UNIT 1: THE PROBLEMS OF A FARM BUSINESS AND THEIR SOLUTIONS

1. Meaning of ''problems of farm business''
    - These are questions farmers ask themselves when engaging in a business to maximize profits.

2. Problems of farm business
    i. What to produce
    ii. How to produce
    iii. When to sell
    iv. Where to produce
    v. How much to produce

3. Descriptions of each problem of farm business
    i. What to produce
    - It refers to the type of an enterprise a farmer wants to engage in.

        a. Factors to consider when engaging in an enterprise
            - Market availability
            - Environmental conditions
            - Profitability of the enterprise
            - Availability of the resources
            - Managerial ability

        b. Solutions to the problem 'What to produce'
            - A farmer should ensure that the market is readily available
            - The road should be near and passable
            - The climatic condition should be favourable

    ii. How to produce
        - It refers to the method of production a farmer would use in an enterprise

        a. Factors to consider when deciding the method to use in an enterprise
            - Profitability of the method
            - Affordability of the method
            - Managerial skills of the method

        b. Solutions to the problem 'How to produce'
            - A farmer should choose the method which is cheap and profitable
            - A farmer should choose the method which is manageable

iii. When to sell

- It refers to the time of the year to market the produce.

a. Factors to consider when choosing time for selling produce

- Demand and supply of the produce
- Price of the produce
- Durability of the product

b. Solution to the problem 'When to sell'

- A farmer should sell the produce when the price is profitable

iv. Where to produce

- It refers to the place an enterprise can be carried out

a. Factors to consider when deciding a place for carrying out an enterprise

- Fertility of the soil
- Availability of water
- Security of the produce
- Means of transportation

b. Solutions to the problem 'Where to sell'

- It should be not far away from the market
- It should be not far away from the passable road
- It should be in the place where the climate is favourable

v. How much to produce

- It refers to the quantity of the produce a farmer wishes to yield.

a. Factors to consider when dealing with how much to produce as a problem

- Environmental conditions
- Managerial ability

b. Solutions to the problem 'How much to produce'

- Environmental conditions should be favourable
- Proper management should be observed

ASSESSMENT 1

1. Describe each of the following problems of farm business
   a. How to produce

   ……

   ……

b. When to sell

……

……

2. Mention any three factors on which the choice of an enterprise depends
   i. ……
   ii. ……
   iii. ……

3. Explain the solutions of the following problems of farm business
   a. What to produce

   ……

   ……

   b. How much to produce

   ……

   ……..

4. Mention any three problems a farmer has to solve for farming to be profitable
   i. ……
   ii. ……
   iii. ……

UNIT 2: THE PRINCIPLES OF FARM BUSINESS

1. Meaning of the term 'Principles of farm business'
   - These are rules carried out to solve the problems of farm business

2. The principles of farm business
   i. Comparative advantage
   ii. Substitution of inputs
   iii. Demand and supply

3. Description of each principle of farm business
   i. Comparative advantage
      - It is the way farmers compare different enterprises in order to make profits

      a. Example of comparative advantage
         - A farmer who is close to a market has more advantage of selling tomatoes than the one who is far away from the market

- Farmers in Karonga should be encouraged to specialise in growing rice than other crops like tea and coffee.

b. Importance of comparative advantage
   - It helps a farmer to specialise an enterprise well suited in their areas

c. Problems of farm business that can be solved through comparative advantage
- What to produce
- Where to produce

ii. Substitution of inputs
   - These are resources, technologies, inputs a farmer would choose to maximise profits

a. Examples of substitution of inputs
   - A farmer can decide to weed a maize garden by either spraying herbicides or hoeing out weeds
   - A farmer can decide to improve soil fertility by either applying inorganic fertiliser or organic fertiliser.

b. Importance of substitution of inputs
   - It helps farmers to choose the profitable methods and resources.

c. Conditions when a farmer substitute inputs, resources and technologies
   - If they are expensive
   - If they have low production

d. Problems that can be solved through substitution of inputs
   - How to produce
   - How much to produce

iii. Demand and supply

a. Demand
   - It is the quantity of the commodity required by buyers

b. Supply
   - It is the quantity of the commodity available for sale

c. Examples of demand and supply
   - If the demand for the commodity is greater than the supply, the price will be high.

- If the supply of the commodity is greater than the demand, the price will be low

d. Problems that can be solved through demand and supply
   - What to produce
   - How much to produce
   - When to sell

e. When could the actual price of produce be determined
   - If the demand and supply is equal.

