

Title of the Project:- Selection of species specific root trainer sizes and potting mixes to be adopted by the Forest Department nurseries of Madhya Pradesh for Ten selected tree species.

Why this Project:-

In present scenario on ban of polythene bags in forest nurseries, it is become necessity of alternatives of polythene bags. So, in place of polythene bags, root trainer may be an alternative of aforesaid material.

Research Methodology:-

Fresh seeds were collected from identified superior trees by hand plucking and peak maturity of targeted species. After collection seeds were dried in open air and were tested for viability, moisture content and germination percentage for development of packages of nursery techniques in reference to standardization of root trainer cell size with various potting mixture for selected species, work was done on following lines:

1. Collection of seeds.
2. Seed testing was done for viability, moisture and germination percentage.
3. Different seed sowing media was tried for better germination percentage.
4. Seed sowing in various root trainer cell size with various potting mixture.
5. Seed sowing in nursery bed and germination tray.
6. Experiment was laid out in the greenhouse of the institute and Social Forestry Nursery, Jabalpur.
7. The experiments were laid out in Complete Randomized Block Design (CRBD) with various treatments with three replicates in each treatment. 30 plants were required for each treatment with three replicates in every experiment.

36 potting mixtures were composed with various fertilizers and chemicals. Different size of root trainers was used for standardization of root trainer cell size with potting mixture. Fumigation with various insecticides and fungicides was also done as per requirement of the disease in plants. Observations were recorded on germination potential, seedling growth, survival percentage, root fibrococity, root volume, sturdiness and quality index. Potting mixture was analyzed for its physico-chemical properties prior applied into root trainer and after the completion of experiment. 05 experiments were done to achieve the following objectives.

Objectives of Research:-

- To standardize the potting mixture of targeted species for better growth and survival of plants.
- To standardize the root trainer cell size for optimum growth of targeted species.
- To standardize the planting period of seedlings under root trainer cell size for plantation programme.
- To standardize spacing of seedlings in root trainers for better growth and survival of plants.

Activities Undertaken:-

- Seed collection, Seed testing, Production of plants.
- Procurement of chemicals and fertilizers.
- Procurement of various sizes of root trainers.
- Seed collection of 10 targeted species for production of plants for experimental work.
- Preparation of potting media.
- Filling of root trainers with different potting mixture.
- Preparation of nursery bed.
- Seed sowing in nursery bed, germination tray and root trainers. Observation was recorded on germination potential.
- Testing of potting media before and after experiment.
- Watering and weeding.
- Fumigation with various insecticides and fungicides will also be done as per requirement of the disease in plants.
- Observation was recorded on growth and survival of plants and other parameters after six month of sowing.

Cost of the Project:- 17.76 Lakhs

Outcome of Research:-

- Standardized the potting mixture of targeted species for better growth and survival of plants.
- Standardized the root trainer cell size for optimum growth of targeted species.
- Standardized the planting period of seedlings under different cell size of root trainer for plantation programme.
- Evaluate growth performance with and without spacing of seedlings in different root trainer cell sizes for better growth and survival of plants.
- 400 cc cell sizes were found to be best of all targeted species for production of quality planting stock.
- Species wise various potting mixture were find out for higher growth, survival and rooting response of all species.
- Final report completed and submitted to funding agency within stipulated time limit.



Plant production in different cell size of root trainers with various potting mixture



Root volume and fibricity in different cell size of root trainers with various potting mixture



Root structure in different cell size of root trainers with various potting mixture