

ABRIDGED ANNUAL REPORT ON
SILVICULTURAL RESEARCH IN
MADRAS STATE FOR THE YEAR 1960-61. 124

Prepared by

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GENERAL.

1. *The Silvicultural Research Programme.*—The Silvicultural Research Programme for the year was prepared by the State Silviculturist in consultation with the Forest Officers of the State and implemented with the approval of the Chief Conservator of Forests.

2. *Research Ranges and Stations.*—At the commencement of the year there were three Research Ranges with 10 Research Stations and three sub-stations as follows :—

I. Research Range Officer, Madurai :

1. Sholapuram.
2. Vemburuli.
3. Thadikarankonam.

II. Research Range Officer, Coimbatore :

4. Kodaikanal.
5. Topslip.
6. Ootacamund.

- A. Masinaguda.
B. Denkanikota.

III. Research Range Officer, Rameswaram :

7. Rameswaram.

- C. Thangachimadam.

IV. Under the Direct Control of the State Silviculturist :

8. Guindy.
9. Marakanam.
10. Ulundurpet.

No new station was opened during the year.

3. *Climate and Locality.*—A brief description of the climatic and locality factors of each station is given below :—

(i) *Guindy Research Station.*—This station is situated in the forest adjoining the Raj Bhavan about 5 miles away from Madras City. The climate is hot and humid with an annual rainfall of 45"

mainly from the north-east monsoon. The soil is red loamy and supports a dry deciduous type of forest. This station will function as a research-cum-demonstration station and raise valuable indigenous and exotic species in the area. It will also conduct nursery trials and experiment with the use of soil exciters.

Marakanam Research Station.—(ii) This station is situated on the East Coast in South Arcot District about 22 miles from Tindivanam Town. The climate is generally warm and windy with an annual rainfall of 15 inches to 50 inches received mainly during September to November. The soil is coastal sandy loam. The vegetation consists mostly of the moist deciduous type with scattered trees of *Buchanania latifolia* and bushes of *Memecylon*. The station is in the midst of a typical *Casuarina* growing tract, large areas being planted up with the species both departmentally and by private growers. It deals mainly with the problem relating to the artificial regeneration of *Casuarina equisetifolia* and the introduction of other useful fuel species like *Eucalyptus (Hybrid)*.

Ulundurpet Research Station.—(iii) This station is situated in South Arcot district in an inland locality. The climate is generally hot with an annual rainfall of about 30 inches received mainly during the north-east monsoon. The soil is red loamy with a tendency towards laterization. The vegetation is of the dry deciduous scrub type. This station is situated in a cashew growing tract and deals mainly with the problems of artificial regeneration of the species *Anacardium occidentale (Cashew)*.

Sholapuram Research Station.—(iv) This station was started near Tanjavoor on the banks of the Vennar and Vettar canals and later shifted to Sholapuram on the banks of the Coleroon river near lower Anicut. The climate is generally hot and windy with an annual rainfall of 33 inches received mostly during the months of September to November. The soil is of the inland deltaic type, mostly sandy on top with fine particles of sand, while lower down at the depth of 1½ feet to 2 feet a good loam and sometimes clay with silt is obtained. Vegetation is practically absent except for some small patches of semi-evergreen. The object of the station is to determine the best method of growing teak and other economically useful species on such river and canal banks.

Vemburuli research station.—(v) This station is situated at a distance of 16 miles from Madurai Town in Madurai District. The climate is extremely hot and dry, except for the months of December to February when the nights are cool. The average annual rainfall is 26 inches received mostly during the months of October and November. The other months are generally dry with slight precipitation which hardly does any benefit. The soil is shallow gravelly red loam with 'kallar' patches. The station is located in a tropical dry deciduous scrub. It deals with the problems of artificial regeneration of such arid areas, which cover a major portion of the forests of this State.

