

# CHAPTER 12

## *Simple Farm Tools: Uses and Maintenance*

### OBJECTIVES

**At the end of this chapter, students should be able to:**

- â explain the meaning of simple farm tools.
- â identify various types of simple farm tools and accessory tools.
- â state the uses of each type of simple farm tools and accessory tools.
- â state the general maintenance of simple farm tools.

### 12.1 Introduction

#### Introduction

The use of simple farm tools dated back to the era of the discovery of iron, when the early men started making hand tools. In Nigeria, cultivation is still mainly with hand tools. Some of these tools are fabricated by the local black smith. Simple farm tools are relatively easy to make, repair and maintain.

They are usually inexpensive

and can be used for many years. They are mainly used by the subsistence farmers. The amount of work done with hand tools is very small because the rate of work is slow. Science and technology has led to the invention and use of modern machinery

and implements. The use of simple farm tools is popular only in the rural areas where

farming activities are carried out at the subsistence level.

### 12.2 Meaning of Simple Farm Tools

Simple farm tools are hand-held tools used by the peasant farmers during farm operations. Farm tools are usually made up of one or two parts, the handle and the metal part. Simple farm tools require much of the farmer's energy to accomplish the work.

### 12.3 Types, Description and Uses of Simple Farm Tools

#### 12.3.1 Cutlass or Matchet

**Description:** These is a big knife with straight or slightly curved metal blade. It has short wooden or rubber handle. The blade has one of its edge sharpened and the other blunt. The sharp edge is used for cutting.

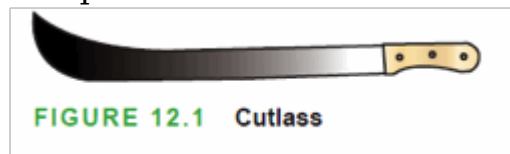


FIGURE 12.1 Cutlass

#### USES

1. It is used for clearing bush during land preparation.
2. It is used for digging holes.
3. It is used for planting seeds.
4. It is used for weeding.
5. It is used for harvesting crops.
6. It is used for felling or cutting trees.

#### 12.3.2 Hoes

**Description:** Hoes are made of metal blades with long or short wooden

handles. The blades vary in size and shape according to localities and uses to which they are put. The West African hoe and the West Indian hoe are the two types of hoes recognized in Africa:

(a) West African hoe

(b) West Indian hoe.



**FIGURE 12.2** Hoes

#### USES

1. It is used for digging holes during planting.
2. It is used for making ridges, heaps or mounds.
3. It is used for weeding.
4. It is used for making vegetable or nursery beds.
5. It is used for harvesting crops.
6. It can also be used for planting crops such as yam.

### 12.3.3 Spade

**Description:** A spade is made up of a long wooden or metal handle with a loop or grip at one end and a broad flat metal blade. The blade is sharpened at the end for cutting the soil.



**FIGURE 12.3** Spade

#### USES

1. It is used for levelling the soil.
2. It is used for digging by cutting a slice and turning the slice over.
3. It is used for digging holes during transplanting seedlings.
4. It is used for digging canals, drains and trenches.
5. It is used for removing weeds from irrigation and drainage channels

### 12.3.4 Shovel

**Description:** A shovel is similar in appearance to the spade. The only difference is that the metal blade is oblong, curved and heart shaped. It has a long wooden or metal handle with a grip at one end. The blade is not too sharp like the spade because it is not a digging tool.

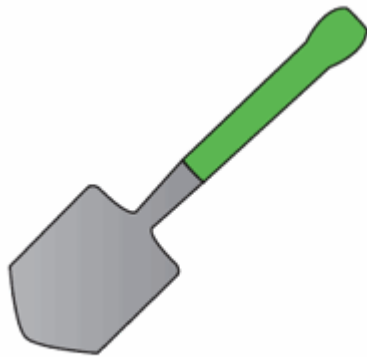


FIGURE 12.4 Shovel

#### USES

1. It is used for transferring soil or manure from place to place.
2. It is used for levelling the soil.
3. It is used for loading into wheel barrow or truck.
4. It is used for mixing concrete during constructions on the farm.
5. It is used for removing dirt and silt from drainage channels.

