EXPERIMENTS IN REVEGETATION IN UTTARA KANNADA DISTRICT OF KARNATAKA

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INTRODUCTION

The major goals of the ecodevelopment research work of IISc in Uttar Kannada are to develop a programme for enhancing the plant resources in degraded captive leaf manure forests (Soppina bettas) and other community lands such as minor forests, to catalyse the development of tree seedling nurseries in schools and colleges; to develop fodder resources and to conduct training programmes aimed at achieving these goals. The work began in June 1982 with the help and cooperation of the farmers of Hulgol Group Villages Cooperative Society, Bhairumbe, and the Department of Ecology and Environment, Governme nt of Karnataka. Initially on an experimental basis, 15 farmers from Sirsi, Yellapur and Siddapur were selected to implement the programme. Subsequently it has been expanded in 1983 and it now covers the taluks of Yellapur, Sirsi, Siddapur, Kumta and Honavar. We report here the results of work carried out during the above period.

2.0 PRELIMINARY SURVEY

In order to obtain basic information on the land use, agricultural, animal husbandry practices, requirements of fuel, fodder and manure, a survey of the participating farmers was conducted. From the survey it was found out

that the dependence of farmers in the Soppina betta/minor forest for green manure, fodder and fuel is indeed very high. It was also found that the ratio of land to cattle is extremel low. As a result, considerable overgrazing is prevalent in all the study locations, while there was no concerted attempt on the part of the farmers to grow fodder for the cattle.

The green leaf manure is obtained from the Soppina bettas by lopping the trees once in June-July period and a second time in December-January. All the leaves along with thinner branches are lopped. Only the apical regions of the tree is left untouched. The lopping is carried once in three years. In addition to the lopping of trees, the farmers also prune the shrubbery on the betta to obtain the leaf material. In most cases, cattle are let out into the bettas for grazing purposes. Some of the farmers who have 'benas' (grasslands) set fire to them in order to obtaining fresh grass growth in the monsoon. If the farmer does not possess the bena, the betta land alone is to meet his requirements in which case fires are a recurring feature in this land too.

These factors appear to have contributed to the deterioration of the tree cover, and the soil. The consequence has been that in most localities atleast 50-70 percent of these betta lands are barren. In fact a recent study by Ajit Mani (1984) showed that in the village of Salkani,

The overall survival varied from 22 percent to a maximum of 67 percent. Table 1 gives the overall survival percentage of the seedling of these 15 farmers. The survival percentages are grouped into 0-20, 21-40, 41-60, 61-80 and 81-100. Out of the 15 plantation only five have survival percentages between 21-40. The rest vary from 41-80. The details for each of the 15 farmer is given in Appendix 1. The performance of each species (in terms of survival) is given in Table 2. The species with 70 percent and above survival rate are Lagerstroemia microcarpa, Swietenia mahogany, Vateria indica, Syzygium cuminii and Acacia auriculiformis. Of these, two are exotics namely Swietenia mahogany and Acacia auriculiformis. It is encouraging to find that evergeen species such as Vateria indica, Syzygium cuminii could survive in the relatively disturbed areas. However, Artocarpus integrifolia, A. hirsuta, Pterocarpus marsupium, Terminalia tomentosa and others have a survival percentage less than 20 percent.

A total of 36 farmers in the villages of Bengle Onikeri, Sirsimukki, Mensikisi, Hegdekatta, Bakkal and Vanalli were provided with seedlings of various tree species. Owing to some practical difficulty, computation on survival percentage of individual species in the betta land could not be carried out in these localities. However, villagewise total survival percentage were computed. For these six villages the survival was found to be 81.5, 80.5, 87.5, 63.7, 60.9 and 56.1 percentages respectively for Bengle, Onikere, Sirsimakki, Mansikeri

Hegdekatta, Bakkal and Vanalli. Out of the total 36 farmers, 24 have on their betta land, survival percentage above 60.

3.2 SURVIVAL OF SEEDLINGS IN KUMTA AND HONAVAR TALUKS

A total of 2131 seedlings belonging to 9 different species were supplied to 11 farmers of Murur village of Kumta taluk in June 1983. At the end of growth season in 1984 March, a total of 1250 seedlings were found to be surviving. Thus the overall percentage survival was found to be 58.6. Table 3 gives the list of farmers and the percentage survival of the seedling in each of the betta lands. The maximum survival percentage obtained was 74.5 and the minimum 12.91. However, a great majority of them do have more than 50 percent survival rate. Appendix 2 gives details of seedling supplied to each of these eleven farmers. In Areangadi regions of Honavar taluk, Acacia auriculiformis, Anacardium occidentale, Terminalia paniculata have fared better than the others. Table 4 gives the list of species and their overall survival percentages for the Areangadi and Unchagi regions. Appendix 3 gives details of survival percentages of the seedlings in each of the farmers betta land. The low survival of the seedlings in the Kumta and Honavar taluks is due to several factors. The most important points being (a) supply of naked seedlings (b) late planting and (c) cattle grazing. It was observed that though some farmers could protect the plantation against cattle grazing, in the initial stages, in the summer period breaches in the fence appeared and cattle damaged the

observation throughout the year is essential to suggest the exact cover crop species that are suitable for these conditions. Experiments are underway.

