**AGRICULTURE**

**FORM 4**

**TIME: 1 HOUR**

**MARKING SCHEME**

1. List four implements used to carry out secondary cultivation. (2mks)

* **Disc harrow**
* **Spring tine harrow/ rigid tine harrow/ ox- tine harrow**
* **Spike toothed harrow/ peg toothed harrow**
* **Chain harrow**
* **Rotavator**
* **Zigzag harrows**

1. State one condition under which a farmer would prefer to use an ox-cart instead of a tractor-drawn trailer. (1mk)

* **If a farmer has inadequate capital**
* **If a farmer has little load to carry**
* **If the area is too steep to use a tractor**

1. State three ways of improving the labour productivity of farm labour. (3mks)

* **Training the labour force**
* **Giving incentives to employees**
* **Efficient supervision of labour**
* **Assigning specific tasks to workers**
* **Proper remuneration of a worker**
* **Provide efficient tools**
* **Mechanization of some operations**
* **Provide transport within the farm**

1. Give four variable costs in the production of coffee in an established field of coffee. (2mks)

* **Casual labour costs**
* **Fertilizer/ manure costs**
* **Costs of chemicals**
* **Cost of fuel**
* **Costs of repair of machinery**
* **Cost of hiring machinery**

1. Describe four ways by which a farmer can adjust to risks and uncertainties. (2mks)

* **Adopting modern methods of production**
* **Flexibility in production methods**
* **Input rationing**
* **Taking insurance cover**
* **Selecting more reliable enterprises**
* **Diversification.**

1. Give four examples of joint products in livestock production (2mks)

* **Milk and butter**
* **Beef and hide**
* **Honey and wax**
* **Mutton and wool**
* **Pork/bacon and bristles**
* **Rabbit meat and skin/pelts**
* **Mutton and skin**

7. Explain the following terms as used in agriculture economics. (2mks)

i) Production function

**Production function is the physical relationship between inputs and output (products).**

ii) Principle of Equi–marginal returns

**Equi-marginal returns states that limited amounts of resources should be allocated in such a way that the marginal returns those resources is the same in all alternative to which they are put**.

1. List **four types of financial books farmers should keep. (2mks)**
   * + - **Journal**
       - **Cash book**
       - **Ledger**
       - **Inventory**
2. Study the following information which was extracted from Mr. Mwaniki’s farm records on 31 -12 – 95 and answer the question below.

Prepare a balance sheet for Mwaniki’s farm using the information above (7 mks)

**Mr. Mwaniki’s farm balance sheet as at 31-12-95**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LIABILITIES** | | | **ASSETS** | | |
|  | **Kshs** | **Cts** |  | **Kshs** | **Cts** |
| **CURRENT LIABILITIES** |  |  | **CURRENT ASSETS** |  |  |
|  |  |
| **Breakages and repair** | **30,000** |  | **Cash at hand** | **20,000** | **-** |
| **Bonus payable to workers** | **19,000** |  | **Cash at bank** | **30,000** |  |
| **Debts payable to cooperative** | **20,000** |  | **Debts receivable** | **18,000** |  |
| **LONG TERM LIABILITIRES** |  |  | **Animal drugs in store** | **4,000** |  |
| **Loan payable Bank** | **300,000** |  | **Cattle feeds in store** | **10,000** |  |
|  |  |  |  |  |  |
| **Total liabilities** | **369000** |  |  |  |  |
|  |  |  | **400 layer** | **80,000** |  |
|  |  |  | **20 goats** | **30,000** |  |
|  |  |  | **Five cows** | **250,000** |  |
|  |  |  | **FIXED ASSETS** |  |  |
|  |  |  | **Spray equipment** | **12,000** |  |
|  |  |  | **Buildings and equipments** | **60,000** |  |
| **Capital** | **685,000** |  | **Total Assets** | **1,054000** |  |
| **TOTAL** | **1,054,000** |  | **TOTAL** | **1,054,000** |  |

**(award each entry half mark, total =7mks)**

1. Explain four problems farmers face in marketing of agricultural produce. (4mks)

* **Poor transport network/lack of vehicles lead to loss due to spoilage.**
* **Most of them are seasonal; hence create storage problems/over supply at times leading to price fluctuation.**
* **Due to bulkiness they are expensive to store/difficult to store.**
* **Due to changes in market demand, there is time e.g. between decision to produce and actual availability of the product making it difficult to respond immediately to market demand.**
* **Change in supply due to under/over production/competition from cheap imports cause price fluctuation.**
* **Most agricultural produce are perishable hence, farmers incur extra costs in transportation-processing/storage/incur losses due to spoilage.**
* **Most of them are bulky, occupy large space/expensive to transport.**