### 12.2.5 Axe

**Description:** The axe is made up of a metal blade that is fixed to the extreme end of a long wooden or metal handle. The metal blade is thick, flat, sharp and solid and made of cast iron. The heavy metal blade can be rectangular or triangular in shape. There are two types – the long handle axe and the short handle axe.

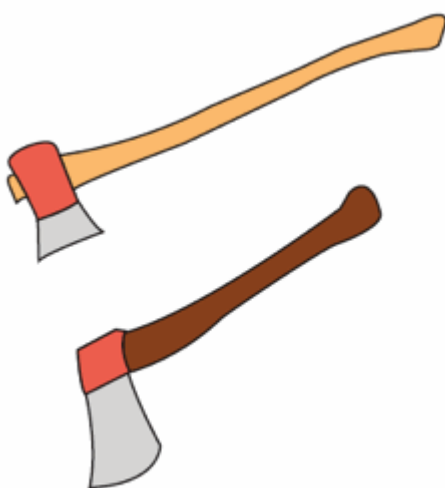


FIGURE 12.5 Axe

#### USES

##### Long handle axe

1. It is used for cutting timber and felling trees.
2. It is used for splitting fire-wood.
3. It is used for removing root stumps.

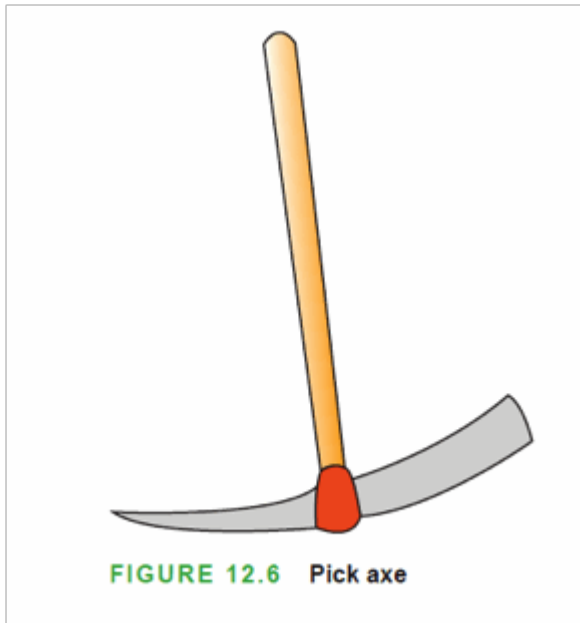
##### Short handle axe

1. It is used for harvesting palm fruits.

2. It is used for pruning.
3. It is used by butchers for cutting and deboning meat and fish.

### 12.3.6 Pick Axe

**Description:** Pick axe is different from axe in that it has a double pronged steel head. One side of the metal head is flat and the opposite end is pointed. The metal head is fitted on a wooden handle like the axe.



#### USES

1. It is used for digging holes and foundation of farm houses.
2. It is used for breaking hard soil or tilling difficult soils.
3. It is used for removing root stumps and large stones from the ground.

### 12.3.7 Rake

**Description:** A rake has a long wooden or metal handle fitted to a metal head with many prongs of between 10 and 20. The head is fitted onto the wooden handle of about 180 cm long.



#### USES

1. It is used for removing weeds, sticks and stones from seed beds.
2. It is used for levelling the surface of the soil.
3. It is used for covering seeds broadcast with a fine layer of soil.
4. It can also be used for breaking soil lumps or clods into fine particles.

### 12.3.8 Garden Fork

**Description:** Garden fork is similar to the spade but the main difference is that the garden fork has four or five metal (steel) prongs or tines, while spade has a single flat metal blade. The garden fork has a long wooden or metal handle of about 80 cm.