ASSESSMET 2

1. Name the principle represented by the following statements:
   a. Farmers should sell their produce in a market where the produce is scarce and many buyers need it:
      ……

   b. Every farmer should only raise the enterprise for which one is in a better position than others:
      ……

2. Describe each of the following principles of farm business:
   a. Substitution of inputs
      ……
      ……

   b. Comparative advantages
      ……
      ……..

3. Explain what happens to the price of the produce when the supply is greater than demand
   ……
   ……..

4. Complete the following table correctly

Problem of farm business	Principles applied
i. What to produce	
Ii . How to produce	
Iii . When to produce	
Iv. Where to produce	

5. A farmer used to produce rice using subsidized inorganic fertiliser. Suddenly, the subsidy was removed and the price of inorganic fertilizer was so high that the farmer was unable to afford it. Use the information in the story to answer **question 5a**,**b** and **c** .

   a. What should the farmer do in order to continue growing rice?
   ……
   ……

   b. Why should the farmer do this?
   ……
   ……..

   c. Identify the principles of farm business applied by the farmer
   ……..

6. Give the meaning of the term 'demand' in a farm business
   ……
   ……

7. Explain how lowering of prices at a market affects farm business **(2010 Q41.b)**
   ……
   ……..

8. A farmer bought chickens at K800.00, feeds at K1,500.00 and paid K700.00 for labour at her farm. Calculate the profit she made if the chickens were sold at K5,000.00 **(2010 41.c)**
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……

9. Why is the principle of substitution of inputs useful to a farmer **(2003 Q52.a)**
   ……
   ……
   ……
   ……

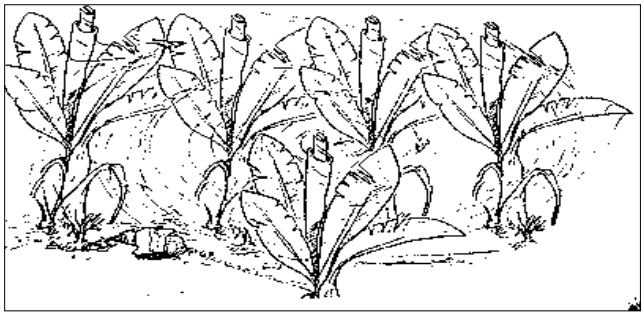
UNIT 3: RISKS IN FARM BUSINESS

1. Meaning of the term 'risks' in farm business
   . These are unpredictable occurrences that negatively affect agricultural production

2. Risks associated with a farms business
   i. Weather change
   ii. Fire
   iii. Price changes
   iv. Pests and diseases
   v. Floods

3. Way how each risk affect farm produce
   a. Weather change
      - this can results into drought, frost(strong wind) and hailstorm which can damage the crops hence the reduce the profit

      Figure 1 below shows a frost (strong wind) destroying banana plant



   b. Fire
      - This can destroy the farm and storage if catches fire resulting to loss

      Figure 2 shows a diagram of fire destroying a tobacco ban

c. Price changes
   - This affect the expected profit if the price changes unknowingly

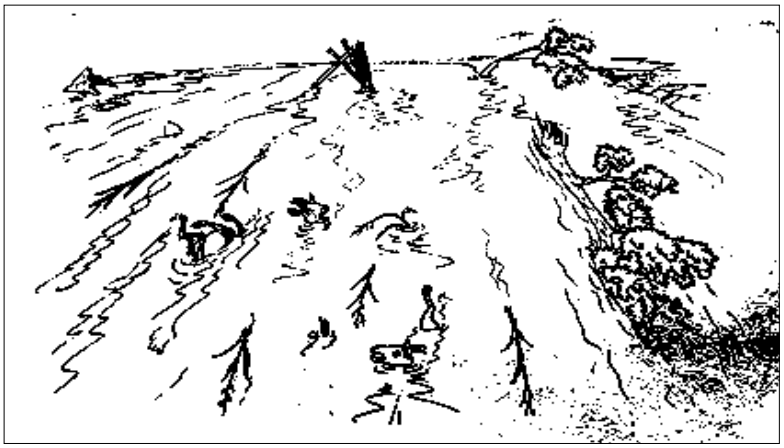
d. Policy changes
   - This affects the profits if the government changes the prices of inputs for the worse which can increase the interest rates.

e. Pests and diseases
   - This affects farm business by wiping out crops or livestock enterprise which reduce the profits.

   Figure 3 below shows locust eating a maize crop

f. Floods
   - This can affect the farm business by sweeping away the crops or livestock hence profit is reduced.

