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## **Yields of Unthinned Loblolly Pine Plantations on Cutover Sites in the West Gulf Region**

***D. P. FEDUCCIA, T. R. DELL, W. F. MANN, JR.,  
T. E. CAMPBELL, AND B. H. POLMER***





## **Summary**

The system of equations presented here uses diameter distributions and tree taper functions to forecast in detail the development of unthinned loblolly pine plantations. Data were collected in parts of east Texas, Louisiana, southern Arkansas, and southern Mississippi. Only plantations established on cutover sites that did not require preparation were sampled. However, the results should serve as interim guides for yields in plantations where site preparation is employed. Two sets of yield tables are given, corresponding to predictions made from the site index, plantation

age, and number of trees surviving or number of trees planted and the survival pattern expressed in the study data.

To enhance stand description, new techniques are presented for predicting crown ratio by d.b.h. class. Crown ratios are used to select the appropriate set of taper curves. The computer program USLYCOWG (unthinned slash and loblolly yields for cutover sites in the West Gulf region) that produces the yield tables can be obtained from the authors.

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BY

D. P. FEDUCCIA, T. R. DELL, W. F. MANN, JR.,  
T. E. CAMPBELL, AND B. H. POLMER

Loblolly pine (*Pinus taeda* L.) is a preferred species for planting in the South. We estimate that from 1970 through 1977 forest landowners in the West Gulf region planted about 1.3 million acres to loblolly. The number of acres planted in 1977 was double that planted in 1970, and the trend is expected to continue. Managers of loblolly plantations need accurate predictions of growth and yield in relation to site index, planting density, age, and percent survival in order to formulate management policies.

For unthinned loblolly plantations the only comprehensive yield tables previously available that specifically included the West Gulf region were by Coile and Schumacher (1964) and Lenthart (1972). The system of equations presented here improves forecasts of plantation development on cutover sites in the lower West Gulf Coastal Plain by using diameter distributions and stem taper functions. Coile and Schumacher's work did not utilize these techniques and Lenthart's yields involved unthinned, old field plantations located within the interior West Gulf Coastal Plain.

The data in this study were collected from plantations relatively free of establishment problems. The virgin stands were clearcut; grazing and repeated burning controlled woody vegetation, allowing successful establishment of planted pines without intensive site preparation.

Many such problem-free sites should be available in the future as pine density is carefully controlled throughout the rotation, and utilization is more complete at final harvest. Thus, our results

may apply to repeated crops of pines in the region. Also, the results can be used—at least until better guides are published—to predict yields where site preparation is employed. Yield forecasts by various systems were used by Clutter and Dell (1978) to anticipate yield with site preparation.

In the text that follows we will explain the equations used in the system. Some readers may want to apply our system to circumstances not covered in the yield tables. To do so, the computer program USLYCOWG (unthinned slash and loblolly yields for cutover sites in the West Gulf region), which is written in FORTRAN, is available from the Southern Forest Experiment Station, Statistical Methods for Research and Application, T-10210, 701 Loyola Avenue, New Orleans, LA 70113.

Readers who wish to can proceed directly to the Applications section, which explains how to use the yield tables. First, however, it will be necessary to become familiar with the following notations:

$A_p$  = Plantation age; the number of growing seasons since the seedlings were planted.

$H_D$  = Average height of dominant and codominant trees at any given  $A_p$ .

$S_I$  = Site index; the average height of dominant and codominant trees at a given reference age (I). In the tables, I is for plantation age 25.

$T_p$  = Number of trees planted per acre.

$T_s$  = Number of trees surviving at  $A_p$ .

Feduccia is Research Forester; Dell, Mathematical Statistician; Mann, Chief Silviculturist; Campbell, Silviculturist; and Polmer, Statistician. All are employed by the Southern Forest Experiment Station, Forest Service—USDA, except Feduccia, who is assigned to the Southern Station by the Louisiana Office of Forestry.



## Plantation Data

Study plots were in unthinned loblolly pine plantations established on cutover forest land. Wildfires burned the idle lands frequently and prevented natural regeneration and hardwood brush invasion. On some areas the heavy grass rough that predominated was burned off before planting; on others, it was not. We selected plantations on areas of good survival and within plantations chose plots free of heavy insect, disease, or other damage.

Many of the data used in developing the prediction system were from records on unthinned plots of various sizes in 9 long-term stand density studies. Some plots had been remeasured from one to six times, at intervals of 1 to 5 years. In addition, 67 supplementary plots were installed to include specifically site, age, and initial planting density combinations not well represented in existing studies. Collectively, 409 plot observations were available and their geographic coverage is shown in figure 1. Summaries of the distributions of these observations are given in tables 1 through 3. Only limited data was available outside the following ranges: (1) ages 3 to 27, (2) sites 38 to 77, and (3) planting densities of 251 to 1,500 trees per acre.

The average height of dominant and codominant trees was obtained to determine site index. Diameter at breast height (d.b.h.) to the nearest 0.1 inch was measured for each tree on the plot. In addition, measurements were made on individual volume sample trees relating to total height, height to the base of the living crown, and upper stem outside bark diameters. However, these sample tree data were not consistently available for all plots.

## Model Development

### Site Index

The observations covered in this paper and from other sources were used to define a set of site index curves for the category of loblolly plantations and the geographic area considered in this paper. This development was prompted by the fact that application of existing curves for natural loblolly resulted in a persistently increasing estimate of site index with repeated measurements over time on the same plot. The same was true of the Coile and Schumacher (1964) curves for planted loblolly pine on drainage classes d<sub>1</sub> - d<sub>4</sub>. In general, the problem-free cutover site plantations in the West Gulf were making more rapid height growth

in the first 25 years than was expressed in the other curves. However, when compared with results from old fields in the same general vicinity (Lenhart 1971), there was a distinctly less rapid early height growth pattern for our plots. Thus, the following equations were developed<sup>1</sup> and utilized in this system:

$$H_D = (S_I) (10) \left\{ b_1 \left[ \frac{1}{A_p} - \frac{1}{I} \right] + b_2 \left[ \left( \frac{1}{A_p} \right)^2 - \left( \frac{1}{I} \right)^2 \right] + b_3 \left[ \left( \frac{1}{A_p} \right)^3 - \left( \frac{1}{I} \right)^3 \right] + b_4 \left[ \left( \frac{1}{A_p} \right)^4 - \left( \frac{1}{I} \right)^4 \right] \right\}$$

and

$$S_I = (H_D) (10) \left\{ b_1 \left[ \frac{1}{I} - \frac{1}{A_p} \right] + b_2 \left[ \left( \frac{1}{I} \right)^2 - \left( \frac{1}{A_p} \right)^2 \right] + b_3 \left[ \left( \frac{1}{I} \right)^3 - \left( \frac{1}{A_p} \right)^3 \right] + b_4 \left[ \left( \frac{1}{I} \right)^4 - \left( \frac{1}{A_p} \right)^4 \right] \right\}$$

where

$$\begin{aligned} b_1 &= -21.0977 \\ b_2 &= 316.282 \\ b_3 &= -2443.85 \\ b_4 &= 6318.86 \end{aligned}$$

In this paper the reference age is set at a plantation age of 25 years. The computer routines associated with the system allow flexibility in defining index age. Yield tables for an index age of 50 years, for example, can be produced. This system and the associated computer program are designed to facilitate substitution of site index equations. We expect that certain users may elect to obtain the routines and insert an equation for their own situation.

### Diameter Distributions

The three parameter Weibull function (Bailey and Dell 1973) was adopted as a model for the distribution of diameters. The cumulative distribution function (c.d.f.) and the probability density function (p.d.f.) for the Weibull distribution, where x is a specified d.b.h. value and a, b, and c are the parameters to be estimated, are,

<sup>1</sup>Popham, T. W., D. F. Feduccia, T. R. Dell, W. F. Mann, Jr. and T. E. Campbell. Site index of planted loblolly on cutover sites in the West Gulf. U.S. Dep. Agric. For. Serv. Exp. Stn., New Orleans, La. (In preparation.)