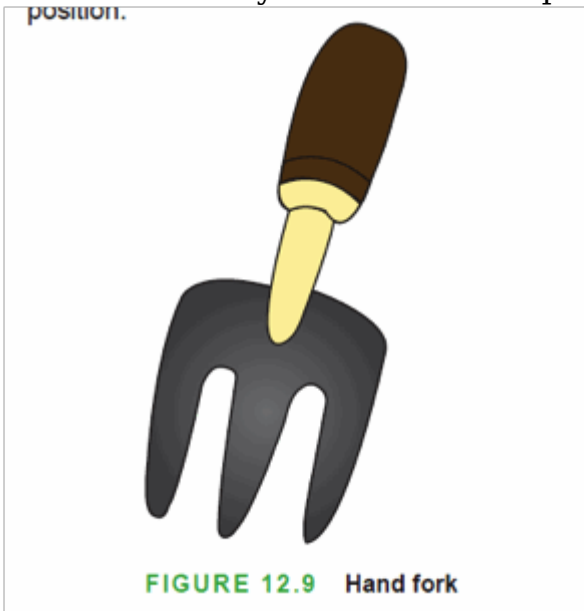


#### USES

1. It is used for breaking lumps of soil into finer particles.
2. It is used for turning and picking up compost materials.
3. It is used for spreading manure on the farm.
4. It is used in removing weeds and trash from the farm after clearing.
5. It is used for packing or loading manure, hay and silage.

### 12.3.9 Hand Fork

**Description:** Hand fork is similar in appearance to the garden fork but is smaller than garden fork. It has a short wooden handle. It has about three or four metal prongs. It is used with only one hand in a squatting position.



#### USES

1. It is used for loosening or breaking up the soil clods.
2. It is used for working fertilizers or manure into vegetable or seed beds.
3. It is used for light weeding on vegetable beds and other nursery operations.
4. It is used for turning compost.

### 12.3.10 Mattock

**Description:** It has a long wooden handle fixed to a flat and wide cast iron blade at the centre. The metal blade has two edges. One edge or side is flat and curved while the other side is narrow or stout.



#### USES

1. It is used for removing root stumps (stumping).
2. It is used for bush clearing.
3. It is used for removing stones from the farmland.
4. It is used for digging and cutting on the farm.

### 12.3.11 Hand Trowel

**Description:** Hand trowel consist of a scoop or boat-shaped or curved heart-shaped metal blade with a short wooden or metal handle. It can be used with



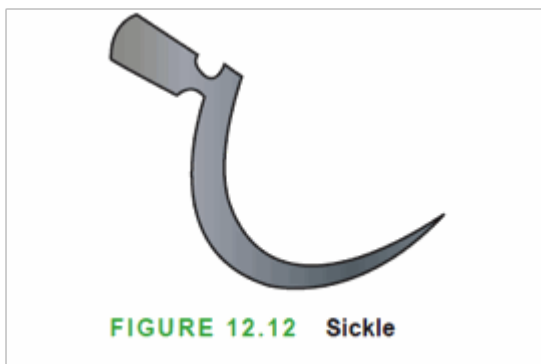
one hand in a squatting position.

#### USES

1. It is used for lifting seedlings during transplanting from nursery to the field.
2. It is used for mixing manure and working in fertilizer into the soil.
3. It is used for digging shallow holes during seed planting.
4. It is used for applying fertilizers and manure.
5. It is used for weeding on vegetable beds or nursery beds.

### 12.3.12 Sickle

**Description:** A sickle consists of a curved metal blade in the form of a question mark (‘?’). It has a short wooden handle fitted to the metal blade. The curved inner edge is sharp for cutting while the other or outer edge is blunt. It is used with one hand.

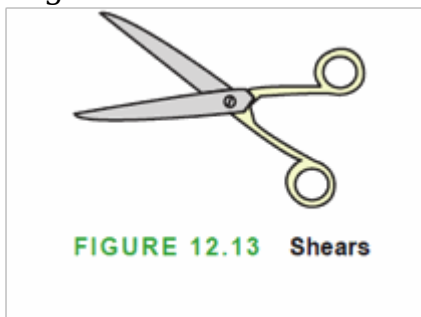


#### USES

1. It is used for harvesting cereal crops such as rice, wheat and guinea corn.
2. It is used for harvesting forage for farm animals (ruminants).

