

A role of Immigrants and Indigenous plants in forest improvement from West Vidarbha region

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Abstract

Present investigation deals with the report of immigrants and indigenous plant that improves the forest vegetation as well as balancing an environment from west vidarbha region of Maharashtra state. In all a list of 75 immigrants and 51 indigenous plants. Thus a list of 126 plants with their role is described.

Keywords: Ecological, plant species immigrants and indigenous, West Vidarbha.

INTRODUCTION

West Vidarbha region of Maharashtra comprises by five districts, namely Akola, Amravati, Buldhana, Washim and Yeotmal. Approximately 25,750. 21 Sq. Km. area is under forest. A typical dry deciduous type of forest includes several species of immigrants and indigenous plants are ecologically important. Today the whole world is concerned about environmental protection. It is necessary to preserve the earth's ecological heritage and balance. Increased population rate, clearing of forest for farming, construction of dams, roads, canals leads a pressure on the environment. Increased population of tribals in and around the forest and the excessive causes most of the destruction in forest. The excessive use of forest is leading to a vicious circle of destruction. This may become irreversible if not checked in time. Once the topsoil is washed away and soil fertility is lost neither agriculture nor animal husbandry or horticulture will be able to sustain the people. Therefore the forest should not be looked as a source of revenue and sustained supply of raw materials but emphasis should be on protection and conservation of forest, environment and wild life. We must protect the environment and its green cover. Most of the trees, shrubs and herbaceous species improve the environments that are integrally linked to our ecological and economic security. For better future and prosperous life, there is a need of large-scale plantation. In last few decades more than 120 exotic plants get naturalized and now they are the part of our forest flora along with indigenous species. Most of the immigrants are dominant and plays beneficial role than harmfulness.

Earlier workers carried out the Floristic survey of flowering plants found in West Vidarbha, for Akola district by S.Y.Kamble and S. G. Pradhan, 1988, Amravati district by M. A Dhore 1987, Buldhana district by Diwakar P.G, 2000, and Yeotmal district by S.

Karthikeyan, 2000. This is the first report from Vidarbha region about the improvement of forest by these plants. Collected plants are identified by using the Flora of Marathwada by V. N. Naik, 1998, Flora of Maharashtra state for Monocotyledons, 1996 and Dicotyledones Vol. I-II by B. D. Sharma (1996) and N.P. Singh (2000-2001). In India Acharya T. work on exotic species in forest improvement and Anon (1982) soil conservation problems, Anon (1986) developing waste land. Brengle K.G. (1982) mention principles and practices of dry-land farming, Chaturvedi M.D.1938 reported the roadsides avenues.

Following is the list of plants that played a role in maintaining and improvement of forest vegetation as well as the environmental balance from West Vidarbha region.

1) Nitrogen fixing trees

Role of plants in Nitrogen fixation (Trees) (NFT)

Following plants are found in saline tract of Satpuda and Melghat forest region. *Acacia nilotica*, *Albizia lebbek*, *Casuarina equisetifolia*, *Parkinsonia aculeata*, *Pithecellobium dulce*, *Prosopis cineraria*.

NFT tolerant of soil acidity

Acacia auriculiformis, *Albizia lebbek*, *A. procera*

NFT tolerant of soil alkalinity

Acacia auriculiformis, *Casuarina equisetifolia*, *Prosopis cineraria*, *Ziziphus xylocarpa*, *Z. glaberrima*, *Z. horrida*.

NFT Tolerant of soil drainage

Acacia auriculiformis, *A.nilotica*, *Casuarina equisetifolia*, *Dalbergia sisoo*, *Sesbania grandiflora*, *S. sesban*.

NFT tolerant of prolonged draught

Acacia catechu, *A. nilotica*, *Parkinsonia aculeata*, *Prosopis juliflora*, *P. cineraria*.

2) For improving soil fertility

Leaves of following species are used for improving physical

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condition of soil and improving soil fertility by adding nitrogen content in the soil.

Albizia amara, *A. lebbeck*, *A. procera*, *Cannabis sativa*, *Crotalaria medicaginea* *C. juncea*, *Gliricidia maculata*, *Leucaena leucocephala*, *Pongamia pinnata*, *Prosopis cineraria*, *Thespesia populnea*, *Pisum sativum*, *Phaseolus aureus*, *Vigna aconitifolia*, *Trifolium repens*.

3) Light demander species

Tectona grandis, *Dalbergia sisoo*, *Adina cordifolia*, *Bombax ceiba*, *Terminalia alata*, *A. arjuna*, *T. bellirica*, *T. catappa*, *T. tomentosa*.

4) Shade bearer species

Dalbergia latifolia, *Pterocarpus marsupium*.

5) Shade demanders:

Schleichera oleosa, *Mallotus philippinensis*, *Syzygium cumini*.

6) Very deep rooted species: (Wind firm trees)

Acacia nilotica, *Dalbergia sisoo*, *Eucalyptus glaberrima*, *E. hybrid*, *E. lanceolatus*, *Prosopis cineraria* (Where water table is low).

7) Salt tolerant shrubs:

Tamarix ericoides, *Salvadora persica*, *Atriplex farinosa*, *Ipomea carnea*, *Alhagi pseudalhagi*, *Dichrostachys cinerea*, *Mimosa hamata*, *Strychnos potatorum*, *Flacortia indica*.

