

✦✦✦ *A quick guide*

for

# Mass Plantation Drives

by,

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## Scientific approach for plantations

- India has 17000 species of flowering plants but we use very few species for plantations
- **Monoculture** i.e. plantation of single species needs to be avoided. It creates greenery on land, but it doesn't create **FOREST** !
- So more meaningful way is to do plantations which would **mimic forest** along with **ecological restoration** of natural resources like soil, water and biodiversity around it

## There are five major steps :

1. **Know your region** : Forest type in your area
2. **Assess the status** of your land
3. **Plan for restoration and plantations** :
  - 3.a **Protection to land** : Conserve soil and moisture, Protect existing habitats
  - 3.b **Selection of species & numbers** : as per status of soil and resource availability
  - 3.c **Seed dispersal**
4. **Execution** : Selection of sapling and Plantation
5. **Maintenance**

# 1. Know your region

- What is the kind of vegetation or forest in your region. e.g. Dry deciduous, Moist deciduous, Evergreen, Semi arid etc
- Find out secondary data that will give an idea about the **species growing naturally** and easily in your area
- But most of the times the original vegetation is lost & area is **degraded** due to various external pressures
- So it is necessary to follow next step .....

## 2. Assess your land

- Is the **soil** ready to support plants ?
- Plants grow well in fertile soil and even in soft to medium hard murrum but don't grow well in hard murrum and rocks. But only fine soil is not enough
- So check if it has enough **organic matter & nutrients and microbes**
- If yes, you can go ahead with plantations.
- If not, check following points

## 3. Plan for Restoration and Plantation

- Generally plantations are done on barren areas or hill slopes
- Better approach is to conserve soil & moisture and then start planting

**3.a Protection to land** : Conserve soil and moisture, Protect existing habitats

**3.b Selection of species & numbers** as per status of soil and resource availability. Phase out plantations

## 3.a Protection to the land

- **Assure total protection** from fire, grazing and cutting
- **Conserve existing natural structure** : Retain existing native plants or shrubs or other important features and integrate them in plantations
- Do not remove grasses or clear/ level the land. Many times, lot of ground work in terms of trenches disturb the original lay of land
- **Conserve soil moisture** : Plants need soil moisture to grow. Enhance moisture holding capacity of soil. Apply **restoration techniques for initial 2 or 3 years and then do plantations**

## 3.b Selection of species

- **Select Diverse Native plants;** both common and rare. Include food plants for birds and butterflies
- **Select a diversity in plant habits** like trees, shrubs, climbers, herbs, grasses
- **If soil is poor, phase out plantations.**
  - First 3 years : Select more hardy and common species
  - 4<sup>th</sup> year onwards: Rare and Special species
- **Complete 'NO' to non-native plants**

Note: Please refer to '[List Of Native Plants](#)' for selection of plants



## 3.c Seed dispersal

- **Seed dispersal** : Seeds of appropriate **Native plants** can be dispersed either as is or in dung balls. e.g. Amba, Jambhul, Karwand, Beheda, Shivan, Palas, Ain, Karanj, Khair, Bahawa, Shirish, Pangara, etc
- Area for dispersal **must not be** totally barren land
- Seeds should be dispersed in existing clusters of shrubs, trees, along roads
- Dispersal can be done through last week of May till onset of monsoon

## 4. Execution of Plantation

- Plantation time can be planned as per resource availability
  - If irrigation is available throughout the year, plantations can be done any time of the year. But, in case of high rainfall, high elevation, open, windy areas (> 4000 mm av. annual), it is suggested to do plantations at the end of monsoon
  - If irrigation is not available, start planting at onset of monsoon

- Take pits of 2 x 2 x 2 ft at distance of 6-10 ft from each other
- Expose pits to sun for 5 - 10 days
- Sprinkle ash on the bottom & sides of pits
- Fill the pits with - Site soil (in case of poor site soils, use 30 % external good quality soil) + good composted cow dung (30 %) + compost (2 kg) + Coco peat (500 gm) + Neem cake (200 gm) + Leaf Litter & Grass or Crop residue
- Plant at least 2 to 3 years old saplings propagated in big size bag

## 5. Maintenance

- Heap of soil all around sapling (आळ)
- Regular watering
  - Drip irrigation system using bottles, earthen pots or drip lines
- Mulching at base of each plant
- Bamboo stick as support
- Create shade if needed
- Protect from grazing, trampling, fire



