly.

QUESTION 1: PIG PRODUCTION

1.1.1 H ✓
1.1.2 A ✓
1.1.3 E ✓
1.1.4 F ✓
1.1.5 B ✓
1.1.6 G ✓
1.1.7 I ✓
1.1.8 C✓
1.1.9 D ✓
1.1.10 J ✓ (10 x 1) (10)

1.2.1 A non–slip floor✓ or preferably a grid floor. ✓ (2)

1.2.2 Smooth and no projections from the sides or roof✓ unless projections are properly covered so as to prevent injuries. ✓ (2)

1.2.3 Sun✓, wind ✓ , dust ✓and rain ✓ (Any adverse climatical conditions) (2)
Any 2

1.2.4 Body walls of sufficient height to prevent the escape or falling out of animals✓ and strong enough to withstand considerable pressure from the pigs. ✓ (2)
Space between bars small enough to prevent animals from escaping

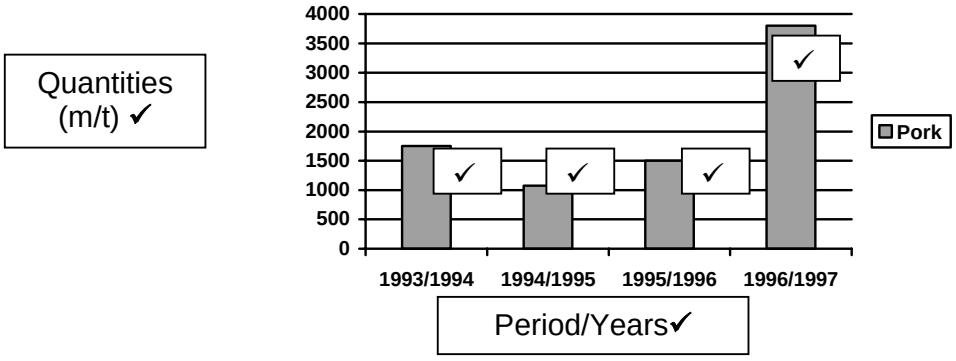
1.3

Income statement

Net sales	R54 000
Feed	R18 000✓
Medicines	R2 000✓
Labour	R8 000✓
Transport	R8 000✓
Income tax	R9 000✓
Net Profit	R9 000✓

(6)

1.4



One✓for each correct entry in the bar graph. /Possible ✓for correct heading (6)
(2+4)

1.5.1 Relocate the worker to another enterprise/ task. ✓ (1)

1.5.2 To honour the right of the worker with regard to his/her choice of religion and practices. ✓
In the work place, do not discriminate against someone because of his/her religion. ✓ (2)

1.6 Enhances flavour. ✓
Dehydrates (removes excess water from) the meat for drying. ✓
Makes muscle proteins (action and myosin) soluble. ✓ Any 2 (2)

1.7.1 9 pigs / litter x 2,2 litters / year ✓ x 30 sows ✓ = 594 pigs ✓ (3)

1.7.2 Income = 549 pigs x 60 kg ✓ x R 11.05 / kg ✓ = R 363 987,00 ✓ (3)

1.7.3 (a) Turning point is the point in time at which one starts getting an income from the business. ✓
(b) Breakeven point is the level of production at which the costs are covered. ✓ When income = output (2)

1.8.1 Selo ✓ because he can use the land as a collateral/security for the loan. ✓ (1)

1.8.2 Busa ✓ because he will save money by not buying land since tribal communal land is not for sale. ✓ (1)

1.9 Tapeworm in humans/measles in pigs. ✓
Mycobacterium tuberculosis (TB). ✓ (2)

1.10 High acid content ✓
Loss of mass by the meat during processing ✓
Meat looses its firm texture ✓ (3)
BPW (Bleek pap en waterige) vleis **[50]**
Rigor mortis Any

QUESTION 2: BEEF PRODUCTION

2.1.1	G✓		
2.1.2	L✓		
2.1.3	H✓		
2.1.4	N✓		
2.1.5	B✓		
2.1.6	K✓		
2.1.7	D✓		
2.1.8	C✓		
2.1.9	E✓		
2.1.10	A✓	(10 x 1)	(10)

2.2	A rump✓ B loin✓ C chuck✓ D brisket✓ E flank✓		(5)

2.3.1	because this may cause poor bleeding✓ and give the carcass a bloody appearance.✓ build up of lactic acid✓ which causes tough meat. ✓	Any	(2)
2.3.2	Labour Relations Act✓, Occupational Health and Safety Act✓, The Compensation for Occupational Injuries and Diseases Act (1993)✓and The Basic Conditions of Employment Act (1997).✓	Any	(2)
2.4.1	Cut A is leaner than cut B / Cut B is fatter / Cut B show mabeling / Cut a no mabelling✓		(1)
2.4.2	More tasty✓ softer✓ juicier. ✓ improve quality✓ excess of fat can decrease quality✓	Any 3	(3)
2.5	–to make it possible to buy by description instead of inspection.✓ –to facilitate the price–forming process and price reporting.✓ –to form basis of marketing communication.✓ –to ensure that a safe product is made available to the consumer in an orderly fashion.✓ To order the marketing of Agri products	Any	(3)
2.6.1	940,7– 826,4 = 114,3 c✓ and R1, 14✓		(2)
2.6.2	446,7– 431,4 = 15,3 c✓ and R0, 15✓		(2)

2.7 –transportation of beef from farms to market.✓
–feeding programmes taking place in the farms such as watering, food supply to the animals.✓
–increase of production costs / Increase in inputs.✓
–decrease in supply of beef by farmers do to changes in enterprises✓
–increase in demand of beef by consumers✓
Reduction / lowering of weaner prises✓ Any (3)

2.8.1 A facilitator that renders a service of bringing together a buyer and a seller,✓ without actually owning the livestock, but actively assist in the transfer of ownership from the producer to the next customer.✓ (2)

2.8.2 –feedlots✓
–abattoirs✓
–butcheries✓
–auctions✓
–informal markets✓(weddings, funerals, rituals) Any (3)

2.9.1 the price of Class C meat increased by 600 c/kg ✓
(2 250c – 1 650c) or R6,00/kg / (6000 c/kg) ✓ (2)

2.9.2 The price will be 2250c x 1000 kg✓ = 2 250 000c = R 22 500.00✓ (1)

2.10.1 means taking a raw material and processing it✓or adding something to it to change it into a saleable item✓ that would be purchased by a specific group of customers. ✓ Any (2)

2.10.2 –increases the price you get for your raw material. ✓
–you are master of your own destiny / determine the income✓
–goodwill value✓ (2)
Job creation Any

2.11.1 Given: Cost price of the LDV = R150 000✓
Estimated salvage value = R10 000✓
Estimated useful life = 10 years✓

Therefore annual depreciation $= \frac{\text{R150 000 – R10 000}}{10}$✓

$= \frac{\text{R140 000}}{10}$ ✓
= R14 000✓ (3)

2.11.2 R14 000 x 4 = R56 000✓
R150 000 – R56 000 = R94 000✓✓ (2)
[50]

QUESTION 3: DAIRY PRODUCTION

3.1.1 D✓
3.1.2 A✓
3.1.3 C✓
3.1.4 A✓
3.1.5 C✓
3.1.6 B✓
3.1.7 D✓
3.1.8 C✓
3.1.9 B✓
3.1.10 A✓ (10 x 1) (10)

3.2 Provides a guideline for farming expenses.✓
He knows where the money comes from ✓
Provide for large unforeseen expenses. ✓
Prevent impulsive purchases by the farmer. ✓
Knows how much money is available ✓
Helps the farmer to make decisions on credit requirements and payment conditions. ✓
To determine profitability ✓
Information can be used to obtain a loan. ✓
Helps the farmer to decide if he wants to expand or reduce the enterprise. ✓
Helps to determine the amount of labour necessary. ✓ Any (5)