8) Evergreen species:

Mallotus philippensis, *Mangifera indica*, *Michelia champaca*, *Pterospermum acerifolium*, *Mutungia calabura*.

9) Trees with buttressed stem

Bombax ceiba, *Sterculia urens*, *Holoptela integrifolia*, *Mitragyna parviflora*, *Ceiba penandra*.

10) For soil conservation

Erosion resisting crops:

Arachis hypogea, *Medicago sativa*, *Trifolium alexandrinum*, *Crotalaria juncea*, *Stylosanthes hamata*.

Earth retaining

Cyanodon dactylon, A number of perennial grasses, Local fruit trees, Local fodder trees.

Gully plugging

Agave americana, *Aloe vera-cruz*, *Euphorbia tirucalli*, *Ipomea carnea*, *synandenium dactii*, Number of perennial grasses.

Vegetative check dams

Agave americana, *Arundo donax*, *Dendrocalamus strictus*, *Euphorbia* spp. *Ipomea carnea*, *Tamarix ericoides*, *Vitex negundo*.

For brush wood, check dams and vegetative spurs:

Lannea coromandelica, *Bombax ceiba*, *Boswellia serrata*, *Cordia gharaf*, *Delonix regia*, *Dalbergia sisoo*, *Erythrina suberosa*, *Ficus amplessima*, *Moringa oleifera*.

Vegetative spurs

Arundo donax, *Dalbergia sisoo*, *Ipomea carnea*, *Jatropha curcus*, *Aloe vera-cruz*, *Saccharum spontaneum*.

Vegetative reverments

Cyanodon dactylon, *Dodonaea viscosa* Number of perennial grasses.

Sites along stream banks

Acacia farnesiana, *A. catechu*, *Bombax ceiba*, *Dalbergia sisoo*, *Ipomea carnea*, *Saccharum spontaneum*, *Salix tetrasperma*, *Tamarix ericoides*, *Alhagi pseudalhagi*.

Frost hardy species

Acacia catechu, *Anogeissus latifolia*, *Dalbergia sisoo*, *Diospyros melanoxylon*, *Eucalyptus hybrida*, *Hardwickia binata*, *Madhuca latifolia*, *Mangifera indica*, *Zizyphus mauritiana*.

Frost tender species

Acacia nilotica, *Azadirachta indica*, *Boswellia serrata*, *Tectona grandis*, *Terminalia arjuna*, *T. tomentosa*.

13) Drought hardy species

Acacia nilotica, *Azadirachta indica*, *Boswellia serrata*, *Acacia auriculiformis*, *A. farnesiana*, *Albizia lebbeck*, *Cassia auriculata*, *Dalbergia sisoo*, *Dodonaea viscosa*, *Kydia calycina*, *Hardwickia binata*, *Ougenia oojenensis*, *Parkinsonia aculeate*, *Pongamia pinnata*, *Prosopis juliflora*, *Melia azedarach*, *Salvadora persica*, *Syzygium cumini*, *Tamarix ericoides*.

14) Drought sensitive species:

Anogeissus latifolia, *Madhuca latifolia*, *Mangifera indica*, *Pterocarpus marsupium*, *Tectona grandis*, *Terminalia arjuna*, *T. tomentosa*.

15) For catchment areas:

Acacia catechu, *A. leucophloea*, *A. nilotica*, *Azadirachta indica*, *Cassia siamea*, *Eucalyptus hybrida*, *Syzygium cumini*, *Terminalia arjuna*, *T. tomentosa*.

16) For landscape and aesthetic value

Acacia auriculiformis, *Bauhinia purpurea*, *B.variegata*, *Bombax ceiba*, *Butea monosperma*, *Cassia fistula*, *Jacranda ovalifolia*, *Delonix regia*, *Michelia champaca*, *Plumeria acutifolia*, *P.rubra*, *Melia azedarach*, *Lagerstroemia parviflora*, *Nyctanthus arbotritis*, *Alstonia scholaris*, *Spathodea campunulata*, *Eucalyptus glabellifer*, *Polyalthia longifolia*, *Thuja spp.* *Terminalia catappa*, *Araucaria cunninghamii*, *Millingtonia hortensis*, *Cassia siamea*, *Callistemon lanceolatus*, *Ficus glomerata*, *F. beghalensis*, *F. religiosa*, *Terminalia arjuna*, *Albizia procera*, *A. lebbeck*, *Hardwickia binata*, *Peltophorum ferruginosa*, *Bougainvillea sectabilis*.

DISCUSSION AND CONCLUSION

Man has change the living condition and has made imnurable articles for the sake of better living, To achieve all these man has certainly crossed the limits of nature and is leading towards the destruction of his own civilization. Increased population rate of tribals in and around the forest and the excessive, clearing of forest for farming, construction of dams, roads, canals leads a pressure on the environment. If peoples are not made aware of the facts now, the balance of nature can only be maintained through the conservation of the environment. There is a great correlation and interactive processes even among the minute particles of the earth, There fore the study of environment turns out to be very essential. There is a strong evidence to suggest that change in global climate has been occurring during the past 100 years. The mean global temperature has increased by 0.6 °C during the above period. Short and long term fluctuation in weather parameters and climate variability associated with climate change influences the forest products .To nullify the effect of increase in temperature, the concentration of Co₂, value should be increased. Higher temperature is likely to alter the fertility status of soil significantly.

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