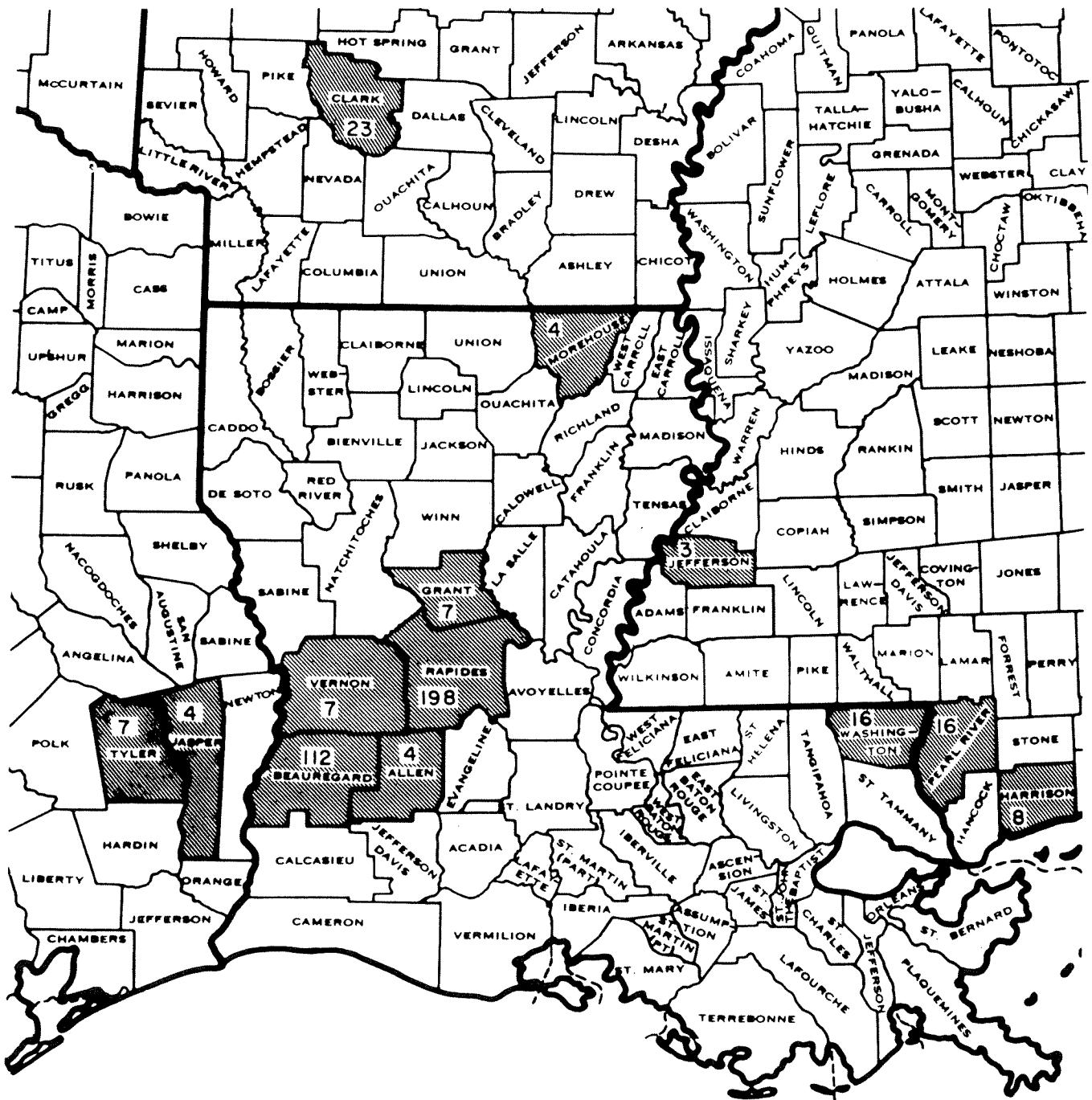


Figure 1.—Geographic location of 409 plot observations.

Table 1.—Distribution of observations by plantation age and planting density

Age class	Planting density range (trees per acre)							Totals
	≤ 250 500	251- 750	501- 1000	751- 1250	1001- 1500	1251- 1500	≥ 1500	
Years	Number							
3- 7	8	4	4	15	—	—	—	31
8-12	—	3	4	38	16	—	—	61
13-17	—	50	34	19	46	—	—	149
18-22	—	35	23	14	29	20	6	127
23-27	—	9	3	7	3	3	—	25
28-32	—	4	—	—	—	—	—	4
33-45	—	12	—	—	—	—	—	12
Totals	8	117	68	93	94	23	6	409

Table 2.—Distribution of observations by plantation age and site index

Age class	Site index class (age 25)												Totals	
	≤ 22 27	23- 32	28- 32	33- 37	38- 42	43- 47	48- 52	53- 57	58- 62	63- 67	68- 72	73- 77		
Years	Number													
3- 7	—	—	—	—	1	—	4	1	4	2	—	2	17	31
8-12	3	2	1	—	2	—	4	17	8	11	3	6	4	61
13-17	—	—	—	4	1	4	4	34	66	30	4	2	—	149
18-22	—	—	—	—	—	1	17	41	40	22	6	—	—	127
23-27	—	—	—	—	1	1	5	10	7	1	—	—	—	25
28-32	—	—	—	—	—	—	—	1	2	1	—	—	—	4
33-45	—	—	—	—	—	—	—	1	8	3	—	—	—	12
Totals	3	2	1	4	5	6	34	105	135	70	13	10	21	409

Table 3.—Distribution of observations by planting density and site index

Planting density range	Site index class (age 25)												Totals	
	≤ 22 27	23- 32	28- 32	33- 37	38- 42	43- 47	48- 52	53- 57	58- 62	63- 67	68- 72	73- 77		
No. of trees	Number													
≤ 250	—	—	—	—	—	—	—	—	—	—	—	—	8	8
251- 500	—	—	—	3	1	2	4	26	38	30	5	3	5	117
501- 750	—	—	—	—	—	1	2	19	26	12	—	2	6	68
751-1000	3	1	1	—	4	2	11	20	24	16	4	5	2	93
1001-1250	—	1	—	1	—	1	3	32	42	10	4	—	—	23
1251-1500	—	—	—	—	—	—	8	8	5	2	—	—	—	6
≥ 1500	—	—	—	—	—	—	6	—	—	—	—	—	—	—
Totals	3	2	1	4	5	6	34	105	135	70	13	10	21	409

c.d.f.:

$$F(x) = 1 - \exp \left\{ - \left( \frac{x-a}{b} \right)^c \right\}, \text{ for } a \leq x < \infty$$

= 0, \text{ otherwise}

p.d.f.:

$$f(x) = \frac{c}{b} \left( \frac{x-a}{b} \right)^{c-1} \exp \left\{ - \left[ \frac{x-a}{b} \right]^c \right\}, \text{ for } a \leq x < \infty$$

= 0, \text{ otherwise.}

In general for this distribution  $b > 0$  and  $c > 0$  and for the application to the distribution of d.b.h.  $a \geq 0$  is specified.

For each of the 409 plots, counts by one-inch d.b.h. classes on a plot basis were used to obtain fitted estimates of the three parameters. The routine FITTER provided by Bailey (1974) was employed. These estimates of the plot parameters were then used as dependent variables for developing the following multiple regression equations to predict the diameter distribution parameters as functions of  $H_D$ ,  $T_s$ , and  $A_p$ .

$$\begin{aligned}
a &= 0.13391 - 0.076245 \log^* (H_D) + 2.3569 \\
\log (A_p) &- 0.70442 \log (T_s) \\
R^2 &= 0.13, S_{y..x} = 1.8002, \bar{Y} = 0.95, \\
S_y^2 &= 2.0135 \\
a + b &= 2.14570 + 8.1415 \log (H_D) + 2.1264 \\
\log (A_p) &- 4.13600 \log (T_s) \\
R^2 &= 0.90, S_{y..x} = 0.5045, \bar{Y} = 6.87, \\
S_y^2 &= 4.9730 \\
c &= 2.69350 + 5.3594 \log (H_D) - 5.1274 \\
\log (A_p) &- 0.53123 \log (T_s) \\
R^2 &= 0.15, S_{y..x} = 1.3317, \bar{Y} = 3.86, \\
S_y^2 &= 1.5482
\end{aligned}$$

The equations for the *a* and *c* parameters account for little of the variation. The *a*, or location parameter, expresses the smallest d.b.h. that could be encountered and the *c* parameter relates to the shape of the distribution. Estimates of these parameters vary greatly depending on the occurrence of small trees on the sample plot. On plots having the same site, age, and essentially the same density the extent to which weaker trees have been eliminated by competition or fire can vary greatly, which contributes to the difficulty of predicting the location and shape parameters.

Despite the inherent variability, the system of equations adequately defines the diameter distribution trends. Observed and predicted basal areas for the 409 plot observations had a simple correlation of +0.93 and the deviations expressed as a percent of the observed value averaged only 0.6 percent under prediction. Of the 409 observations, 257 had predictions that were within  $\pm 15$  percent of the observed value. The predictions were made on the basis that  $T_s$  was known along with  $H_D$  and  $A_p$ .

#### Height-Diameter Relationships

This component predicts the total height of a tree ( $H_i$ ), given its d.b.h. ( $D_i$ ) and information on  $H_D$ ,  $A_p$ ,  $T_s$ , and DMAX. The latter variable is the midpoint of the largest diameter class containing at least one tree per acre as defined by the Weibull c.d.f. and  $T_s$ . The model employed was the one used by Smalley and Bailey (1974).