7.0 OTHER ECODEVELOPMENTAL ACTIVITIES

These include raising of school and college tree seedling nurseries in Yellapur, Sirsi, Kumta and Honavar taluks. Similarly the propagation of fuel efficient wood burning stoves, conducting training programmes in ecodevelopment have been the major components of ecodevelopment programme. The details of all these components have been discussed in a report by Prasad et al (1984)

8.0 CONCLUSIONS

It was found out that the survival rates of seedlings raised in polybags was better than otherwise. The seedlings root system is less likely to be damaged in the case of seedlings in polythene bags than from the nursery beds. It was also evident that the early planting in June helps much better than the late planting of August-September. This could be due to heavy rains, the waterlogged soil does not permit a quick development of rthe root system if the seedling is not outright killing. When the rains cease in September or October, there is rapid drying of the soil and the availability of moisture. This seems to be the case in late planting.

The better survival of seedling of deciduous and of pioneer species suggest that one must phase the programme

of revegetation in such a fashion that would first promote the early colonizers who can withstand the rigours imposed by the environment much better than the climax species. When the soil conditions under the canopy improve (such as soil moisture regimes, heat regimes, available nutrients) the climax species would appear to establish and take over the early successional stage species. In fact, this should be the guiding principle in selection of species suitable for revegetation of degraded localities.

REFERENCES

Mani Ajit (1984) Agrarian Technology and Ecodegradation of betta forests in Salkani village in North Kanara district of Karnataka. Technical Report 1, Centre for Ecological Sciences, Indian Institute of Science, Bangalore

Prasad, S.N. Hegde, M.S. Gadgil, M and Hegde, K.M. (1984) An experiment in ecodevelopment in Uttar Kannada district of Karnataka. Technical Report 2 Centre for Ecological Sciences, Indian Institute of Science, Bangalore

TABLE - 1

DATA FOR 15 FARMERS (BHAIRUMBE PROJECT AREA)

OVERALL SURVIVAL OF SAPLINGS IN EACH FARMER PLOT

SL.NO.	NAME OF THE FARMER	SURVIVAL PERCENTAGE
1.	R.V. Hegde	35.26
2.	V.N. Hegde	61.43
3.	V.S. Hegde	67.21
4.	G.M. Hegde	46.61
5.	K.M. Hegde	58.49
6.	S.G. Bhat	41.31
7.	N.V. Hegde	65.68
8.	V.D. Hegde	26.53+
9.	M.R. Hegde	65.20
10.	R.A. Tattikai	53.17
11.	G.T. Hegde	40.43
12.	G.V. Hegde Salkani	22.10+
13.	G.V. Hegde	53.98
14.	S.N. Bhat	51.83
15.	N.G. Hegde	27.58++

+In these plots the planted seedlings were destroyed by (accidental) fire

++Seedlings supplied to the farmer's plot were naked

TABLE 2

RANKING FOF EACH SPECIES OF PLANTS ACCORDING TO THEIR SUCCESS, ON 15 FARMERS' PLOT
(BHAIRUMBE PROJECT AREA)

NAME OF THE SPECIES	PERCENTAGE
1. Lagerstroemia lanceolata	91.53
2. Sweitenia mahogany	77.00
3. Vateria indica	76.72
4. Syzygium cuminii	72.37
5. Acacia auriculiformis	71.34
6. Pongamia glabra	63.33
7. Albizzia falcata	61.31
8. Acrocarpus fraxinifolia	56.63
9. Terminalia paniculata	49.77
10. Casuarina equisetifolia	46.75
11. Albizia lebbeck	38.79
12. Gmelina arborea	32.67
13. Leucaena leucocepha la	32.31
14. Terminalia bellirica	29.70
15. Dalbergia latifolia	28.24
16. Ailanthus malabaricum	21.99
17. Artocarpus integrifolia	17.84
18. Sapindus emarginate	16.35
19. Pterocarpus marsupium	10.14
20. Terminalia tomentosa	9.80
21. Anacardium occidentale	5.67
22. Artocarpus hirsuta	5.51
23. Bahinia sps.	Nil
24. Cedrela toona	Nil

TABLE - 4

GRADINGS OF SPECIES ACCORDING TO SURVIVAL
(AREANGADI AND HONAVAR TALUK)

Sl.No.	Species	Percentage of survival
1.	Acacia auruculiformis	7.43
2.	Anacardium occadantale	30.91
3.	Terminalia paniculata	20.42
4.	Magnifera indica	18.79
5.	Leucaena leucocephala	15.32
6.	Terminalia bellerica	11.86
7.	Swetania mahagony	9.65
8.	Terminalia alata	8.35
9.	Dalbergia latifolia	6.96
10.	Casuarina equisetifolia	6.44
11.	Tamarindus indica	6.05
12.	Artocarpus integrifolia	1.40
13.	Psidium guajava	0.57

Table - 3

Overall Percentage Survival of Species Planted in the bettas of Murur (Kumta taluk)

Sl.No.	Species	Percentage survival
1.	Acacia auriculiformis	59.9
2.	Syzygium cuminii	61.6
3.	Vateria indica	59.7
4.	Dalbergia latifolia	35.0
5.	Pterocarpus marsupium	39.2
6.	Leucaena leucocephala	59.7
7.	Terminalia tomentosa	73.5
8.	T. bellirica	45.0
9.	T. paniculata	66.6