   Figure 4 shows Floods sweeping goats and crops away



4. Ways of managing risks in farm business
   I. Insurance
   II. Enterprise diversification
   III. Market research
   IV. Contract production
   V. Use of appropriate agricultural practices

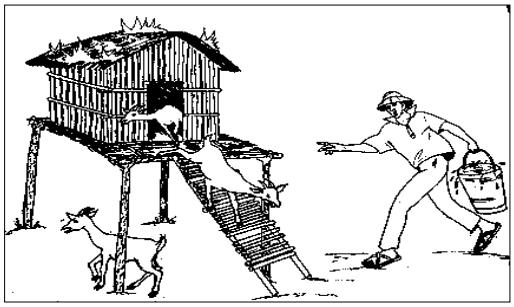
5. The **table** below shows the description of risks management

Risk management	Application
Insurance	**.** Farmers should insure their enterprise in order to be covered if anything occur.
Enterprise diversification	Farmers should raise different types of livestock or producing different crops so that if one fails they should rely on another for profits.
Market research	**.** Farmers should get more and accurate information about a nature of market before engaging in an enterprise.
Contract production	**.** Farmers should make arrangements with the buyer to sell a specified amount of the produce at a given price after harvesting.
Use of appropriate agricultural practices	**.** Farmer should use the following practices to maximize profits - timely weeding - irrigating crops - Rotational grazing - Stall feeding - Controlling pests and diseases

ASSESSMENT 3

1. What is a risk in a farm business
   ……
   ……

2. **Figure 4** below shows a risk in farm business. Use it to answer question **2a** and **b**



a. Identify the risk shown in **figure 4**

i. **……**

b. Explain any two ways of coping with the risk

i. ……
……..

ii. ……
……

3. State three risks in a farm business
   i. ……..
   ii. ……
   iii. ……

4. Mention four ways of eradicating the risks in a farm business
   i. ……..
   ii. ……
   iii. ……..
   iv. ……..

UNIT 4: THE PROBLEMS OF AGRICULTURAL MARKETING AND THEIR SOLUTIONS

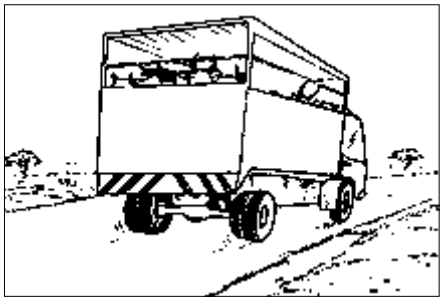
1. Problems affecting marketing of agricultural products
   i. Bulkiness of farm produce
   ii. Seasonality of produce
   iii. Perishability of products

2. Ways how each problem affects marketing of agricultural products
   i. Bulkiness of farm produce
      - Some products are heavy and takes up a lot of space resulting into transport problem.

        a. Examples of bulky farm produce
           - tobacco
           - Cotton
           - Rice
           - Live cattle

b. Ways of managing bulkiness of farm produce
    - Packing produce in suitable containers
    - Using special transport facilities

Figure 5 shows way of solving bulkiness of farm produce



- **An enclosed vehicle transporting live cattle**

ii. Seasonality of produce
    - Most of the produce are produced in one season of the year and become scarce in another season.

a. Ways of managing seasonality of farm produce
    - Storing produce in time of plenty to sell at time of scarcity at a better price

iii. Perishability of produce
    - Some produce gets damaged when not properly transported, stored and time taken.

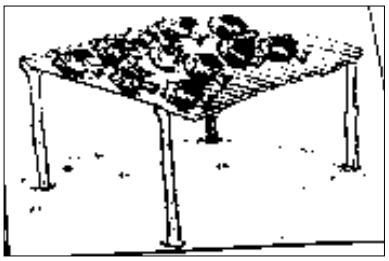
a. Example of perishable products
    - Milk
    - Eggs
    - Fruits
    - Vegetables
    - Meat
    - Fish
    - Tomatoes

b. Ways of managing perishable products
    - Store the produce in cold room (freezer)
    - Producing the perishable products near a market

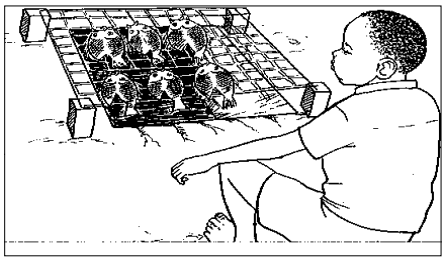
- Processing the produce

c. Processes that can be carried out in managing the perishable products
   - Drying
   - Salting
   - Smoking
   - Carning (fruits)

Figure 6 shows way of preserving perishable products



a. sun drying method



b. Smoking method

ASSESSMENT 4

1. Describe any three problems associated with the marketing of tomatoes in Malawi
   i. ……
   ……..

   ii. ……
   ……

2. Explain how each of the problem above can be solved
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……

UNIT 5: SOIL FERTILITY

1. Meaning of the term soil fertility
    - It is the ability of the soil to supply adequate water, air and nutrients for plant growth