### 12.3.13 Shears

**Description:** This resembles a pair of giant scissors. It has two metal blades crossed at the centre and held together with a bolt and nut. It has short wooden handles. The two metal blades are strong and the opposing edges are sharp while the other edges are blunt.

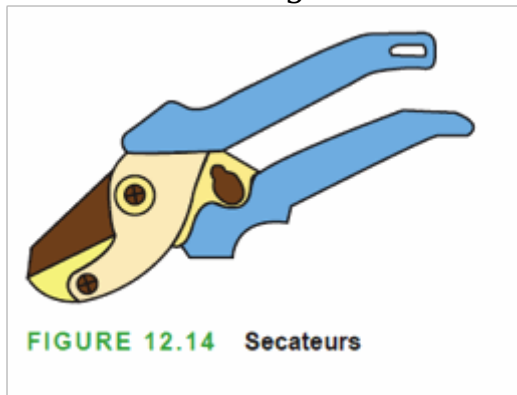


#### USES

1. It is used for trimming flowers, hedges and shrubs.
2. it is used for cutting pasture crops.

### 12.3.14 Secateurs

**Description:** A secateur has two short and curved metal handles with two cutting blades and a spring in between the handles. One of the blades has a concave sharp edge while the other edge is convex and sharp. It can be



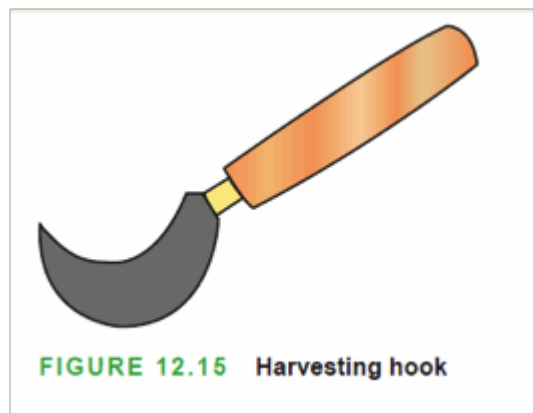
operated with one hand.

#### USES

1. It is used for trimming and pruning woody branches or shrubs.
2. it is used for cutting bud or scion for vegetative propagation.

### 12.3.15 Harvesting Hook

**Description:** It is made up of a very long wooden handle fitted to a curved



**FIGURE 12.15** Harvesting hook

sharp metal blade.

#### USES

1. It is used for harvesting fruits of tree crops such as cocoa, oil palm, citrus, mango and kolanut.
2. It is used for pruning tree crops such as oil palm, cocoa and citrus.

### 12.3.16 Wheelbarrow

**Description:** A wheelbarrow is a large metal container attached to a metal frame with a wheel at the front. The frame has a pair of handles with rubber at the tip for proper handling and two legs supporting the container when at rest. It is moved by lifting up the handles to raise the legs and pushing it forward.



**FIGURE 12.16** Wheelbarrow

#### USES

1. It is used for transporting inputs such as manure, fertilizer, seedlings and seeds for planting to the farm.
2. It is used for transporting harvested farm produce from the farm to the store or market.
3. It is used for carrying concrete during constructions on the farm.
4. It is used for carrying smaller farm tools to the farm.

### 12.3.17 Headpan

**Description:** This is a metal bowl or container with two handles in opposite direction. It is large and open at one end.





**FIGURE 12.17** Headpan

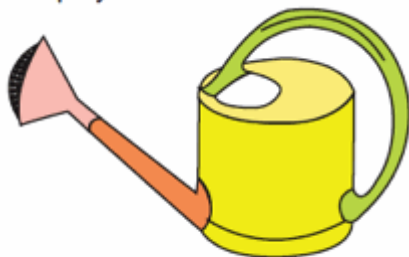
#### USES

1. Headpan is used for carrying farm produce or harvested crops.
2. It is used for transporting seedlings on the farm.
3. It is used for carrying fertilizers and manure to the farm.
4. It is also used for fetching water and carrying concrete during construction on the farm.
5. It is used for carrying planting materials like yam setts, seeds, suckers and simple farm tools to the farm.