APPENDIX 1

TREE SPECIES SUPPLIED FOR 1984 PLANTING IN THE MANCHIKERE RANGE

NAME OF THE SPECIES	NAME OF THE FARMER					
	G.T. Bhat	R.G. Hegde	V.G. Hegde	R.S. Shastri	N.G. Hegde	TOTAL
1. Acacia auriculiformis	250	250	250	250	250	1250
2. Acrocarpus fraxinifolia	100	100	100	100	100	500
3. Anthocephalus cadamba	140	140	200	200	200	880
4. Artocarpus hirsuta	840	25	50	50	50	215
5. Chukrasia tabularis	40	-	25	25	25	115
6. Syzygium cumini	100	100	30	30	100	360
7. Sweitenia mahogony	100	100	100	100	100	500
8. Terminalia bellirica	50	50	100	100	100	400
9. Gmelina arborea	125	125	100	100	100	550
10. Vateria indica	50	25	25	25	25	150
11. Terminalia tomentosa	50	50	100	100	50	350
12. Machilus macrantha	25	25	25	25	25	125
13. Phyllanths emblica	25	25	25	25	25	125
TOTAL :	1095	1015	1130	1130	1150	

NUMBER OF SEEDLINGS SUPPLIED TO FARMERS AT SIRSIKERI DURING 1984-85

NAME OF THE SPECIES	P.S. Hegde	G.R. Hegde	S.S. Hegde	R.S. Hegde	G.R. Hegde	K.G. Hegde	M.S. Hegde	M.S. Hegde Abrima	Total
. Acacia auriculiformis	100	100	100	100	100	100	100	100	800
. Acrocarpus fraxinifolia	15	15	15	15	15	15	15	15	120
. Albizia lebbek	5	5	5	5	5	5	5	5	40
. Albizia odorotossima									
. Artocarpus hirsuta									
. Artocarpus integrifolia	15	15	15	15	15	15	15	15	120
. Bombax malabaricum									
. Cassia fistula	5	5	5	5	5	5	5	5	40
. Casuarina equisetifolia	15	15	15	15	15	15	15	15	120
0. Dalbergia sisso	5	5	5	5	5	5	5	5	40
1. Erythrina indica									
2. Gmelina arblorea	30	30	30	30	30	30	30	30	240
3. Mangifera indica	15	15	15	15	15	15	15	15	120
4. Mimosaps elangeii									
. Heguaforrea									
6. Pongamia glabra	05	05	05	05	05	05	05	05	40
7. Pterocarpus marsupium	55	55	55	55	55	55	55	55	440
8. Sapindus marginata	5	5	5	5	5	5	5	5	40
9. Sesbania grandiflora	5	5	5	5	5	5	5	5	40
0. Subabul	20	20	20	20	20	20	20	20	160
1. Sterculia sp.									
2. Syzygium cumini	100	100	100	100	100	100	100	100	800
3. Terminalia bellerica	15	15	15	15	15	15	15	15	120
4. Terminalia tomentosa	30	30	30	30	30	30	30	30	240
5. Veteria indica	25	25	25	25	25	25	25	25	200

SEEDLINGS SUPPLIED TO FARMERS AT SIRSIMAKI DURING 1984-85

NAME OF THE SPECIES	R.P.Hegde	Bhagwat	N.S.Hegde L.S.Hegde G.G.Hegde	Total
1. Acacia auriculiformi	250	250	600	1100
2. Acrocarpus fraxinifolia	40	40	100	180
3. Albezia lebbek	15	15	45	105
4. Albezia odorotissima	30	30	70	130
5. Artocarpus integrifolia				
6. Artocarpus hirsuta				
7. Bombax malabaricum				
8. Cassia siamea	75	75	100	250
9. Casuarina equisetifolia	5	5	15	30
10. Dalbergia latifolia				
11. Erythrine indica	50	50	150	250
12. Gmelina arborea	15	15	45	75
13. Mangifera indica				
14. Mimosaps elengeii				
15. Mesuafereea	40	40	75	155
16. Pongamia glabira	50	50	150	250
17. Pterocarpus marsupium	15	15	30	60
18. Sapindus marginata	30	30	90	150
19. Sesbania grandiflora	50	50	100	200
20. Leucaena leucocephala	10	10	30	50
21. Sterculia sp.	100	100	200	400
22. Syzygium cumini	50	50	75	175
23. Terminalia bellerica	50	50	175	275
24. Terminalia tomentosa	25	25	175	125
25. Vateria indica				

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Contd. ...

SEEDLINGS SUPPLIED TO FARMERS AT [illegible]SIKERI DURING 1984-85

NAME OF THE SPECIES	P.S. Hegde	G.R. Hegde	S.S. Hegde	R.S. Hegde	G.R. Hegde	K.G. Hegde	M.S. Hegde	M.S. Hegde Abrima	Total
26. Anogeisus latifolia									
27. Tamarindus indica	10	10	10	10	10	10	10	10	80
28. Anthocephlus cadamba									
29. Albizia procera									
30. Machilus macrantha									
31. Bauhinia sp.	5	5	5	5	5	5	5	5	40
32. Butea Sp.	10	10	10	10	10	10	10	10	80
33. Phyllanthus emblica	15	15	15	15	15	15	15	15	120
34. Bamboo	1	1	1	1	1	1	1	1	08
35. Glyricidia									
36. Agave									
37. Annona squamosa	10	10	10	10	10	10	10	10	80
38. Doubanga sonneroides	10	10	10	10	10	10	10	10	80
TOTAL:	526	526	526	526	526	526	526	526	4208