3.3.1 Value-Added tax. ✓ (1)

3.3.2 Price before VAT = R18 x $\frac{100}{114}$ ✓
= R15,79✓✓ (1 mark correct approximation) (3)

3.3.3 Feeds✓or Feedcosts ✓ (1)

3.3.4 If the farmer is registered for VAT at the Receiver of Revenue. ✓ (1)

3.4.1 Supply latest technology information. ✓
Relevant important information to enhance farming operations. ✓
Lobby/Bargains with government on behalf of members. ✓
Development of the milking industry ✓ Any (2)

3.4.2 Supply information within the free–market system. ✓ (1)

3.4.3 System where a farmer can sell his produce to who he wants too. ✓
Whenever he wants to. ✓
On an agreed price. ✓ (3)

3.5 Pasteurise milk and cool down to 30 ºC, ✓
Add starter culture to change lactose in lactic. ✓
And add rennin (or acid) which makes milk curdle. Let it work for 45 minutes. ✓
Cuts with special blades to release moisture. ✓
Separate whey (moisture) from solid cud. ✓
Place in moulds of cheese press for 24 hours. ✓
Put in salt bath en then on shelves to ripen. ✓
Turn daily on shelves. ✓ (8)

3.6.1 Product description ✓
Market analysis ✓
Financial plan ✓
Operational plan ✓
Appendices ✓ Any (4)

3.6.2 The ease of incorporating the new enterprise into the existing enterprise. ✓
The profit margin of the new product. ✓
The availability of resources. ✓
The manager skills of the entrepreneur. ✓
The marketing possibilities of the new product. ✓ Any (4)

3.7.1 Clean and sanitise teats. ✓
Use disposable paper udder towels. ✓
Never use the same towel for more than one cow. ✓
Very dirty teats must first be cleaned with water and then dried carefully. ✓
(4)

3.7.2 Test the cisterns before taking off the cluster. ✓
Extract the stripping with milking machine. ✓
Take off cluster after shutting of vacuum. Remove all four teats at the same time. ✓
Apply iodine solution on the teat. ✓ Any (3)
[50]

QUESTION 4: SHEEP PRODUCTION: MUTTON

4.1.1 Ceiling price✓
4.1.2 Rigor mortis✓
4.1.3 Unemployment✓
4.1.4 Interest✓
4.1.5 Entrepreneur✓/ Farmer✓
4.1.6 Selective grazing✓
4.1.7 Restitution✓
4.1.8 Performance records✓
4.1.9 Part time labourer ✓
4.1.10 Short term ✓ (10 x 1) (10)

4.2 Fixed capital – land, ✓buildings✓ and the boreholes✓
Movable capital –Tractors✓, implements✓ and his livestock✓
Floating capital – fuel, ✓ fertilizers, ✓ seed✓ and wages✓ Any 1 (3)

4.3 Super✓
Prima ✓
Grade 1 ✓
Grade 2 ✓ (4)

4.4.1 If the price of wool is high, farmers would try to keep their sheep for longer to fit in an extra clipping of wool✓, thus leading to a shortage to the supply of mutton. ✓ (2)

4.4.2 He must decide whether he has enough grazing to keep the sheep for a longer time. ✓
He must decide whether he has enough capital available to not market his sheep as previously planned. ✓ (2)

4.5.1 Total expenses – R13 410,00✓
Total income – R45 000,00 ✓ (2)

4.5.2 R45 000 – R13 410 = R31 590,00✓
Profit ✓ (2)

4.6 Directly to the consumer
Abattoir
Retail
Feedlot (4)

4.7 It must be clean and strong. ✓
It should seal effectively. ✓
It must be resistant against weak acids, water and fats. ✓
Should have a low permeability to odours and oxygen ✓ (4)

4.8 It enables the consumer to select on a basis of grade ✓
It serves as an indication of the quality of the product ✓
It provides the trade with a system of standardisation ✓
It provides the buyer with a standard which remains constant throughout the year ✓ (4)

4.9 Veld types need to be separated ✓
Every camp should have access to water ✓
In every camp there should be some form of shelter ✓
If possible fences should be erected against the contours ✓
Entrance gates should be easy accessible ✓
If possible camps should be of uniform size ✓ Any (4)

4.10 Lamb percentage = Lambs born / Ewes mated✓
= 95/105×100
= 90,4%
Fecundity = Amount of lambs born/ ewes lambed✓
= 95/90 ×100
= 105,5% (4)

4.11 Participation in management. ✓
Improvement of personal circumstances. ✓
Correct assignment of staff. ✓
Remuneration. ✓
Training/skill development. ✓
Improvement of work environment. ✓
Performance related incentives. ✓ (5)
[50]

QUESTION 5: BROILER PRODUCTION

5.1.1 F✓
5.1.2 T✓
5.1.3 T✓
5.1.4 F✓
5.1.5 F✓
5.1.6 F✓
5.1.7 F✓
5.1.8 T✓
5.1.9 T✓
5.1.10 F✓ (10 x 1) (10)

5.2.1 Under 8 months of age. ✓ (1)
5.2.2 Under 10 months of age. ✓ (1)
5.2.3 Over 10 months of age. ✓ (1)

5.2.4

Capons	Stags
Castrated male chicken ✓	Male chicken✓
Tender–meat with soft, pliable smooth textured skin. ✓	Coarse skin, toughened and darkened flesh✓ Any

(2)

5.3 Poor distribution of workers. Physical planning of the enterprise. ✓
Attends to critical issues each day. Daily planning. ✓
Workers work only productively in his presence. Supervision. ✓
Most of the work is done by hand. Effective mechanisation. ✓
Little or no education of labourers. Training. ✓ Any (5)

5.4 Live chicken.✓
Frozen chicken. ✓ (2)

5.5.1 Meet customers' needs. ✓
Generate profit. ✓ (2)

5.5.2 Where will I sell my product?✓
Who is the client?✓
What is the size of my potential client base?✓
What is the location of my clients and how will it effect my sales?✓
What are the client's needs and requirements?✓
Will I sell directly to the client? ✓
Will I sell wholesale to convenience store? ✓
What are the seasonal price changes? ✓
What are the quality standards that I have to adhere to? ✓ Any (5)

5.6.1 Anaesthetisation✓ (1)
5.6.2 Bleeding✓ (1)
5.6.3 Warm water immersion and de feather✓ (1)
5.6.4 Cleansing and packaging✓ (1)
5.6.5 Washing of carcass✓ (1)

5.7.1 Production records. ✓ (1)

5.7.2 As the weight increase of the chickens, the feed consumption increase.✓ (1)

5.7.3 The profit will decrease dramatically✓
To such a extend that one will make no profit any more. ✓
You can even have a loss if you keep the chickens to long. ✓ (3)

5.8 Make use of face masks. ✓
Sterilise the water used in a storage container. ✓
Separate the de feathering area from the cutting area. ✓
Hang the carcass on hooks. ✓
Instruments that fall must be cleaned and sterilised properly. ✓
Make use of running water to wash hands. ✓
Use a sterilising soap for washing your hands. ✓
Keep all doors closed all the time. ✓
Make use of wire–gauss in front of all windows and doors that can open. ✓
Any (5)