2. **Substitution table** showing the meaning of soil fertility

Capacity	of soil to	Support	plant growth and development
			high crop yield
Ability		Promote	crop production
		Contribute	bumper crop harvest
			a vigorous crop

3. Characteristics of fertile soil
    - High nutrient availability
    - High organic matter content
    - Medium soil texture
    - Well drained
    - High presence of micro-organism
    - Rapid plant growth

4. Characteristics of infertile soil
    - Low nutrient content
    - Low organic matter content
    - Too fine soil texture
    - Shallow soils
    - Poorly drained
    - Low presence of micro-organism
    - Stunted plant growth

ASSESSMENT 5

1. What is the meaning of the term 'soil fertility'?
   ……
   ……
   ……

2. List four characteristics of fertile soil
   i. ……

ii. ……
iii. ……
iv. ……..

3. How does infertile soil affect plant growth. Give two reasons
   i. ……
   ……..

   ii. ……
   ……

UNIT 6 : SOIL NUTRIENTS

1. Meaning of the term 'soil nutrients'
   - These are elements required for normal plant growth and production

2. Classification of soil nutrients
   i. Major nutrients
   ii. Minor nutrients

A. Meaning of Major psoil nutrients
   - These are nutrient required by the plant in large quantities

B. Example of Major soil nutrients
   - Nitrogen
   - Phosphorous
   - Potassium
   - Calcium
   - Magnesium
   - Sulphur

C. Meaning of Minor soil nutrients
   - These are nutrients required by the plant in small quantities

D. Examples of Minor soil nutrients
   - Iron
   - Boron
   - Copper
   - Zinc

- Manganese
- Chlorine

3. Function of the basic soil nutrient
   i. Nitrogen
      - For vegetative growth of plants
      - For formation of dark green leaves

   ii. Phosphorous
      - For development of strong roots

   iii. Potassium
      - For development of strong stem
      - For formation of high quality fruits

4. Deficiency signs Major soil nutrients
   i. Nitrogen (N)
      - Stunted growth
      - Yellowing of leaves

   ii. Phosphorous (P)
      - Poor root development
      - Purple leaves

   iii. Potassium (K)
      - Weak stems
      - Yellowing of leaves
      - Poor quality of fruits
      - Immature fruits fall

ASSESSMENT 6

1. Classify the following into major and minor soil nutrient by completing the table below
   a. Iron
   b. Sulphur
   c. Boron
   d. Phosphorous
   e. Nitrogen
   f. Molybdenum
   g. Magnesium

Major soil nutrients	Minor soil nutrients
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

2. What is the different between minor and major soil nutrients?

   ……
   ……
   ……..

3. State any two deficiency signs of potassium.

   I . ……..
   Ii . ……

4. Describe two importance of Nitrogen in plants

   I ……

   ii ……

5. What happens to the plant if the soil lacks phosphorous. Give two reasons

   ……
   ……
   ……
   ……
   ……
   ……

6. Which inorganic fertilizer is required when the plant has poor quality of fruits, yellow leaves and weak stem . Explain your answer

   ……
   ……
   ……..
   ……

UNIT 7 : IMPROVING SOIL FERTILITY

1. Ways of improving soil fertility
    a. Practicing mixed cropping
    b. Agroforestry
    c. Application of manure
    d. Practicing crop rotation
    e. Fallowing
    f. Composite manure

2. How each way improves soil fertility

    a. Practicing mixed cropping
        - It is the growing of different crops in the same field in the same growing season

    Ways how mixed cropping improves soil fertility
        - Organic matter produced bind and hold fine soil particles
        - Some crops fix nitrogen hence increase nutrients in the soil

    Examples of crops that can be practiced in mixed cropping

        - Maize
        - Sorghum
        - Beans
        - Cassava
        - Pegeons

    Examples of crops that fix nitrogen in the soil
        - Beans
        - Groundnuts
        - Cassava

    b. Agroforestry
        - It is the growing crops together with trees on the same piece of land

    Ways how agroforestry improves soil fertility

        - Leguminous trees fix nitrogen in the soil
        - Trees covers the ground which reduce evaporation
        - The roots bind the soil particles which reduce erosion

c. Application of manure
    - Manure improves nutrients content in the soil
    - Improves drainage of the soil
    - Improves the structure of the soil

d. Practicing crop rotation
    - It is the growing of different crops on the same piece of land one after another following the pattern.

Ways how crop rotation improves soil fertility

- Some crops fix nitrogen in the soil
- Cover crops reduce erosion (Pumpkins)

e. Fallowing
    - It is a system of leaving the land uncultivated for some time for bushes to grow

Ways how fallowing improves soil fertility

- It increases organic matter content in the soil
- It helps to reduce soil erosion
- It maintain the moisture due to vegetative cover

f. Composite manure
    - It is manure made from decomposed plants and organic wastes.