## Just to summarize ...

- Assure protection from Grazing & Fire !
- Retain existing natural structure of the land
- Maintain existing diversity on land
- Work on soil & moisture for 2-3 years
- Select appropriate native plants
- Assure irrigation for first 2 years
- Ensure protection & mulching of naturally growing grass

# Select your plants ...

K = Kokan, S = Sahyadri, D = Desh / Central Maharashtra, V = Vidarbha

वृक्ष / Trees						
	नाव	शास्त्रीय नाव	K	S	D	V
१	हिवर	<i>Acacia leucophloea</i>	✓		✓	✓
२	पिसा	<i>Actinodaphne angustifolia</i>	✓	✓		
३	बेल	<i>Aegle marmelos</i>	✓		✓	✓
४	महारुख	<i>Ailanthus excelsa</i>	✓		✓	✓
५	अंकोळ	<i>Alangium salvifolium</i>	✓		✓	✓
६	शिरीष	<i>Albizia lebeck</i>	✓	✓	✓	✓
७	सातवीण	<i>Alstonia scholaris</i>	✓	✓		
८	धावडा	<i>Anogeissus latifolia</i>	✓		✓	✓
९	रोहीतक	<i>Aphanamixis polystachya</i>	✓	✓		
१०	नीम	<i>Azadirachta indica</i>	✓		✓	✓
११	आपटा	<i>Bauhinia racemosa</i>	✓	✓	✓	✓
१२	सावर	<i>Bombax ceiba</i>	✓	✓		✓
१३	सालई	<i>Boswellia serrata</i>	✓		✓	✓
१४	आसणा	<i>Bridelia retusa</i>	✓	✓	✓	✓
१५	चारोली	<i>Buchanania cochinchinensis</i>	✓		✓	✓
१६	पळस	<i>Butea monosperma</i>	✓	✓	✓	✓
१७	उंडी	<i>Calophyllum inophyllum</i>	✓			
१८	कुंभ	<i>Careya arborea</i>	✓	✓		✓
१९	भेरली माड	<i>Caryota urens</i>	✓	✓		✓
२०	बहावा	<i>Cassia fistula</i>	✓	✓	✓	✓

	नाव	शास्त्रीय नाव	K	S	D	V
२१	गेळा	<i>Catunaregam spinosa</i>	✓	✓		
२२	तमालपत्र	<i>Cinnamomum zeylanicum</i>	✓	✓		
२३	भोकर	<i>Cordia dichotoma</i>	✓	✓	✓	✓
२४	वरुण	<i>Crataeva adansonii</i>	✓	✓		✓
२५	फाशी	<i>Dalbergia lanceolaria</i>			✓	✓
२६	शिसम	<i>Dalbergia latifolia</i>	✓	✓	✓	✓
२७	शिसव	<i>Dalbergia sisoo</i>	✓		✓	✓
२८	टेम्भुर्णी	<i>Diospyros melanoxylon</i>	✓		✓	✓
२९	मेढशिंगी	<i>Dolichandrone falcata</i>	✓		✓	✓
३०	आवळा	<i>Emblica officinalis</i>	✓	✓	✓	✓
३१	पांगारा	<i>Erythrina suberosa</i>	✓		✓	✓
३२	पिपर	<i>Ficus amplissima</i>	✓	✓	✓	✓
३३	नांद्रूक	<i>Ficus microcarpa</i>	✓	✓	✓	✓
३४	उंबर	<i>Ficus racemosa</i>	✓	✓	✓	✓
३५	डिकेमाली	<i>Gardenia resinifera</i>	✓		✓	✓
३६	काकड	<i>Garuga pinnata</i>	✓		✓	✓
३७	शिवण	<i>Gmelina arborea</i>	✓	✓	✓	✓
३८	धामण	<i>Grewia tiliifolia</i>	✓	✓	✓	✓
३९	हेदू	<i>Haldina cordifolia</i>	✓	✓		✓
४०	अंजन	<i>Hardwickia binata</i>			✓	✓

