



Location of Government Plant Nurseries in U.T. Chandigarh

III) PROTECTING AND IMPROVING THE GREEN COVER PUBLICITY & AWARENESS.

For wider publicity of the contents of the 'Greening Chandigarh Action Plan 2017-18, all greening agencies/ departments will take up various publicity campaign. This will have to begin well in advance of the ensuing monsoon planting season. Forest Department will give advertisement in newspapers highlighting the importance of planting & nurturing trees and about free distribution of saplings from its nurseries.

Publicity of a particular event is of utmost

important for its fruitful conduction. Therefore due care will be given to make public aware about different programmes & campaigns through print & electronic media. These events will include celebrating various Environment & Nature related occasions such as World Wetland Day (2nd Feb.), World Forestry Day (21st Mar.), World Earth Day (21st April), World Environment Day (5th June), Vanmahotsava & Wildlife Week (1st week of Oct.) & so on so forth. All the stakeholders on these occasions will be called upon to contribute their part for the

"Invest sometime for environmental care and safety"

improvement of Greenery of the city & to express their concerns for the conservation of Nature & natural Resources.

Post Plantation Care and Watering

All Government, Non-Government Agencies, Rural communication, other research institution and citizens should take necessary steps to maintain and protect plantations by preparing a proper maintenance and watering schedule. Since Chandigarh is a water deficit area, particularly in summer, due care should be taken to save trees and plants from water stress. While preparing watering schedule, following points should be kept in mind:

- Accessibility of plantation site,
- Edaphic, topographic and climatic conditions of site,
- Period of water stress,
- Type of tree/plant.

As Chandigarh witnesses a long dry spell of around 6-8 months in a year, extra efforts should be made to water the plants at regular basis to ensure higher survival percentage and better growth. To minimize the use of drinking water in watering lawns & plants, Municipal Corporation and Engineering Department have laid tertiary water lines to various parts of the city.

Protection and conservation of existing vegetation/ trees and improving its quality

and density is as important as planting and maintaining new saplings. Every citizen, all Government and Non-Government organizations and local bodies have the responsibility to protect and preserve the existing flora of Chandigarh.

To protect and conserve the flora of Chandigarh, following steps would be taken on urgent basis:-

a) Replacement of dead, dying and diseased trees

It has been observed that in Chandigarh, along the roadside and in old parks some of the trees have died, whereas a few others are eaten by termites and are in the process of dying. These trees give an ugly look and are prone to uprooting and breaking during storms and attack/ spread of diseases etc. Therefore, as per the approval of the competent authority all such dead trees will be replaced with ornamental and pollution abating species in consonance with the planned architect of the city. Irregular cutting of tree branches should be avoided as it increases the possibility of insect infestation and disease infections at irregular cut. Pruning and other such operations should be carried out under the direct supervision of concerned Fresh instructions will be issued to the departments responsible for cutting/ pruning of trees for avoiding aforementioned damages to the trees.

"If we pollute the environment, we destroy the life"



b) Maintenance of Aesthetic Beauty of the trees:

Maintenance of Aesthetic Beauty of the trees while pruning is of utmost importance. Irregular cutting of tree branches in one direction destroy the shape of the tree Canopy and presents an ugly look of the avenue. Further pruning on one side makes the tree asymmetrical & it start leaning towards the branched side & ultimately poses serious threat of getting uprooted. Also irregular cutting increases the possibility of insect & disease infestation at irregular cuts. Therefore Pruning and other such operations should be carried out under the direct supervision of concerned Horticultural staff and the mechanized instruments like power chain saw etc, should be used for such works, so as to avoid irregular cuts that lead to insect infestation.

c) Planting for future replacement

It is essential to create either a second row of trees or under-planting under the over mature trees well in advance to avoid treeless or vacant situation at the time when these over-mature trees will be removed or uprooted naturally. For this purpose, a replacement policy governed by the following principles will be adopted:-

- 1) Identification of trees which are likely to be replaced in the next ten years.
- 2) Replacement planting under these

identified trees should be scheduled in such a manner that at the time of removal of old tree, new crop of trees is atleast 10 years old or crown of tree is developed enough to provide shade and mature enough withstand various climatic and biotic pressures.

- 3) Replacement should be carried out with the superior stock of already planted species along Avenues.
- 4) Mixture of more than two species should be avoided in case of roadside avenue plantations. While doing replacement planting, tall saplings of 6 feet and above should be used so as to reduce establishment period and maintenance cost.
- 5) At the time of replacement planting, it should be ensured that saplings of same age group and same height are planted to provide an even look. Further, sufficient protection measures should be taken to avoid casualties, which normally results into gaps or uneven look to the avenue.

d) Selection of species to be planted under the overhead electric lines and telephone lines

It has been observed that the trees like Pilkhan, Chukrasia and Bahera which grows upto 40 feet height have been planted under electric lines which are hardly 15 feet above ground level. These

"Take care of the trees, they will take care of you"

trees then require constant headback and heavy pruning and thereby giving non-aesthetic view to the road sides. The species like Putranjiva roxburghii, Millettia, Moulisari (Mimusops elengi), Lagerstroemia species, Cassia javanica, Cassia nodosa, Barringtonia etc. may be planted under the electric lines running parallel to roads or in parks and green belts. These species may be given beautiful shapes by light pruning only.

e) Removal of Lantana, Parthenium Grass etc.

