GROWING STOCK POTENTIAL OF SILVER FIR (*ABIES PINDROW*) IN THE GALIS FORESTS OF NORTH-WEST FRONTIER PROVINCE.

By

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ABSTRACT. Point sampling carried out in 100 *fully stocked patches of silver fir established that the Galis forests are capable of supporting a maximum growing stock of about* 13, 500 *cubic feet per acre in contrast to their actual average stocking of about* 3,200 *cubic feet of species.*

INTRODUCTION. The authors in an earlier survey (6) found that blue pine forests in the Galis can support a maximum growing stock of about 10,000 cubic feet per acre as against their actual average stocking of about 2500 cubic feet. They conducted a similar survey in fir forests of the Galis with a view to investigating into the condition of stocking obtaining in these forests. The results are summarized hereunder.

Procedure and Findings:—Fully stocked patches scattered over Namli Maira, Nagri Bala, Kala Bagh Cantonment and Bagan forests of Galis forest division were located by field inspection. Prism sampling (2) was carried out in one hundred such patches and the growing stock per acre was determined both by number and volume. A summary of the data is given in Table-1 whereas the actual average growing stock distribution in these forests (5) is condensed in Table 2.

The stem and volume distribution of the fully stocked patches as also the actual average distribution obtaining in these forests are illustrated graphically in Figures 1 and 2.

TABLE—1.

Stem and Volume Distribution in the Fully Stocked Patches of Galis Forests.

D. B. H. Class (inches)	No. of trees per acre	Volume per acre (4) (cft.)
8—11	163.2	2611
12—15	86.2	3275
16—19	47.2	3115
20—23	19.7	2009
24—27	10.2	1489
28—31	3.7	740
32 and over	1.1	287
Total: ..	331.3	13526

TABLE—2

Actual Average Stem and Volume Distribution in the Galis Forests.

D. B. H. Class (inches)	No. of trees per acre (5)	Volume per acre (4) (cft.)
8—11	15.1	241
12—15	11.6	440
16—19	6.4	422
20—23	5.2	530
24—27	3.6	525
28—31	2.7	540
32 and over	2.5	540
Total: ..	47.1	3238

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USE OF INTERNODAL LENGTH IN THE GROWTH STUDIES OF CHIR PINE (*PINUS ROXBURGHII*).

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Introduction:—Increment borings (diameter) and internodal growth (height) are being made use of in growth prediction studies and in the construction of the yield tables using calculus and regression techniques(2, 5). Curtis (2) estimated the rate of height growth *i.e.* $\frac{dH}{dT}$ through regression techniques by measuring each of the last six internodal lengths by grouping them into diameter classes. He subsequently utilized it in obtaining the current rate of volume growth in the preparation of yield tables of Douglas fir.

Though at present the nature of the growth predictions and growth statistics provided in the yield tables is periodical in our forestry practices (1, 3) a time may come when we would like to have precise annual growth statistics. In this connection an exercise was carried out in chir forests to see whether the periodic mean annual height growth could be a real substitute for the current annual height growth or not.

Basic data:—The sample trees used in the preparation of site index curves (4) and many others from the yield plots were utilized for this study. Data were collectcd on 138 trees (D. B. H. 4" to 28") from Siran and 147 trees (D B H 1" to 34") from Haripur forest divisions respectively. Internodal lengths for the last five years of each sample tree were measured to the nearest inch for each year separately.

Analysis of data:—The trees were grouped into 1" diameter classes. Internodal length data for each of the past five years constituted 'treatment' and number of trees in each diameter class constituted 'blocks' or 'replications' for the purpose of analysis for variance. Only those diameter classes which contained four or more trees were considered for the analysis. This limit was considered necessary since the 'degree of freedom' for error should not ordinarily be less than ten, for valid results. Thus only 126 trees from each of the divisions were utilized in the study. Diameter-wise distribution of trees for both the localities alongwith the significance or otherwise of the 'ANOVA' for internodal length are shown in the table given below:—

TABLE

SHOWING DISTRIBUTION OF TREES ACCORDING TO DIAMETER CLASS AND RESULT OF ANALYSIS FOR INTERNODAL LENGTH DATA OF CHIR PINE.

Diameter class (inches)	Siran		Haripur	
	No. of Trees	Significance of internodal length	No. of Trees	Significance of internodal length
3	..	..	9	N. S.
4	..	..	10	S.
5	4	N. S.	5	N. S.
6	..	..	5	N. S.
7	6	N. S.	4	N. S.
8	7	N. S.	6	N. S.
9	9	N. S.	6	N. S.
10	13	N. S.	8	N. S.
11	11	N. S.	5	N. S.
12	12	N. S.	6	N. S.
13	11	N. S.	7	N. S.
14	10	N. S.	9	N. S.
15	9	S.	5	N. S.
16	10	N. S.	..	..
17	7	N. S.	9	N. S.
18	4	N. S.	5	N. S.
19	..	..	4	N. S.
20	5	N. S.	5	N. S.
21	..	..	6	N. S.
22	..	..	4	N. S.
23	4	S.	..	..
25	4	N. S.	4	N. S.
26	..	..	4	N. S.

N.S.—Non-significant:

S.—Significant at 5 per cent level.

Results and discussions—The results tabulated above indicate that there is no significant difference in individual years height growth in chir pine. The periodical mean annual (on the basis of quinquennial measurements) height increment can therefore be utilized for current annual increment.

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