

AGRICULTURE MS

PP.

SECTION A

1a) bulbil / sucker $\frac{1}{2}$ mk

b) stem tuber $\frac{1}{2}$ mk

c) splits $\frac{1}{2}$ mk

2. decomposers $\frac{1}{2}$ mk

Nitrogen fixing bacteria $\frac{1}{2}$ mk

Pollinators $\frac{1}{2}$ mk

Predators $\frac{1}{2}$ mk

3. Release nutrients slowly $\frac{1}{2}$ mk

Lead to forking of carrots $\frac{1}{2}$ mk

Are bulky $\frac{1}{2}$ mk

Take long time for preparation $\frac{1}{2}$ mk

Do not supply all required nutrients $\frac{1}{2}$ mk

4. offer support to prevent lodging $\frac{1}{2}$ mk

Improve drainage in clay soils $\frac{1}{2}$ mk

5. Smoothers weeds $\frac{1}{2}$ mk

Release nutrients when rotten / decomposers $\frac{1}{2}$ mk

Moderates soil ph. $\frac{1}{2}$ mk

Moderates soil temperature $\frac{1}{2}$ mk

6. low total yield per unit area $\frac{1}{2}$ mk

A lot of time is wasted in shifting $\frac{1}{2}$ mk

Farmers have no incentives to develop the land $\frac{1}{2}$ mk

Not applicable in high density population $\frac{1}{2}$ mk

7. breaking hardpans $\frac{1}{2}$ mk

Facilitates adequate gaseous exchange $\frac{1}{2}$ mk

Bring to the surface minerals which might have leached $\frac{1}{2}$ mk

Improves drainage $\frac{1}{2}$ mk

8. Cleaning $\frac{1}{2}$ mk

Sorting and grading $\frac{1}{2}$ mk

Processing $\frac{1}{2}$ mk

Packaging $\frac{1}{2}$ mk

Packing $\frac{1}{2}$ mk*4= 2mks

9. no individual has the responsibility of taking care of the land $\frac{1}{2}$ mk

Poor yields $\frac{1}{2}$ mk

Farmers have no incentives to manage and develop the land $\frac{1}{2}$ mk

Poor stock breeding programme $\frac{1}{2}$ mk

Pest and disease control is difficult due to mixing of animal's $\frac{1}{2}$ mk

10. locusts

Grasshoppers

Cutworms

Termites

Beetles

Maize and stalk borer

Cricket $\frac{1}{2}$ mk $\times 3$

11. concentration

Timing of application

Weather conditions at time of application

Persistence $\frac{1}{2} \times 4$

12. ridging

Rolling

Leveling

13. respiration

Combustion

Decomposition 2× ½

14 a) to ease population pressure from overpopulated areas

Increase agricultural production through making better use of uninhabited or idle land

Create employment

Control tsetse flies 2× ½ mk

b) Decision making

gathering information

Compare standards of ones enterprise with the set standards

Keep farm records

Implements decisions 4× ½ mk

15. Stalk bores ½mk

Nematodes ½mk

16. invoice

Receipts

Statements

Purchase order

Delivery note 2× ½ mk

17. irrigation

Pests and disease control

Fencing

Fertilizer application

Paddock 4 × ½ mk

18 coppicing

Lopping

Pollarding 2 × ½ mk

SECTION B

19 a) F sorghum with open panicle [1mk]

b) F sorghum with compact panicle [1mk]

b) advantages of cultivar H over F

IT IS RESISTANT to bird attack [1mk]

c) Sudan Dioch (*Quelea aethiopica*)

d) smut

20. i) trench silo 1mk

ii) silage 1mk

iii) a) prevent rain water seepage

prevent entry of oxygen / make silo airtight [1mk]

to increase the temperatures [1mk]

21 a) tissue culture [1mk]

b) banana [1mk]

c) it is used to recover and establish pathogen free plants [1mk]

it is used in the mass production of propagules [1mk]

its fast and require less space [1mk]

22 a) P – columnar ½mk

Q – prismatic ½mk

b) in sub-soils of arid and semi arid soils [1mk]

c) soils with closed packed particles results in poor drainage and aeration while loosely packed particles ensure proper drainage and aeration

soil structures influence the water holding capacity

it influences / determines types of crops to be grown [3*1mks]

SECTION C (40 MARKS)