Besides being allergic, lantana and parthenium are obnoxious weeds which adversely affect the growth of indigenous species. They have an adverse impact on the biodiversity as it kills all kind of undergrowth. A marbel which is a parasite has also invaded a few trees in Chandigarh. It is a parasite which covers the whole foliage of tree and starves it of light and air. All greening agencies have been asked to remove these weeds at least twice a year to ensure proper growth of indigenous flora. Instructions have been given to

Horticulture Wings of both Municipal Corporation and Engineering Departments to keep their respective areas clear of this weed.

f) Composting/ Vermicomposting to stop burning of leaves

It has generally been seen that the dried leaves and other waste materials are burnt on

road sides and also under the trees. Burning not only causes air pollution but also damages the live tree and affects its growth. All greening agencies and local bodies should ensure that no burning of dry leaves and other wastes takes place in open and particularly under the tree. These leaves may be utilized to make compost/vermi compost manure by mixing cow dung with leaves and putting them into big pits.

The Departments may utilize the compost/vermi compost manure for their nurseries and plantations for better and healthy growth of saplings.

Municipal Corporation may make efforts to introduce composting in Nurseries and various other sites. Specific allocation of these composting sites may be done by the Departments/Municipal Corporation on roadsides for collection and dumping of dry leaves in those pits. All institutions and households are requested to make compost/vermicompost pit at their premises to convert dry leaves into compost or vermicompost which may be very useful for their kitchen garden. Municipal Corporation and Engineering Department will take strict action against officials/ individuals responsible for burning of leaves.

g) Control of Pest attack on Trees

Sustained & concerted efforts of various agencies under the guidance of PAU Advisory service have been successful in

"Trees give good look, don't destroy them from earth book"



combating the epidemic status of Mango mealy bug in U.T. Chandigarh, thus preventing a serious threat to a wide range of flora. Similarly, efforts are on to prevent stem borer attack on Arjun trees on 'Dakshin Marg' by adopting PAU technology.

Municipal Corporation and Engineering Department should complete the process of wrapping alkathene around tree trunk by 15th of December every year as this is the time for mealy bug nymphs to crawl up the tree. Similarly for stem borer, (particularly for Arjun avenues) the solution of methyl parathion (4 ml. to a liter of water) should be injected into the holes (made by insects in the tree trunk) with the help of syringe and the holes be plugged with mud. This will ensure the killing of stem borer (Inderbela sp.) Regarding trees infested with termites the following treatment method suggested by

the scientists of Forests Research Institute should be followed to ensure growth & vitality of the tree.

1. Control of termites attacking standing trees (bark feeding termites)

In the areas of high termite activity, where the damage is very extensive and is likely to affect the growth, chemical treatment may be carried out as follows:-

- i) Soil treatment: One liter of insecticidal solution of 0.2% Chlorpyrifos 20 EC may be applied by digging a trench encircling the base of the tree.
- ii) Bark treatment: To prevent the termite attack on the bark or the outer portion of the tree trunk, brush painting with the insecticide may be done after scrapping off the earthen plaster or galleries.

Formula for preparation of the insecticidal solution:

$$\text{Actual insecticide required} = \frac{\text{Solution required} \times \% (\text{Percentage})}{\text{Formulation}}$$

Ready Reckoner for making upto 100 liters of diluted spray of desired strength:

% of actual dose required	Chlorpyrifos 20EC	Chlorpyrifos 50EC
0.01	50 ml	20 ml
0.02	100 ml	40 ml
0.05	250 ml	100 ml
0.1	500 ml	200 ml
0.2	1000 ml	400 ml

Note: For example, if we require 0.2% solution of Chlorpyrifos 20 EC, then mix one liter of the insecticide in 100 liters.

"Plant trees and bring rain to get rid of summer heat"



The quantity required varies with the size of building termites has been given by the mound. The following height dosage Roonwal,1985.
relationship for effective control of mound

Mound height	Dosage of insecticide solution
90 centimeter	4.5 liters
1.20 meter	23 liters
1.50 meter	45 liters
1.80 meter	82 liters
2.10 meter	123 liters

It takes about a week for the complete killing of the entire mound colony. Make 2 or 3 large holes in the mound and pour in the liquid by means of a bucket and a large mouthed funnel.

Another most effective method is by poisoning the mounds with Aluminum Phosphoric tables. Two tablets should be placed in 1 meter mound and close all the openings with wet mud. The termites will die due to fumigant action (Mound poisoning) (Thakur, 1990). A calendar of operations for the control of various insect/pest diseases of Major tree species is appended at Annexure-VI.

h) Removal of concreting/ tiling around the tree trunk

Compaction of soil, concreting and tiling around tree trunk adversely affects its growth and life. It also reduces/ stops percolation of rain water into the sub soil and stops proper soil aeration of roots of the trees. This leads to tremendous damage to the trees. All greening agencies should leave a space of 6 ft. x 6 ft. around the tree trunk to ensure

proper growth and long life in addition to recharging of underground water aquifer. It has been decided to leave sufficient breathing space around tree trunks while doing pavements on road berms, parking areas etc.

i) Recharging of Ground Water Aquifers

It has been observed that the water table is going down in Chandigarh. This is primarily due to reduction in percolation of rain water. Rain water is lost due to surface run off as most of area is tiled or concreted in the form of parking, pavements, road berms etc. To recharge underground water aquifers, it is essential to reduce/ minimize surface run off. To achieve this, perforated tiles should be used in Parking areas & road berms wherever possible.

j) Mulching of leaves for protection of saplings

Dry & wet straw grasses and leaves should be used for mulching over the soil around tree/ sapling stem to protect the roots & for conservation of moisture.

"Save trees and be prevented from ultra-violet rays"