Steps for making composite manure

- Sticks are fixed in the centre of the circle on the ground
- Thick layers of chopped organic matter is heaped
- A layer of chicken manure is added
- A layer of soil is added
- Water adequately until it oozes out
- Add wood ash

Materials required when making composite manure

- Chopped organic matter
- Chicken manure
- Water
- Ash

- Sticks
- Soil

Importance of the following in making composite manure

a. Sticks
    - It helps for aeration

b. Chicken manure
    - It encourage decomposition by bacteria

c. Wood ash
    - It helps to reduce acid from organic matters

3. Importance of improving soil fertility
    I. It increases nutrients content in the soil
    II. It improves aeration of soil
    III. It maintains soil drainage
    IV. It support plant growth
    V. It improve moisture content

ASSESSMENT 7

1. Describe any two ways in which soil fertility can be improved
    i. ……
    ii. ……

2. State the importance of adding a layer of manure when making compost manure.
……
……

3. Explain any three ways in which improving soil fertility is important
    i. ……
    ii. ……
    iii. ……

4. Why is wood ash added when making compost manure
……
……

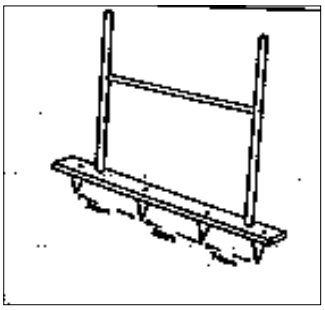
UNIT 8: INDIGENOUS FARM MACHINERY AND TECHNOLOGIES

1. Meaning of indigenous farm machinery and technology
    - These are machinery and technologies that are local in origin.

2. Examples of indigenous farm machinery
    i. Planting frame
    ii. Quern (mphero)
    iii. Winnower

3. Examples of indigenous technologies
    i. Leaf bag (chikwatu)
    ii. Ash
    iii. Gourd (chipanda)
    iv. Soot (mwaye)

Figure 1 shows indigenous farm machinery



a planting frame

4. Uses of the machinery above
    i. It is for accurate measuring and marking of planting stations

5. Function of a quern
    i. For reducing size of legumes
    ii. For ending small grains into flour

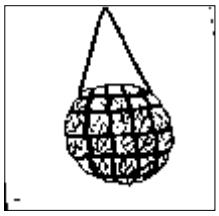
Figure 2 shows a quern as an indigenous machinery

A quern

6. How does the machinery works
    - It works by placing the grains on the mother stone and sliding the daughter stone over the mother stone by forward and backward movement.

7. Importance of the leaf bag
    - It is for storing seeds and dried vegetables

Figure 3 shows a indigenous storage technology

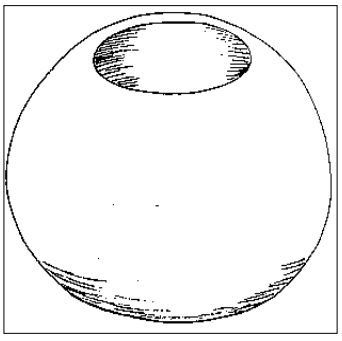


A leaf bag

8. Materials used to make the leaf bag above
    i. Leaves
    ii. Strings

9. Uses of a guard (Chipanda)
    i. It is for storing seeds and dried vegetables
    ii. It is used for fermenting some agricultural products

Figure 4 shows a guard as a storage technology

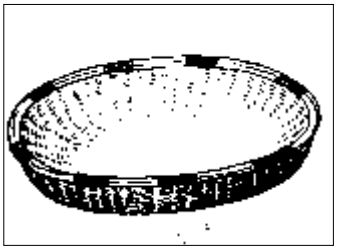


a guard

10. Materials used to make a guard
    - Large fruit of squash plant

11. Importance of a winnower
    - It is used for separating light particles from heavier particles

Figure 5 shows a winnower as an indigenous machinery



A winnower

12. Materials used to make a winnower
    i. Bamboo strips
    ii. Weaving needles
    iii. Sisal fibers

13. Examples of pesticides used as indigenous technologies
    i. Ash
    ii. Soot
    iii. Tephrosia

14. Uses of ash as a technology
    i. It control beetles in pumpkins leaves
    ii. It controls red ants
    iii. It is used to preserve potatoes in a potato pit

15. Meaning of the term soot
    - It is a black powder left by smoke which accumulates above a fire place in a traditional kitchen.

