

STUDY ON TREE SHOOT MANAGEMENT IN THE CROP FIELD

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Theory

Different species of woody perennials are deliberately grown in the crop field at various locations in Bangladesh. *Eucalyptus camaldulensis*, *Acacia nilotica*, *Dalbergia sissoo*, *Acacia auriculiformis*, *Artocarpus heterophyllus*, *Coccos nucifera* etc. are grown in the crop field as a traditional agroforestry system. Now-a-days the farmers are growing in the perennial trees in an around the crop fields as it is more economic agricultural system over other system. The trees having thin and narrow canopy structure with small leaf/leaflets and coppicing habit are suitable for growing in the crop fields. Other plant possess necessary qualities have been shown to be suitable for this purpose after pruning of their shoots and roots step by step. But trees grown in crop fields require more management practices for minimum utilization of land and ensure more production. To minimize the adverse effects of trees on crops production, the shoots and roots of the trees are severely pruned just before the cultivation of each crop. The trees look like a living pole during cropping season and juvenile during non-cropping seasons.

During the management in the crop field, the field crops and their production is likely to be reduced due to presence of 'no' crop zone. But it will compensate the cause of increasing fertility outside the zone by litter fall recycling nutrient from below ground etc; in the crop field. The tree plant is managed through proper training, adequate shoot pruning necessary root pruning. The shoot pruning is done by practicing training, pollarding, lopping, coppicing etc. the above techniques are done for fulfilling the following requirements

- To give desirable environment and interception of light in the crop field for maximum yield by increasing soil fertility, soil moisture and humidity.
- To produce food, fodder, fuel, wood and timber with crop production.
- To reduce tree crop interaction (above and below ground) in terms of nutrient uptake by breaking uppermost root system in the soil.
- To add nutrient to the uppermost soil through the deep rooted trees.
- To bring back and maintain the ecological equilibrium on the locality.

Materials required for shoot management

During tree management in the crop field the following equipments are needed

- | | |
|-----------------|------------------------|
| 1. Spade ladder | 2. Ladder |
| 3. Da | 4. Scale |
| 5. Sickle | 6. Khurpi |
| 7. Secateurs | 8. Knife |
| 9. Spade | 9. Measuring tape etc. |

Training and pruning of sapling and tree

In this crop field tree crops are managed through proper training, adequate shoot pruning and necessary root pruning.

Training

The appropriate training measure is taken for individual sapling so that sapling took appropriate shape and structure later on. In other cases the training is necessary after partial damage of sapling due to natural calamities during crop production.



Fig. Technique of Training



Fig. After Training

Fig. Training of agroforest trees

Shoot pruning

The shoot pruning is made just before sowing of each crop. No further training is necessary for shoot growing crop like transplanted rice, wheat, pulse, vegetables but for long standing crop like sugarcane second pruning is necessary for good yield. At the time of pruning the trees get appropriate shape. Thus it can withstand storm and pass adequate light and air to the crop. The excess branches developed from the different parts of a tree should be pruned. shoot pruning is done in various ways like trimming, pollarding, lopping, coppicing etc. other systems like curved stem into straight, cutting of heavy branch etc. should be done at the time of pruning. The cutting branches are used for mulching, fodder, fuel and timber, pruning and training should be done in a sunny day during April to June or after the rainy season case of pruning twice a day.

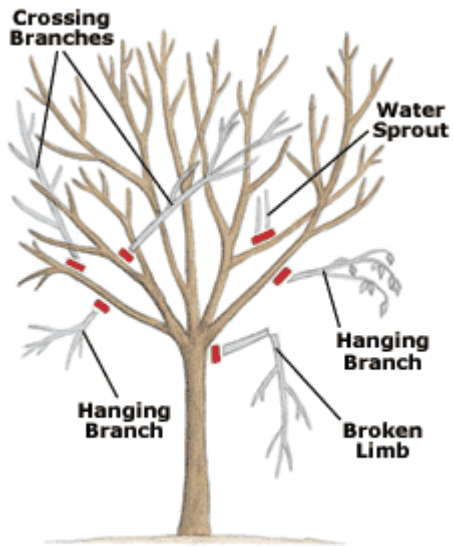


Fig. Branch Pruning Technique

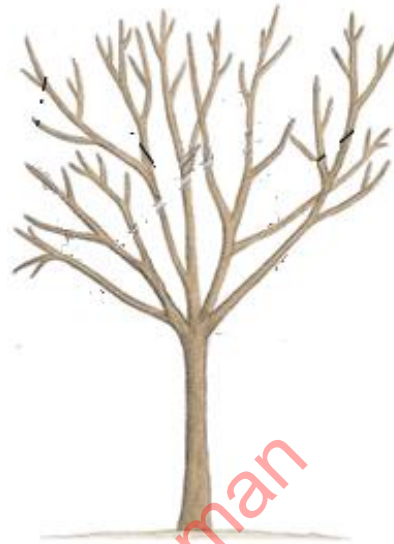


Fig. After pruning

Fig. Branch pruning of agroforest trees

Trimming

Trimming is a process by which a portion of the branched of a tree is removed from an equal distance from the main trunk. It is usually practiced on the tree for increasing the living fences of the tree. The cut branches are used for mulching, food, fuel etc.