### 12.3.18 Watering Can

**Description:** Watering can is made of metal or plastic. It has a tank for carrying water and a long spout with perforated outlet called rose. It has two handles, one at the top of the container and the other by the side for lifting or carrying it. The rose produces a fine, uniform spray of water.

uniform spray of water.



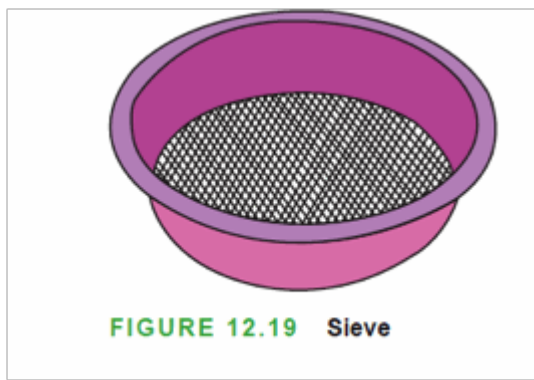
**FIGURE 12.18** Watering can

#### USES

1. It is used for watering flowers, vegetable beds, seeds or newly transplanted seedlings.
2. It is used for applying liquid fertilizer.
3. It is used for general irrigation during the dry season.
4. It is used to apply pesticides and herbicides against pests and weeds, respectively.
5. It can be used for wetting concrete blocks during farm construction.

### 12.3.19 Sieve

**Description:** This is made up of aluminium box frame which is round or circular in shape. It has two ends, one is opened and the other



covered with a fine wire mesh for sieving. It is of different sizes or mesh sizes.

#### USES

1. It is used for separating soils into different particle size.
2. It is used for processing some food items and some crop products.
3. It is used for removing stones, broken seeds and other materials from grains.
4. Sieves of different mesh sizes are used to grade seeds.

### 12.3.20 Burdizzo Castrator

**Description:** Burdizzo castrator is a pincer-like tool with two handles. It has rubber at the tip of the handles. It is operated with two hands.



#### USES

1. It is used for castrating male farm animals.

### 12.3.21 Budding Knives

**Description:** Budding knife has a short wooden or rubber handle and a short metal blade. The blade is sharp at the cutting edge and blunt at the other edge.



**FIGURE 12.21** Budding knives

### USES

1. It is used for cutting buds and scions during vegetative propagation.
2. It is used in cutting the tops of the rootstock during budding and grafting.

## 12.3.22 Basket and Sack

### Description

- (a) Basket is woven from oil palm fronds into different sizes,
- (b) sack is made from jute, sisal or kenaf plants.



**FIGURE 12.22** Basket and sack

### USES

#### (a) Basket

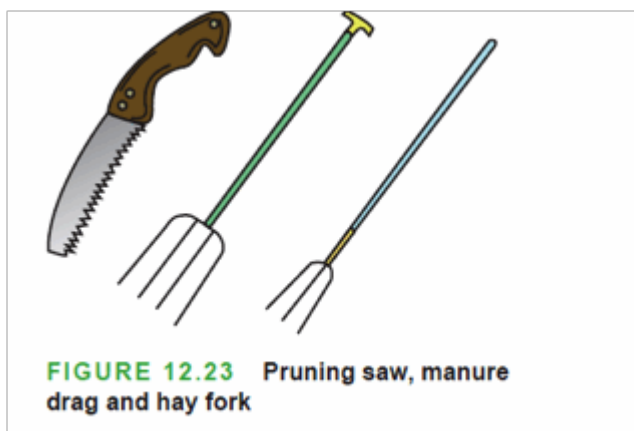
1. It is used for carrying farm produce like maize, tomato, fruit, yam and cassava after harvesting.
2. It can be used for packaging and marketing farm produce.
3. It can also be used for processing of farm produce such as sieving and draining.
4. It can be used for storage of agricultural produce like kola and pepper.

#### (b) Sack

1. It is used for storing grains such as maize, beans and rice.
2. It is used for packaging and marketing farm produce.
3. It can also be used for carrying farm produce from one location to another.