16. Uses of soot as a technology
    - It is used to control weevils in a stored grains and cereals

17. Functions of tephrosia as a technology
    i. It is used as a pesticide in stored grains
    ii. It controls mites in pigs

iii. It controls pest in vegetables

Compilied by: Chance Msukwa

0996898928/0881766336

ASSESSMENT 8

1. Give any two technologies used in:
   a. Crop production

      ……
      ……

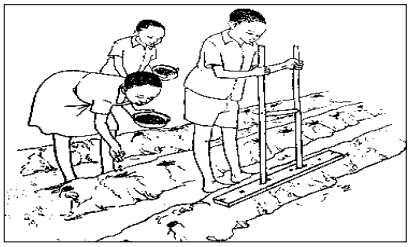
   b. Crop processing

      ……
      ……

   c. Crop storage

      ……
      ……

2. Figure 1 shows an indigenous farm machinery. Use it to answer question **2a** and **b**



   a. Identify the farm machinery

      ……

   b. Describe how the machine is used

      ……
      ……
      ……

3. Explain how a quern works

……
……
……
……
……

4. Mention three indigenous farm machinery
    i. ……
    ii. ……..
    iii. ……..

UNIT 9 : MODERN AGRICULTURAL TECHNOLOGIES

1. Examples of technologies that helps to increase agricultural production
    i. Irrigation
    ii. Use of herbicides
    iii. Permaculture
    iv. Compositing toilets (eco – san toilets)

2. Ways how each technology improves agricultural production

A. Irrigation

i. Meaning of the term irrigation
- It is the artificial supply of water in the farm when rainfall is erratic.

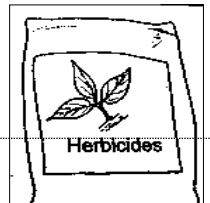
ii. Ways how irrigation improves irrigation
- It helps to grow crops throughout the year
- Crops can grow grown even when rain fails
- It allows other crops to grow in area where they could not

B. Use of herbicides

i. Meaning of the term herbicides
- These are chemicals applied in a garden to kill weeds.

ii. Ways how herbicides increases agricultural production
- They kill growing weeds
- They prevents weed seeds from germinating

Figure 1 shows a bag of herbicide in agricultural production



C. Permaculture

i. Meaning of the term permaculture
   - It is the practice of associating plants and animals to grow together and support each other.

ii. Meaning of the term 'guild' in permaculture
   - It is the combination of different species on a plot that support each other.

iii. Examples of guild (permaculture)
   - Maize, climbing beans, onions, sweet potatoes and chickens raised on the same plot.

iv. Ways how Maize, Climbing beans, Onions, Sweet potatoes and Chickens support each other.
   - Beans fix nitrogen in the soil which would be used by maize, sweet potatoes and onions.
   - Maize provides support to the climbing beans
   - Sweet potatoes cover the ground and reduce erosion
   - Potato tubers open up the soil for water and air
   - Chicken droppings add fertility to the soil

v. Importance of permaculture in agricultural production
   - It helps farmers to improve soil fertility
   - It helps farmers to use natural predators than artificial ones
   - It encourages farmers to diversify crops and animal production

vi. Ways how permaculture improves agricultural production
   - It reduces cost of buying inputs hence money is saved
   - Land is used for production forever since it is free from pollution
   - Farmers continue with production since it is cheap
   - It encourages farmers to grow variety of crops and animals

D. Compositing toilets (eco – san toilets)

i. Meaning of compositing toilets
   - These are toilets that stores faeces in the tank.

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ii. Types of compositing toilets
   - Skyloo toilets
   - Arborloo toilets

a) Meaning of skyloo toilets
   - It is a toilet which is divided into two halves made of concrete slubs.

I. Characteristics of a skyloo toilets
   - It stores urine separate from faeces
   - A hand full of ash and three handful of soil is added after each use
   - It is closed after getting full to allow decomposition

II. Importance of the following in a tank of a skyloo toilet
   a. Separating urine from faeces
      - The fluids disturbs decomposition which leads the tank to produce bad smell.

   b. Adding ash
      - To prevent faeces from producing bad smell

   c. Adding soil
      - It supplies living organism that helps to decompose faeces

III. How does a skyloo toilet improves agricultural production
   - The waste are used as organic fertilizer after decomposition

IV. Advantages of a skyloo toilet
   - It does not pollute the ground water
   - It saves the space
   - It does not produce bad smell
   - It improves agricultural production

V. Disadvantages of a skyloo toilet
   - It is too expensive to construct
   - It is difficult to separate urine from wastes

- People have negative altitude towards it

b) Meaning of arborloo toilet
   - It is a shallow pit latrine with a movable slab and an outhouse on top.

