Topic: Nursery management techniques

Nursery crops require a lot of careful management from sowing time to eventual transplanting into the field. On both operations, the y need some shading, adequate watering and freedom from pests. Besides, some species require tending operations like shoot and root pruning, hardening-off, and field storage prior to transplanting into the field.

1) Shading: crop species differ in their requirement for shade in the nursery. Some shade-loving crops like cocoa, kola and some vegetables, require a very good shade in order to keep the soil / growth medium moist and the microenvironment cool. The light-demanding crop species, like cashew germinate and develop into vigorous seedlings without shade. Budded and grafted materials and marcots / air-layers require very good shade in the nursery.

2) Watering: Immediately after sowing the seeds, the medium must be water thoroughly and must be continuously kept moist. Drying up of the sowing medium for a day may result in heavy losses of the sown seeds. During the germination period, it is important to keep the growth medium moist with light application of water at least twice a day. Timing of watering is equally as important as the amount of water to apply. Watering continues until the seedlings' roots are grown enough to tap soil moisture.

3) Weeding: Weeds must be controlled on both germinating and transplanting media if the seedlings are to develop normally. The associated weed species at these stages of growth of the young plants compete for moisture, mineral nutrients and light. If the weeds are left unchecked, they may stunt and even kill a large percentage of nursery stock.

4) Root and shoot pruning: Root pruning is carried out on both bare-rooted and potted seedlings. In bare-rooted seedlings, root pruning is carried out where it is desired to retard shoot growth or to change rooting habit of tap-rooted species by promoting the development of lateral roots. Root pruning involves severing the tap root and / or lateral roots as well. By so doing, greater lateral roots are encouraged. The new root system enables the plants to withstand harsh conditions much better when transplanted. Shoot pruning is also practised in

some in some areas as a means of checking the growth of seedlings that tend to grow tall, thin and weak.

5) Nursery soil management: Typical crops of the tropical nursery stock take a lot of nutrients out of the soil, sometimes much more than equivalent field crops. The greater number of seedlings produced per hectare makes the total nutrient requirements per hectare of nursery soils very high. The high rainfall and copious artificial watering required by nursery plants for proper growth and development often leads to additional nutrient losses by leaching. Stable soil structure and proper nutrient supplementation programmes keep soils in the nursery in good physical and chemical conditions to sustain economic production of seedlings in a given piece of land.

6) Maintenance of soil fertility: The nutrient elements lost from the nursery soil by cropping, leaching and some other ways are most economically replaced by adding chemical fertilizers. The primary aim of doing this is to achieve optimum plant response as over-fertilizer application is not only wasteful but dangerous. The excess is subjected to leaching and volatilization and this could be destructive to seedlings as a result of toxic accumulation. Therefore, effective fertilizer application involves finding out what nutrient elements are lacking in the soil and applying them without injuries to the seedlings or soils.

7) Maintenance of good physical condition: Achieving and keeping a good physical conditions of the soil especially in the standard nurseries, is more complicated than maintaining its fertility. This usually requires some systematic increase in organic matter content of the soil and continuous protection of the soil from insolation, erosion and caking-up or crust formation as well as minimization of intermingling of sub-soil and the top-soil layers during bedding, filling of bags and weeding.

8) Soil conservation: Although the productive capacity of the soil may be drastically reduced by destruction of soil structure and excessive loss of nutrient elements, but, the most serious problem may be caused by erosion. Soil nutrients may be easily replaced, soil structure can also be easily replaced by addition of organic matter, but, loss of top-soil cannot be easily and rapidly remedied. Soil conservation measures include the use of cover crops, mulching, minima tillage, proper bed orientation and windbreaks.