5.9 Name/type of inoculants. ✓
Lot number of manufacturer. ✓
Expiring date of inoculants. ✓ (3)

5.10 5 000 – 4 330 = 670✓

$$\text{Mortality \%} = \frac{670}{5000} \times 100\checkmark$$

$$= 13{,}4\%\checkmark$$

(3)
[50]

QUESTION 6: GAME FARMING

6.1.1 A✓
6.1.2 B✓
6.1.3 F✓
6.1.4 K✓
6.1.5 O✓
6.1.6 M✓
6.1.7 G✓
6.1.8 Q✓
6.1.9 I✓
6.1.10 S ✓ (10 x 1) (10)

6.2 Type and amount of animals to catch. ✓
Physical condition of the animals.✓
Number of young and pregnant animals. ✓
Sex ratio and age.✓
Time of year. ✓
Type of catching method✓
Terrain.✓
Necessity for tranquiliser. ✓
Availability of specific vehicles. ✓
Animal health regulations.✓
Nature conservation permits. ✓
Import and export permits. ✓
Veterinary permit.✓ Any (5)

6.3 Identification of problems
- Low fence all around.✓
- Farm divided in small camps.✓

Gather information
- Visit neighbouring game farms and National Game Reserve ✓

Make a realistic decision with available information
- Put up a high fence for all type of game.✓
- Insert predators to the farm.✓

Design and implement a plan of action.
- Take down all fences of the camps.✓
- Fence the farm with suitable game fence for both antelope and predators.✓
- Add antelope to existing animals on the farm if necessary.✓
- Add predators to the farm to control number of antelope.✓ Any (4)

6.4 If camps are next to rivers it must be above the flood line. ✓
Accessible by vehicle. ✓
Look out for fire hazard.✓
Take soil type in consideration. ✓
Availability of water.✓
Shade from trees.✓
Size and appearance of facility. ✓
Sewerage must not pollute the environment. ✓
If there are dangerous animals, it must be fenced. ✓
Prevention of dust and noise.✓ Any (5)

6.5.1 Less than 9 months.✓ (1)

6.5.2 14 – 17 months. ✓ (1)

6.5.3 18 – 21 months.✓ (1)

6.5.4 More than 30 months.✓ (1)

6.5.5 Old.✓ (1)

6.6 Labourers must know that action will be taken if they transgress. ✓
Disciplinary action is not against the person. ✓
Disciplinary action must be as quickly as possible after the transgression. ✓
Be consequent.✓
Repair relation after disciplinary action.✓ (5)

6.7 Salaries.✓
Insurance, medical expenditure, rent and banking costs. ✓
Electricity, fuel, oil and lubricants.✓
Transport. ✓
Game catching narcotics. ✓
Supplementary feeding and lick. ✓
Medicine and deworming agent. ✓
Veterinary services.✓
Licences and permits.✓
Advertising and brochures.✓
Telephone, postage, and stationery.✓
Diverse expenditure, e.g. ammunition, knives, salt. Any (5)

6.8.1 1991✓ (1)

6.8.2 Cattle theft.✓
Labour laws and the law of minimum wages.✓
Game farming needs fewer labourers.✓
Overgrazing of veld.✓
Game contributes more to veld improvement.✓
Foreign trophy hunters that pay in other currencies.✓
Other income from game such as tourism.✓
Low prices of beef.✓
High prices of feeds.✓
Drought.✓ (5)

6.8.3 Any game reserve or similar area.✓ (1)

6.9

	INCOME	EXPENDITURE
Visitors Entrance Fee	R3 200✓	
Fuel		R1 200
Stationery		R850
Beverages		R420
Repair motoring		R150
Total	R3 200	R2 620✓

There was a profit of R580 for this week. ✓
Correctly created table. ✓ (4)
[50]

QUESTION 7: LAY HEN PRODUCTION

7.1.1 A✓
7.1.2 A ✓
7.1.3 D ✓
7.1.4 D ✓
7.1.5 A ✓
7.1.6 C ✓
7.1.7 C ✓
7.1.8 A ✓
7.1.9 C ✓
7.1.10 C ✓ (10 x 1) (10)

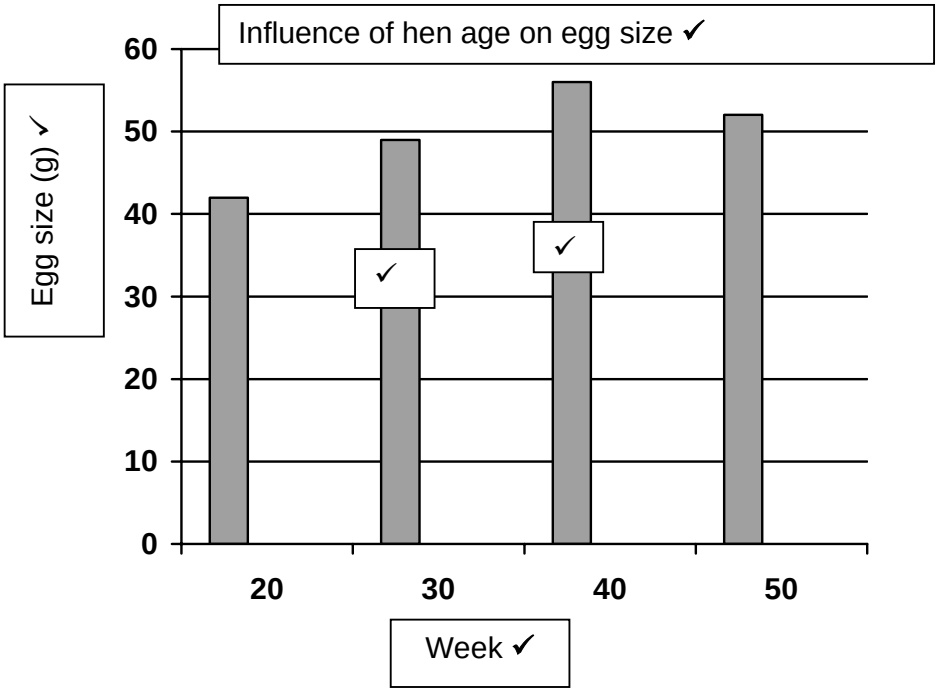
7.2 Make sure each labourer has got sufficient overalls and gumboots to ensure one clean set at all times.✓
The hand washing facility needs urgent upgrading as well as the placement of disinfectants✓
If the facility is upgraded the labourers would be more conscious regarding washing hands✓
A brush-up on training should be done regarding food protection principles. ✓
Each labourer should complete their own checklist when reporting for duty.✓
Incentives for labourer of the month ✓ Any 5)

7.3 Easier access to information. ✓
Calculations more accurately done. ✓
More information can be stored in less space. ✓
Comparisons can be made easier. ✓
Can make use of trusted and tested programs for production, financial, physical records. ✓
Transfer of information is easier. ✓
Quicker reproduction of information. ✓ Any (5)

7.4.1 The eggs should be handled as such that the light shines through the shell ✓ to show the content.✓ (2)

7.4.2 To survey egg quality internally as well as externally.✓
Defects such as dirty or cracked shells are pointed out. ✓
Internal defects such as blood spots are being detected. ✓
It helps with the grading of eggs.✓ (4)