The data set for the following equation involved 3,787 individual height-diameter pairs.

$$\begin{aligned}
\log (H_D/H_i) &= -0.032876 + (1/D_i - \\
&1/DMAX) \{1.9930 + \\
&2.5047 A_p T_s (10^{-5}) + \\
&0.0043249 T_s / A_p - 1.0360 \\
&\log (T_s / A_p) - 0.026038 \\
&\log (H_D / A_p)\} \\
R^2 &= 0.70, S_{y..x}^2 = 0.0015, \bar{Y} = 0.0317, \\
S_y^2 &= 0.0051.
\end{aligned}$$

For certain combinations of the arguments the equation predicts  $H_i$  values under 4.5 feet. When this happens the height estimate is set at 5 feet by the computer routines used to implement this system of yield predictions.

When the equation was rearranged to predict  $H_i$  and applied to the trees from which the coefficients were derived, the average value of the deviation (predicted - observed) was -0.12 feet, and 93 percent of the variation about mean height was explained.

#### Crown Ratio-Diameter Relationships

The ratio of living crown length to total height of the tree expressed as a percentage (CR) is a variable of interest in both silvicultural and mensurational considerations. A component was added in this system to predict the  $CR_i$  of a tree of a given  $D_i$  growing in a stand with specified values for  $H_D$ ,  $A_p$ ,  $T_s$ , and the three Weibull parameters of the diameter distribution.

The prediction of  $CR_i$  was built upon the following specifications:

- (1)  $0 < CR_i < 100$
- (2) When  $D_i$  is equal to the expected value of the diameters ( $\bar{D}$ ), then  $CR_i$  must equal the average crown ratio of all trees ( $\bar{CR}$ )
- (3) A monotonic relationship exists such that an increase in the  $D_i$  value is associated with an increase in the predicted  $CR_i$ .

The related equations are:

$$CR_i = 100 \left[ 1 - \exp \left\{ \left( \frac{D_i}{\bar{D}} \right)^\lambda \ln \left( 1 - \frac{\bar{CR}}{100} \right) \right\} \right]$$

where  $\bar{CR} = 248.63 - 35.872 \log (H_D) - 43.565$

$$\log (A_p) = 33.424 \log (T_s)$$

and

$$\begin{aligned}
\lambda &= -5.6919 + 2.2974 \log (H_D) + 0.16988 \\
&\log (A_p) + 0.77763 \log (T_s).
\end{aligned}$$

$\bar{D} = a + b\Gamma(c^{-1} + 1)$  with  $\Gamma(z)$  defined as the gamma function  $\int_0^\infty t^{z-1} e^{-t} dt$  and  $a$ ,  $b$ ,  $c$  are the Weibull parameters of the diameter distribution.

\* Logarithms to the base 10 and  $e$  are denoted respectively by log and  $\ln$ .

The equation for  $\overline{CR}$  was based upon a regression fitting with 65 plot observations and had the following related statistics:

$$R^2 = 0.824, S_{y \cdot x}^2 = 6.16, \bar{Y} = 37.39, \text{ and } S_y^2 = 33.41.$$

The coefficients for the equation to predict  $\lambda$  were obtained from a regression that used data from 1,259 trees. With early ages and poor sites the equation predicts negative  $\lambda$  values, so the computer routines are arranged to set  $\lambda$  at zero if it is predicted to be negative.

#### Volume-Defining Functions

In this system for estimating the volume in a tree an appropriate taper equation is defined and integrated between two points. The taper model was taken from Bennett and others (1978). In their work, separate taper equations for inside and outside bark predictions are defined by two sets of coefficients. Total height and the diameter outside bark at breast height are required for defining the taper equation of a given tree. However, we found in fitting their general model for trees of different crown ratio classes, a pattern of change occurred in some of the coefficients. Thus, given the CR of a tree, one should be able to obtain a refined taper equation for the tree.

To use the technique so that the taper function formulation was not severely complicated, we established three classes of CR values and developed separate sets of inside and outside bark taper function coefficients for each of these classes. The six sets of coefficients are given below and are based on data from 100 felled trees. These trees were deliberately selected to cover a wide range of total height, d.b.h., and crown ratio combinations. The sample included d.b.h.'s from 2 to 18 inches.

For the three classes of increasing crown ratio we had 188, 290, and 302 upper stem measurements for both inside and outside bark. These data were used to estimate coefficients ( $B_1$  through  $B_4$ ) relating to the portion of the stem above breast height.

The two coefficients in the taper model that relate to the prediction of inside bark diameter at breast height ( $G_1$  and  $G_2$ ) did not differ significantly by crown ratio classes and the overall estimates based on 100 trees were adopted. Coefficients concerning the taper function below breast height (ETA) for inside and outside bark situations were fitted separately for each crown ratio group. There were 62, 103, and 113 observations for the groups in order of increasing CR. For the outside bark situation the use of the  $G_1$  and  $G_2$  coefficients of 0.0 and 1.0 simply reproduces the d.b.h. outside bark. This was done to facilitate general utility of computer routines for both inside and outside bark situations.

The results of using the sets of taper curves were compared with 13 previously published volume equations for loblolly plantation trees. In each case the taper curves were used to predict volumes for the specifications and the range of tree sizes in the published work. Taper-based volumes tended to agree with equations given by Coile and Schumacher (1964) and by Bailey and Clutter (1970). The taper curve for the  $> 50$  crown ratio group followed the volumes predicted by Schmitt and Bower (1970) more closely than the other two crown ratio groups, which was expected since these authors were dealing with a 7-year-old plantation of a 10x10 foot spacing. The taper-based tree volume predictions proved to be persistently higher

Coefficient	OUTSIDE BARK		
	CR < 36	36 ≤ CR ≤ 50	CR > 50
B1	21.9012	14.1180	9.6108
B2	0.130381	1.164817	-0.556774
B3	0.059713	-0.015343	0.062742
B4	-15.31340	-12.35060	-4.23910
ETA	-0.10105	-0.11065	-0.12297
G1	0.0	0.0	0.0
G2	1.0	1.0	1.0

Coefficient	INSIDE BARK		
	CR < 36	36 ≤ CR ≤ 50	CR > 50
B1	16.5261	9.5731	6.2789
B2	-0.150774	1.153531	-0.567733
B3	0.089512	-0.012421	0.077350
B4	-9.85254	-7.88853	-1.69543
ETA	-0.10287	-0.10378	-0.10370
G1	-0.46206	-0.46206	-0.46206
G2	0.93157	0.93157	0.93157

than predictions given by Hasness and Lenhart (1972) for old fields in the interior West Gulf. The best agreement of the taper-based volumes with a published set of equations was with Smalley and Bower (1968).

In the taper equations there was a trend toward predicting greater volume as the crown ratio decreased for a given d.b.h. and total height. It seems reasonable that lower crown ratios would be associated with less drastic taper and generally more volume.

#### Survival

The system of equations given thus far allows predictions of detailed stand information by diameter classes if one is given  $T_s$ ,  $A_p$ , and  $S_i$ . Computer routines are available to implement these predictions and were used in the development of tables contained in Appendix 1. Certain users of this system may not be able to specify  $T_s$ , however, and would rather substitute an estimate of  $T_s$  based upon a specified  $T_p$  and other information including  $A_p$  and perhaps  $S_i$  or  $H_D$ . We encourage users of this system to develop survival functions based on their experience, but we provide two survival functions in the computer routines that might be used.

Plots of this study were initially placed so as to avoid areas of poor survival and heavy damage by destructive agents. Thus, the survival function fitted to these data provides nearly ideal survival patterns. Our equation is,

$$\log(T_p/T_s) = A_p \{ 0.013480 \log(T_p) + 0.00060783 H_D - 0.0084124 \sqrt{H_D} \}.$$

$$R^2 = 0.66, S_{y.x}^2 = 0.018058, \bar{Y} = 0.1792,$$

$$S_y^2 = 0.020627.$$

This is the model used by Smalley and Bailey (1974). Our regression fitting was based on 409 plot observations.

Tables of yields based on this survival response utilizing  $S_i$ ,  $A_p$ , and  $T_p$  are given in Appendix 2. The computer routines for our system also provide an option to use the survival function of Coile and Schumacher (1964):

$$\log(T_s) = \log(T_p) + [2.1346 - 1.1103$$

$$\log(T_p) - 0.1384] \frac{A_p}{100}$$

The two functions give similar predictions of survival with the major difference being that our

equation includes  $S_i$  indirectly by including  $H_D$ . In the rest of this paper we will use only our survival function. In the companion paper (Dell and others 1979), which deals with slash pine yields, predictions were presented separately for the two different survival functions because of obviously large differences.

#### Applications

Yields of unthinned plantations can be forecast if one specifies the  $S_i$ ,  $A_p$ , and a factor that expresses stand density. The density factor can be in terms of  $T_s$  or  $T_p$ . When the number of trees planted is specified, a prediction of survival is needed. This necessitates the presentation of two sets of tables.

