**MANGU HIGH SCHOOL 2021**

**AGRICULTURE PAPER I MARKING SCHEME**

**SECTION A**

1. Methods of farming.

 i) Shifting cultivation

 ii) Nomadic pastoralism

 iii) Organic farming

 iv) Mixed farming

v) Agroforestry (4 x 1/2 = 2 marks)

2. Factors determining stage of crop harvesting.

 i) Intended use of the crop

 ii) Chemical concentration of the produce/stage of maturity/change in colour

 iii) Prevailing weather conditions

 iv) Market demand for the produce/market price (4 x 1/2 = 2 marks)

3.Reasons for early land preparation.

Allows time for organic matter to decompose and form humus.

Facilitates timely subsequent operations.

 Allows time for weeds to die /dehydrate

Allows weathering of soil clods before subsequent operations

Minimizes competition for labour

Allow pests and diseases causing organisms to starve and die,

Allows soil aeration /gaseous exchange to take place

Allow s water infiltration (1½marks)

4. Disadvantages of organic mulches.

i) Expensive to transport and apply/bulky

ii) Could be a fire risk.

iii) Provides breeding ground/hiding place for pests

iv) Intercepts light showers of rainfall.

v) Can spread pests/weeds/diseases (4 x 1/2 = 2 marks)

**5.\_**Necessary in chlorophyll formation .

\_Promotes nitrogen fixation .

\_Activates enzymes .

\_Synthesis of oil in 0il crops . (2marks)

**6** Encourage conservation measures on land

Improve productivity of land and labor

Encourage commercial instead of subsistence production .

Encourage farmers to invest more through offering security

Allow flexibility in production depending on the market

Effect utilization of natural resources through irrigation (2 marks)

**7.\_**Has low dry matter digestibility .

\_Has low leaf ; stem ratio / less leafy

\_Has low crude protein yield (1mark)

8. National income is the monetary value of all goods and services produced in a country for a period of one year .

Per capita income is the average income per head in a country in a period of one year .[ 2 marks ]

**9** \_Holds adequate moisture for crop growth

\_Has better aeration

\_Well drained

\_Allows better root penetration / tuber expansion .[ 2 marks ]

**10.**  Farm records that should be kept by a poultry farmer.

i) Egg production

ii) Labour records

iii) Feeding records

iv) Health records

v) Marketing records

vi) Inventory records (4 x 1/2 = 2 marks)

11. Factors on the choices of labour

 Availability of labour

 Size of the enterprise

 Financial ability of the farmer/cost of labour

 Type of the enterprise/type of the work

12. Burning of vegetation.

1. Destroys organic matter humus
2. Destroys soil structure
3. Kills useful soil micro-organisms
4. Exposes soil to agent of erosion
5. Causes nutrient imbalance/loss of volatile nutrients/accumulation of soils (2marks)

13.-Leaf curling ;

-Mosaic ;

-Malformation/distortion

-leaf chlorosis ;

-Rosetting/ short internodes . ( 1/2 x4)=2marks.

14.-Formulation ;

-Time of application ;

-Selectivity . ( 1/2 x3)=1.5marks.

15.-Broadcasting ;

-Placement method ;

-Side dressing/top dressing/band application/ring application ;

 -Foliar spraying ;

-Drip application in drip lines ; (1/2 x4)=2marks.

1. Economic /efficient use of water /requires a little amount of water

Discourages the spread of diseases

Less growth of weeds between rows

Water under low pressure may be used

 Does not cause soil erosion (3x1/2 =1 ½ marks)

17. Reduced /remove shade

Thinning to reduce overcrowding

Reducing amount and frequency of watering

Spraying with copper fungicides /appropriate fungicides (2x1/2 =1mark)

**SECTION B**

18a). Trench silo 1x1=1mark

-M prevents entry of water into the silage 1x1=1mark

-N drains away water 1x1=1mark

c). Fast filling of silo

 Proper compaction

 Sealing with polythene paper & soil 2x1=2marks

19. i) Naming of layers.

 A- Floating organic matter. (humus)

 B-Water with fine clay materials and dissolved mineral salts.

 C- Silt and clay. (4×½= 2marks)

 D- Gravel.

ii) Function of sodium carbonate.

Aid in dispensation of the particles. (1mark)

iii) Aim of this experiment.