1. How will the price of mangoes in the short run be affected if the quantity of mangoes supplied in a market is increased (1mk)

**The price of mangoes will go down.**

1. Give three benefits a farmer would derive from being a member of a dairy co-operative society. (3mks)

* **Co-operators pool their resources together to buy expensive machinery e.g. tractor for use by farmers.**
* **Provide education/technical information to members.**
* **Provide credits to members inform of inputs and cash.**
* **Negotiate for higher produce prices for members.**
* **Reduce overhead costs e.g. transportation, storage and use of machinery.**
* **Bargain with suppliers to give discount on seed fertilizer and other farm inputs /provide inputs at lower prices.**
* **Provide employment for their members and other people.**
* **Benefits farmers from lower taxes charged**
* **Market farmers produce.**
* **Provide strong bargaining power for members on policy issues.**
* **Invests and pay dividends to members.**
* **Help to negotiate loans for their members without security.**
* **Provides banking services to its members.**

1. Given that at a price of Ksh. 1000 per bag, 20 bags of maize are demanded, but when the price changes to Ksh.800 per bag, 22 bags of are demanded. Calculate the elasticity of demand. Show your working. (3mks)

**Elasticity of demand = % ∆ in quantity**

**% ∆ in price**

**∆ in price quantity = 22-20 = bags**

**% ∆ in price => 22-20 = 10%**

**20**

**∆ in price =. 100-800 = 200/=**

**% ∆ in price 200 x 100= 20%**

**1000**

**Elasticity of demand =10%= 0.5**

**20%**

1. State three problems experienced by farmers in marketing agricultural produce. (3 mks)

* **Perishability of the produce.**
* **Inadequate supply to spread supply over a long period.**
* **Drastic changes in supply/seasonality.**
* **Poor infrastructure e.g. poor roads no vehicles/piped water/ telephone / electricity,**
* **Bulkiness**
* **Lack of market information,**
* **Delayed payments.**

1. State one method of increasing ploughing depth when using a disc plough. (1mk)

* **Decrease the angle of cut**
* **Use of hydraulic/ draught control lever**
* **Adding weights on the plough beam**
* **Raising the land wheel**

1. Explain three qualities that make colostrum suitable for newly born calves. (3mks)

* **Has a laxative and helps to remove the faecal meconium/ first faecal matter/ opens up the alimentary canal/ cleanse the digestive system/ prevent constipation**
* **It is rich in antibiotics that offers temporary immunity against diseases**
* **It is rich digestible proteins/ fats/ minerals/ vitamin/ highly nutritious**
* **It is highly digestible**

1. Name the hormone that stimulates milk secretion in dairy animals (1mk)

**Prolactin**

1. Describe three characteristics of a poor layer which should be considered during culling (3mks)

* **Combs and wattles are small, dry and cold/ combs have white scales**
* **The space between the pelvic bones is narrow 2-3 fingers cannot fit in the space between the pelvic bones**
* **Plumage is shiny, well preened/ sometimes moulting**
* **Yellowish pigmentation in the vent, shanks and beak**
* **Space between the keel bone and pelvic bone is small / 3-4 fingers cannot fit in the space**
* **Eyes are dull and yellow**
* **Abdomen is hard**
* **The layer is lazy and dull**
* **Hen becomes broody**

19 .Below is a graphical representation of a law in agricultural economics. Study the graph carefully and answer the questions that follow.

1400

1200

1000 Phase I Phase II Phase III

800

600

400

200

0 20 40 60 90 100

Fertilizer input (50kg bags)

a) Explain what the law illustrated by the graph states (2mk)

**Law of diminishing returns which states that if successive units of work input are added to a fixed input a point is eventually reached where additional output per addition unit of input declines**

b) Explain how each additional unit of fertilizer input relates to the total output of maize in

**Phases II and III. (**2 mks)

Phase II

**Phase II each additional unit of fertilizer input leads to a lower increase in total output of maize than the previous unit of fertilizer**

Phase III

**Phase III each additional unit of fertilizer input leads to decrease in total output of maize**

c) State the importance of the law identified in (a) above to the maize farmer (1mk

**Helps the farmer to identify the level of optimum fertilizer application in the production of maize**