   I. Characteristics of an arborloo toilet
      - The slab is removed when it is full
      - The soil is covered to allow decomposition
      - The farmer plants a tree on top of the latrine

   II. Advantages of arborloo toilet
      - It improves agricultural production
      - It is cheap to produce

   III. Disadvantages of arborloo toilet
      - It requires a lot of land
      - It requires labour
      - It pollutes the ground water

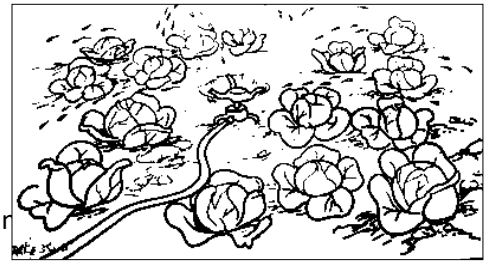
ASSESSMENT 9

1. List any two modern agricultural technologies
   ……
   ……

2. Give the uses of each of the following modern agricultural technologies
   ……
   ……
   ……
   ……
   ……

3. Explain how irrigation improve agricultural production.
   ……
   ……
   ……

4. **Figure 1** shows a modern technology which improves agricultural production.

a. Iden 

……..

b. Name the type of technology in **4a**

……

c. Explain two importance of the technology mentioned in **4a**

……

……

……

……..

5. Why is ash and soil added in the skyloo toilet tank. Give tow reasons?

……

……

……

……

UNIT 10: THE IMPORTANCE OF FRUITS

1. The importance of fruits
    - Source of food
    - They provide income
    - They are source of raw materials
    - They provide employment
    - They are source of foreign exchange
    - They provide medicine

2. Classification of fruits
    a. Indigenous fruits
    b. Exotic fruits

3. Meaning of indigenous fruits
    - These are fruits which are naturally grow in an area.

4. Examples of indigenous fruits
    - Matowo
    - Maye
    - Masau
    - Malambe (baobab)
    - Bwemba (tamarind)
    - Masuku

5. Meaning of exotic fruits
    - These are fruits which were introduced into the country from other countries or areas.

6. Examples of exotic fruits
    - Pineapples
    - Avocado pears
    - Guavas
    - Bananas
    - Pawpaws
    - Oranges
    - Tangerines
    - Peaches
    - Apples

7. Examples of fruits that can be used as medicine
    - Lemons
    - Bananas
    - Mangoes

ASSESSMENT 10

1. Mention two examples of fruits in the following classes:
    a. Exotic

    ……
    ……

    b. Indigenous

    ……
    ……

2. State four ways in which fruits are important.
    a. ……
    b. ……
    c. ……
    d. ……

UNIT 11: ENVIRONMENTAL CONDITIONS AND LAND PREPARATIONS FOR FRUITS PRODUCTION

1. Factors to consider when selecting site for growing fruits
    - Type of the soil
    - Climate
    - Water availability

2. Characteristics of soil for growing fruits
    - It should be fertile
    - Well drained
    - Deep

3. Ways how climate affect fruits production
    - Some fruits grow well under hot conditions which enhance ripening process
    - Others grow well in cold conditions which maintains its taste

4. Examples of fruits which grow well in hot areas
    - Mangoes
    - Banana
    - Pawpaw
    - Guava

5. Examples of fruits which grow well in cold areas
    - Pineapples
    - Avocado pears
    - Apples
    - Peaches

6. Activities involved when preparing land for growing fruits
    - Clearing the land
    - Measuring the distance between planting station
    - Digging planting holes (90 cm long, 90 cm wide and 90 cm deep)

- Filling planting holes with rich loam soil and manure

7. The **table** below shows main fruit growing areas

Fruit	Areas in which they are grown
Mangoes	Along the lakeshore and Shire Valley
Pawpaw	Along the lakeshore and shire Valley
Orange, grape, lime	Along the lakeshore
Guava	Mwanza and Neno
Bananas	Along the lakeshore
Avocado pears	Thyolo , Mulanje, Zomba, Nkhata Bay, Shire Highlands
Granadillas	Mwanza , Ntcheu, Zomba
Strawberries	Zomba
Apples , peaches, plums	Shire Highlands, Kirk Range, ntchisi Hills, Phoka and Misuku Hills
Pineapples	Mulanje , Thyolo, Ntchisi, Phoka, Songwe, Nkhata Bay

ASSESSMENT 11

1. State any two environmental conditions to consider when growing fruits.
   ……
   ……
   ……
   ……

2. Describe any three activities that are involved when preparing the land for growing bananas
   ……
   ……
   ……
   ……
   ……