### Other simple farm tools

- (a) **Pruning saw** - it is used for cutting the tops or stems of budded plants.
- (b) **Manure drag** - it is used for spreading manure on the farm.
- (c) **Hay fork** - it is used for gathering and picking hay for livestock.



## 12.4 Identification of Various Accessory Tools and Their Uses

Accessory tools are used in the workshop or on the farm for the maintenance of simple

farm tools. They are not used directly for farmwork but are useful in



repairing other tools.

### Uses of Accessory Tools

#### 1. Spanners

- (i) It is used for tightening loose bolts and nuts.
- (ii) It is used for loosening tight bolts and nuts of tools, implements and machines.

#### 2. Pliers

- (i) It is used for cutting metal wires and wire nets.
- (ii) It is used for holding items in machines and implements.
- (iii) It is used for tightening and loosening of too tight bolts.

### **3. Hammer**

(i) It is used mainly to drive in nails into wood during construction of farm buildings and structures.

(ii) It is used for driving chisel into wood.

(iii) It is used for straightening bent iron.

### **4. Mallet**

(i) It is used for hitting wood, striking pins, rods or soft metals.

(ii) It is used for driving chisel into wood.

### **5. Screw Drivers**

(i) It is used for screwing.

### **6. Chisel**

(i) It is used for digging holes on woods.

(ii) It can be used for cutting metal sheet.

(iii) It is used for smoothening rough surfaces on wooden and metal parts.

### **7. File**

(i) It is used for filing tools like cutlass, saw, spade and axe.

(ii) It can also be used for smoothening rough surfaces on wooden or metal parts of agricultural tools and implements.

### **8. Pincers**

(i) It is used for removing nails.

(ii) It can be used for cutting nails or wires.

### **9. Bradawl**

(i) It is used for boring holes on woods.

### **10. Crowbar**

(i) It is used for removing nails.

(ii) It can be used for making holes for seed planting.

(iii) It can also be used in lifting heavy loads like logs of wood.

### **11. Dibber**

(i) It is used for making holes for seeds or seedlings during planting operations.

(ii) It is used for harvesting root and tuber crops, e.g., yam.

(iii) It can also be used to dig holes during staking in yams.

### **12. Harcksaw**

(i) It is used for cutting metal.

### **13. Vice**

(i) It is used for holding things (especially metals) together while being worked upon during smoothening, cutting, tightening or loosening of parts.

### **14. Grease Gun**

(i) It is used for applying grease to the moving parts or joints of farm machinery.

### **15. Oil can**

(i) It is used for applying oil when lubricating the moving parts of farm machinery to prevent friction.

### **16. Oil Stone**

(i) It is used for sharpening the cutting edges of farm tools and accessory tools.

## Tools

Farm tools must be properly maintained to enhance their efficiency and to increase their shelf-life or useful life. The following operations or ways can be adopted in maintaining simple farm tools.

1. Wash and dry or clean the tools after use.
2. Store the tools properly in racks, tool box, farm store or workshop after washing and cleaning.
3. Store in a cool dry place.
4. The cutting or sharp edges of some tools should be properly and carefully sharpened with files to increase their effectiveness.
5. Lubricate the moving parts or joints of tools to prevent friction, wear and tear and apply grease or oil on tools like pliers, shears and secateur to prevent rusting.
6. Loose bolts and nuts should be properly tightened with spanners.
7. Damaged or worn out parts should be repaired or replaced promptly.
8. Keep the wooden parts away from termites and fire.
9. Simple farm tools should be used for their intended operations. Use the right tool for the right job.

**Activity 1:** Visit some farmers in your locality and find out the type of farm tools they use on their farms.

**Activity 2:** Your teacher should display all the different types of simple farm tools and accessory tools in your school Agricultural Science Laboratory. Identify and describe each of the simple farm tools and accessory tools.

**Activity 3:** Expose one or two metal tools such as hoe, cutlass or shovel to rain and sun. Record your observation after a week. How can the observed damage be prevented?