23. a) Describe four agricultural support services available to maize farmers in Kenya.
- Extension and training – giving informal education to farmers on production techniques.
 - Banking- a farmer should operate either a current/ a saving account.
 - Credit – borrowing of capital to avoid its limitations.
 - Agricultural research – improvement of crop production techniques, and new varieties of crops.
 - Marketing- Some organizations help farmers to carry out marketing functions.
 - Farm input supply- farmers obtain inputs from co-operative societies private companies or individual stores.
 - Tractor hire services- provision of tractors and machinery by government for hire by farmers at subsidized rates. (4x2= 8mks)

- b) i) Farm budgeting – is the process of estimating future income and expenses of proposed farm plan. ✓1 (1mk)
- ii) – Partial budget. ✓1 (2mks)
- Complete budget ✓1

Partial budget

Debit (-) ✓ ½	Kshs.	Credit (+) ✓ ½	Kshs.
Extra cost		Costs saved	
Land preparation	500✓ ½	Cost of cow	15,000✓ ½
Seeds	600✓ ½	Fencing	3,000✓ ½
Planting	800✓ ½	Disease control	1,000✓ ½
Fertilizer	1500✓ ½	Milkman wages	5,000✓ ½
Disease/pest control	1200✓ ½	Spraying cost	500✓ ½
Harvesting	1100✓ ½		
Revenue forgone		Extra Revenue	
Milk sale	25,000✓ ½	Crop sale	23,000✓ ½
Calf sale	4,000✓ ½		
Total Debit	34,700	Total	47500

(Extra Revenue + costs saved) – Extra cost + Revenue forgone.

$$= 47500 - 34700$$

$$= 12,800✓ ½$$

The change is worthwhile.

- a) Practices carried out in the field to help control diseases.
- Crop rotation.
 - Rogueing/destroy infected plants.
 - Plant disease-free plants/use certified seeds.
 - Close season.
 - Early planting/timely planting.
 - Proper spacing.
 - Timely weed control.
 - Use of resistant varieties.
 - Application of appropriate chemicals.
 - Use of clean equipments/Tools.
 - Quarantine.
 - Heat treatment to kill pathogens.
 - Pruning to create unfavourable micro-climate for diseases.
 - Proper nutrition to prevent deficiencies.

(12x1=12mks)

b) Environmental factors leading to low crop yields.

- Damage by hailstones.
- Less rainfall/unreliable rainfall/drought/Aridity.
- Poor soil fertility/Infertile soil due to lack of application of fertilizer.
- Poor soil type resulting into water logging or leaching.
- Inappropriate temperature, either too low / too high.
- Excessive wind leading to income or water loss.
- Extreme relative humidity.
- Extreme of light intensity.
- Topography/some altitude i.e very high hence limits crop growth.

(8x1=8mks)

25

(a) methods used in harvesting water on the farm

- Roof catchment –water from the roofs are collected using gutters and stored in tanks
- Rocks catchments-water flowing from a rock are collected at the base by construction a wall or using gutters
- Dams –walls constructed across a water way blocks water to fall for a reservoir
- Ponds –small water reservoir depressions on the surface where runoff water is collected
- Retention ditches-are ditches /channels dug along the contours to collect water flowing down a slope. They allow water to infiltrate into the soil

(5mks)

(b) use of water on the farm

- For diluting /mixing chemicals used to control pests ,diseases and weeds
- For watering livestock e.g drinking
- For watering plants e.g irrigation
- Used in the processing of farm produce e.g coffee, carrots hides skins etc
- For washing utensils ,equipments ,cleaning calf pens ,milking sheds
- For domestic use e.g drinking, cooking, sewage disposal.
- For rearing fish
- For mixing concrete in the construction
- For recreation e.g swimming pool
- Cooling and running machine engines cooling animals

(7mks)

(c) Soil losses fertility through

- Leaching –soluble minerals are carried deep into the soil beyond the reach of nutrients
- Soil erosion –The top fertile soil is carried away by the agents of erosion
- Change of PH-alteration of soil will affect availability of certain nutrients to plants

Burning of land –leads to volatilization of nutrients like nitrogen and destroys organic matter and micro-organics

Accumulation of salts –changes the soil PH and soil saline for plant growth

Fixation of nutrients/N-lock-up –Nitrogen become unavailable to crops

Uptake by plants /by weeds-Nutrients used by plants are carried away through harvesting

Monocropping/presence of pests diseases makes soil unsuitable for growth of crops

Soil capping /developments of hard pans

(8mks)