GOVERNMENT OF ANDHRA PRADESH
FOREST DEPARTMENT.

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Office of the Prl.Chief Conservator of Forests, 'Aranya Bhavan, A.P. Hyderabad.

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CIRCULAR NO.19/91-S3.

Sub:- Forest Department -Revision of Working Plans - Chapter on Statistics of Growth and yield-Enumeration of Growing stock - Samplings - instructions issued - Regarding.

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The chapter VI under Part-I of Working Plan of any dist./division contains " Statistics of growth & yield". Extensive field work was required to be done in order to collect the data for writing this chapter. With the present day emphasis on conservation and afforestation and in view of the guidelines contained in National Forest Policy 1988 and other instructions from the Government in this regard, the Working circles like Teak conversion Working Circle, Selection Working Circle, Coppice with Reserve Working Circle etc., have lost relevance. The Statistics which used to be incorporated in this chapter is, therefore, now of academic interest only. Considering this, the following guidelines are issued, for enumeration and compiling the data for the chapter " Statistics of growth & yield " to be adopted by all the Working Plan Officers:-

1. Sample plot enumerations in Natural Forests:-

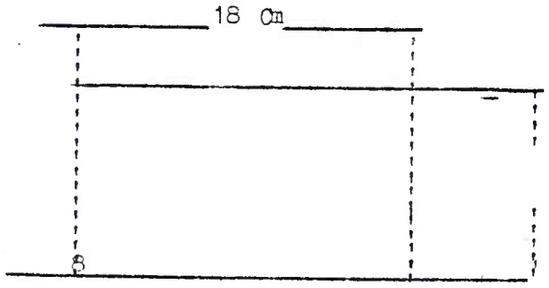
Previously 0.1 to 1 % sample enumeration was being carried out in the natural forests, in order to assess the species-wise growing stock of the forest crop. This was essential for deciding various felling series under different Working Circles. Now, since no series are proposed for felling under any of the Working Circles, it is felt that 0.025% sampling in natural forests will be sufficient for describing species-wise growing stock and composition and performance of important species.

The method of sampling adopted should be systematic sampling by 0.25 ha. Square equidistant plots.

1. The entire forest area in the District/Division is to be divided into different strata viz.(i) Pure Teak Forest having more than 30% Teak,(ii) Mixed Teak Forest having less than 30% Teak, (iii) Miscellaneous Forest (iv) Dry Thorn and Scrub type Forest, (v) Bamboo area and (vi) degraded Forest area etc., Under degraded forest areas, barren hills, podu cultivation areas and illicit encroachment may included. Stratification is completed when local area under each strata is decided, to the statisfaction of Working Plan Officer.

In order to mark the sample plots in natural forests, Survey of India sheets in the scale of 1 : 50,000 should be made use of. The areas in the S.I. Sheet should be divided into 0 °5' x 0 °5' squares. Since the scale adopted for the sheet is 1 cm= 500 M, the area under each square is (18 cm x 18 cm =9000.M x 9000M) 8100 ha. Thus, the area to be sampled is(0.025% of 8100) 2.025 ha. or say 2.25 ha. The no.of sample plots required for this area of 8100 ha. is, therefore , 9 each having a size of 0.25 ha. These 9 sample plots in the square of 18 cm x 18 cm marked in S.I. Sheet will be located as follows.

contd...p...2.



The vertical and horizontal distance between each sample plot in a square will be 4.5 cm. In order words, these sample plots in the field will be 2.25 Km. apart, After locating these sample plots in the field, a square of 50 M x 50 M should be demarcated and all the trees existing within this square should be enumerated. Name of the species dismeter at breast hight and approximate height for each of the tree should be recorded.

Based on number of the sample plots falling in each strata, total growing stock of important species in that strata will be computed. In this way the total growing stock of the tract under consideration will be arrived at.

Regeneration Survey:- For regeneration Survey, a sample plot of size 2M x 2M should be laid in the centre of each of the above sample, plots. The no.of poles saplings and other established plants, woody shoots on their way to establishment & large whipping seedlings should be counted seperately for all important species.

Sample plot enumeration in Teak, Eucalyptus & Miscellaneous excluding Bamboo Plantations.

Previously 5% to 10 % of the Plantation areas were being enumerated. It is felt that enumerating 0.125 % to 2.5% of the plantations areas will be sufficient to find out.

(i) The Survival % or the total no.of trees/ha.

(ii) Average height, average girth & site quality.

(iii) The necessity of thinning on the basis of results of (i) and (ii) above.

It is suggested that 2.5 % random systematic line sampling for estimationof survival % 0.25% rendom systematic sampling for estimations of average girth of the plantation & 0.125 sampling for average height may be carried out. The longest side of the plantations may be chosen as a base line. From one corner, fifth planting row may be selected and all the plants in the row may be counted to find out the survival % While counting the trees in the row, every 10th tree may be measured for its girth at breast height and 20th tree for its height. The process may be repeated for 45th, 85th, 125th row & so on and at the end.

P A R T. II. BAMBOO.

1. Percentage of stocking.
2. Number of living and dead clumps.
3. Diameter of the clumps.
   (i) Upto 0.50 M (ii) 0.50 to 1.00 M (iii) More than 1.00M.
4. Number of culms in each clump.
   (i) Number of current year culms.
   (ii) Number of more than one year old culms.
   (a) Green (b) Light cuts (c) Dry.

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5. Average diameter at B.H. and length of biggest, and smalled culm of more than one year old in every 10th clump. (Measured at breast height).

For collecting data, under items 1 and 3, 2½ % Enumeration of growing stock should be carried out. To do this longest lines of the plantation should be selected which will be the base line., Starting from a corner of this line (to be specified by the enumerator) select 5th Planting row. All the clumps in this row should be enumerated to arrive at the number of survival and thus the percentage of stocking in a row. There after every 40th row (i.e) 45th, 85th, 125th, and so on will be selected for enumeration. After collecting the data for all the rows, the total no.of survivals are arrived which represent 2½% of the total stocking. From this percentage of survivals and stocking in the plantations should be calculated based on the espacement and number of plants per hectare.

The details for columns for 2nd 3 have to be simultaneously collected nothing down the green and deed clumps for every 10th clump in each row enumerated and diameters of all the green clumps should be also recorded for every 10th clump in the row in three clumps diameter classes viz., 0-0-50 metres, 0.50 to 1.00 metres and more than 1.00 metres.

For the purpose of column 4 a detailed enumeration has to be carried out as detailed below.

In each row enumerated as detailed above, every 20th clump should be selected for detailed enumeration starting from the first clump from the base line. The details of enumeration should be recorded in the enumeration register as per the proforma given hereunder:-

Clump No.	No.of current year clumps.	More than one year old		
		Green	High cuts.	Dry.

The averaged figures for all the clumps will be furnished in the proforma.

For column 5 the average girth of one biggest and one smallest culm of more than one year age will be measured in each 40th clump in the row enumerated at breast-height and figures tubulated as under.

Stem and Stump Analysis:-

The stem and stump analysis which was carried out in old Working Plans may be furnished in the new Working Plan and the same rotation, if necessary may be fixed as it is of academic importance only.

Sd/- Dr. K. Kesava Reddy,
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To
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