7.5.1 Redraw and complete the bar–graph in your answer book. (3)



7.5.2 The egg would be classified as a medium egg. ✓ (1)

7.5.3 A young hen's egg (at point of lay) is small ✓
The egg size increase with age of the hen ✓
At 50 weeks or more the hen is past optimum production point and egg size may decrease slightly. ✓ Any (2)

7.6.1 Organic eggs ✓
Free-range eggs ✓ (2)

7.6.2 The advantage of co–operative bargaining power ✓
The advantage of a collective product, thus small amounts can be marketed together ✓
Price advantage – relative higher price. ✓ Any (2)

7.6.3 Free–range eggs are produced from hens that are not being kept in cages and can roam outdoors. They have the freedom to roam, thus can eat any available food✓

To be certified as organic, the eggs must be produced from hens that have been fed certified organic feed which was produced without synthetic pesticides or herbicides, antibiotics, or genetically-modified crops. ✓ (2)

7.7.1 Pores of the eggs are sealed✓
With potassium silicate (water glass)✓
Or butter. ✓ (3)

7.7.2 Prevent escaping of water. ✓
Prevent penetration of micro organism and smells. ✓ (2)

7.8.1 *Direct remuneration* implies that wages are received on a weekly or monthly basis on the completion of tasks✓
Indirect remuneration means housing, food, medical aid, livestock etc.✓ (2)

7.9.1 D✓
7.9.2 C ✓
7.9.3 B ✓
7.9.4 E ✓
7.9.5 A ✓ (5)
[50]

QUESTION 8: SHEEP PRODUCTION (WOOL)

8.1.1 D✓
8.1.2 G✓
8.1.3 L✓
8.1.4 C✓
8.1.5 E✓
8.1.6. H✓
8.1.7 J✓
8.1.8. B✓
8.1.9 K✓
8.1.10 A✓ (10 x 1) (10)

8.2.1 A Ordinary backs✓
B Britch wool✓
C Fleece wool✓
D Seedy wool / lox✓
E Neck wool✓ (5)

8.3 Type of grazing system ✓
Group same veld types together✓
Topography ✓
Watering points/streams and fountains ✓
The size of your flock✓
Availability of shade ✓
Fences should run against contours and not with them. ✓ Any (4)

8.4.1 Cape Wool ✓ (1)

8.4.2 It promotes and transfer the South African produce. ✓ (1)

8.4.3 The providing of market information and statistics ✓
Research and development ✓ (2)

8.4.4 Australia is the leading wool production country of the world and therefore dictates the wool price. ✓
Thus the South African wool price would also increase. ✓ (2)

8.5 *Tender* refers to wool that will break at any point along the staple, ✓
Whereas *break* is used to refer to weakness at one point only✓ (2)

8.6 The amount of wool produced by the flock.✓
The quality of the wool delivered.✓
The price obtained for your clip.✓
Production of wool per sheep. ✓ Any (3)

8.7.1 19 µ wool has the highest demand. ✓
19 micron is used in the clothing industry ✓ (2)

8.7.2 The more wool delivered, the poorer the price✓ (1)

8.7.3 The price will show an increase. The price increase with under supply ✓ (1)

8.8 Fibre diameter✓
Staple length✓
Crimp frequency✓
Style index✓
Spin ability✓ (5)

8.9.1 Seasonal labourer ✓/ Temporary labourer ✓ Any (1)

8.9.2 No✓, they are only paid per sheep that they shear.✓ (2)

8.9.3 The farmer must keep accurate account of his sheep numbers. ✓
Every labourer must keep accurate account of every sheep that he shears.✓
Any (1)

8.10.1 Lambing % = $\frac{\text{lambs born}}{\text{Ewes lambed}}$ x 100✓
= $\frac{115}{105}$ x 100✓
105✓
= 110%✓ (4)

8.10.2 The occurrence of multiple births. ✓ (1)

8.10.3 First time mated ewes can be mated again the next breeding season. ✓
Cull the ewes not lambing more than twice. ✓ (2)
[50]

QUESTION 9: LUCERNE PRODUCTION

9.1.1 L✓
9.1.2 E✓
9.1.3 F or N✓
9.1.4 M✓
9.1.5 G✓
9.1.6 B✓
9.1.7 J✓
9.1.8 H✓
9.1.9 K✓
9.1.10 A ✓ (10 x1) (10)

9.2.1 A Cutter bar / mover / cutting machine✓
B Hay rake✓
C Tedder✓ (3)

9.2.2 C–is a tedder it turns the lucerne over for it to dry quickly / spreading it open for drying✓ (2)
D–is a baler bailing Lucerne / round baler✓

9.3.1 –it is affected by weather conditions✓
More costly✓
Effected by weather✓
Labour intensive✓ (3)
Loss of DM✓
Nutritional value influence by rain✓
Higher capital inputs✓
More operations✓
Compaction of soil✓
Requires more time✓
–high loss of dry matter (DM)✓ Any

9.3.2 –more nutrients.✓
No loss of leaves.✓
High nutritional value✓
Palatable✓ (2)
Stored for long periods✓
Can not burn✓
Reduce bloat✓ Any

9.4.1 R3 000 000 – R2 500 000 = R500 000✓
R500 000/R2 500 000×100 = 20%✓ (2)

9.4. 2 R885 00.00✓ – R605 00.00✓ = R280 000.00✓ (3)

9.5 –super grade.✓
–first grade✓
–second grade✓
–standard grade✓ (4)

9.6 A – Gumboots/prolight boots✓–used to protect the feet and legs of the labourers, injuries from machinery and equipment✓, use during wet conditions ✓
B –balance helmet/helmet✓–used to protect the head, eyes and ears✓ (4)

9.7 Production cost lower✓
Cannot burn✓
Less space✓
Lower capital investments✓
More palatable✓
Less wastage✓

–weather conditions have little influence on this process.✓
–allows longer lucerne re–growth period, because lucerne is removed quickly from the field.✓ (4)
–it has higher protein content,✓ calcium and phosphorus content.✓
–it has higher nutritional quality than lucerne hay.✓ Any 4

9.8.1 The application of living organisms/use of biological processes✓
to develop new products and or increased production. ✓ (2)

9.8.2 –It can increase food and fibre productions.✓
–Provides increased yields. ✓
–Better insect protection ✓
–Reduced fungal toxins in food ✓
–More efficient weed control; all these are delivered in the seeds of genetically improved crops ✓
–Reduces the impact of monoculture on biodiversity✓
Conservation of nature / living organisms✓
Any (4)

9.9 –creates demand for goods and services.✓
–stimulates production of other sectors of SA economy. ✓
–creates jobs. ✓and
–encourages economic development. ✓
–financial benefits ✓
–spending quality time with family members, friends, colleagues. ✓ (5)
Economical stability in rural areas ✓
Source of foreign income✓
Oppertunities for diversity and value adding ✓ Any

9.10 –Changes in the pattern of resources.✓
–Changes in the technological and biological relationship✓
–Changes in prices✓
–Risks and uncertainties✓ Any (2)

[50]

QUESTION 11: MAIZE PRODUCTION

11.1.1 C✓
11.1.2 A✓
11.1.3 C✓
11.1.4 D✓
11.1.5 A✓
11.1.6 A✓
11.1.7 B✓
11.1.8 D✓
11.1.9 A or B or C✓
11.1.10 A✓ (1 x 10) (10)

11.2.1 grinding maize with hammer mill / grinding stone✓
sieving the meal ✓ (2)