Thadikarankonam Research Station.—(vi) This station is situated in Kanyakumari District about 16 miles away from Nagercoil. The climate is generally hot and humid with a mean annual rainfall of 50 inches received mostly during the months of October and November. The soil is deep loamy and supports a moist deciduous type of forest which at the upper hilly portions becomes semi-evergreen. The station will deal with the problems of artificial regeneration of teak, rubber and other useful hardwood and softwood species.

Kodaikanal Research Station.—(vii) This station is situated in the Kodaikanal hills in Madurai district at an elevation of 7500'. This enjoys a moist temperate climate. This gets the major rainfall from the south-west monsoon from June to September. There are a few rains from October to December. The climate is very cold during November to February and frost occurs during this period. The mean annual rainfall is 42.70 inches. The soil is rich fairly deep black loam, with lateritic and rocky sub-soil and with a few out crops of rocks. The vegetation is mostly shola grass land as we see in Ootacamund. The entire forest area is now being planted with *Acacia mollissima* black wattle. There are a few older *Bluegum* and *Pine* Plantations. This station is intended to carry out experiments on wattle and other exotics like pine, etc.

Topslip Research Station.—(viii) This station is situated in the Anamalai Hills of Coimbatore District. The Station conducts experiments at elevations from about 1,000 feet at the foot hills to 2,500 feet at the plateau. The lower portions have a dry climate with an annual rainfall of 30 inches to 35 inches mainly from the north-east monsoon while the plateau enjoys a temperate climate with an annual rainfall of 60 inches. The soil at lower portion is red loamy while higher up it becomes deeper and richer. At lower elevations a dry deciduous type of vegetation is found while on the plateau a moist deciduous type of forest with a small patch of moist evergreen forest (*Karianshola*) is found. The evergreen patch at this rainfall is due to an edaphic variation. The station has therefore the advantage of having at its command three distinct types of forest at close proximity and deals with problems of afforestation of these types of forests in general with particular emphasis on underplanting in evergreen forests and in the artificially raised teak plantations on the plateau.

Ootacamund Research Station.—(ix) This station is situated in the Nilgiri Hills at an elevation of 7,500 feet. The station enjoys moist temperate climate, the months from June to September being wet while the months from October to February are cold with occasional frosty nights. The mean annual rainfall is 50 inches most of the precipitation being from the months of June to September. The soil is rich, fairly deep, black loam and lateritic

with a few rocky outcrops. The vegetation is mostly shola grassland; the grass land called "The Downs" is now being planted up with *Acacia mollissima* (black wattle) and *Eucalyptus globulus* (Bluegum). The station carries out experiments relating to the regeneration of wattle and bluegum study of growth characteristic of other than bark species of *acacia* and fuel species of *eucalyptus* and study of the floristic composition of the sholas.

(A) *Masinagudi Research Station*.—(x) This station is situated in the Nilgiri foothills on the Mysore side, at an elevation of 3,000'. The climate is generally temperate, the months from November to February being cool. The average annual rainfall is about 35 inches during the north-east monsoon. The soil is red loamy and supports a dry scrub type of forest. The station deals with the problems of artificial regeneration of the tract with fast growing fuel species particularly *eucalyptus hybrid*. This area is within the game sanctuary.

(B) *Denkanikotta Research Station*.—(xi) This station is situated on the Mysore plateau at an elevation of 3,000 and lies at the extreme north of Salem District about 40 miles south of Bangalore. It gets a rainfall of about 30 inches from both the monsoons. The climate is temperate and cool throughout except for a short period from February to April. Till 1936 this station was conducting research on 'spike' disease on sandal and manufacture of lac products. Then this station was closed and it is hoped to open the station again for conducting field experiments on Sandal spike disease once again.

RAMESWARAM RESEARCH STATION.

(including).

