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Tending

In a forest, competition among plants can be increased with increasing age. In order to obtain a maximum yield the competition among the plants can be optimally managed by reducing the number of stems per unit area with the progress of age. All these covered the tending operation.

“Tending is defined as an operation carried out for the benefit of a forest crop at any stage of its life between the seedling and the mature stages.”

Tending includes weeding, cleaning, thinning improvement felling, pruning, climber cutting and girdling. Tending does not include regeneration felling. Soil working, drainage, irrigation and controlling burning. Tending helps in producing higher quality timber and thus by maximizes incomes.

Limitation in Tending:-

- 1- It has to be done for several times from seedling to maturity.
 - 2- It requires considerable funds and staff.
 - 3- This create labour shortage problem which in turn creates supervising problems.
- (a) **Weeding:-**Weeding may be defined as a tending done in the seedling stage in nursery or in a forest crop that involves the removal or cutting back of all weeds.
- (1) Weeding reduce root competition for nutrients.
 - (2) To reduce transpirational water loss.
 - (3) To facilitate cultural operations.
 - (4) To improve light conditions to tree crop.

Weeding process:-

- Weeding must be done in plantations during the rains and stopped by the end of September.
- It should be done before the suppression of seedlings by the weeds.
- Fast growth species less required weeding than the slow growing species.
- Weeding carried out for three years from planting.

- (b) **Cleaning**:- Cleaning is defined as a tending operation done in a sapling crop which involves removal of inferior crop growth including individuals of favoured species. This is normally carried out when the inferior crop interfere with the main crop the objective of cleaning are-
- (1) To improved light conditions.
 - (2) To reduce root competition.
 - (3) To reduce transpirational water losses.

Operation in cleaning:-

- (1) Cleaning of shrubs and herbaceous growth.
 - (2) Removal of individual of inferior species.
 - (3) Cutting back of the malformed or diseased individual of the desire species.
 - (4) Cutting and removal of climbers.
 - (5) Singling of coppice shoots of the favoured species.
- (c) **Thinning**:- Thinning is defined as a felling made in an immature stand for the Purpose of improving growth and form of the trees. Thinning are cutting made in a stand between regeneration and final harvest to reduce stand density for the purpose of stimulating the growth of remaining trees to increase the yield of desired products enhance forest health the objective of thinning includes-
- (1) To distribution of growth potential of a site amongst the trees retained.
 - (2) Increase the net yield of timber from the per unit area.
 - (3) To obtain earlier returns through the utilization of Thinned material.
 - (4) Shortening the rotation of the tree species.
 - (5) To produce different size of timber for different requirement.
 - (6) To obtain a timber of desired quality and strength.
 - (7) Maintaining hygienic conditions in the stand through removing of diseased tree species.

Method of thinning:-

- (1) **Ordinary thinning**:- Ordinary thinning also called low thinning, thinning from below and German thinning in this method inferior individuals of a crop, starting from the suppressed class are removed by some dominated trees.
- (2) **Crown thinning**:- Crown thinning is also called high thinning and thinning from above. In this method, thinning is carried out mainly on

dominant trees. Mostly removing of diseased, malformed and less promising dominant trees. The less promising trees are removed in the interest of the best available individuals. The diseased, suppressed and malformed woods are removed in the interest of growing dominant species.

- (3) **Free thinning**:- It is also called free selection method in this method, the trees retained for future will be selected from the beginning on words in this attention given an evenly spaced elite stem. Thinning is done around the elite trees so as to reduce the competition.
- (d) **Improvement felling**:- Improvement felling refers to the removal of less valuable trees in a crop in the interest of valuable individuals improvement felling are carried out:-
- (1) Removal of dead, dying and diseased individuals.
 - (2) Felling of saleable un sound and over mature trees.
 - (3) Felling of unsound or badly shaped mature and immature trees.
 - (4) Cutting back of damaged seedling and sapling.
 - (5) Removal of undesirable under growth.
 - (6) Climber cutting.
- (e) **Pruning**:- Artificial pruning is a silvicultural operation, distinct from ornamental pruning, fruit tree pruning and Christmas tree pruning, performed to improve wood quality or to remove dead or diseased limbs. It is labour intensive costly and requires a certain degree of judgment and skill. Pruning may be used to remove mistletoe infection from young trees. Pruning is some time applied to increase the wood quality and value by promoting the growth of clear wood on the lower boles of crop trees, particularly in short rotation crops.

Pruning refers to the removal of line or dead branches or multiple leaders from standing trees for the improvement of the trees or its timber. It may be removal of dead branches (Dry Pruning) and removal of live braches (green pruning).

- (1) **Girdling**:- Girdling is defined as cutting through bark and other living layers of wood in a continuous incision all around the pole of tree. Girdling of stem restricts flow of photosynthesis from leaves to roots. Its causes death of roots by starvation. This is restricted to certain species only. Girdling enhances more fire hazards inside the forest.

(g) **Prescribed Burning**:- Prescribed burning is a silvicultural technique or tool used to accomplish some aspects of a regeneration or intermediate treatment and as such, is an integral part of the silvicultural prescription. To maintain the control and ensure positive effects, foresters must plan why and how to burn. The detailed prescription, based upon analysis of the site and its needs, should have clearly stated objectives when fire is prescribed in forest stand. These might include fuels reduction, site preparation or the reduction of an undesirable tree species or an over abundant species. If site preparation for seedling survival or seed germination is the objective, through should be given to the grass, and shrub species present, as well as the tree species to be managed seasonal timing and the intensity of the burn will affect both, with possible unintended consequences.

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