11.2.2 baking✓
making baby foods✓
ice cream cones✓
ready to eat cereals✓
binders for loaf type sandwiches (samosas)✓
bread spreading mixes✓ Any (2)

11.3.1 candies ✓
puddings ✓
in paper and textile industries ✓
baking powder ✓
prepared starch mixes ✓ Any (2)

11.3.2 corn oil ✓ (1)

11.3.3 As animal feed/fodder in winter during the dry season ✓
Incorporated in the soil to make the soil fertile / add organic material✓
Make fire for cookong✓
Mulching of soil✓
Building material for huts✓ any (2)

11.4.1 Improve crop yield ✓
Provide information to make better management decisions ✓
Reduce chemical and fertiliser costs through more efficient application ✓
Provide more accurate farm records ✓
Increase profit margin ✓
Reduce pollution ✓ (2)
Reduce soil erosion ✓ Any

11.4.2 (a) Pin points your exact location within one metre / servey the land /
(b) mapping logistics / sending information on position / ✓
Shows areas in the arable land where there are factors which limit production / supplying information on a piece of land✓ (2)

11.4.3 Spray chemical being blown by the wind✓
Overlapping or under lapping in some areas during spraying / drifting ✓ (2)
At the filling of crop sprayer✓
Wrong calibration of equipment✓
Technical errors by the pilot, judgment✓ any

11.5 Decide on the kind of business you want to start. ✓
Collect information about the chances of success and chances of failure/ feasibility/opportunities (markets) and risks data include sources of capital/loans. ✓
Focus and analyse the data/information you have collected and refine your ideas of the business. ✓
Outline the specific requirements/inputs, management issues, anticipated returns. ✓
Put your plan in a compelling form/set goals targets and make a detailed management plan. ✓ (5)

11.6

Long–term assets	Medium–term assets
Farm house ✓	tools and equipment ✓
115 hectares of land ✓	2 tractors ✓
	Wire fence ✓
	Moneyreceivable✓(shortterm asset) (6)

11.7 Planning ✓
Co–ordination✓
Organising✓
Monitoring ✓
Control ✓
Communication ✓
Commanding✓ (3)
Motivation / Leaderswhip / Directing✓ Any 3

11.8

ASSETS		LIABILITIES	✓
Current assets		Current liabilities	
Cash	R 15 000	Accounts payable	R 100 000
Accounts receivable	R 109 000	Notes payable Debts	R 48 000
Inventory	R 210 000	Long-term liabilities	R 108 000 ✓
Fixed assets	R 690 000 ✓	NET CAPITAL	R 768 000 ✓
	R 1 024 000 ✓		R 1 024 000 ✓

(5)

Format is not critical, need to show calculations
Critical favtors are

- Assets together✓ / liabilities toghter✓
- Must balance at end✓
- Net capital must be calculated✓
- Correct copping of information✓

11.9.1 Gross profit
Sales – Cost of sales
R 461 060 – R 20 200 ✓ = R 440 860✓

11.9.2
Nett profit
Gross profit - Overheads
R 440 860 – R 34 000 ✓ = R 406 860✓

11.9.3 Retained profit
Net profit – Kontant ontrekking (6)
R 406 860 – R 210 000✓ = R 38 586✓ **[50]**

QUESTION 12: WHEAT PRODUCTION

12.1.1 N✓
12.1.2 J✓
12.1.3 L✓
12.1.4 G✓
12.1.5 M✓
12.1.6 D✓
12.1.7 K✓
12.1.8 C✓
12.1.9 B✓
12.1.10 A ✓ (10 x 1) (10)

12.2 Cleaning is done using magnets to remove metals,✓ aspirators to remove light dust and scourers remove/rub dust from the grain.✓
Conditioning – use water to soften the wheat.✓
Breaking – use rollers to crack open the grain.✓
Sieving – use sieves to separate the grain into endosperm, bran and germ.✓
Any (4)

12.3.1 In January 2002 the loaf was R2,50 and in September 2002 R3,50.
Therefore, the price change is R3,50 – R2,50✓= R1,00✓ (2)

12.3.2 the increase in flour prices is 35%✓ (1)

12.4.1 Agricultural Black Economic Empowerment ✓ (1)

12.4.2 to see 30% of land being leased or sold to blacks and/or farm workers by 2014.✓
to ensure that there are black people in management positions on farms and agri–businesses.✓
to ensure that black women are represented in management positions✓ (4)
and that illiteracy is eliminated among farm workers✓
to right the wrongs of the past✓

12.5.1 Farm Paledi = 400 x R4 000 = R1 600 000✓
Farm Soetvlei = 400 x R5 000 = R2 000 000✓ (2)

12.5.2 Additional lime cost = R600 x 300 = R180 000✓
Additional P cost = R2 268 x 300 = R680 400✓ (2)

12.5.3 Total farm cost/ Finance costs or any other relevant answer (1)

12.6 The number of plants per hectare✓
The number of heads per plant✓
The number of grains per head✓
Individual grain weight✓ (4)

12.7 The stalks must be dry for combine harvester✓
Moisture test
Colour of the spike
Wheat seeds must be dry to prevent spoilage✓ (3)

12.8.1 Means adding value to a raw product✓ by taking it to, at least, the next stage of processing.✓ (2)

12.8.2 To produce wheat grain for use in the feed or food products.✓
Wheat straw can be harvested, processed and then turned into building materials.✓
To graze it with stocker cattle, which increases the income of wheat by generating income from cattle operation.✓
Can be converted into organic natural foods and sold at health food stores.✓
Any (3)

12.9

Assets	Rand	Liabilities	Rand
Fixed assets		Capital	115 000
Land (at cost)	100 000✓		
Buildings (at cost)	50 000	Mortgage loan	120 000
Second-hand tractor	50 000✓		
Implements (at cost)	25 000		
Current assets		Current liabilities	
Stocks (at cost)	20 000	Creditors	10 000✓
Debtors	13 000✓	Bank overdraft	15 000
Cash	2 000✓		
Total assets	260 000	Total liabilities	260 000✓

(6)

12.10.1 Wheat ✓
Maize✓
Casava✓
Potatoes
Sweet potatoes
Any (2)

12.10.2 19 124 246/557 308 497✓x 100 = 34,32%✓ (2)

12.11 Gluten✓ (1)

[50]

QUESTION 13 SUNFLOWER PRODUCTION

13.1.1 C✓
13.1.2 D✓
13.1.3 D✓
13.1.4 C✓
13.1.5 A✓
13.1.6 B✓
13.1.7 D✓
13.1.8 C✓
13.1.9 D✓
13.1.10 A✓ (10 x 1) (10)

13.2.1 9,4/100 x 680✓= 63,9 kg✓ (2)

13.2.2 63,9 x R0,6✓= R38,34✓ (2)

13.3.1 In the year 1998-99✓ (1)

13.3.2 In 97/98=600 000 tons and 98/99=1 200 000✓ Therefore the increase in tons is 600 000 tons.✓ (2)

13.3.3 07/98
600 000 x 2400 = 1 440 000 000✓

98/99
1200 000 x 2400 = 2 880 000 000✓ (2)

13.4 Clean the storage facility✓
Use an appropriate bin treatment✓/fumigate for insects✓
Clean sunflower✓
Store at a safe moisture content✓
Aeration system are a key✓
Check the seed/check stored grain weekly✓
Check the sunflower, not the bin✓
Act quickly to stabilise problems✓
Must not get wet ✓ Any (5)