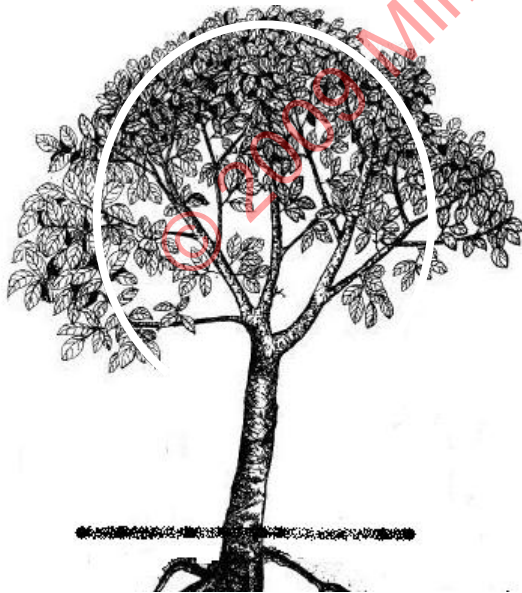


Fig. Technique of trimming



Fig. After Trimming

Fig. Trimming of agroforest trees

Pollarding and lopping

The upper portion of a tree from where the branches are produced is cut off during these two processes. New branches develop from the cutting portion. The dissected branches are used for mulching, food, fuel, fodder, green manure etc.

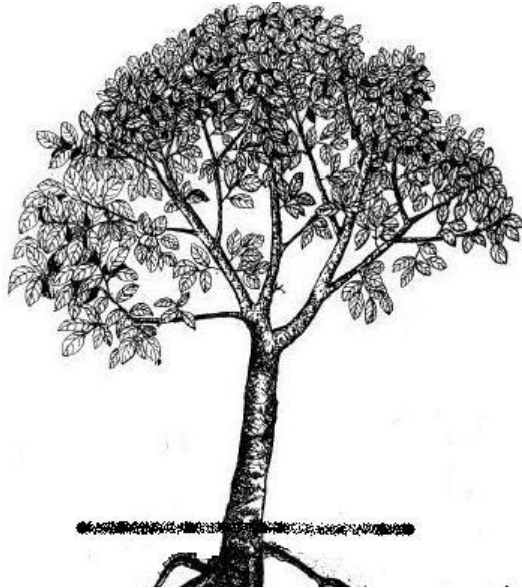


Fig. Before lopping



Fig. After lopping

Fig. Lopping of agroforest trees

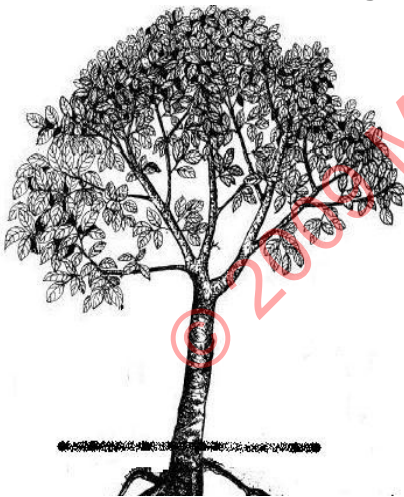


Fig. Tree with full crown



Fig. After pollarding

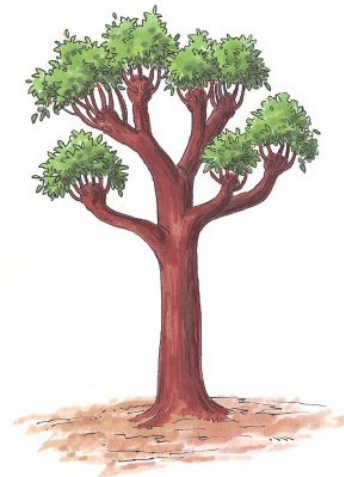


Fig. New shoots developed

Fig. pollarding techniques in agroforestry

Coppicing

Cut down the whole stem/shoot of the tree from the ground level in order to get artificial regeneration is called coppicing one or two coppice (small sapling) are left for regeneration in future. This type of trees is important for agroforestry because it yields several times after planting once.