To show that soil is made up of different sized particles. (1mark)

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1. - Tip layering. 1 x ½ = ½ mark
2. - Moist soil

 - Rooting hormones

 - Injury of the part 2 x 1 = 2marks

1. - Sweet potatoes

 - Straw berry 2 x ½ = 1mark

21. (a)

* Read the label/ the manufactures instruction
* Measure the requirement amount of fungicide
* Place it into a container and mix thoroughly
* Powder has dissolved completed/ has formed slurry
* Pour the mixture into the knapsack sprayer though the sieve
* Spray the mixture onto the crop

(b) Blight (late or early) powdery mildew ( 1 mark)

 (c) Spray following the direction of the wind

* Wear protective clothing
* Avoiding eating or smoking while handling fungicides
* Avoid spillage of the fungicide/ avoid containing the environment
* Do not suck/ blow a blocked nozzle 4 x 1/2 = ( 2 mks)

SECTION C

**22** (a) Factors that should be considered when siting a vegetable nursery. (5 marks)

* Near a water source for easy watering
* In a well sheltered place to prevent strong winds which can uproot seedlings and cause excessive evaporation
* Security so as to protect them from theft and destruction by animals/ birds
* On a gentle slope to prevent erosion through run-off and to prevent flooding
* Type of soil, should be well drained and fertile
* Previous cropping/avoid an area where same crop family had been planted to avoid pest and diseases attack/build up
* Near the seedbed/main field to minimize damage to seedlings during transplanting
* Accessibility for ease of movement
* Away from shading effect to allow sunshine (5x1=5marks)

 (b) Factors that should be considered when selecting seeds for planting.

* Adaptability – should be adapted to local ecological condition
* Physical deformities/damages – should be free from physical deformities/damages
* Health – should be free from pests/diseases
* Viability /germination percentage-should have high viability/germination percentage
* Parent plant – should be from high yielding/healthy parents/ high quality/early maturing
* Purity – should be clean/free from impurities
* Maturity – should be of correct maturity stage
* Age – storage period – seeds stored for long periods have low viability/germination percentage hence should not be selected
* Size of seeds – seeds should be of correct size (6x1=6marks)

 (c) Environmental factors influence crop production:

 (i) temperature; (4 marks)

* Affect quality of certain crops eg pineapples, pyrethrum.
* Influence the rate of physiological processes in a crop, hence faster growth rate
* Cause increase in incidences of diseases.
* Low temperatures cause frost injury
* High temperatures increase rate of evatranspiration hence wilting
* Influence distribution of crops

 (ii) wind. (5 marks)

* Strong winds increase the rate of evaporation/evapotranspiration/wilting
* Influences amount of rainfall in the given area
* Help in pollination of crops
* Strong winds have a cooling effect which influences rate of physiological processes.
* Strong winds may cause soil erosion
* Strong winds may cause lodging/destruction of certain crop structures
* Winds can spread diseases/pests/weeds.
* Winds help in seed dispersal
* Winds is fed in crop cleaning/winnowing of grains (5 marks)
* a) Explain the benefits of land consolidation.

23. -Proper supervision of land

-Economic use of time and saving of transportation costs.

-Easy provision of agricultural advice by extension officers.

-Ensures sound farm planning and adoption of crop rotation programmes.

-Facilitates soil conservation and land improvement.

-Promotes construction of permanent structures eg buildings and fences.

-Registered land gives the farmer legal ownership and the title deed which can be used to obtain loans.

-Weed, pest and disease control is enhanced.

-Facilitates mechanization especially because of large holdings. (6marks)

b)Briefly explain **six** factors influencing mass wasting. (6marks)

-The slope of the land-Steep slopes leads to faster movement of materials.

-The nature of material-Mass wasting occurs easily where massive rocks overlie sedimentary rocks which have clay material underneath and also if the material contains a lot of water.

-Climate-Heavy rainy periods encourage wasting

-Vegetation cover-It is easy and faster in bare ground than where it iscovered with vegetation.

-Human activities-Eg deforestation, building, quarring etc interferes with the stability of surface layers.

-Forces within the earths crust eg earth tremors and some volcanic eruptions.

c) Explain **four** ways of improving labour productivity (8marks)

-Training-This may be done formally or informally.Formally labour can be trained through schools and colleges.On the other hand labour can be improved through farmers training centres(FTCs), field days, agricultural shows, demonstration farms, workshops and visits to outstanding farms.

-Farm mechanization-It assists labour to perform work faster and more efficiently.

-Giving incentives and improving terms and conditions of service eg proper housing, transport, bonuses and medical services.

-Labour supervision-Brings efficiency and improves productivity.

24 (a) **Factor that determine spacing in crops;**

* The type of machinery to be used.
* Soil fertility.
* The size of the plant.
* Crop stand either pure or mixed.
* Number of seeds per hole.
* Moisture availability
* Use of the crop
* Pest and disease control.( 5 x 2 = 10mks)

 (b**) Nursery practices carried to seedlings;**

 - watering

 - Mulching

 - Weed control

 - Pricking out

 - shading

 - Pest and disease control

 - Hardening off ( 1 x 6 = 6 marks)

(c ) **Precautions taken in harvesting tea;**

* Plucked tea should be put in woven baskets and not polythene to allow free air movement.
* Pluck two leaves and a bud only because 3-4 leaves colder leaves) lower the quality due to low level of caffeine
* Leaves should not be compressed in the baskets as this can cause them to heat up and turn brown.
* Plucked tea should be kept cool and shaded while plucking continues and awaiting transportation to the factory.
* Plucked tea should be taken to the factory the same day it is harvested. (1 x3 = 3marks)