13.5.1 Highest import was in the year 1997✓ and highest production was in the year 2000. ✓ (2)

13.5.2 Between 2000 and 2005 there was a high production, ✓ which resulted in a low import of sunflower.✓ (2)

13.6 How much will you make in the first year? ✓
What will the cost of sales be? ✓
What will the gross profit be?✓
What net profit will you make? ✓
What is the cash-flow situation? ✓
How much money will you need to borrow? ✓
How long will it take to break-even or make a profit? ✓

What start-up costs are involved? ✓ Plus any other answer related to a business plan. Any (4)

13.7 Improves the health of people✓
Manages the natural resources through optimal utilisation✓
Provides income or increased the income ✓
Privides job opportunities✓
Improves the standard of health and education / standard of living✓ (4)
Improves the general quality of life✓
Improves the sosio economical circumstances ✓ Any

13.8 Contaminated grain✓
Damaged seeds ✓
Dehulled✓
Earth pellets✓
Ergot✓
Excreta✓
Fertiliser pellets✓
Fireburnt✓
Foreign material✓
Head rot damage✓
Insect damage✓
Heated, rotted or musty✓
Odour✓
Stones✓
Very immature seeds✓ Any (5)

13.9 High foreign material levels✓ and
Dockage✓
Insect damage and infestation✓
Small seed size✓
The presence of sclertina mould✓ and
High moisture content✓
Test weight✓ (6)
Low oil content✓ Any

13.10 Keep it clean around the dryers✓
Do not over –dry the seeds✓
Ensure a continuous flow for all sections and continuous flow of the dryers✓
Do not leave drying equipment unattended. ✓ (3)
Dry at correct temperature✓ **[50]**

QUESTION 14: VEGETABLE PRODUCTION

14.1.1 terracing ✓
14.1.2 ethylene✓
14.1.3 wilting ✓
14.1.4 biological control ✓
14.1.5 minimum tillage ✓
14.1.6 food security/value adding ✓
14.1.7 cultivars ✓
14.1.8 physical records/production records✓
14.1.9 plant diseases ✓
14.1.10 Agri–tourism ✓ (10 x 1) (10)

142.1 Vitamin A ✓
Vitamin C ✓
Calcium ✓
Magnesium ✓
Iron ✓ Any (3)

14.2.2 Vitamin C is lost ✓
Valuable nutrients are lost ✓ Any (1)

14.3.1 **VEGETABLE FARM BALANCE SHEET 31 DECEMBER 2007**

CURRENT ASSETS Accounts receivable Crops for sale ✓	CURRENT LIABILITIES
INTERMEDIATE ASSETS Spade shovels Garden forks Irrigation pipes ✓	INTERMEDIATE LIABILITIES Tractor instalment due next month Tractor loan outstanding ✓
LONG–TERM ASSETS	LONG–TERM LIABILITIES Outstanding loan for the land ✓

(4)

14.3.2 What the business owns/the amount remaining after paying all the company's debts. ✓ (1)

14.3.3 To avoid bankruptcy/the business must have enough money to pay for all its liabilities even when it is sold. ✓ (1)

14.4.1 To keep away flies/insects. ✓
To keep away dust/dirt. ✓
To avoid contamination. ✓ Any (2)

14.4.2 Freezing. ✓
Inlaid (canning, bottling). ✓
Steaming. ✓ Any (2)

14.5.1 **INCOME STATEMENT FOR YEAR ENDING 31 DECEMBER 2007**

PURCHASES AND EXPENCES	(RANDS)	SALES AND RECEIPTS	(RANDS)
Soil preparation	R10 000	sale of carrots	R11 500
Harvesting	R6 000	sale of onions	R28 000
Casual labour	R8 000	sale of tomatoes	R20 000
Seeds	R6 500	sale of cabbages	R9 400
Fuel and lubricants	R6 000		
Fertiliser	R10 000		
Disease, pest and weed control	R10 000		
Repair and maintenance	R5 500		
Packaging and marketing	R4 000		
TOTAL	R70 000 ✓	TOTAL	68 900 ✓

✓ One mark for correct entries in purchases and expenses and ✓ one mark for correct entries in sales and receipt. (4)

14.5.2 PROFIT/LOSS= R 70 000-68900= R 11 000 ✓ (1)

14.6

MS PHETA		**MR MADLALA**	
ADVANTAGES TO:		**ADVANTAGES TO:**	
FARMER	**CONSUMER**	**FARMER**	**CONSUMER**
The farmer can take advantage of favourable market prices. Producer may receive higher prices. ✓ Marketing costs are reduced and Net profit is increased. ✓ Any 1	Can negotiate prices with the farmer. ✓ Few legal costs which may increase the price. ✓ Any 1	The contract company supports the farmer with: Inputs. ✓ Technical support / equipment / machinery. ✓ Loans. ✓ The farmer is always sure of a market and a fixed income. ✓ Any 2	Sure of good quality supplies in a specific time. ✓ Protected from frequent price changes. ✓ Any 1

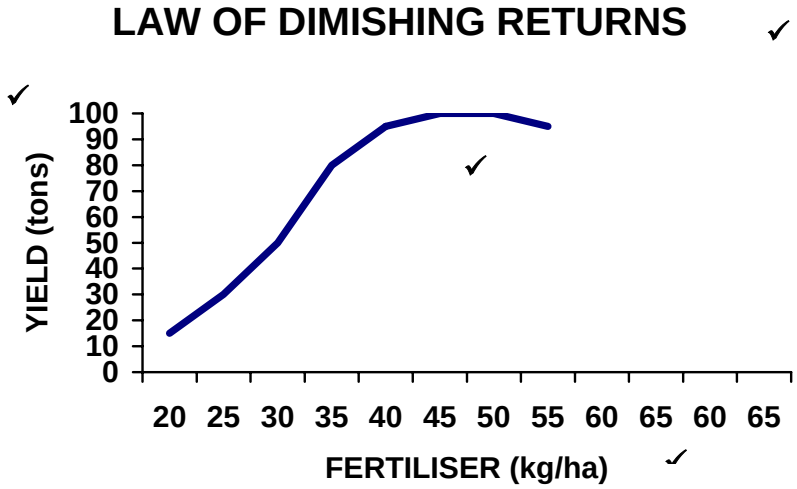
(5)

14.7.1 To avoid obtaining wrong/false results after the analysis of the soil, ✓
This can be caused by the plant nutrients released from the fertiliser residues in the fertiliser bag. ✓ (2)

14.7.2 Excessive amounts of fertiliser would scorch and destroy the crop. ✓
Some of the excess fertiliser will be lost/wasted in the soil and not absorbed by the plants for growth. ✓
The plants will not have enough nutrients to grow and produce to their full potential thus yields will be low. ✓
Week plants that grow slowly can easily be attacked and destroyed by pests and diseases thus low yields. ✓ (4)

14.8 Efficient and fast. ✓
No time is wasted moving from one job to the next. ✓
Each worker gains more skills in their part of specialisation and becomes an expert. ✓
Devising simple machinery for each operation becomes possible. ✓
Time saving✓
Supervisor will know the responsibility of each labourer✓ Any (4)

14.9.1



(4)

14.9.2 No. ✓
The yield/output increase up to a point (optimum) and thereafter stop increasing until it begins to fall.✓ (2)
[50]