(c) *Thanaachimadam Research Sub-station*.—(xii) This station is situated in the Rameswaram Island off the East coast. The climate is generally hot with strong dedicating winds that blow towards the mainland from May to September resulting in sand drift which covers all tree growth with a saline film. The annual rainfall is 35 inches obtained during a short period from September to December. The rest of the year is practically dry. The soil is typical coastal sandy. The main problem here is the artificial regeneration of suitable species for prevention of sand drift on to the mainland and the railway line.

(c) *Thanaachimadam Research Station*.—Lies between Rameswaram and Pamban which is about a mile interior from the coast. The other conditions are as described above.

4. *Records*.—At the commencement of the year there were 839 open Experimental Garden and Plot files. To this 308 files were added during the year and 307 files were closed. So at the end of the year there were 840 open files. In these files records were

kept for the various experiments carried out at the various research stations on *Tectona grandis anacardium occidentale*, *Casuarina equisetifolia*, and other valuable hardwoods and softwood species.

5. *Sample Plots, Tree Increment Plots and Permanent Preservation Plots*.—At the close of the year there were 50 Sample Plots, K.S.J. 2, 10 Tree Increment Plots and Permanent Preservation Plots.

The species under study in the Sample Plots are :

1. *Acacia decurrens*.
2. *A. mollissima*.
3. *Eucalyptus* (hardwoods).
4. *E. hybrid*.
5. *Allanthus excelsa*.
6. *Tectona grandis*.
7. *Eucalyptus globulus*.
8. *Casuarina equisetifolia*.

The species under study in the Tree Increment Plots are :

1. *Eucalyptus globulus*.
2. *Shola species*.
3. *Sandalwood*.
4. *Mesua ferrea*.
5. *Hopea parviflora*.
6. *Calophyllum elatum*.

The species under study in the Permanent Preservation Plots are :

1. Teak and Miscellaneous species.

6. *Library*.—Sixty-three volumes were added during the year bringing the total number of books to 1,716. This library will be closed and amalgamated with that of the Library in the Office of the Chief Conservator of Forests.

7. *Documentation*.—During the year under report 29 Specific and General Ledger files were added bringing the total number of Specific and General Ledger files to 1062 and 697 respectively.

8. *Photographic Collection*.—Some 40 photographs were taken but they are not yet enlarged and added to the collection. At the close of the year there are 1013 Specific and 867 General Photographs in the collection of this Division.

9. *Staff and Administration*.—During the year under report, the State Silviculturist Division continued to function at Madras under the direct control of the Chief Conservator of Forests.

Sri T. Achaya, B.Sc. (Hons.), A.L.P.O., held the post of the State Silviculturist from 1st April to 6th April 1960.

Sri A. Yegnaswami, B.A., held the post as additional charge from 7th April to 12th June 1960 and was in sole charge from 13th June 1960 to 31st March 1961.

The Divisional field staff during the year consisted of 3 Rangers, 12 Foresters, 1 Guards, 3 Watchers, 2 Plot Watchers and 8 Malis.

10. *Technical advice, contributions and publications.*—During the year under report the State Silviculturist attended to the routine enquiries received from the Forest Officers in connection with supply of seeds, regeneration of species, etc.

The following papers were also prepared during the year.

1. A note on *Casuarina equisetifolia* (to be re-written).
2. A seedling seed orchard and clonal seed orchard for the bulk production of cashew seeds.
3. *Albizia procera*—a short note.
4. A short note on Bamboos in Madras State.
5. A short note on the tour with F.A.O. Expert on Forest Genetics.
6. A note on the following species :—
 - (a) *Mallotus philippinensis*.
 - (b) *Mentha arvensis*.
 - (c) *M. piperita*.
 - (d) *Bursera dalpechiana*.
 - (e) *Pogostemon cablin*.
 - (f) *Cananga odorata*.

Part II.

EXPERIMENTAL SILVICULTURE.

NATURAL REGENERATION.

