

Lecture-16

Nursery tools and implements

Learning objective

- To know about different kind of tools
- Their specific utility

Introduction

For carrying out day-to-day routine cultural operations in the nursery, various tools, implements and accessories are required. Some tools are simple and are used for simple operations, whereas for carrying out specific operations, special types of equipments are required. These are listed and briefly described hereunder:

Tools for land preparation and other basic works

Kudali: It is a simple but important tool used for digging of soil, pits or any basic digging work prior to preparation of nursery beds. It has a metal (iron) blade attached to a wooden handle. It is operated manually.

Garden fork: Garden fork is used for breaking of soil clods and separation of medium size soil during preparation of nursery bed or fields.

Weeding fork: It loosens the soil and helps in weeding also. It consists of a long handle with a blade of handle teeth. It is drawn manually with the help of handle to collect the weeds and cops of plants etc.

Crow bar: It is an iron rod with one end pointed and other as a wedge shaped. It is used for digging out large or hand boulders from the soil and digging of pits. It is also used for breaking hard soil pan.

Shovel: It has iron blade of spoon shape and wooden handle and is used for within field transport of dug out soil required for leveling of field for preparation of nursery beds.

Pick-Axe: It is made of carbon steel. Pick axe has two edges with provision of axial hole for attachment with handle. One edge of pick –axe is pointed and another is broadened. Pick axe is used for digging hard, compact and stony soils

Spade: It is used for lifting and turning the soil. Also used for digging the pit, preparing channel for irrigation and drainage lines.

Hoe-cum-Rake: It is of rectangular shape metal blade with fork like fore edge. It is used for digging, hoeing, earthing, leveling and collecting weeds.

Furrow opener: It is used for opening narrow and shallow furrow after sowing seeds in nursery.

Hand leveler: It consists of narrow rectangular metal blade attached to long wooden handle.

Trowel (Khurpi): It is of shovel shape but small in size with iron blade and wooden handle. It can be made in many shapes as per local designs and requirements. It is used for hoeing, weeding and nursery plants and also for transplanting seedlings.

Axe: Iron blade, fastened to wooden handle. It is used for felling trees and cutting branches.

Bill Hook (Darat): It is made of iron curved at the far end or used for cutting hardy branches of plant and other woody shrubs in the field.

Sickle: It is used for cutting grass and leafy vegetables.

Wheel-Barrow: It is manually operated small trolley, used for carrying nursery plants, compost, fertilizers, leaf litter, horticultural produce, stones etc. from one place to another place. It can be designed into different shapes according to requirement.

Cultivator: It is a tractor drawn implement used for tilling the soil efficiently. It has types of quality carbon comprising of different sizes depending upon the plough depth. These days, hand driven small cultivator is more popular. It can plough upto ½ to 1 feet depth.

Disc harrow: It is used for pulverizing the soil. It is also used for turning crop residues, weeds and other debris in the soil. It is used for deep ploughing and turning of soil.

Grafting and budding tools

Knife: Knives having combined blade for grafting and budding purposes. A grafting/budding knife has a straight 7.5cm long blade and strong long handle. It has a spatula at the end of a handle, which is used for lifting the bark during budding operation. Sometimes knife has two parallel double blades, used specially for lifting or removing the patch of a bud from the budwood. Generally these knives have either a folding or fixed blade. The blade of knife should be made from high carbon steel and should always be very sharp.

Secateurs: Secateurs are considered as the most important tool for a propagator or a nurseryman. It is used for removing scions, lopping off the rootstock, preparation of scion sticks, removal of undesirable shoots/sprouts from the stock and training and pruning operations. The blades of secateurs should be of high quality carbon blade for giving smooth cuts to the stock and scions.

Grafting machines: Many machines have been developed and commercially used for the preparation of scion sticks and bud wood for budding and grafting operation in many developed countries. However, these machines are not very common in India.

Pruning saw: Several types of saws are required for performing different operations involved in propagation of horticultural plants. The commonly used are crescent saws, tapered saws and straight saws. All of them have long and widely set teeth to facilitate pruning or cutting of green wood. Its blades should be narrow so that it can pass through the narrow or closely spaced branches.

Ladders: In propagation work, ladder is required for operations like cutting of bud wood, training of vigorous plants, performing layering operations and top working of declining plants. In general, step ladder or straight ladder or hook ladders are used for such operations in the field of propagation

Tying and wrapping materials: It is essential to hold scion and stock firmly together to have successful graft/bud union. For this purpose a suitable tying or wrapping material is required. Generally polyethylene tapes/strips, waxed string and cloth, raffia fibre and rubber strips are used for this purpose. In addition, adhesive tapes similar to surgical adhesive tapes but lighter in weight are also used by commercial nursery men.

Grafting wax: Wax is used by propagator to seal the graft union for preventing moisture loss and desiccation of cells at cut surface and to prevent the decay of wood by way of checking the entry of pathogens. Waxes are of two types i) Hot wax ii) Cold wax.

Labels: Labels are used for proper labeling of plants, before sale. Labels may be made of paper, card board, wooden, celluloid, aluminum and plastic etc.

Pots: Pots of different shapes and sizes are used in nursery. They may be of clay, metal or plastic usually 10cm, 15cm or 20cm for single specimen. Pots are of different types, tube pots, ¼ size, 1/2 size, 3/4 size and full size, thali and urn. These are used for potting ornamental plants, fruit plants, saplings etc. Iron pots/ plastic pots are used for irrigation purpose also.

Spray-pumps: To spray protective material i.e. insecticides/pesticides/fungicides to eliminate the infection of pathogens or insects, spray pumps are very important tools. Pumps are of different shapes, size and types. Commonly used sprays are knap-sack sprayer, rocker sprayer, foot sprayer, hand sprayers or power sprayers. Depending upon the volume of nursery and specific purpose different types of sprayers are put in operation.

Chain saw: It operates using fuel (petrol/kerosene). It aid to cut wood logs of bigger size and

lopping of branches and shoots.

Chain weeder: It is operated by petrol/diesel/kerosene. It is used to slash the weeds on large scale.

Rose can: A tubular pipe with rose i.e. fitted into the can through which water is sprinkled over the nursery beds until the germination of seeds and to avoid splashing of seeds from the nursery beds due to loose pipe irrigation and flood irrigation.

Iron pan: It is made of iron and used for transporting pot mixtures, potted plants through head load from one place to another for short distance.

Hose pipe: This is available in convenient length. Irrigation to nursery plants is made possible to any extent.

Pruning shear: It is made of iron fitted with wooden handle. It is used to prune unwanted branches, collection of scion, trimming of the edges and hedges and topiary work.

Scythe: It is long knifed, fitted with wooden handle. It is used for slashing of weeds.

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