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	नाव	शास्त्रीय नाव	K	S	D	V
४१	वारस	<i>Heterophragma roxburghii</i>	✓	✓	✓	✓
४२	कुडा	<i>Holarrhena pubescence</i>	✓	✓	✓	✓
४३	वावळ	<i>Holoptelea integrifolia</i>	✓		✓	✓
४४	खुरी	<i>Ixora brachiata</i>	✓	✓		
४५	राय कुडा	<i>Ixora parviflora</i>			✓	✓
४६	नाणा	<i>Lagerstroemia microcarpa</i>	✓	✓		✓
४७	तामण	<i>Lagerstroemia speciosa</i>	✓	✓		
४८	मोई	<i>Lansea coromandelica</i>	✓	✓	✓	✓
४९	कवठ	<i>Limonia acidissima</i>	✓		✓	✓
५०	चांदवा	<i>Macaranga peltata</i>	✓	✓		
५१	मोह	<i>Madhuca latifolia</i>	✓		✓	✓
५२	पेटारी	<i>Mallotus repandus</i>	✓			
५३	आंबा	<i>Mangifera indica</i>	✓	✓	✓	✓
५४	खिरणी	<i>Manilkara hexandra</i>	✓	✓	✓	✓
५५	लिंबारा	<i>Melia dubia</i>	✓	✓		
५६	अंजनी	<i>Memecylon umbellatum</i>	✓	✓		
५७	नागचाफा	<i>Mesua ferrea</i>	✓	✓		
५८	बकुळ	<i>Mimusops elengi</i>	✓	✓		
५९	कळम	<i>Mitragyna parvifolia</i>	✓	✓	✓	✓
६०	बारतोंडी	<i>Morinda pubescens</i>	✓	✓	✓	✓

	नाव	शास्त्रीय नाव	K	S	D	V
६१	पांढर	<i>Murraya paniculata</i>		✓		
६२	कदंब	<i>Neolamarckia cadamba</i>	✓	✓		
६३	नरक्या	<i>Nothapodytes nimmoniana</i>		✓		
६४	पारिजातक	<i>Nyctanthes arbor-tristis</i>	✓		✓	
६५	पारजांभूळ	<i>Olea dioica</i>	✓	✓		
६६	टेटू	<i>Oroxylum indicum</i>	✓	✓		
६७	काळा पळस	<i>Ougeinia oojeinensis</i>		✓		✓
६८	शिंदी	<i>Phoenix sylvestris</i>	✓	✓	✓	✓
६९	करंज	<i>Pongamia pinnata</i>	✓	✓	✓	✓
७०	बिजा	<i>Pterocarpus marsupium</i>	✓	✓	✓	✓
७१	रक्तचंदन	<i>Pterocarpus santalinus</i>	✓		✓	✓
७२	मुचकुंद	<i>Pterospermum acerifolium</i>	✓	✓		
७३	पुत्रंजीवा	<i>Putranjiva roxburghii</i>	✓	✓		
७४	खडशिंगी	<i>Radermachera xylocarpa</i>	✓	✓		✓
७५	वाळूज	<i>Salix tetrasperma</i>		✓	✓	
७६	पीलू	<i>Salvadora persica</i>	✓		✓	
७७	चंदन	<i>Santalum album</i>	✓		✓	✓
७८	रिठा	<i>Sapindus laurifolius</i>	✓	✓	✓	✓
७९	सीताअशोक	<i>Saraca asoca</i>	✓	✓		

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	नाव	शास्त्रीय नाव	K	S	D	V
८०	कुसुम	<i>Schleichera oleosa</i>	✓	✓	✓	✓
८१	मोखा	<i>Schrebera swietenoides</i>	✓			✓
८२	बिब्बा	<i>Semecarpus anacardium</i>	✓		✓	✓
८३	अंबाडा	<i>Spondias pinnata</i>	✓	✓		
८४	कुकेर	<i>Sterculia guttata</i>		✓		
८५	करू	<i>Sterculia urens</i>	✓		✓	✓
८६	पाटल	<i>Stereospermum chelonoides</i>			✓	✓
८७	पाडळ	<i>Stereospermum colais</i>	✓	✓		
८८	जांभूळ	<i>Syzygium cumini</i>	✓	✓	✓	✓
८९	पेंढरा	<i>Tamilnadia uliginosa</i>	✓			✓
९०	साग	<i>Tectona grandis</i>	✓		✓	✓
९१	अर्जुन	<i>Terminalia arjuna</i>			✓	✓
९२	बेहडा	<i>Terminalia bellirica</i>	✓	✓	✓	✓
९३	हिरडा	<i>Terminalia chebula</i>	✓	✓		
९४	किंजळ	<i>Terminalia paniculata</i>	✓	✓		
९५	ऐन	<i>Terminalia tomentosa</i>	✓	✓	✓	✓
९६	भेंड	<i>Thespesia populnea</i>	✓	✓	✓	✓
९७	खरळ	<i>Trema orientalis</i>	✓	✓	✓	✓
९८	काळा कुडा	<i>Wrightia tinctoria</i>	✓	✓	✓	✓
९९	तिरफळ	<i>Zanthoxylum rhetsa</i>	✓	✓		