(A) *By seed.*

11. *Acacia mollissima*.—E.P. No. 22/54 laid out at Ootacamund station to determine the best method of inducing natural regeneration in a second rotation wattle area has given conclusive results. Passing a light fire the area was found to result in profuse natural regeneration on the ground. There was no difference between an untreated control and the forming of 2 inch wide felled strips 11 inch apart. Mere clearfelling was sufficient to induce natural regeneration that would give a closed canopy in 4 to 5 years.

12. *Hopea parviflora*.—As some more evergreen forests in Kanyakumari district have been added on to the Reserved Forests of this State recently the results of E. Ps. Nos. 72 to 76 of 1936 and 1937 laid out at Topslip station have been restarted. They relate to canopy manipulation to obtain natural regeneration of the species and to study subsequent development of established regeneration. It was found that clearfelling as against felling only the middle storey or an untreated control results in more natural regeneration and a better height growth. When once natural regeneration is established clearfelling the overwood benefits it to a great extent.

13. (B) *By Coppice (Tectona Grandis)*.—E.P. No. 100/57 was started at Topslip station to observe the growth and development of Teak coppice obtained by clearfelling a 29 year old Teak plantation. The felled stools have given some coppice shoots which are now from 2 feet to 20 feet in height. They were thinned out during the year to the best three per stool. The experiment has not yet given conclusive results.

14. *Seeds*.—Standard germination tests were carried out with all seeds received at the different stations.

ARTIFICIAL REGENERATION.

(A) *TECTONA GRANDIS*

15. *All-India Seed Origin Plots*.—These plots were laid out in 1939 at Topslip station. From measurements taken so far it is found that from volume production point of view the origins are best in the following order :—

Mount Stuart.

Nilambur.

Mysore.

South Burma.

Experiments were carried out to determine a suitable method of introduction of *Tectona grandis* in some of the Research Stations. The observations so far are as follows :—

(i) *Guindy*.—From the experiments so far conducted with and without Gibberallic acid it is seen that there is no difference between the treated and untreated plants. Again the seedlings survive in this locality but do not grow properly.

(ii) *Marakanam*.—From the experiments so far conducted it is seen that Teak can be grown at Marakanam with watering for 1 to 2 years. The growth is very slow. Whether we are able to establish a good plantation at low cost is yet to be seen from further experiments.

(iii) *Ulundurpet*.—Teak is not at all suited to this area.

(iv) *Sholapuram*.—The indications are that if Teak is sump planted at the break of the monsoon in July/August in good sandy loam, then no watering is necessary to establish it. If the soil is purely sandy or clayey or when planting is done late, then watering is necessary till the end of the first summer. The use of pre-sprouted stumps and the kumri method have not given conclusive results. As this area is subjected to inundation no conclusive results could be drawn. As it is watering has some effect on the height growth and survivals.

(v) *Vemburuli*.—Experiments on pre-sprouted teak stumps gave a survival percentage of 30 and 64 but the height growth is very poor.

(vi) *Thadikarankonam*.—*Ocimum kilimandscharicum* and *Tephrosia candida* were tried as underplants to see whether they can be grown to suppress the Imperata grass that naturally comes and suppresses every other growth. Close growing of *Tephrosia* suppresses the grass growth but this may have to be kept under control otherwise this may suppress the Teak. *Ocimum* is not able to suppress the grass growth.

(vii) *Topslip*.—Though naturally Teak comes up well here still some of the experiments carried out on various methods of hospitalization of Teak stumps and on pre-sprouted Teak stumps resulted in failure. Ordinary method of planting Teak stumps in crow bar holes at an espacement of 6 feet by 6 feet gives good success.

(viii) *Masinagudi*.—Pre-sprouted Teak stumps were tried here but not with any success due to soil conditions of the area and due to severe damage by wild animals.

(ix) *Rameswaram*; and

(x) *Thangachimadam* :

The experiments so far conducted have indicated that Teak could be raised only with watering and manuring also helps the growth. But the general height growth of the plants is poor. The economy of raising this species here can be studied only in due course.