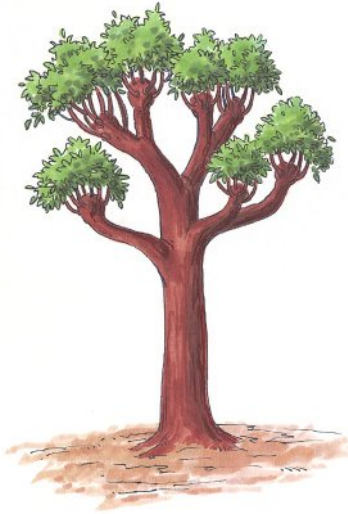


Fig. Mature tree



Fig. cut down the tree near the ground level

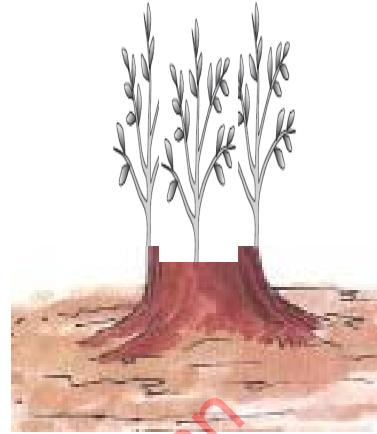


Fig. New coppices arises from base

Fig. Coppicing technique in agroforestry trees

Technique of cutting heavy branches

Some trees bear big one heavy branches during improper or without training, pruning from its early stage of growth. As a result these trees can not yield more fruit, fodder, timber etc. These yield more it big branches first cut is done at the lowed and then upper side and remove it from the tree. 15-20 cm away from the main axis./ after some days second cut is done in the same way and separate the rest portion from the main trunk. It needs extra care, during cutting heavy branches. Cut surface were made straight oblique and smooth followed by smearing with kerosene oil in absence of synthetic points.



Fig. A tree with big branch

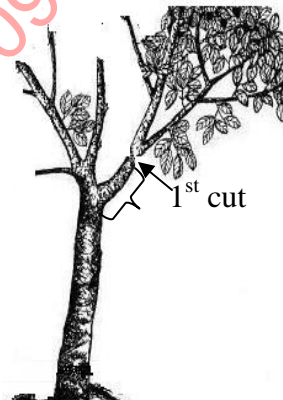


Fig. First cut is done on a big branches

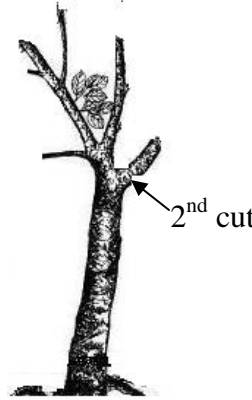


Fig. Second cut is done on the next portion



Fig. A tree with straight long stem

Fig. Technique of cutting heavy branches

Technique of removing curved stem into straight

Some trees are grown in the crop field are turned into curved shape from its seedling stage. As a result this tree can not yield more in terms of fruit and timber within a particular time. Incising several (2-5) longitudinal tissues on the inner curved part of the stem during its early stages of growth straight the stem. It cannot stand its own root system. As a result this sapling can not grow quickly and produce good timber or more fruit as compared to stout tree. These trees grow faster if two poles are dug on both side and tight with ropes to the opposite direction of the curved point. The above technique several time until it become strong and stout.

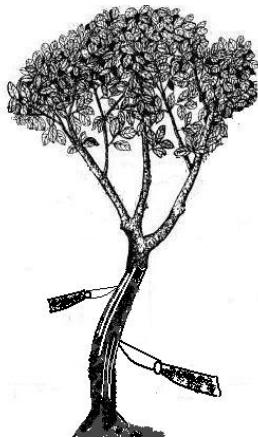


Fig. Curved stem



Fig. After incising



Fig. Straight stem



Fig. Curved stem

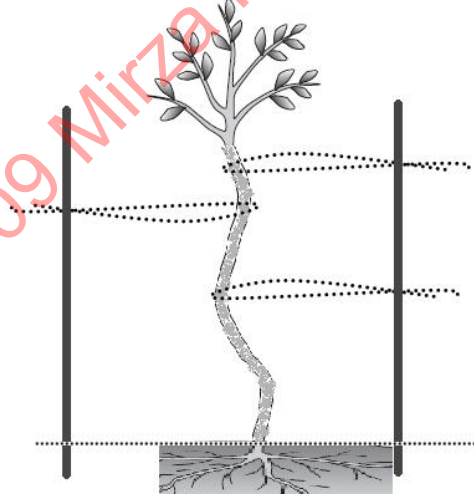


Fig. Technique of converting curved stem straight stem

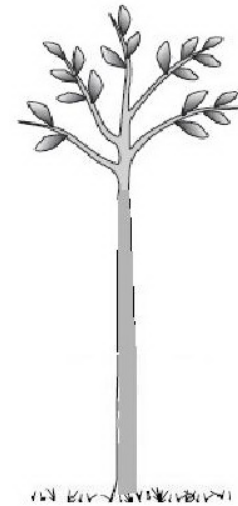


Fig. Curved stem in straight

Fig. Technique of removing curved stem into straight