Contd. ... SLEDLINGS SUPPLIED TO FARMERS AT SIRSIMAKKI DURING 1984-85

NAME OF THE SPECIES	R.P.Hegde	Bhagwat	N.S.Hegde L.S.Hegde G.G.Hegde	Total
26. Anogeissus latifolia	50	50	75	175
27. Tamarindus indica	20	20	60	100
28. Anthocephalus cadamba	25	25	75	125
29. Albizia procera	1	1	13	5
30. Machilus macrantha				
31. Bauhinia sp.				
32. Butea monosperma	20	20	60	100
33. Phyllanthus emblica	15	15	45	75
34. Bamboo	5	5	15	30
35. Glyricidia maculata				
36. Agave				
37. Annona squamosa				
38. Tarmirandus indica				
39. Dendrocalamus strictus				
TOTAL :	1036	1014	2458	4535

SEEDLINGS SUPPLIED TO FARMERS AT HEGDEKATTA DURING 1984-85

NAME OF THE SPECIES	S.S. Hegde	S.S. Hegde Balge	M.T. Hegde	M.N. Hegde	R.M. Hegde	S.G. Hegde	Total
1. Acacia auriculiformis	275	275	275	275	275	275	1650
2. Acrocarpus fiaxinifolia	75	75	75	75	75	75	450
3. Albezia odoratossima	30	30	30	30	30	30	180
4. Albezia lebbek							
5. Artocarpus hirsuta							
6. Artocarpus integrifolia	10	10	10	10	10	10	60
7. Bombax malabaricum							
8. Cassia fistula							
9. Cassia siamea	50	50	50	50	50	50	300
10. Casurina equisetifolia	100	100	100	100	100	100	600
11. Cinnamomum	2	2	2	2	2	2	12
12. Dalbergia latifolia	40	40	40	40	40	40	240
13. Erythrina indica							
14. Gmelina arborea	10	10	10	10	10	10	60
15. Lagerstro emia lanceolata							
16. Mangifera indica	10	10	10	10	10	10	60
17. Mimosops elangeli							
18. Acacia ferrea	2	2	2	2	2	2	12
19. Pongamia glabra	25	25	25	25	25	25	150
20. Pterocarpus marsupium	30	30	30	30	30	30	180
21. Chukrasia tabularis							
22. Subabul	100	100	100	100	100	100	600
23. Sapindus marginata	10	10	10	10	10	10	60
24. Sesbania grandiflora	40	40	40	40	40	40	240
25. Sterculia sp.	10	10	10	10	10	10	60
26. Syzyzium cumini	200	200	200	200	200	200	1200
27. Terminalia bellerica	50	50	50	50	50	50	300

... Contd.

Contd. ... SEEDLINGS SUPPLIED TO FARMERS AT HEGDEKATTA DURING 1984-85

NAME OF THE SPECIES	S.S. Hegde	S.S. Hegde Balge	M.T. Hegde	M.N. Hegde	R.M. Hegde	S.G. Hegde	Total
28. Terminalia tomentosa	75	75	75	75	75	85	450
29. Veteria indica	10	10	10	10	10	10	60
30. Bamboo	1	1	1	1	1	1	6
31. Annona squamosa	20	20	20	20	20	20	120
32. Agave							
33. Mallotus philippensis							
34. Glyricidia							
35. Abrus precatoria	10	10	10	10	10	10	60
36. Termarindus indica	15	15	15	15	15	15	90
37. Delonix regia	10	10	10	10	10	10	60
38. Phylanthus emblica	10	10	10	10	10	10	60
TOTAL:	1220	1220	1220	1220	1220	1220	7320

SEEDLINGS SUPPLIED TO FARMERS AT BENGLE - ONIKERI DURING 1984-85

NAME OF THE SPECIES	G.D. Hegde	S.K. Hegde	R.V. Bhat	S.V. Hegde	Y.S. Hegde	A.V. Bhat	Total
1. Acacia auriculiformis	200	200	200	200	200	200	1150
2. Acrocarpus fraxinifolia	50	50	50	50	50	25	
3. Albizia lebbek	15	15	15	15	15	10	85
4. Albizia odorato ssima							
5. Artocarpus hirsuta							
6. Artocarpus integrifolia	30	30	30	30	30	25	175
7. Bombax malabaricum							
8. Cassia siamea							
9. Casuarina quisetifolia	100	100	100	100	100	50	550
10. Dalbergia latifolia							
11. Erythrina indica							
12. Gmelina arborea	100	100	100	100	100	25	525
13. Mangifera indica							
14. Mesua ferrea							
15. Naga sampige							
16. Pongamia glabra	50	50	50	50	50	05	255
17. Pterocarpus mersupium	50	50	50	50	50	25	275
18. Sapindus emarginata	15	15	15	15	15	05	80
19. Sesbania grandiflora	30	30	30	30	30	25	175
20. Leucaena leucacephala	50	50	50	50	50	30	280
21. Sterculia sp.	10	10	10	10	10	10	60
22. Syzygium cumini	120	120	120	120	120	75	675
23. Terminalia bellerica	50	50	50	50	50	25	275
24. Terminalia tomentosa	50	50	50	50	50	30	280
25. Vateria indica	30	30	30	30	30	20	170

...Contd.