16. (B) Other Hardwoods :

(1) *Acacia arabica*.—Experiments conducted at Guindy, Marakanam, Ulundurpet, Vemburuli, Rameswaram and Thangachimadam show that one year old container plants come up well than sowings of seeds and that they are to be watered at Rameswaram Island.

(2) *Acacia catechu*.—Though this is not generally found in this State this was tried at Guindy and Marakanam where it is coming up very slowly and survival percentage in one or two experiments is low.

(3) *A. ferruginea*.—This was tried at Vemburuli and Rameswaram. It has come up well at Vemburuli in a nursery bed but it failed at Rameswaram.

(4) *A. latronum*.—This was tried at Vemburuli where it failed to come up.

(5) *A. leucophloea*.—This was tried at Vemburuli and Rameswaram. Due to severe climatic condition this failed to come up in both places.

(6) *A. planifrons*.—This is the common umberalla tree of Madurai and Ramanathapuram. This was tried at Vemburuli, Thangachimadam and Rameswaram, where it is coming up slowly.

(7) *A. sundra*.—This was tried at Vemburuli, Rameswaram and Thangachimadam where it is coming up but the growth rate is very slow.

(8) *Albizia amara*.—This was tried at Guindy, Marakanam, Ulundurpet and Rameswaram where it is coming up normally.

(9) *A. lebeck*.—This was tried at Guindy, Marakanam, Ulundurpet, Sholapuram, Vemburuli, Rameswaram and Thangachimadam. In the last two places this can be raised only through continuous watering. In other places it can be raised from 1 year old basket plants or stump plants and that it should be planted during rains.

(10) *A. odoratissima*.—This was tried at Rameswaram Island only. The survival per cent is only 20.

(11) *Adenanthera pavonina*.—This was tried at Guindy. Though it comes up well it is badly browsed by deer and other animals.

(12) *Artocarpus hirsuta*.—This has been tried at Thadikarankonam as transplants, with good success.

(13) *A. heterophyllus (integrifolia)*.—This was tried at Marakanam, Sholapuram as container plants with good success.

(14) *Azadirachta indica*.—This was tried at Guindy, Marakanam, Ulundurpet, Sholapuram, Vemburuli, Thangachimadam and Rameswaram. This comes up very well everywhere. This can be raised from seeds, transplants, stump plants and container plants. One year old plants do better than plants of younger age.

Other species that were tried in these centres are :—

(15) *Bahunia purpurea*.

(16) *B. variegata*.

(17) *Butea (frondosa) Monosperma*.

(18) *Balsamodendron berryi*.

(19) *Bassia latifolia*.

(20) *Cassia laevigata*.

(21) *C. siamea*.

(22) *Dalbergia latifolia*.

- (23) *D. multiflora*.
- (24) *D. sissoo*.
- (25) *Entolobium saman*.
- (26) *Eugenia jambolana* (*Syzygium jambolanum*).
- (27) *Hardwickia binata*.
- (28) *Holoptelia integrifolia*.
- (29) *Hopea parviflora*.
- (30) *Inga dulce*.
- (31) *Lagerstromia speciesa*.
- (32) *Leucaena glauca*.
- (33) *Manihot glaziovii*.
- (34) *Mesua ferrea*.
- (35) *Pongamia (glabra pinnata)*.
- (36) *Peltophorum (ferrugenum) petrocarpum*.
- (37) *Poinciana regia* (*Delonix regia*).
- (38) *Pterocarpus marsupium*.
- (39) *Pterocarpus santalinus*.
- (40) *Tamarindus indica*.
- (41) *Terminalia catapa*.
- (42) *Terminalia paniculata*.
- (43) *Terminalia tomentosa*.
- (44) *Thespesia populnea*.

(C) SOFTWOODS.