The tables in Appendix 1 are based on  $S_i$ ,  $A_p$ , and  $T_s$ . Site index changes from 40 through 70 by 10-foot intervals. Within each site index group, tables are presented for each of three ages. Finally, within each  $S_i$  and  $A_p$  combination there are tables corresponding to six levels of  $T_s$ . For each  $S_i$ , tables for the following combinations are given.

$A_p$	$T_s$						
	10	400	500	600	800	1,000	1,300
20	300	400	500	700	900	1,100	
30	200	300	400	500	600	800	

Appendix 2 provides tables of yield where  $T_p$  is the density argument and the survival function is based on our plots. Site index is fixed at 40 through 70 in steps of 10 feet;  $T_p$  at 400, 600, 800, 1,000, 1,200, and 1,500 trees per acre; and  $A_p$  at 10, 15, 20, 25, and 30 years. The order of presentation of the tables, in which  $A_p$  changes most rapidly, facilitates viewing the plantation development through time for a given site and planting density.

After each table are estimates for such variables as the arithmetic mean d.b.h., the diameter corresponding to the tree of average basal area (quadratic mean diameter), and the corresponding site index for a base age 50. Also given in each table is an estimate by diameter class of the crown ratio or crown length as a percentage of total tree height. The coefficient, lambda, used in this prediction is listed.

Volume yield estimates, on an acre basis, were established as follows:

1. Estimate the number of trees per acre in each one-inch diameter class using predicted Weibull parameters and  $T_s$ .
2. Use midpoint diameter for each class to estimate total height and crown ratio.
3. Compute volume of the midpoint tree using appropriate specifications and taper curve as determined by variables above.
4. Multiply volume in the midpoint tree of the class by number of trees per acre in the class.
5. Sum across the diameter classes.

Projections of stand and stocking data are risky beyond the following limits: (1) ages 10 to 30, (2) sites 40 to 70, and (3) planting densities of 250 to 1,500 stems per acre. Relationships outside these ranges are not well defined due to the limited data base, as shown in tables 1, 2, and 3, (p. 4).

### Trends

The following discussion of trends is limited to data predicted on the basis of the ideal survival. Figures 2 to 7 show trends for a planting density of 800 stems per acre, or about a 6- by 9-foot spacing, for sites 40 through 70 feet. Trends related to other circumstances can be obtained from the tables or by use of the computer routines.

### Survival

On all sites, survival percentage decreases as age increases (fig. 2). At age 10, survival declines with decreasing site index. However, because of intensified competition on the better sites with advancing age, survival by 25 years is highest on the poorest sites (sites 40 and 50). Survival percentage on the poorest sites is similar by age 30.

### Total and merchantable yields

Cubic-foot yields (o.b.) per acre for the entire stem of all trees (total yield) and trees 5 inches d.b.h. and larger to o.b. top of 4 inches (merchantable yield) increase directly with site index (figs. 3 and 4). The culmination of yield, due to the onset of mortality from suppression, does not occur by age 30.

### Basal area

Basal area of all trees increases directly with site (fig. 5). Culmination occurs at age 26 on site 70 and age 30 on site 60. For sites 40 and 50, culmination does not occur by age 30.

### Quadratic mean diameter

A 10-foot increase in site index results in an average gain of 0.6 inch in mean stand diameter at age 10, increasing to 0.7 inch by 30 years (fig.

6). After age 20, diameter increase tends to be linear. However, to evaluate the effects of site, age, and initial planting density, diameter distribution is more useful than mean diameter.

### Mean crown ratio

The proportion of the bole with live crown declines with age and increasing site index (fig. 7). A mean crown ratio of 35 percent occurs 7 years earlier on site 70 than on site 50.

### Validation and Extensions

Each of the equations presented here was evaluated by summarizing trends in deviations between predicted and observed values for the observations upon which they were based. Also, graphs were developed to insure that the predictions were reasonable. These checks were reassuring, but comprehensive validation must be based on independent data. Assistance in compiling such data has been offered by cooperating organizations, and results will be available in the future.

We did accomplish some evaluation of the total and merchantable outside bark volume predictions. Of the 409 observations, 214 involved outside bark, upper stem measurements on standing sample trees that allowed the determination of volume yields for each observation by height accumulation (Lohrey and Dell 1969) and did not utilize the taper curves. The 214 plots covered a considerable range in site index (36 - 80), planting densities (306 - 1390), and ages (10 - 45).

The volumes computed directly with the sample tree data are referred to as observed yields to contrast them with predicted yields from the system of equations. Predictions were made for the case that  $T_s$  is known and also for the case that  $T_p$  is known. For each situation, the correlation of observed and predicted values was computed as was the mean percent deviation, which is the average of the 100 (predicted - observed)/observed, values. The following summary indicates that the overall system, including the taper curve component, produces reasonably close estimates.

Variable	r	Mean Percent Deviation
Total volume, o.b. given $T_s$	+0.92	+2.1
Merchantable volume, o.b. given $T_s$	+0.90	-3.9
Total volume, o.b. given $T_p$	+0.91	-2.1
Merchantable volume, o.b. given $T_p$	+0.90	-5.6

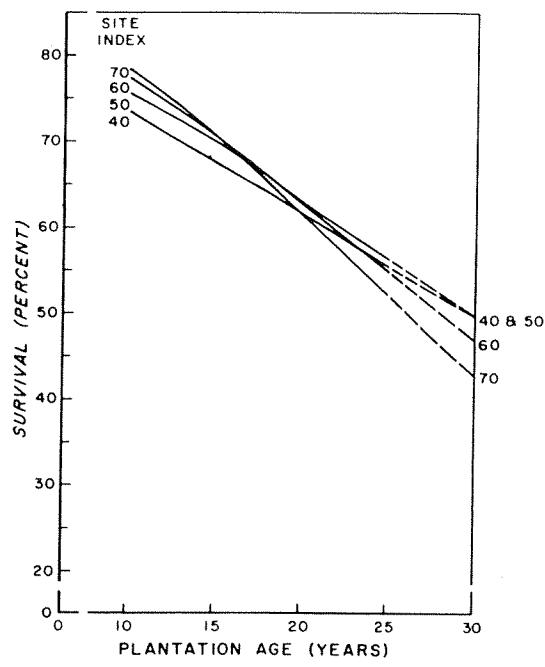


Figure 2.—Percent survival by site index classes from age 10 to 30 years.

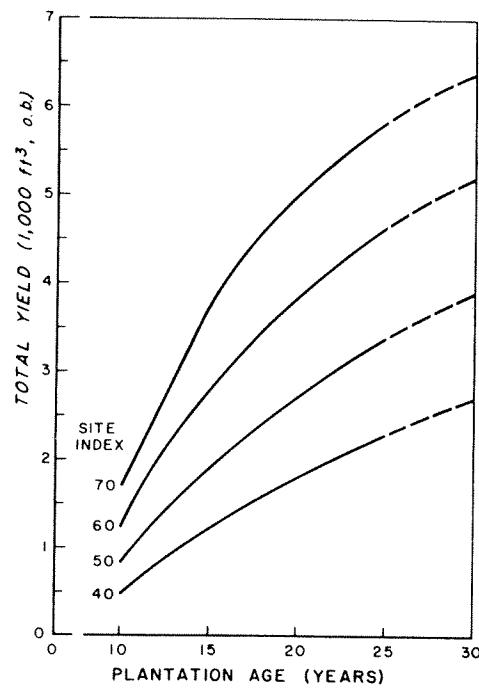


Figure 3.—Total yield per acre by site index classes of all trees from age 10 to 30 years.

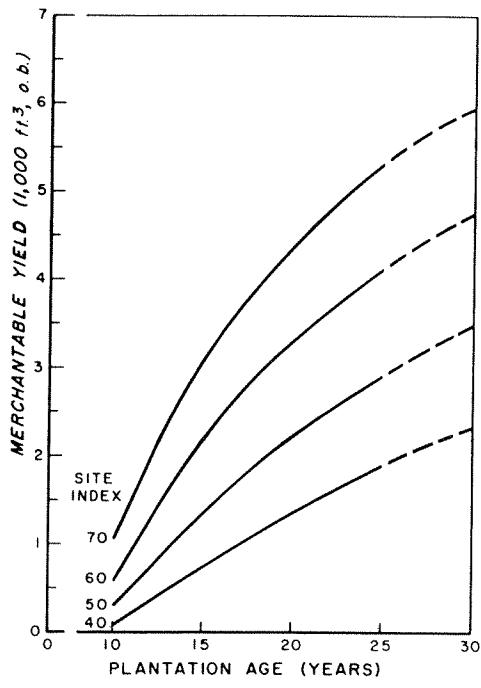


Figure 4.—Merchantable yield per acre by site index classes of trees over 4 inches d.b.h. to 4-inch top (o.b.) from age 10 to 30 years.