### Summary

- ◆ Simple farm tools are still in use all over the country by subsistence farmers.
- ◆ Farm tools are hand-held simple tools used by farmers during farm operations.
- ◆ The types, description and uses of the following simple farm tools were discussed.
- ◆ Examples of simple farm tools are cutlass or machet, hoes, spade and shovel.
- ◆ There are also workshop tools that are used for maintenance and repairing tools and machinery.
- ◆ Examples of accessory tools discussed are spanners, pliers, hammer, mallet, screw drivers, chisel, file and pincers.
- ◆ General maintenance practices of farm tools include:
  1. Clean and dry after use.
  2. Oil or grease the metal parts.
  3. Sharpen the blades when necessary.
  4. Store in a cool, dry place.

## REVISION QUESTIONS

### Essay Questions

1. (a) Identify specimens A, B, C and D.  
(b) What are differences and similarities in features and functions between  
(i) Specimens A and B

(ii) Specimens C and D

(c) State the reason for carrying out the operations for which

(i) Specimens A and B are used.

(ii) Specimens C and D are used.

(d) How would you ensure the long and effective use of specimens A, B, C and D.

**Note:** A = Shears, B = Secateurs, C = Garden fork, D = Hand fork.

**2.** (a) Mention one simple farm tool that can be used for the following farm operations:

**(i)** Land clearing

**(ii)** Construction of ridges

**(iii)** Seed planting

**(iv)** Weeding

**(v)** Harvesting rice

**(vi)** Transplanting of seedlings

**(vii)** Moving produce from farm to the store

**(viii)** Stumping

**(ix)** Manuring

**(x)** Trimming flower edges

(b) State five general maintenance of farm tools mentioned in (a) above.

**3.** (a) Identify specimens A, B and C.

(b) State two uses each of specimens A, B and C.

(c) Mention two ways each of maintaining specimens A, B and C.

**Note:** A = Spade/Shovel, B = Sickle, C = Screw driver. (NECO PRACTICAL 2007)

**4.** (a) Identify specimens A, B, C, D, E and F.

(b) State two uses each of specimens A, B, C, D, E and F.

**Note:** A = Axe, B = Spade, C = Sickle, D = Hand trowel, E = Shears, F = Hand fork

(WASSCE PRACTICAL 1995)

**5.** (a) Identify specimens A, B, C, D and E.

(b) State one use each of specimens A, B, C, D and E.

(c) State one method of maintaining each of specimens A, B, C, D and E.

**Note:** A = Filers, B = Chisel, C = File, D = Pincers, E = Vice

## Objective Questions

**1.** Which of these crops does not require the use of dibber?

(a) Cassava (b) Maize

(c) Sorghum (d) Soyabean

**2.** A spade is mainly used for

(a) weeding. (b) pruning.

(c) planting. (d) digging.

**3.** Which of the following tools is best used for transplanting?

(a) Hand fork (b) Hand trowel

(c) Shovel (d) Cutlass

**4.** The following are the ways by which we can maintain farm tools except

(a) tools should not be exposed to sun or rain.

(b) tools should not be left lying about in the farm.

(c) blunt cutting edges should be sharpened.

(d) rub tools with water to prevent rusting.

(e)

5. The best farm tool for harvesting heads of rice is the  
(a) shears.  
(b) secateurs.  
(c) sickle.  
(d) mallet.
6. One of the following tools is the best for making ridges.  
(a) Hoe  
(b) Shovel  
(c) Spade  
(d) Mattock
7. The tool best used for carrying harvested farm produce, farm inputs and smaller farm tools is  
(a) wheelbarrow.  
(b) sieve.  
(c) watering can.  
(d) sack.
8. Sharpening of the blunt cutting edge of farm tools can be done by using  
(a) chisel and pliers  
(b) crowbar and mallet  
(c) file and oilstone  
(d) screw driver and dibber
9. The tool used in bush clearing is  
(a) hoe  
(b) rake  
(c) sickles  
(d) cutlass
10. One of the following tools cannot be used on the field.  
(a) Shears  
(b) Garden fork  
(c) Spanners  
(d) Pick axe

### **Answers to Objective Questions**

1. (a) 2. (d) 3. (b) 4. (d) 5. (c) 6. (a) 7. (a) 8. (c) 9. (d) 10. (c)