17. The following softwoods were tried at the various research stations in the State and the results are given in the detailed report. The species tried are :—

1. *Ailanthus excelsa*.
2. *A. glandulosa*.
3. *A. grandis*.
4. *A. (malabarica) triphysa*.
5. *Albizia stipulata*.
6. *Chukrasia tabularis*.
7. *Evodia roxburghiana*.
8. *Gmelina arborea*.
9. *Melia dubia*.
10. *Mangifera indica*.
11. *Salmalia malabarica* (*Bombax malabaricum*).
12. *Trewia nudiflora*.
13. *Zanthoxylum rhetsa*.

(D) MANGROVES.

18. The following mangrove species were tried at the Kazhivel swamp at Marakanam which resulted in failure due to the area being dry for more than 6 months. The species tried are :

1. *Rhizophora conjugata*.
2. *Aegiceras majus*.
3. *Carappa oleovata*.
4. *Bruguiera gymnorhiza*.
5. *Sonneratia apatala*.
6. *Avicinnia officianalis*.

(E) EXOTICS.

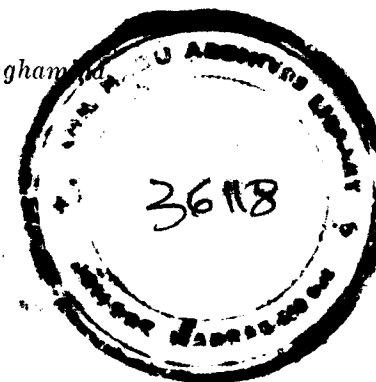
19. The following exotic species were tried in the various research stations of the State already mentioned with varying results. (For details please refer detailed report.)

The species tried are :

1. *Acacia albida*.
2. *A. auriculiformis* (*Moneliformis*).
3. *A. mollissima*.
4. *Albizia falcata*.
5. *Callitris calcarata* and *C. glauca*.
6. *Caesapinia coriaria*.
7. *Cassia javanica*.
8. *C. marginata*.
9. *Casuarina cunninghamiana*.
10. *C. equisetifolia*.
11. *C. junghuniana*.
12. *C. montana*.
13. *C. torulosa*.
14. *Caderella odorata*.
15. *Eucalyptus* :
 - (a) *globulus*;
 - (b) *citriodora*;
 - (c) *rostrata*;
 - (d) *hybrid*; and

other 39 species of *Eucalyptus*

16. *Lagerstromia hypolauca*.
17. *Myristica officianale*.
18. *Nothofagus species*.
19. *Pines*.



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20. *Peltosorum africanum*.
21. *Poplars*.
22. *Prosopis juliflora*.
23. *Pterocarpus dalbergioides*.
24. *Swietenia macrophylla*.
25. *S. microphylla*.
26. *Stylosanthes gracilis*.
27. *Salix babilonica*.
28. *Terminalia* species.

20. *Exotic Softwoods*.—The following are some of the exotic softwoods that were tried in the various centres. (For details please refer to main report.)

1. *Adansonia digitata*.
2. *Ochroma lagopus*.
3. *Sterculia alata*.
4. *S. companulata*.

(F) BAMBOOS AND CANES.

21. *Bambusa arundanacea* and *Dendrocalamus strictus* are the two main bamboos of the State and these are being tried in a few research stations, such as Sholapuram, Guindy and Vemburuli. As materials for planting (mainly seeds) are not available within the State no big attempts were made at regeneration. It is expected to plant large areas in the coming years.

The following species of cane were tried to be introduced artificially at Sholapuram, Topslip and Nagercoil. They are:—

1. *Calamus guruba*.
2. *C. plectocomia himalayana*.
3. *C. travancoricus*.
4. *C. rotang*.

These failed at Sholapuram and Nagercoil, while *Calamus guruba* and *C. travancoricus* show some sign of success at Topslip.

(G) MINOR FOREST PRODUCE AND MEDICINAL PLANTS.

22. The following minor forest produce plants and medicinal plants and aromatic or essential oil plants were tried at the various research stations. They are:

1. *Anacardium occidentale*.
2. *Anona squamosa*.
3. *Borassus flabellifer*.