Contd. ... SUPPLIED TO FARMERS AT BENGLE - ONIKERI DURING 1984-85

NAME OF THE SPECIES	G.D. Hegde	S.K. Hegde	R.V. Bhat	S.V. Hegde	Y.S. Hegde	A.V. Bhat
26. Annona squamasa	30	30	30	30	30	15
27. Tamarindus indica						
28. Anthocephalus cadamba						
29. Albizia procera						
30. Machilus macrantha						
31. Bauhinia	50	50	50	50	50	25
32. Butea Sp.	10	10	10	10	10	10
33. Phyllanthus emblica	50	50	50	50	50	25
34. Bamboo	01	01	01	01	01	01
35. Glyricidia, maculata						
36. Agave						
TOTAL:	1091	1091	1091	1091	1091	611

NUMBER OF SEEDLINGS SUPPLIED TO FARMERS AT BAKKAL DURING 1984-85

NAME OF THE SPECILS	M.N. Hegde	S.V. Hegde	G.N. Bhat	R.S. Hegde	N.M. Hegde	G.R. Hegde	Total
1. Acacia auriculiformis	250	250	250	250	250	250	1500
2. Acrocarpusfraxinifolia	75	75	75	75	75	75	450
3. Albizia lebbek	30	30	30	30	30	30	180
4. Albizia odoratossima	30	30	30	30	30	30	180
5. Artocarpus hirsuta	50	50	50	50	50	50	300
6. Artocarpus integrifolia	100	100	100	100	100	100	600
7. Bombax malabaricum	5	5	5	5	5	5	30
8. Cassia fistula	40	40	40	40	40	40	240
9. Cassia siamea	10	10	10	10	10	10	60
10. Casurina equisetifolia	50	50	50	50	50	50	300
11. Cinnamomum	2	2	2	2	2	2	12
12. Dalbergia latifolia	20	20	20	20	20	20	120
13. Erythrinaindica	30	30	30	30	30	30	180
14. Gmelina arborea	50	75	75	75	75	75	450
15. Lagerstroemia lanceolata	10	10	10	10	10	10	60
16. Mangifera indica	40	40	40	40	40	40	240
17. Mimosops elangi							
18. Mesua ferrea							
19. Pongamia glabra							
20. Pterocarpus marsupium							
21. Red cedar							
22. Subabul							
23. Sapindus marginata							
24. Sesbania grandiflora							

... Contd.

Contd. ... NUMBER OF SEEDLINGS SUPPLIED TO FARMERS AT BAKKAL DURING 1984-85

NAME OF THE SPECILS	M.N. Hegde	S.V. Hegde	G.N. Bhat	R.S. Hegde	N.M. Hegde	G.R. Hegde	Total
25. Sterculia species	10	10	10	10	10	10	60
26. Sysyzium cumini	180	180	180	180	180	180	1880
27. Terminalia bellerica	50	50	50	50	50	50	300
28. Terminalia tomentosa	75	75	75	75	75	75	450
29. Veteria indica	10	10	10	10	10	10	60
30. Bamboo	2	2	2	2	2	2	12
31. Annona squamosa (Sitaphala)	20	20	20	20	20	20	120
32. Agave							
33. Wallotus phillipensis							
34. Glyricidia							
35. Abrus precaratorium	10	10	10	10	10	10	60
36. Tamarindus indica	10	10	10	10	10	10	60
37. Deloni regia	10	10	10	10	10	10	60
TOTAL:	1194	1194	1194	1194	1194	1194	7164

SEEDLINGS SUPPLIED TO FARMERS AT VANAHALLI DURING 1984-85

OF PECIES	G.R.Bhat Jummana-kana	S.R.Hegde Mandemane	G.N.Hegde Mandemane	G.S.Bhat Kaggundi	G.P.Bhat Honamavu	N.Sl Hegde Chapp-armane	G.S.Hegde Chavadi	N.G.Bhat Chavadi	Total
acia auri-liformis	250	250	250	250	250	250	250	250	2000
rocarpus	50	50	50	50	50	50	50	50	400
bizzia odo-ratissima	25	25	25	25	25	25	25	25	200
hezia lebbek									
tocarpus hir-ta									
tocarpus inte-ifolia									
mbax malа-ricum									
ssia fistula									
ssia siamea	25	25	25	25	25	25	25	25	200
surine equiser-folia	85	85	85	85	85	85	85	85	680
nnamomum sp.	2	2	2	2	2	2	2	2	16
lbergia tifolia	30	30	30	30	30	30	30	30	240
rythrina indica									
elina arborea	10	10	10	10	10	10	10	10	80
gerstro nceolata									
ngifera indica									
m sapss elangli									
ga sampige	2	2	2	2	2	2	2	2	16
ngamia glabra	25	25	25	25	25	25	25	25	200
erocarpus supium	30	30	30	30	30	30	30	30	240

Contd. ... SEEDLINGS SUPPLIED TO FARMERS AT VANAHALLI DURING 1984-85

ME OF THE ECIES	G.R.Bhat Jummana-kana	S.R.Hegde Mandemane	G.N.Hegde Mandemane	G.S.Bhat Kaggundi	G.P.Bhat Honamavu	N.S. Hegde Chapp-armane	G.S.Hegde Chavadi	N.G.Bhat Chavadi
Red cedar								
Subabul	100	100	100	100	100	100	100	100
Sapindus margineta	10	10	10	10	10	10	10	10
Sesbania grandiflora	20	20	20	20	20	20	20	20
Sterculia species	10	10	10	10	10	10	10	10
Syzyzium cumini	200	200	200	200	200	200	200	200
Terminalia bellerica	25	25	25	25	25	25	25	25
Terminalia tomentosa	50	50	50	50	50	50	50	50
Veteria indica	10	10	10	10	10	10	10	10
Bamboo	2	2	2	2	2	2	2	2
Annona squamosa (Sitaphala)	20	20	20	20	20	20	20	20
Agave		400						
Phyllanthus emblica	10	10	10	10	10	10	10	10
Glyricidia		1000	1000					
Abrus precatorius	10	10	10	10	10	10	10	10
Tamarindus indica	15	15	15	15	15	15	15	15
Delonix regia	10	10	10	10	10	10	10	10
TOTAL:	1026	2426	2026	1026	1026	1026	1026	1026