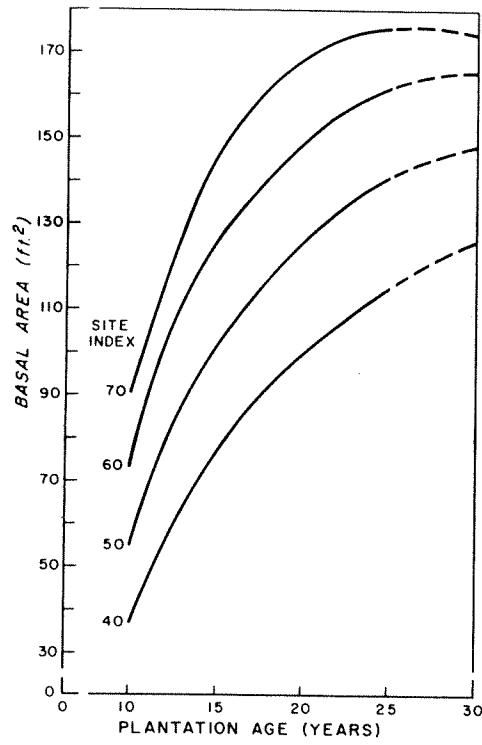


Figure 5.—Total basal area per acre by site index classes from age 10 to 30 years.

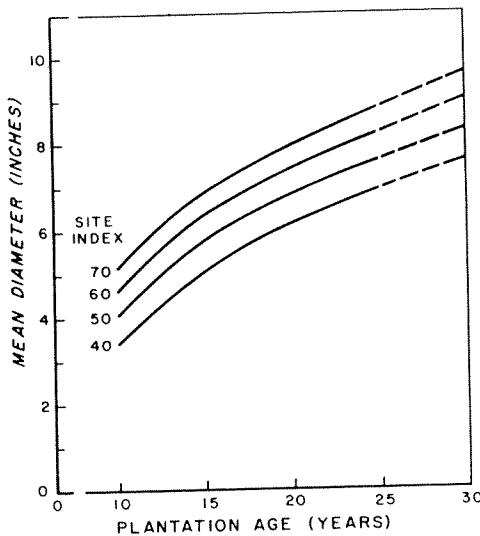


Figure 6.—Average stand diameters by site index classes from age 10 to 30 years.

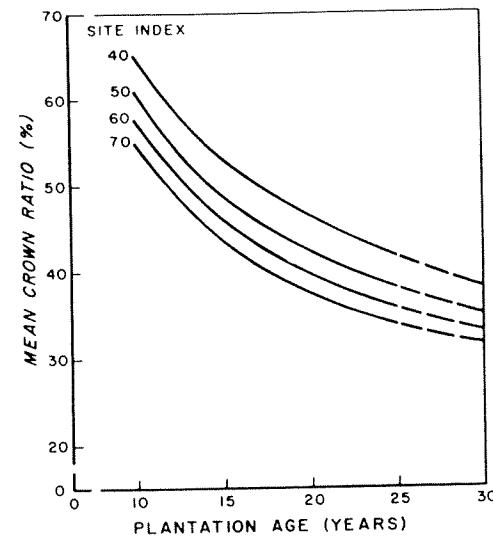


Figure 7.—Mean crown ratio by site index classes from age 10 to 30 years.

The equations of this system could be used with modifications and extensions of the existing computer routines to facilitate future work to predict yields: (1) with other limits of merchantability and stump height than presented here, (2) in metric units, (3) on the basis of weight, and (4) with multiproduct processing. The system is to be the foundation on which components for predicting results with thinning will be developed from currently available data.

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**APPENDIX I**  
**Yield Tables Given Site Index, Age, and**  
**Number of Surviving Stems**

# YIELDS GIVEN $T_s$ —

$A_p$  10

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME										
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		4 INCHES								
								2 INCHES		3 INCHES		4 INCHES							
								O.B.	I.B.	O.B.	I.B.	O.B.	I.B.						

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	21	1	5	.0	71	7	0	0				
		2	41	.9	71	14	19	5				
		3	104	5.1	71	17	60	35				
		4	132	11.5	71	19	133	92				
		5	87	11.9	71	21	150	105	133	94	122	87
		6									97	68
		7	27	5.3	71	22	68	49	61	45	59	43
			4	1.1	71	23	14	10	13	10	12	9
			400	35.8			441	297	207	149	193	139
											161	115

ARITH. MEAN DBH= 3.9 , QUADRATIC MEAN DBH= 4.0 , WEIBULL PARAMETERS A= .6 , B= 3.71 , C= 3.26  
 MEAN CROWN RATIO= 70.7 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

10	21	1	10	.1	67	7	0	0				
		2	76	1.7	57	14	18	9				
		3	164	8.1	67	18	98	60				
		4	162	14.1	67	20	177	118				
		5	74	10.1	67	21	127	89	113	80	104	74
		6	13	2.6	67	22	33	24	29	22	28	21
		7	1	.3	67	23	4	3	3	2	3	2
			500	36.8			457	303	145	104	135	97
											111	78

ARITH. MEAN DBH= 3.5 , QUADRATIC MEAN DBH= 3.7 , WEIBULL PARAMETERS A= .5 , B= 3.38 , C= 3.21  
 MEAN CROWN RATIO= 67.5 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

10	21	1	20	.1	65	8	1	0				
		2	124	.7	55	15	31	16				
		3	227	11.1	65	18	135	83				
		4	172	15.0	65	20	168	125				
		5	52	7.1	65	22	92	65	82	58	75	54
		6	5	1.0	65	23	13	9	12	9	11	8
			600	37.0			460	298	94	67	86	62
											70	49

ARITH. MEAN DBH= 3.2 , QUADRATIC MEAN DBH= 3.4 , WEIBULL PARAMETERS A= .4 , B= 3.11 , C= 3.17  
 MEAN CROWN RATIO= 64.8 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_s$ —

$A_p$  10

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	ALL TREES GROUND TO TIP:		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.			
				BASAL AREA	CR AV. HT.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>			
							2 INCHES	3 INCHES	4 INCHES	5 INCHES
10	21	1	57	.3	61	8	2	1		
		2	263	5.7	51	15	66	34		
		3	329	16.1	61	19	204	126		
		4	135	11.8	61	21	152	102		
		5	16	2.2	61	23	29	21	26	19
				800	36.2		453	284	26	19
									24	17
										19
										13

ARITH. MEAN DBH= 2.7 , QUADRATIC MEAN DBH= 2.9 , WEIBULL PARAMETERS A= .3 . B= 2.68 . C= 3.10  
 MEAN CROWN RATIO= 60.6 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

10	21	1	128	.7	57	8	6	1		
		2	445	9.7	57	15	112	58		
		3	356	17.5	57	19	220	136		
		4	69	6.0	57	21	78	52		
		5	2	.3	57	23	4	3	3	2
				1000	34.2		420	250	3	2
									3	2
										2
										2

ARITH. MEAN DBH= 2.4 , QUADRATIC MEAN DBH= 2.5 , WEIBULL PARAMETERS A= .3 . B= 2.34 . C= 3.05  
 MEAN CROWN RATIO= 57.4 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

10	21	1	335	1.8	54	7	13	3		
		2	713	15.6	54	15	180	92		
		3	242	11.9	54	20	155	96		
		4	10	.9	54	23	12	8		
				1300	30.1		360	199	0	0
									0	0
										0

ARITH. MEAN DBH= 1.9 , QUADRATIC MEAN DBH= 2.0 , WEIBULL PARAMETERS A= .2 . B= 1.95 . C= 2.99  
 MEAN CROWN RATIO= 53.6 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN T<sub>S</sub> —

A<sub>P</sub> 20

S<sub>I</sub> 40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME												
							ALL TREES GROUND TO TIP				5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF				2 INCHES				
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>												
20	35	2	2	.0	53	15	1	0											
		3	12	.6	53	22	8	5											
		4	28	2.4	53	26	37	25											
		5	45	6.1	53	29	97	70	88	64	79	57	60	43					
		6	57	11.2	53	32	188	140	172	129	163	122	143	106					
		7	56	15.0	54	33	256	194	236	181	229	175	213	163					
		8	47	16.4	54	35	293	227	272	213	267	208	255	199					
		9	30	13.3	54	36	242	190	226	179	223	177	217	172					
		10	15	8.2	54	37	154	122	144	115	142	114	139	112					
		11	6	4.0	54	38	76	62	72	58	71	58	70	57					
		12	2	1.6	54	38	31	25	29	24	29	23	28	23					
		300	78.7				1383	1060	1239	963	1203	934	1125	875					