5. *Calophyllum inophyllum*.
6. *Cassia auriculata*.
7. *C. fistula*.
8. *Cinnamom zeylanicum*.
9. *Dioscorea deltoidea*.
10. *Eriodendron anfractuosum*.
11. *Eugenia caryophylloides*.
12. *Mangustan*.
13. *Myristica fragrans*.
14. *Ocimum kilimandscharicum*.
15. *Piper nigrum*.
16. *Pogostemon cablin* (patchouli).
17. *Rauwolfia canescens*.
18. *R. serpentina*.
19. Rubber (*Hevea brasiliensis*).
20. *Santalum album*.
21. *Strichnos nuxvomica*.
22. *Terminalia chebula*.
23. *Vateria indica*.
24. *Zizyphus jujuba*.

(H) FODDER GRASSES

23. The following fodder species and grasses were tried in small areas in various research stations.

They are—

1. *Arundo donax*.
2. *Cenchrus ciliaris*.
3. *C. echinoides*.
4. *C. Setigerus*.
5. *Digitaria species*.
6. *Euloliopsis binata*.
7. *Pennisetum antidotale*.
8. *P. maximum*.

(I) AFFORESTATION OF SANDY WASTE LANDS AND FIXATION OF SAND DUNES.

24. This work was taken up at Rameswaram Research Station where during South West monsoon due to the high velocity of dry wind, the beach sands are removed and thrown over the inland. This covers the railway line, buildings and coconut and other

topes. Experiments were undertaken to plant *Casuarina*, *Ipomea biloba*, etc., to arrest the dune movement and this has proved successful to a certain extent. The following species can be successfully used in this sand fixation and other species are also being tried.

The useful species are :—

1. *Casuarina equisetifolia*.
2. *Borassus flabellifer*.
3. *Acacia planifrons*.
4. *Prosopis juliflora*.
5. *Agave americana*.
6. *Inga dulce*.
7. *Pandanus odoratissimus*.
8. *Ipomea biloba*.
9. *Spinifex squarrosus*.

(J) ERADICATION OF WEEDS

25. No work was done for eradicating lantana. Grass and Eupatorium were tried to be destroyed by "Dowpon" and 2, 4-D but they failed to give any useful results.

(K) UNDER-PLANTING

26. *Piper nigrum*, *Tephrosia candida*, *Ocimum kilimandscharicum* and *Puraria javanica* were tried as underplants with varying degree of success.

(L) RAISING OF MANURE LEAF SPECIES

27. No special work was done in Research Regarding this but every Division has started work for production of seeds of *Sesbania* and *Daincha*.

Part III.

WORKING PLANS AND STATISTICS.

28. The following Working Plans were under preparation during the year under report.

1. Working Plan for Vellore East Division.
2. Working Plan for Vellore West Division.
3. Working Plan for Coimbatore Central Division.

Part IV.

DISTRICT EXPERIMENTS.

29. Apart from the experiments carried out by this Division some of the District Forest Officers have also carried out a few experiments of special interest to their Divisions and they are summarised below :—

(A) SOUTH COIMBATORE DIVISION

(1) *Tunacadavu Range* : (a) *Evodia roxburghiana* and *Mahogany* seedlings were under planted in 1' cube pits 11' apart in lines, the lines being 33' apart in 1930 teak R.A.

Evodia has established well than *Mahogany*.—(b) Seventy-five clove plants (*Eugenia caryophyllodes*) were planted out in Anaigundi area in the open and in the sholas nearby. Fifty seedling have come up.

(c) *Ocimum kilimandscharicum* seeds were sown broadcast in 60 acres in 1960 Ulandi Teak R.A. The seedlings have come up like weeds.

(d) Eight hundred and forty *Schleichera trijuga* natural seedlings were planted out in an area of 5 acres between topship and Sethumadai. Two hundred and ninety-three seedlings are alive.

(e) Two lb. of *Calamus guruba* seeds received from West Bengal was sown at Varagaliar. No germination was noticed.