APPENDIX 1

SURVIVAL OF SEEDLINGS IN FARMERS' BETTALAND (1982-83, 1983-84)

Name of the species	R.V. Hegde			V.N. Hegde			V.S. Hegde		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	%
1. Acacia auriculiformis	1070	587	54.85	1268	997	78.62	697	643	92.00
2. Sweitenia mahagony	110	56	50.90	410	377	91.95	200	144	72.00
3. Casuarina equisetifolia	228	95	41.66	100	-	0.00	275	120	43.66
4. Albezia lebbek	50	7	14.00	267	18	6.74	236	130	55.08
5. Syzygium cumini	200	83	41.50	250	240	96.00	350	301	86.00
6. Vateria indica	-	-	-	-	-	-	-	-	-
7. Acrocarpus fraxinifolia	-	-	-	50	42	84.00	100	63	63.00
8. Dalbergia latifolia	-	-	-	150	5	3.33	50	15	30.00
9. Ailanthus malabarica	-	-	-	150	3	1.00	79	23	29.11
10. Leucaena leucocephala	100	8	8.00	694	487	70.17	158	125	79.11
11. T. Parviculata	100	52	52.00	25	4	16.00	-	-	-
12. T. bellirica	-	-	-	-	-	-	-	-	-
13. Pongamia glabra	100	7	7.00	300	289	96.33	291	176	60.48
14. Glyricidia maculata	-	-	-	25	14	-	40	27	-
15. Vateria indica	25	11	44.00	100	87	87.00	100	87	87.00
16. Albizzia falcata	-	-	-	100	44	44.00	250	67	26.08
17. Anacardium occidentale	100	4	4.00	-	-	-	-	-	-
18. T. tomentosa	200	nil	0.00	250	15	6.00	-	-	-
19. Pterocarpus marsupium	-	-	-	100	12	12.00	-	-	-
20. Artocarpus integrifolia	200	4	2.00	50	1	2.00	-	-	-
21. Artocarpus hirsuta	120	4	3.33	-	-	-	-	-	-
22. Sapindus emarginata	-	-	-	-	-	-	60	19	31.66
23. Bamboo	10	-	-	-	-	-	10	-	-
24. Ashok	100	-	-	-	-	-	-	-	-
& Total	2603	918	35.26	4264	2621	61.43	2846	1913	67.21

Contd/-

Name of the species	G.M. Hegde			K.M. Hegde			S.G. Bhat		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	%
1. Albezia lebbek	146	121	82.87	274	189	68.97	150	23	15.3
2. Vateria indica	250	151	60.04	-	-	-	-	-	-
3. Sweitenia mahogony	200	121	60.00	210	158	75.23	-	-	-
4. Acacia auriculiformis	769	544	70.74	1314	1089	82.87	420	241	57.3
5. Casuarina equisetifolia	223	34	15.24	256	62	24.21	50	2	4.0
6. Albezia falcata	200	128	64.00	150	94	62.66	50	17	34.0
7. Pongamia glabra	-	-	-	324	189	58.87	205	143	69.7
8. Syzygium cumini	273	111	40.65	500	400	80.00	125	74	59.0
9. Laucaena leucocephala	446	100	22.42	365	104	28.49	100	31	31.0
10. Gmelina arborea	100	36	36.00	200	174	87.00	-	-	-
11. Sapindus emarginata	90	2	2.22	-	-	-	70	1	1.4
12. Anacardium occidentale	25	1	4.00	-	-	-	-	-	-
13. Terminalia tomentosa	100	12	12.00	200	nil	0.00	100	12	12.0
14. Terminalia bellirica	46	21	45.65	-	-	-	-	-	-
15. Terminalia paniculata	-	-	-	-	-	-	-	-	-
16. Glyricidia maculata	146	11	-	-	-	-	-	-	-
17. Ailanthus malabarium	73	22	30.13	400	21	5.25	-	-	-
18. Dalbergia latifolia	73	9	12.32	-	-	-	-	-	-
19. Pterocarpus marsupium	73	2	2.73	-	-	-	-	-	-
20. Lagerstreomia lanceolata	73	58	79.45	-	-	-	-	-	-
21. Artocarpus integrifolia	-	-	-	50	1	2.00	50	5	10.
22. Acrocarpus fraxinifolia	-	-	-	50	30	60.00	50	17	34.
TOTAL	3160	1473	46.61	4293	2511	58.49	1370	566	41.