ARITH. MEAN DBH= 6.7 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.3 , B= 5.95 , C= 3.01  
 MEAN CROWN RATIO= 53.6 , LAMBDA= .016  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	2	5	.1	45	16	1	1											
		3	22	1.1	47	22	63	44											
		4	48	4.2	48	27													
		5	72	9.8	49	30	160	119	146	109	133	99	90	65					
		6	84	16.5	49	32	286	219	265	205	253	195	221	169					
		7	74	19.8	50	34	362	285	339	268	330	261	309	244					
		8	52	18.2	50	35	343	274	322	259	317	255	306	245					
		9	28	12.4	51	36	226	178	211	167	208	165	202	160					
		10	11	6.0	51	37	113	90	105	85	104	84	102	82					
		11	3	2.0	52	38	38	31	36	29	36	29	35	29					
		12	1	.8	52	38	15	12	14	12	14	12	14	12					
		400	90.8				1621	1262	1438	1134	1395	1100	1279	1006					

ARITH. MEAN DBH= 6.2 , QUADRATIC MEAN DBH= 6.4 , WEIBULL PARAMETERS A= 1.2 , B= 5.52 , C= 2.95  
 MEAN CROWN RATIO= 49.4 , LAMBDA= .113  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	2	9	.2	40	16	2	1											
		3	37	1.8	42	23	24	15											
		4	74	6.5	44	28	99	70											
		5	102	13.9	45	31	232	173	212	159	192	144	130	94					
		6	107	21.0	46	33	372	286	345	267	330	255	287	221					
		7	86	23.0	47	34	421	331	394	311	384	303	359	283					
		8	52	18.2	48	36	350	280	330	265	325	261	313	251					
		9	23	10.2	49	37	202	163	190	155	188	153	184	150					
		10	8	4.4	50	38	89	73	84	69	83	69	82	67					
		11	2	1.3	50	38	27	22	26	21	25	21	25	21					
		500	100.4				1918	1414	1581	1247	1527	1206	1380	1087					

ARITH. MEAN DBH= 5.8 , QUADRATIC MEAN DBH= 6.1 , WEIBULL PARAMETERS A= 1.2 , B= 5.19 , C= 2.90  
 MEAN CROWN RATIO= 46.1 , LAMBDA= .189  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_s$ —

$A_p$  20

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								
20	35	1	1	.0	28	6	0	0							
		2	23	.5	33	17	7	4							
		3	77	3.8	36	24	51	33							
		4	136	11.9	39	28	181	128							
		5	165	22.5	41	31	375	279	343	257	311	232	210	152	
		6	145	28.5	43	33	504	388	468	362	447	346	390	299	
		7	93	24.9	44	35	465	365	436	345	425	336	397	314	
		8	43	15.0	45	36	290	232	272	219	269	216	259	208	
		9	14	6.2	47	37	123	99	116	94	115	93	112	91	
		10	3	1.6	48	38	33	27	32	26	31	26	31	25	
				700	114.8		2029	1556	1667	1303	1598	1249	1399	1089	

ARITH. MEAN DBH= 5.3 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A= 1.1 , B= 4.69 , C= 2.82  
 MEAN CROWN RATIO= 41.3 , LAMBDA= .302  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	1	2	.0	23	6	0	0							
		2	45	1.0	28	16	13	7							
		3	132	6.5	32	23	94	64							
		4	208	18.2	35	28	290	212							
		5	221	30.1	38	31	502	374	459	344	416	311	282	203	
		6	165	32.4	40	33	574	441	532	412	509	394	443	341	
		7	87	23.3	42	35	435	343	407	323	397	314	371	294	
		8	31	10.8	44	36	209	167	196	158	194	156	186	150	
		9	8	3.5	45	37	70	57	66	54	65	53	64	52	
		10	1	.5	46	38	11	9	11	9	10	9	10	8	
				900	126.3		2198	1674	1671	1300	1591	1237	1356	1048	

ARITH. MEAN DBH= 4.8 , QUADRATIC MEAN DBH= 5.1 , WEIBULL PARAMETERS A= 1.0 , B= 4.31 , C= 2.76  
 MEAN CROWN RATIO= 37.6 , LAMBDA= .387  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	1	5	.0	19	5	0	0							
		2	76	1.7	25	16	21	12							
		3	200	9.8	30	23	143	97							
		4	284	24.8	33	28	396	289							
		5	267	36.4	36	31	607	452	554	416	503	376	340	246	
		6	170	33.4	38	34	604	465	561	435	536	415	466	359	
		7	73	19.5	41	36	373	294	350	277	341	270	318	252	
		8	21	7.3	42	37	144	116	136	110	134	108	129	104	
		9	4	1.8	44	38	36	29	34	28	33	27	33	27	
				1100	134.7		2324	1754	1635	1266	1547	1196	1286	988	

ARITH. MEAN DBH= 4.5 , QUADRATIC MEAN DBH= 4.7 , WEIBULL PARAMETERS A= .9 , B= 4.01 , C= 2.71  
 MEAN CROWN RATIO= 34.7 , LAMBDA= .455  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_s$ —

$A_p$  30

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME					
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES			
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
30	44	3	3	.1	44	21	2	1	30	23	20	15		
	4	9	.8	.8	45	27	12	8	30	23	20	15		
	5	16	2.2	46	31	36	27	33	25	30	23	20	15	
	6	23	4.5	47	35	83	64	78	60	74	58	64	50	
	7	28	7.5	48	37	146	115	137	109	134	106	125	99	
	8	29	10.1	48	39	208	167	196	158	193	156	186	150	
	9	28	12.4	49	41	266	217	252	206	250	204	244	199	
	10	23	12.5	49	43	282	232	268	222	266	220	262	217	
	11	17	11.2	50	44	258	214	246	205	245	204	242	201	
	12	11	8.6	50	45	203	170	194	162	193	162	191	160	
	13	7	6.5	50	46	155	130	148	125	147	124	147	123	
	14	3	3.2	51	46	75	62	71	59	71	59	70	59	
	15	2	2.5	51	47	59	49	56	47	56	47	56	47	
	16	1	1.4	51	48	35	29	33	28	33	28	33	28	
	200	83.5				1820	1485	1712	1406	1692	1391	1640	1348	
ARITH. MEAN DBH= 8.4 , QUADRATIC MEAN DBH= 8.7 , MEAN CROWN RATIO= 48.3 , CORRESPONDING SITE INDEX FOR BASE AGE 50= 58							WEIBULL PARAMETERS A= 1.9 , B= 7.30 , C= 2.72 LAMBDA= .129							
30	44	2	1	.0	32	14	0	0	41	30				
	3	8	.4	.4	35	23	6	4						
	4	19	1.7	37	28	25	18							
	5	31	4.2	39	33	74	55	67	51	61	46	41	30	
	6	41	8.1	40	36	152	118	141	110	135	105	117	90	
	7	48	12.8	42	38	255	202	240	191	234	186	218	173	
	8	45	15.7	43	40	329	265	311	251	306	248	294	238	
	9	39	17.2	44	42	378	308	359	294	355	291	346	283	
	10	29	15.8	45	43	356	293	338	280	336	278	331	273	
	11	19	12.5	46	45	294	244	280	234	279	232	276	230	
	12	11	8.6	46	46	207	173	198	166	197	165	195	164	
	13	6	5.5	47	46	133	111	127	107	126	107	126	106	
	14	2	2.1	48	47	52	44	50	42	50	42	50	42	
	15	1	1.2	48	48	31	26	29	25	29	25	29	25	
	300	106.0				2292	1861	2140	1751	2108	1725	2023	1654	
ARITH. MEAN DBH= 7.7 , QUADRATIC MEAN DBH= 8.1 , MEAN CROWN RATIO= 42.5 , CORRESPONDING SITE INDEX FOR BASE AGE 50= 58							WEIBULL PARAMETERS A= 1.7 , B= 6.69 , C= 2.62 LAMBDA= .266							
30	44	2	2	.0	26	15	1	0	65	48				
	3	15	.7	.7	30	23	11	7						
	4	33	2.9	32	29	47	35							
	5	50	6.8	34	33	121	92	112	85	101	77	65	48	
	6	62	12.2	36	36	230	178	214	167	204	159	177	137	
	7	64	17.1	38	39	347	275	327	261	318	254	297	236	
	8	59	20.6	39	41	440	354	416	337	410	332	394	319	
	9	47	20.8	41	42	456	371	432	354	428	350	417	342	
	10	32	17.5	42	44	400	329	381	315	378	313	372	308	
	11	19	12.5	43	45	294	244	280	234	279	232	276	230	
	12	10	7.9	44	46	188	157	180	151	179	150	177	149	
	13	4	3.7	45	46	88	74	85	71	84	71	84	71	
	14	2	2.1	46	47	52	44	50	42	50	42	50	42	
	15	1	1.2	47	48	31	26	29	25	29	25	29	25	
	400	126.0				2706	2186	2506	2042	2460	2005	2338	1907	
ARITH. MEAN DBH= 7.2 , QUADRATIC MEAN DBH= 7.6 , MEAN CROWN RATIO= 38.3 , CORRESPONDING SITE INDEX FOR BASE AGE 50= 58							WEIBULL PARAMETERS A= 1.7 , B= 6.27 , C= 2.56 LAMBDA= .363							

# YIELDS GIVEN $T_s$ —

$A_p$  30

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --			
							O.B.	I.B.	2 INCHES O.B. I.B.	3 INCHES O.B. I.B.	4 INCHES O.B. I.B.	