3. Mention three examples of fruits that grow well in hot conditions
   ……
   ……
   ……
   ……

4. Why is hot conditions suitable for some fruits in Malawi. Give two reasons

……
……
……
……

UNIT 12: METHODS OF PROPAGATING FRUITS

1. Meaning of the term fruit propagation
    - It is the process of producing new plant to be used as a planting material

2. Ways of raising fruits trees
    - Using seeds
    - Using vegetative parts

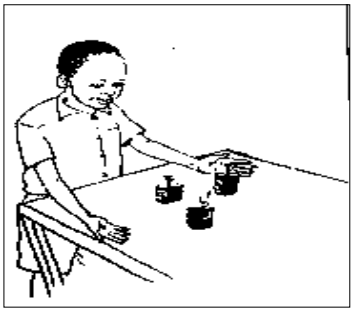
3. Methods of propagating fruits
    a. Seed propagation
    b. Grafting
    c. Budding
    d. Stem cuttings
    e. Suckers

4. Description of each method of propagation

A. Seed propagation

- It is the method of producing new shoot using seeds.

Figure 1 shows method of propagation



Seed propagation method

Example of fruits which can be raised through seed propagation

- Mangoes
- Oranges
- Avocado pears

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Advantages of seed propagation method

- It is a cheap method
- It is quick
- It is easy to raise

Disadvantages of seed propagation method

- It takes long time to bear fruits
- It needs proper care (management)

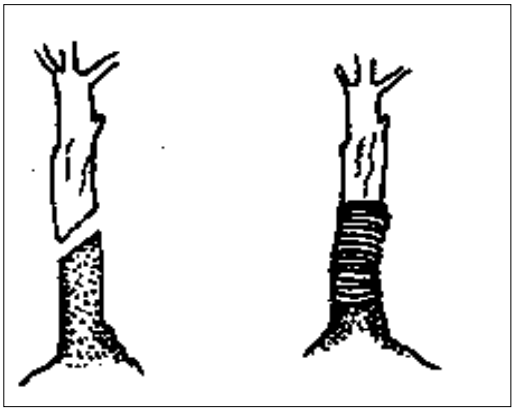
Ways of producing a new plant by the use of seed propagation

- Using pots
- Polythene tube
- Nursery beds

B. Grafting

- It is a process in which a shoot is cut and tied to a stem of a related plant.

Figure 2 shows a method of propagating fruits



Grafting method

Examples of fruits which can be raised the method above

- Mangoes
- Oranges
- Avocado pears
- Apples

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Advantages of grafting method

- It takes short time to bear fruits
- Fruits develop a good taste (flavour)

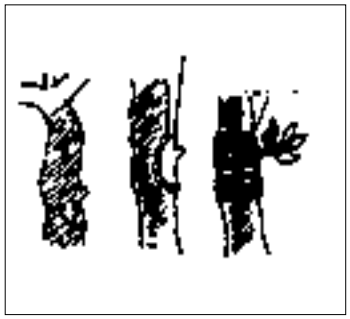
Disadvantages of grafting method

- It is expensive
- It needs skills and knoeledge

C. Budding

- It is a process in which a matured bud is attached to the stem of a related stem.

Figure 3 shows a method of propagation



Budding method

Examples of fruits which can be raised thorough budding

- Oranges
- Tangerines
- Mangoes

Advantage of budding method

- It take short time to bear fruits

Fruits develop good taste **Compilied by: Chance Msukwa**
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Disadvantages of budding method

- It is expensive
- It needs skills and knowledge

D. Stem cuttings

- It is a method in which a stem is cut and planted to produce a new plant.

Examples of fruits raise through cutting method

- Granadillas
- Grapes
- Strawberries
- Mulberries

E. Suckers

- It is method in which a young sucker is planted direct in a planting hole.

Figure 4 shows a method of propagating fruits

Suckers method of propagation

Examples of fruits which can be raised through suckers

- Bananas
- Pineapples
- Plantains

ASSESSMENT 10

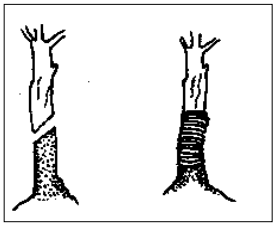
1. Explain the meaning of the term 'fruit propagation'
   ……
   ……
   ……

2. Describe any three method of fruit propagation
   ……
   ……
   ……

3. State two advantages of the following method
   a. Seed propagation
      ……
      ……

   b. Suckers
      ……
      ……

4. **Figure 1** shows a method of propagating fruits . use to answer **question 4a, b, c and d.**



   a. Identify the propagation method
      ……

   b. State two fruits that can be propagated using the method **4a.**

……
……

c. Describe two advantages of the method **4a**

……
……

d. Explain why the plant develop a good taste when propagated the method

……
……