QUESTION 15: PEACH PRODUCTION

15.1.1 Soil erosion✓
15.1.2 Budget ✓
15.1.3 Production records✓
15.1.4 Physical data✓
15.1.5 Grading ✓
15.1.6 Dried fruit✓
15.1.7 Choice grade✓
15.1.8 Labour act. ✓
15.1.9 Coordination ✓
15.1.10 Computer ✓ (10 x 1) (10)

15.2 Type of peaches (white or yellow).✓
Cultivar planting.✓
Density of planting.✓
Type of rootstock to use.✓
Method budding and grafting to use. ✓ (5)
Soil factors✓ /Drainage✓ /Slope✓ /Climate✓

15.3.1 A = dried fruit ✓
B = fresh fruit ✓
C = canned fruit ✓ (3)

15.3.2 Condition achieved by application of heat alone ✓
Or in combination with appropriate treatments ✓
To render the fruit free from micro–organisms ✓
Capable of growing at normal non–refrigerated conditions. ✓ (4)
Voorbereiding deur die toepassing van hitte alleenlik.✓
Of in kombinasie met toepaslike behandelings
Vrugte te lewer wat vry is van mikro–organismes.✓
Wat onder normale nie verkoelde omstandighede kan groei. ✓.✓
Antwoord pas nie by vraag
Moet nie verbruikers se gesondheid bedreig nie

15.4.1 Permanent worker – worker on payroll that works year in and year out on the farm.✓
Seasonal worker – worker that works a season or part of year on the farm that reoccur each year. ✓
Occasional worker – worker that performs a specific task and departs when the task is finished. ✓ (3)

15.4.2 Permanent worker – irrigating, plant protection plan, maintenance normal day tasks, soil preparation, soil protection, processing ✓
Seasonal worker – harvesting, pruning. ✓
Occasional worker – inoculation, planting, weed control, fumigation of soil/packaging house.✓ (3)

15.5.1 Easier access to information✓
Calculations more accurately done✓

More information can be stored in less space✓
Comparisons can be made easier✓
Can make use of trusted and tested programs for production, financial and physical records✓
Transfer of information is easier✓
Fast reproduction of information✓
Alternative use of the computer✓ Any (4)

15.5.2 In the case of electricity failure records are not accessible✓
The manager must be computer literate✓
Cost to buy a computer✓
Technology must be updated on a regular basis✓
It takes time to update the data✓ Any (2)

15.5.3 The amount of money available to invest in a computer✓
The size of the computer✓
The size of the enterprise✓
The reliability of the system✓
The type of business✓
The computer literacy of the operator. ✓ Any (2)

15.6 Harvest the peaches with the correct ripeness according to purpose. ✓
Ensure that the fruit do not get damaged during harvesting. ✓
Remove fruit as quickly as possible out of direct sunlight. ✓
Time during the day of harvesting. ✓
Do not use too big containers to ensure good quality. ✓ Any (3)

15.7.1 In the first two years the trees are growing.✓
There are no fruit to sell. ✓
The next two years the trees produce fruit but not enough to affect the income positively. ✓ Any (2)

15.7.2 The price of the produce. ✓
The volume of the peaches. ✓ (2)
Quality of the product

15.7.3 The tenth/ eleventh year. ✓ (1)

15.8.1 Saturday "braai" with cultural dances. ✓ (1)

15.8.2 Harvesting peaches. ✓
Inoculating different cultivars. ✓
Pruning. ✓ Any (1)

15.8.3 Early morning walk in the orchard especially during blooming time. ✓ (1)

15.8.4 Meals including peaches such as salads and deserts. ✓ (1)

15.8.5 Peeling competition. ✓
Pit spitting competition. ✓
Scare crow contest. ✓ Any (1)

15.8.6 Auction of bottled peaches. ✓
Stalls that sell produce made from peaches by the workers. ✓
Any other applicable answer to this question. Any (1)

[50]

QUESTION 16: HYDROPONICS

16.1.1 T✓
16.1.2 T✓
16.1.3 T✓
16.1.4 F✓
16.1.5 T✓
16.1.6 T✓
16.1.7 T✓
16.1.8 F✓
16.1.9 F✓
16.1.10 T✓ (10 x 1) (10)

16.2 Pack fresh produce in a way that prevents it from being bruised when it is transported or stored. ✓
Do not pack fresh produce if it is wet, as it will rot in the containers✓
Do not pack any produce that is damaged, rotten or over–ripe because it will cause the good products to rot. ✓ (3)

16.3 (a) Natural resources ✓
(b) Capital✓
(c) Labour✓ (3)

16.4.1 The price will increase steadily until January. ✓
During the month of January the price will be stable.✓
The demand increases whilst the production decreases that leads to higher prices. ✓ (3)

16.4.2 In September✓ (1)

16.4.3 If you plant in September, production will be in summer time ✓
When the prices will be higher. ✓
If you plant in April the production will be in winter when there is already an over production. ✓ (3)

16.5 The wearing of protective over wear such as:
hat✓; goggles✓gloves✓; mask✓; plastic over clothes✓; gumboots✓
Any (4)

16.6 Juice ✓
Canning✓
Drying✓
Freezing✓
Jams and preserves✓ Any (5)

16.7 Find out what customers want by doing market research✓
Identify which of the commodities are suitable for you to produce✓
Plan the production of the product✓
Plant the crop and harvest it when it is ready✓
Choose the marketing channel that suits you best, and where you can make the most profit✓ (5)

16.8 In season guests can be invited to come and pick their own strawberries in baskets. ✓
Demonstrations on the use and processing of herbs can be done✓
Fresh and processed herbal and strawberry products can be made available to visitors✓
A teagarden to promote own products/pack picnic lunches✓ Any (3)

16.9.1 Preparation of growth medium ✓
Sanitising growth medium ✓
Planting vegetables ✓
Spraying of plants ✓
Watering the plants with predetermined fertiliser ✓ Any (3)

16.9.2 Trellis of plants ✓
Harvesting produce ✓ (2)

16.10 Name of business ✓
Type of business ✓
Management arrangements ✓
Description of products ✓
Marketing plan ✓
Financial plan ✓ (5)
[50]

QUESTION 17: VITICULTURE

17.1.1 T ✓
17.1.2 F ✓
17.1.3 T ✓
17.1.4 F ✓
17.1.5 F ✓
17.1.6 T ✓
17.1.7 F ✓
17.1.8 T ✓
17.1.9 F ✓
17.1.10 T ✓ (10)

17.2 The hours each worker has worked each day/week/month. ✓
The specific days that the seasonal works have worked.✓
Leave taken by each worker.✓
Any infringements by any worker.✓
Remuneration of workers.✓ (5)

17.3.1 Not transferable✓ (1)

17.3.2 20 December 2008 or 2008 – 12 – 20 ✓ (1)

17.3.3 Three thousand five hundred and ninety nine rand only (or no cents)✓ (1)

17.3.4 3 599,ØØ or 3 599,—✓ (1)