NAME OF THE SPECIES	R.A. BHAT			G.T. HEGDE			G.V. HEGDE SALKANI		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	%
1. Acacia aurululiformis	1500	765	51.00	300	215	71.66	662	128	19.33
2. Sweitunia mahogony	360	305	84.72	--	--	--	--	--	--
3. Casurina, equisefifolia	360	170	47.22	150	35	23.33	256	115	44.92
4. Syzygium cuminii	400	373	93.25	250	186	74.40	281	26	9.25
5. Vateria indica	15	7	46.66	--	--	--	--	--	--
6. Acrocarpus fraxinifolia	200	106	53.00	--	--	--	100	18	18.00
7. Gemelina arborea	150	44	29.33	--	--	--	181	53	29.28
8. Dalbergia latifolia	100	14	14.00	--	--	--	41	--	0.00
9. Laucauna lencouphala	293	96	32.76	200	13	6.50	181	83	45.85
10. Albezia lebbek	--	--	--	115	5	4.34	181	37	20.44
11. T.Panculeta	10	3	30.00	25	15	60.00	--	--	--
12. T.bellirica	--	--	--	25	4	16.00	--	--	--
13. Pongamia glabra	--	--	--	50	29	58.00	81	26	32.09
14. Glyricidia manulated	--	--	--	100	2	--	81	13	--
15. Vateria indica	--	--	--	15	13	86.66	--	--	--
16. Albezia flacata	--	--	--	--	2	13.33	--	--	--
17. Ailanthus, malbaricum	100	10	10.00	75	40	53.33	281	57	20.58
18. Anacaridum occidintale	--	--	--	75	--	0.00	81	12	14.81
19. T.Tomento sa	--			100	--	0.00	100	2	2.00
20. Peterocarpus marsupium	1100	15	30.00	--	--	--	40	6	15.00
21. Bauhimia	--	--	--	--	--	--	81	--	0.00
22. Bamboo	10	--	--	10	5	50.00			
TOTAL :	3588.	1908	53.17	1390	562	40.43	2547	563	22.10

... Contd.

NAME OF THE SPECIES	N.V. HEGDE			V.D. HEGDE			M.R. HEGDE		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	
1. Albezia lebbek	50	31	62.00	83	1	1.20	92	81	88
2. Vateria indica	250	213	85.02	--	--	--	100	87	87
3. Sweitenia mahogony	445	359	80.67	210	79	37.61	200	181	90
4. Acacia,auriculiformis	2946	2638	89.54	932	565	60.62	726	579	79
5. Casuarina equisetifolia	428	356	83.17	335	68	20.29	128	106	82
6. Albezia falcata	350	356	97.42	--	--	--	100	52	52
7. Pongamia glabra	645	617	95.65	83	--	0.00	250	115	46
8. Syzygium cumini	1100	1020	92.72	400	90	22.05	292	254	86
9. Leucaena leucocephala	4572	1399	30.59	270	--	0.00	283	72	25
10. Gmelina arborea .	100	62	62.00	200	5	2.50	--	--	-
11. Sapindusemarginata	90	23	25.55	--	--	--	20	--	0
12. Anacardium occidentale	--	--	--	--	--	--	--	--	-
13. Terminalia tomentosa	125	85	68.00	100	5	5.00	50	3	6
14. Terminalia bellirica	--	--	--	84	5	5.95	84	41	48
15. Terminalia panculata	75	41	54.66	--	--	--	50	24	48
16. Glyricidia maculata	--	--	--	--	--	--	50	90	-
17. Ailanthus malabaricum	100	65	65.00	200	16	8.00	92	54	58
18. Dalbergia latifolia	250	148	59.00	--	--	--	52	11	21
19. Petrocarpus marsupium	--	--	--	250	1	0.4	40	13	32
20. Lagerstoemia lanceolata	600	558	93.00	--	--	--	--	--	-
21. Artocarpus integrifolia	100	51	51.00	--	--	--	--	--	-
22. Acrocarpus fraxinifolia	250	200	80.00	--	--	--	--	--	-
23. Ashok	--	--	--	--	--	--	25	12	-
24. Artocarpus hirsuta	25	4	16.00	--	--	--	--	--	-
TOTAL	12,501	8211	65.68	3147	835	26.53	2584	1685	65

... Contd.

... Contd. ...

NAME OF THE SPECIES	G.V.HEGDE TARGOD			S.N.BHAT			N.G. HEGDE		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	%
1. Subabul(leucaena leucolephala)	195	101	51.79	138	8	5.79	202	22	10.89
2. Acacia auriculiformis	520	426	81.92	489	408	83.43	358	143	39.9
3. Casuarina equisetifolia	150	36	24.00	285	92	32.28	269	67	24.9
4. Syzygium cumini	250	229	91.60	188	125	66.48	50	41	82.0
5. Pongamia glalora	198	43	21.71	287	158	55.05	100	79	79.0
6. Artocarpus integrifolia	50	17	34.00	38	17	44.23	--	--	--
7. Gmelina arborea	200	2	1.00	38	6	15.78	--	--	--
8. Sweitenia mahogony	110	105	95.45	50	44	88.00	--	--	--
9. Ailanthus malabaricum	25	15	60.00	38	13	34.21	69	31	44.9
10. Terminalia tomento sa	150	24	8.00	50	1	2.00	158	6	3.7
11. Albezia lebbek	45	24	53.33	98	33	33.67	100	32	32.0
12. Glyricidia maculata	300	--	0.00	100	--	--	69	4	--
13. Bamboo	10		0.00						
14. Acrocarpus fraxinifolia	--	--	--	100	53	53.00	200	94	47.0
15. Sapindusemarginata	--	--		48	10	20.83	50	15	30.0
16. Anacardium occidentale	--	--		--	--	--	107	5	4.6
17. Perocarpus marsupium	--	--		38	9	23.68	69	14	20.2
18. Cedrela sps	--	--		--	--	--	200	3	1.5
19. Bauhinia	--	--		--	--	--	69	Nil	--
TOTAL :	1893	1022	53.98	1885	977	51.83	2001	552	27.5