बांबू / Bamboo						
	नाव	शास्त्रीय नाव	K	S	D	V
१	बांबू-कलक	<i>Bambusa arundinacea</i>	✓	✓	✓	✓
२	बांबू-मेस	<i>Dendrocalamus strictus</i>	✓	✓	✓	✓

K	कोकण	२५००-३५०० मिमी	ठाणे, रायगड, रत्नागिरी, सिंधुदुर्ग
S	सह्याद्री	३५००-७००० मिमी	धुळे, नाशिक, पुणे, सातारा, कोल्हापूर या जिल्हयांचा पश्चिम भाग
D	देश / मध्य महाराष्ट्र	३००-८०० मिमी	धुळे, नाशिक, नगर, पुणे, सातारा, कोल्हापूर, औरंगाबाद, बीड, सोलापूर, यवतमाळ, बुलढाणा
V	पूर्व विदर्भ	१०००-१५०० मिमी	भंडारा, गोंदिया, नागपूर, चंद्रपूर, गडचिरोली

Note: Rainfall zones are not based on standard classification



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### झुडपं / Shrubs

	नाव	शास्त्रीय नाव	K	S	D	V
१	पाचुंदा	<i>Capparis grandis</i>			✓	
२	करवंद	<i>Carissa congesta</i>	✓	✓	✓	✓
३	कारवी	<i>Carvia callosa</i>		✓		
४	तरवड	<i>Cassia auriculata</i>			✓	✓
५	भारंगी	<i>Clerodendrum serratum</i>	✓	✓	✓	✓
६	पांढरफळी	<i>Flueggea spp.</i>	✓	✓	✓	✓
७	रामेठा	<i>Gnidia glauca</i>	✓	✓		
८	मुरुडशेंग	<i>Helicteres isora</i>	✓	✓	✓	✓
९	अडुळसा	<i>Justicia adhatoda</i>	✓	✓		✓
१०	कडीपत्ता	<i>Murraya koenigii</i>	✓	✓	✓	✓
११	फापट	<i>Pavetta crassicaulis</i>		✓		
१२	चित्रक	<i>Plumbago zeylanica</i>	✓	✓	✓	✓
१३	निर्गुडी	<i>Vitex negundo</i>	✓	✓	✓	✓
१४	धायटी	<i>Woodfordia fruticosa</i>	✓	✓	✓	✓

### वेली / Climbers

	नाव	शास्त्रीय नाव	K	S	D	V
१	गुंज	<i>Abrus precatorius</i>	✓	✓	✓	✓
२	समुद्रशोक	<i>Argyrea nervosa</i>	✓	✓	✓	✓
३	शतावरी	<i>Asparagus racemosus</i>	✓	✓	✓	✓
४	पळसवेल	<i>Butea superba</i>	✓			✓
५	सागरगोटा	<i>Caesalpinia bonducella</i>	✓	✓	✓	✓
६	पिळूकी	<i>Combretum albidum</i>	✓	✓	✓	✓
७	कावळी	<i>Cryptolepis dubia</i>	✓	✓	✓	✓
८	अम्बुळकी	<i>Elaeagnus conferta</i>		✓		
९	वावडिंग	<i>Embelia tsjeriam-cottam</i>		✓		
१०	गारंबी	<i>Entada rheedii</i>		✓		
११	उक्षी	<i>Getonia floribunda</i>	✓	✓		
१२	मधुनाशिनी	<i>Gymnema sylvestre</i>	✓	✓	✓	✓
१३	अनंतमूळ	<i>Hemidesmus indicus</i>	✓	✓	✓	✓
१४	माधवीलता	<i>Hiptage benghalensis</i>		✓		
१५	वाकेरी	<i>Moullava spicata</i>		✓		

Restore soil ! Restore moisture !  
Plant Natives !



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