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --	
30	44	2	5	.1	22	15	1	1				
		3	24	1.2	26	24	18	12				
		4	49	4.3	29	29	70	51				
		5	71	9.7	31	34	175	134	162	124	146	112
		6	84	16.5	33	37	318	249	298	234	286	225
		7	83	22.2	35	39	450	358	425	339	414	331
		8	70	24.4	37	41	522	420	494	400	486	394
		9	51	22.5	38	43	504	411	479	392	473	388
		10	33	18.0	40	44	413	340	393	325	390	322
		11	18	11.9	41	45	279	231	266	221	264	220
		12	8	6.3	42	46	151	126	144	121	143	120
		13	3	2.8	44	47	68	57	65	55	64	54
		14	1	1.1	45	48	27	22	25	22	25	21
				500	140.9		2996	2412	2751	2233	2691	2188
											2527	2051

ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.2 , WEIBULL PARAMETERS A= 1.6 , B= 5.93 , C= 2.51  
MEAN CROWN RATIO= 35.0 , LAMBDA= .438  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --	
30	44	2	8	.2	19	15	2	1				
		3	35	1.7	23	23	25	17				
		4	68	5.9	26	29	97	71				
		5	94	12.8	29	34	231	177	214	165	194	149
		6	104	20.4	31	37	394	308	369	290	354	279
		7	99	26.5	33	39	536	427	507	405	494	395
		8	79	27.6	35	41	589	476	559	453	551	447
		9	54	23.9	37	43	533	435	507	415	501	411
		10	32	17.5	38	44	400	329	381	315	378	313
		11	16	10.6	40	45	248	205	236	197	235	196
		12	7	5.5	41	46	132	110	126	105	125	105
		13	3	2.8	42	47	68	57	65	55	64	54
		14	1	1.1	44	48	27	22	25	22	25	21
				600	156.3		3282	2635	2989	2422	2921	2371
											2719	2204

ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.5 , B= 5.66 , C= 2.46  
MEAN CROWN RATIO= 32.4 , LAMBDA= .500  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --	
30	44	2	17	.4	16	14	4	2				
		3	64	3.1	20	23	46	31				
		4	112	9.8	23	29	160	117				
		5	143	19.5	26	34	352	269	326	250	295	226
		6	146	28.7	28	37	553	433	518	407	497	391
		7	125	33.4	30	40	690	551	653	522	636	509
		8	90	31.4	32	42	683	553	649	527	640	520
		9	55	24.3	34	43	547	447	521	427	516	423
		10	29	15.8	36	45	369	304	352	291	349	289
		11	13	8.6	38	46	205	170	195	163	194	162
		12	5	3.9	39	47	96	80	92	77	91	77
		13	1	.9	41	48	23	19	22	19	22	18
				800	179.8		3728	2976	3329	2683	3240	2615
											2968	2394

ARITH. MEAN DBH= 6.1 , QUADRATIC MEAN DBH= 6.4 , WEIBULL PARAMETERS A= 1.4 , B= 5.23 , C= 2.40  
MEAN CROWN RATIO= 28.2 , LAMBDA= .597  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_s$ —

$A_p$  10

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	QBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>						
10	26	1	1	.0	67	9	0	0					
		2	15	.3	57	17	4	2					
		3	56	2.7	67	21	37	23					
		4	109	9.5	67	24	135	92					
		5	123	16.8	67	25	239	169	213	153	195	140	151
		6	73	14.3	67	27	213	156	193	143	184	136	162
		7	21	5.6	67	28	85	64	78	59	75	57	71
		8	2	.7	67	28	11	8	10	7	9	7	9
							724	514	494	362	463	340	393
				400	50.0								288

ARITH. MEAN DBH= 4.6 , QUADRATIC MEAN DBH= 4.8 , WEIBULL PARAMETERS A= .5 , B= 4.51 , C= 3.78  
 MEAN CROWN RATIO= 67.2 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

10	26	1	3	.0	64	9	0	0					
		2	30	.7	54	18	9	5					
		3	97	4.8	64	22	67	42					
		4	161	14.0	64	25	206	140					
		5	142	19.4	64	26	263	202	254	183	231	166	179
		6	58	11.4	64	27	169	124	153	114	146	108	129
		7	9	2.4	64	28	36	27	33	25	32	25	30
							770	540	440	322	409	299	338
				500	52.6								244

ARITH. MEAN DBH= 4.2 , QUADRATIC MEAN DBH= 4.4 , WEIBULL PARAMETERS A= .5 , B= 4.17 , C= 3.73  
 MEAN CROWN RATIO= 64.0 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

10	26	1	5	.0	61	10	0	0					
		2	50	1.1	51	18	15	8					
		3	148	7.3	61	22	102	64					
		4	211	18.4	61	25	269	183					
		5	143	19.5	61	26	285	203	256	184	233	167	180
		6	39	7.7	61	27	114	83	103	77	98	73	87
		7	4	1.1	61	28	16	12	15	11	14	11	13
							801	553	374	272	345	251	280
				600	55.0								201

ARITH. MEAN DBH= 3.9 , QUADRATIC MEAN DBH= 4.1 , WEIBULL PARAMETERS A= .4 , B= 3.90 , C= 3.69  
 MEAN CROWN RATIO= 61.3 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN T<sub>S</sub> —

A<sub>P</sub> 10

S<sub>I</sub> 50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF -- 2 INCHES		3 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft				Ft <sup>3</sup>		
10	26	1	15	.1	57	10	1	0				
		2	116	2.5	57	18	34	18				
		3	276	13.5	57	23	196	124				
		4	276	24.1	57	25	352	240				
		5	105	14.3	57	27	215	154	193	139	176	
		6	12	2.4	57	28	36	26	33	24	31	
			800	56.9		834	562	226	163	207	149	
										162	115	

ARITH. MEAN DBH= 3.5 , QUADRATIC MEAN DBH= 3.6 , WEIBULL PARAMETERS A= .3 , B= 3.47 , C= 3.62  
 MEAN CROWN RATIO= 57.2 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

10	26	1	35	.2	51	9	2	0			
		2	221	4.8	53	18	64	34			
		3	413	20.3	54	22	284	178			
		4	276	24.1	55	25	352	240			
		5	53	7.2	55	27	109	78	98	70	89
		6	2	.4	56	28	6	4	5	4	5
							817	534	103	74	94
			1000	57.0							
										73	51

ARITH. MEAN DBH= 3.1 , QUADRATIC MEAN DBH= 3.2 , WEIBULL PARAMETERS A= .3 , B= 3.14 , C= 3.57  
 MEAN CROWN RATIO= 53.9 , LAMBDA= .069  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

10	26	1	93	.5	45	8	4	1			
		2	452	9.9	49	18	114	59			
		3	565	27.7	51	23	402	253			
		4	180	15.7	52	26	236	161			
		5	10	1.4	54	28	21	15	19	14	17
							777	489	19	14	12
			1300	55.2							
										13	9

ARITH. MEAN DBH= 2.7 , QUADRATIC MEAN DBH= 2.8 , WEIBULL PARAMETERS A= .2 , B= 2.75 , C= 3.51  
 MEAN CROWN RATIO= 50.1 , LAMBDA= .158  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_s$ -

$A_p$  20

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME							
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF -- 2 INCHES	O.B.	I.B.	3 INCHES	O.B.	I.B.	4 INCHES	O.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft				Ft <sup>3</sup>						
20	44	2	1	.0	40	18	0	0								
		3	5	.2	43	27	4	2								
		4	15	1.3	45	32	22	16								
		5	30	4.1	47	36	76	57	69	53	61	46	40	29		
		6	47	9.2	48	39	185	144	172	135	164	129	138	107		
		7	58	15.5	50	41	327	260	308	247	300	240	280	223		
		8	58	20.2	51	43	424	332	398	314	390	307	372	293		
		9	45	19.9	52	44	426	338	401	321	396	316	383	306		
		10	26	14.2	53	45	311	250	294	238	291	236	285	230		
		11	11	7.3	53	46	164	133	155	127	154	126	152	124		
		12	3	2.4	54	47	55	45	52	43	52	43	51	42		
		13	1	.9	55	48	22	18	21	17	21	17	21	17		
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			300	95.2		2016	1595	1870	1495		1829	1460	1722	1371		

ARITH. MEAN DBH= 7.4 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.3 , B= 6.75 , C= 3.53  
 MEAN CROWN RATIO= 50.1 , LAMBDA= .239  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