SURVIVAL OF SEEDLINGS PLANTED IN MURDESHWAR FOREST RANGE (Survival percent - Farmer wise and Individual farmer species wise)

NAME OF THE SPECIES	1) Ramachandra G. Bhat			2) Vishwanath G. Hegde			3) Thimmanna V. Hegd		
	Supply	Survival	%	Supply	Survival	%	Supply	Survival	
Acacia auriculliformis	100	75	75.0	150	97	64.66	75	31	4
Syzygium cumini	30	20	66.66	25	15	60.00	25	23	9
Vateria indica	25	11	44.00	25	15	60.00	30	23	7
Dalbergia latifolia	10	4	40.00	8	2	25.00	5	2	4
Pterocarpus marsupium	15	7	46.66	15	2	13.33	10	5	5
Leucaena leucocephala	70	44	62.85	-	-				
Terminalia tomentosa	7	4	57.14				5	3	6
TOTAL:	257	165	64.20	223	131	58.74	150	87	5

	4) Ishwar R. Bhat			5) Vittal R. Bhat			6) Ishwar S. Bhat		
Acacia auriculiformis	40	24	40.00	50	22	44.00	75	59	7
Syzygium cumini	12	11	91.66	10	4	40.00	10	8	8
Vateria indica	8	6	75.00	30	21	70.00	20	16	8
Dalbergia latifolia	5	1	20.00	10	6	60.00	4	1	2
Pterocarpus marsupium	5	4	80.00	5	2	40.00	15	11	7
Leucena leucocephala				42	20	47.60	20	14	7
Terminalia tomentosa	5	1	20.00	10	6	60.00	5	2	4
Terminalia bellirica	5	1	20.00				5	3	6
TOTAL:	80	48	60.00	157	81	51.59	154	114	7

	7) Ishwar R. Joshi			8) Gopal M. Bhat			9) Manjunath K. Bh		
Acacia auriculliformis	100	76	76.00	125	15	12.00	60	32	5
Syzygium cumini	30	21	70.00	25	0				
Vateria indica	40	25	62.50	40	14	35.00	30	20	6
Dalbergia latifolia	20	11	55.00	25	1	4.00	5	3	6
Pterocarpus marsupium	15	6	60.00	25	1	4.00	5	3	6
Leucena leucocephala									
Terminalia tomentosa	58	44	78.86						
Terminalia bellirica									
TOTAL:	263	183	69.58	240	31	12.91			

APPENDIX-2

SURVIVAL OF SEEDLINGS PLANTED IN MURUR AND KUMTA AREAS ...

(Farmer wise and species wise with the number of seedlings supplied)

NAME OF THE SPECIES	NAME OF THE FARMERS					
	10) Vishwanath S. Bhat			11) Manjunath N. Hegde		
	Supply	Survival	%	Supply	Survival	%
1. Acacia auriculiformis	175	133	76.00	100	65	65.00
2. Syzygium cumini	35	24	68.57	25	14	56.00
3. Vateria indica	35	24	68.57	25	9	64.00
4. Dalbergia latifolia				5	3	60.00
5. Pterocarpus marsupium				10	6	60.00
6. Leucuena leucocephala				7	5	71.43
7. Terminalia tomentosa	60	50	83.33	5	4	80.00
8. Terminalia bellirica	10	5	50.00			
9. Terminalia paniculata	15	10	66.66			
TOTAL :	330	246	74.54	177	106	59.88

... Contd.

APPENDIX 3

Name of the Species	UNCHEGI										MASUR
	G.G. Hegde	M.V. Shastri	S.v. Shanbag	N.G. Hegde	L.K. Gouda	S.V. Bhat	G.N. Hegde	G.S. Hegde	U.S. Hegde	T.N. Bhagwat	Bharulinga High School
Acacia auriculiformis	57.26	77.54	34	58.91	39.01	41.76	82.87	63.24	67.02	23.16	79.95
Casurina equiseti-folia	-	-	-	-	-	-	6.63	-			6.26
Leucaena leucocephala	33.06	2.17	-	13.36	13.47	14.85	-				4.82
Termanalia alta						8.35					
Termanalia paniculata						20.42					
Dalbergia latifolia						6.96					
Psidium guajava											0.57
Tamarindus indica						3.25				6.31	
Artocarpus integrifolia											0.04
Anacardium occidentale											5.87
Mangifera indica						0.55					
Swetenia mahagony											8.42
Termanalia arjuna											

... Contd.

APPENDIX 3

[illegible] SURVIVAL PERCENTAGE OF PLANTED [illegible] IN [illegible]

Name of the Species	Arengadi	Neelkod		Kadle		AV/of Species
	V.S. Bhat	V.S. Kamat	S.G. Hegde	V.G. Bhat	G.P. Hegde	
Acacia auriculiformis	11.86	32.14	45.71	14.48	94	57.43
Casurina equisetifolia		28.57				6.44
Leucaena leucocephala		28.57				15.32
Termanalia alata						8.35
Termanalia paniculata						20.42
Dalbergia latifolia						6.96
Psidium guajava						0.57
Tamarindus indica			8.57			6.04
Artocarpus integrifolia	2.76					1.40
Anacardium occidentala	24.83			62.02		30.91
Mangifera indica	22.07			15.51		18.79
Swetenia mahagony	9.65					9.65
Termanalia arguna	9.24	22.86	17.14	1.65		11.86