17.4 This agreement is not legal. ✓
It is in contravention to the law on fair employment.✓ (2)

17.5 Brix–hydrometer ✓
Hand refractometer✓ (2)

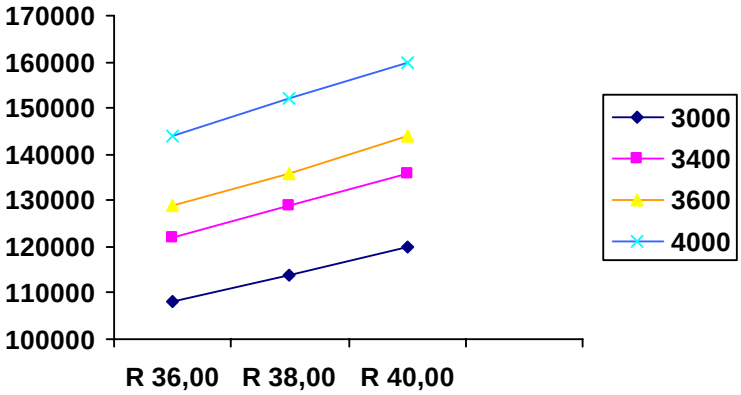
17.6 Above-mentioned grapes will overheat, pulp and loose moisture. ✓
Grapes will start to ferment because it was stored under uncooled conditions. ✓
Fungus diseases ✓and decay✓ will start quickly thus total lost on quality. ✓
Any (4)

17.7 A Social environment ✓
B Technological environment ✓
C Economical environment ✓ (3)

17.8 Pick grapes during the colder periods of the day and store cold as soon as possible.✓
Harvest only ripe grapes. ✓ (2)

17.9 The position of the wine yard according to micro climate and soil type. ✓
Good vineyard practices – cartons/ha production, grape size, and quality. ✓
Time of marketing. ✓
Correct use of growth hormones. ✓
Marketing strategy. ✓ (5)

17.10.1



(3)

17.10.2 The price on the market doesn't matter, the more delivered the higher the income/ha. ✓
Gross income increases with price increase. ✓ (2)

17.11 Setting common goal or objective. ✓
Proper knowledge of all tasks to be performed. ✓
Including those of other departments. ✓
Proper communication in the business. ✓ (4)

17.12.1 Areas to budget for are labour, mechanization and material. ✓ (1)

17.12.2 Events is different times and duration. ✓ (1)

17.12.3 Sales of grapes and grape juice as well as the possible yield of each. ✓ (1)

17.12.4 Climate changes. ✓
Diseases. ✓
Pest infestation/insect infestation✓ Any (1)
[50]

QUESTION 18: POTATO PRODUCTION

18.1.1 E✓
18.1.2 K ✓
18.1.3 H ✓
18.1.4 A ✓
18.1.5 C ✓
18.1.6 D✓
18.1.7 G ✓
18.1.8 I ✓
18.1.9 J ✓
18.1.10 B ✓ (10 x 1) (10)

18.2.1 Mr Zulu's profit = R15 000 / R 45 000 x 100 ✓
= R 33% ✓

Mr Twala's profit = R 5 000 / R 30 000 x 100 ✓
= R 16% ✓ (4)

Question 18 is incorrect, therefore we suggest to reward the learner with 5 marks

18.2.2 The cost of certified seeds/certified seeds are expensive (1)

18.3.1 Large medium (1)

18.3.2 50 – 100 g (1)

18.3.3 Baby (1)

18.4.1 Yes ✓ (1)

18.4.2 Destruction of the vegetation. ✓
Depletion/dropping of the underground water table. ✓ (2)

18.4.3 Employment/job opportunities/poverty alleviation. ✓
Income generation. ✓ Any (1)

18.5.1 25 000 kg ÷10 kg bags = 2 500 bags ✓
Income = 2 500 x R 32.00 ✓ = R 80 000,00 ✓ (3)

18.5.2 R 80 000 – R 44 480 = R 35 520 ✓ (1)

18.5.3 Total costs R 44 480 + R 9 000 + R 4 000✓ = R 57 480 ✓

Percent profit R80 000– R 57 480 = R 22 520+R57480 x 100 ✓
= 39.19% ✓ (4)

18.6 Long keeping quality / store for longer periods. ✓
Firm texture / do not break or crush easily. ✓
Do not discolour after cooking. ✓ (3)

18.7 Use wood or rubber material to pad the instruments where they make contact with the soil. ✓
Adjust the digging instrument correctly. ✓
Stop irrigation 2 – 3 weeks before harvesting and if the soil is too dry irrigate lightly to raise the moisture content of the soil. ✓
Do not dig out the potatoes when the soil is wet or too dry. ✓ (4)

18.8.1 About 95% relative humidity ✓ (1)

18.8.2 (10 – 15 °C) temperature ✓ (1)

18.8.3 Less than 6% carbon dioxide levels ✓ (1)

18.9.1 soil cultivation ✓ fertiliser application ✓ planting ✓ weeding✓ ridging ✓pest and disease control ✓ Any (3)

18.9.2 Handling potatoes ✓
Transporting harvested potatoes ✓
Storage and packaging for the market✓
Processing ✓ Any (2)

18.10.1 Graph B represents supply. ✓
Graph A represents demand. ✓ (2)

18.10.2 The price is determined when buyer and seller agree on a selling price.✓
If the supply is high the price will be low and vice versa
If the demand is high the price will be high and vice versa (3)
[50]

QUESTION 19: VINICULTURE

19.1.1 Titrates✓
19.1.2 Organic ✓ Marks must be given
19.1.3 Professional drivers permit ✓
19.1.4 Production ✓
19.1.5 Physical ✓
19.1.6 bottles ✓ or papsak
19.1.7 Vintage year✓
19.1.8 Geographical information systems ✓
19.1.9 Cash flow✓
19.1.10 Agro✓ (10)

19.2 Sugars ✓
Acids ✓
Enzymes ✓
Pectin's ✓
Minerals ✓
Vitamins ✓
Nitrogen compounds ✓
Aromatics ✓
Flavourings ✓
Water ✓ Any (4)

19.3 Wine is measured by a volumetric flask. ✓
At precisely 20 ºC. ✓
Measure the mass of the flask again to determine the mass of the alcohol-water distillate. ✓
With these values calculate the density. ✓
Read the alcohol value from table supplied. ✓ (5)

19.4 Colour change from green to blue or red to white. ✓
Seed colour change from green to brown. ✓
Grapes will reach full size. ✓
Grapes will become sweet. Taste the grape. ✓ (4)

19.5.1 The demand in the export market has increased dramatically, ✓whilst the demand in the local market is decreasing. ✓ (2)

19.5.2 (a) Cabernet Sauvignon✓/Pinotage ✓
(b) Chenin Blanc✓ (2)

19.5.3 The demand for Chenin Blanc is the highest. ✓
Price lower and taste more acceptable (2)
Therefore it is the most planted cultivar. ✓

19.6.1 Foreign material ✓
Unwanted material ✓ (2)

19.6.2 Speed at which the table works. ✓
Height of the table. ✓
Sanitation of the table. ✓
Distribution of bunches on the table. ✓ (4)

19.7 Make use of tubs with wheels. ✓
Improve grip on the cutter. ✓
Make use of equipment to help the lift. ✓
Improve the posture of workers. Less bending and twisting. ✓ (4)
Any thing that makes the workload eassier

19.8.1 Sandy soils. ✓ (1)

19.8.2 Take care of erosion. ✓
Water capacity will be lower and therefore irrigation must be applied. ✓
Nutrient level will be lower. May use more fertilizer. ✓
May be more difficult to cultivate because stone will more likely occur. ✓ (4)

19.9 Aroma – associated with flavouring agents✓ inherent with the grape.✓
Bouquet – originate as a result of certain processes✓ during aging of wine.✓ (4)

19.10 Type of wood used✓
Starting and ending date of mature process✓
Control dates (testing)✓
Results on testing ✓
Any deviations to normal process ✓ Any (2)
[50]

TOTAL: 200