(2) *Punachi Range* : (a) Two lb. of *Calamus guruba* seeds received from West Bengal were sown at Attakatty. They did not germinate.

(3) *Botampatti Range* : (a) Twenty-five Clove plants planted at Mylons' Bungalow at an espacement of 20' x 20'. Only 4 plants are surviving.

(b) *Ocimum kilimandscharicum* was tried in an area of 50 acres in 1959 Teak R.A. (Vellapathy). In 42 acres seeds were sown broadcast and in 8 acres seedlings were transplanted. This resulted in failure due to water stagnation at germination time.

In addition the old experimental areas in Tunacadavu, Punachi, Botampatti, Pollachi and Udumalpet Ranges were maintained.

(B) SOUTH CUDDALORE DIVISION

The effect of seed treatment with plant growth regulators on the subsequent growth of shoot and root was studied.

The effect of plant growth regulators on seed germination was continued.

Pitted seedlings of *Anacardium occidentale*, *Tamarindus indica*, *Artocarpus integrifolia*, *Azadirachta indica* were given soil spray treatments of plant growth regulators.

Seedlings of *Polyalthia longifolia* and *Acacia arabica* were soaked in plant growth regulators and planted out.

Studies are in progress to detect the presence of natural auxins during the germination of seeds.

Roots and stem cuttings of *Polyalthia longifolia*, *Eugenia jambolana*, *Myroia exotica*, *Psidium guajava*, and *Citrus* species were soaked for 24 hours in solutions of plant growth regulators.

(C) South Tirunelveli Division.

In Tirunelveli Range the following plantations were raised successfully :—

1. *Tamarindus indica* (Thalayuthu) 10 acres.
2. *Senna* (*Cassia angustifolia*) (Muthur R.F.) 20 acres.
3. Eucalypts plantation (Gangaikondan) 5 acres.

Cloves and Nut-meg raised in an acre at Azagiapandiapuram was partly successful.

Lac cultivation in 51 *Zizyphus xylopyra* trees resulted in failure.

(D) Chingleput Division.

Intensive ploughing and soil work was done in an area of 3½ acres of Cashew plantation at Kattankolathur R.F. during 1959-60. This indicated good growth. The experiment is under observation during 1960-61. Where the plots were reploughed in the second year also.

Part V.

30. *Miscellaneous*.—The report of Mr. Mathews, F.A.O., Expert on Forest Genetics is given in Appendix (I).

2. The trial report received from Annamalai University on Plant Growth Regulators is given in Appendix (J).

3. A report on Cashew Regeneration is given in Appendix (K).

31. *Programme for future Research*.—Experiments to determine the best method of regeneration of dry fuel forests based on the observation of the State Silviculturist during the Dry Zone Afforestation Study tour will be carried out.

Experiments on the control of shifting sand at Rameswaram Island will be continued and carried out.

Experiments on the raising of softwoods and Teak will be carried out at Thadikarankonam Research Station.

Experiments on Wattle and Bluegum and other rare exotics will be carried out at Kodaikanal Research Station.

Experiment on the artificial regeneration of Bamboo, Pine, Poplars and Eucalyptus species will be carried out.

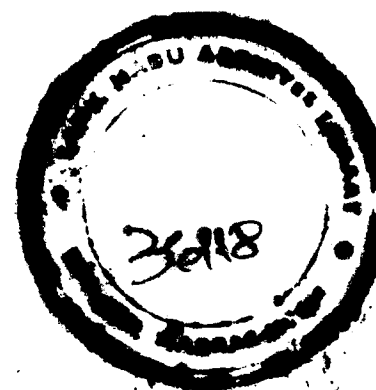
Experiments on the control and eradication of spike disease on Sandal will be carried out.

Experiments on the need and extent of watering and application of soil conservation methods in the raising of different species will be conducted.

Further experiments with important species like Casuarina, Cashew, Teak, etc., will be carried out.

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