20	44	2	1	.0	33	20	0	0								
		3	10	.5	37	28	7	5								
		4	27	2.4	40	34	41	29								
		5	52	7.1	42	37	134	101	123	93	108	82	71	51		
		6	74	14.5	44	40	296	231	277	217	264	207	221	171		
		7	84	22.4	46	42	483	384	455	365	443	355	413	330		
		8	73	25.5	48	44	575	465	546	444	537	437	516	419		
		9	47	20.8	49	45	482	394	458	377	453	372	442	363		
		10	23	12.5	50	46	298	246	284	236	282	234	278	230		
		11	7	4.6	51	47	106	86	101	82	100	82	98	80		
		12	2	1.6	52	48	37	30	35	29	35	29	35	29		
		---	---	---	---	---	2459	1971	2279	1843	2222	1798	2074	1673		

ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.2 , WEIBULL PARAMETERS A= 1.2 , B= 6.32 , C= 3.47  
 MEAN CROWN RATIO= 45.9 , LAMBDA= .336  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

20	44	2	3	.1	29	20	1	1								
		3	17	.8	33	29	14	10								
		4	44	3.8	36	34	66	48								
		5	78	10.6	39	38	204	154	188	143	165	125	104	75		
		6	104	20.4	42	40	416	325	389	305	371	291	310	241		
		7	106	28.3	44	42	609	485	575	460	559	446	521	416		
		8	81	28.3	45	44	639	516	606	492	596	485	573	465		
		9	45	19.9	47	45	461	377	439	361	434	357	423	348		
		10	17	9.3	48	46	220	182	210	174	209	173	205	170		
		11	4	2.6	50	47	64	53	61	51	61	51	60	50		
		12	1	.8	51	48	19	15	18	15	18	14	17	14		
		---	---	---	---	---	2713	2166	2486	2001	2413	1944	2213	1779		

ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.8 , WEIBULL PARAMETERS A= 1.2 , B= 5.98 , C= 3.42  
 MEAN CROWN RATIO= 42.7 , LAMBDA= .411  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_s$ —

$A_p$  20

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		2 INCHES		3 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
20	44	2	8	.2	23	21	3	2						
		3	37	1.8	28	29	30	21						
		4	87	7.6	32	35	140	105						
		5	140	19.1	35	38	372	287	345	268	311	241	184	135
		6	163	32.0	38	41	665	519	622	489	592	465	495	384
		7	138	36.9	40	43	808	644	763	611	742	595	690	552
		8	83	29.0	42	45	666	539	633	515	623	507	598	486
		9	34	15.0	44	46	355	290	338	278	334	275	326	268
		10	9	4.9	46	47	119	98	113	94	112	93	111	92
		11	1	.7	48	48	16	14	16	13	16	13	15	13
				700	147.1		3174	2519	2830	2268	2730	2189	2419	1930
ARITH. MEAN DBH= 6.0 , QUADRATIC MEAN DBH= 6.2 , WEIBULL PARAMETERS A= 1.1 , B= 5.48 , C= 3.34														
MEAN CROWN RATIO= 37.8 , LAMBDA= .525														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
20	44	2	16	.3	20	21	5	3						
		3	57	3.3	25	29	55	39						
		4	144	12.6	29	35	231	174						
		5	209	28.5	32	39	566	438	525	409	473	367	279	205
		6	214	42.0	35	42	889	703	836	664	801	636	673	531
		7	152	40.6	38	44	906	723	856	687	832	668	774	620
		8	72	25.1	41	45	578	468	549	446	540	440	518	422
		9	22	9.7	43	47	234	191	223	183	220	181	215	177
		10	4	2.2	45	48	54	44	51	43	51	42	50	42
				900	164.4		3518	2783	3040	2432	2917	2334	2509	1997
ARITH. MEAN DBH= 5.6 , QUADRATIC MEAN DBH= 5.8 , WEIBULL PARAMETERS A= 1.0 , B= 5.11 , C= 3.28														
MEAN CROWN RATIO= 34.1 , LAMBDA= .610														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
20	44	1	1	.0	11	6	0	0						
		2	28	.6	18	20	9	5						
		3	107	5.3	23	28	66	60						
		4	213	18.6	27	34	336	251						
		5	278	37.9	30	38	739	571	686	533	618	479	366	268
		6	251	49.3	34	41	1024	808	963	763	922	731	776	611
		7	150	40.1	37	43	878	700	829	665	806	647	750	600
		8	57	19.9	39	45	458	370	434	353	428	348	410	334
		9	13	5.7	42	47	138	113	132	108	130	107	127	104
		10	2	1.1	44	48	27	22	26	21	25	21	25	21
				1100	178.5		3695	2900	3070	2443	2929	2333	2454	1938
ARITH. MEAN DBH= 5.2 , QUADRATIC MEAN DBH= 5.4 , WEIBULL PARAMETERS A= .9 , B= 4.81 , C= 3.23														
MEAN CROWN RATIO= 31.2 , LAMBDA= .678														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														

# YIELDS GIVEN $T_s$ —

$A_p$  30

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES CROWN TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.		2 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
30	55	3	1	.0	33	26	1	1				
		4	4	.3	36	34	6	4				
		5	5	1.2	38	39	24	18	22	17	19	15
		6	16	3.1	40	44	69	54	65	51	61	48
		7	23	6.1	42	47	144	116	137	110	133	107
		8	28	9.8	43	49	241	196	229	187	226	184
		9	31	13.7	45	51	352	290	337	273	333	275
		10	29	15.8	46	53	423	351	406	358	402	336
		11	24	15.8	47	55	440	309	422	355	420	353
		12	17	13.4	48	56	378	318	354	307	362	306
		13	10	9.2	49	57	266	225	256	217	255	217
		14	5	5.3	50	58	157	133	151	129	151	128
		15	2	2.5	51	59	72	61	69	59	69	59
		16	1	1.4	52	60	42	36	41	35	41	35
				200	97.8		2615	2171	2499	2083	2472	203
											2408	2009

ARITH. MEAN DBH= 9.1 , QUADRATIC MEAN DBH= 9.4 , WEIBULL PARAMETERS A= 1.9 , B= 8.09 , C= 3.24  
 MEAN CROWN RATIO= 44.9 , LAMBDA= .352  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	3	3	.1	26	28	2	2				
		4	10	.9	29	36	16	12				
		5	20	2.7	32	41	56	44	52	41	47	37
		6	32	6.3	34	45	140	111	132	105	125	100
		7	42	11.2	36	48	268	215	254	205	247	199
		8	49	17.1	38	51	435	355	415	340	408	334
		9	47	20.8	40	53	551	454	528	437	522	432
		10	40	21.8	42	54	593	493	569	474	564	471
		11	28	18.5	43	56	521	436	501	421	498	419
		12	17	13.4	44	57	384	323	369	312	368	311
		13	8	7.4	46	58	216	183	208	177	207	176
		14	3	3.2	47	59	95	81	92	79	92	78
		15	1	1.2	48	60	37	32	36	31	36	30
				300	124.6		3314	2741	3156	2622	3114	2588
											3001	2493

ARITH. MEAN DBH= 8.4 , QUADRATIC MEAN DBH= 8.8 , WEIBULL PARAMETERS A= 1.7 , B= 7.49 , C= 3.14  
 MEAN CROWN RATIO= 39.0 , LAMBDA= .489  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	2	1	.0	17	18	0	0				
		3	6	.3	21	29	5	3				
		4	17	1.5	25	36	28	21				
		5	34	4.6	28	42	97	76	90	71	79	62
		6	51	10.0	30	45	223	177	210	168	200	159
		7	64	17.1	33	48	407	328	387	313	376	304
		8	67	23.4	35	51	594	485	568	465	559	458
		9	61	26.9	37	53	716	590	685	567	678	561
		10	46	25.1	39	54	682	567	654	546	649	541
		11	29	19.1	40	56	540	452	519	436	516	434
		12	15	11.8	42	57	339	285	326	276	325	274
		13	6	5.5	43	58	162	137	156	132	155	132
		14	2	2.1	45	59	64	54	61	52	61	52
		15	1	1.2	46	60	37	32	36	31	36	30
				400	148.8		3894	3207	3692	3057	3634	3008
											3474	2876

ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.6 , B= 7.06 , C= 3.08  
 MEAN CROWN RATIO= 34.8 , LAMBDA= .586  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN T<sub>S</sub> —

A<sub>P</sub> 30

S<sub>I</sub> 50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA <sup>a</sup>	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	I.B.	O.B.	I.B.	O.B.	I.B.	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
30	55	2	1	.0	15	19	0	0						
		3	10	.5	19	29	8	6						
		4	27	2.4	22	37	45	34						
		5	50	6.8	25	42	143	111	133	104	116	91	70	51
		6	72	14.1	28	46	320	255	302	241	286	229	233	185
		7	88	23.5	30	49	568	459	541	438	526	426	488	395
		8	85	29.7	32	52	765	626	732	600	721	592	691	568
		9	71	31.4	35	54	851	703	817	677	808	670	790	655
		10	49	26.7	37	55	738	614	708	591	702	586	690	577
		11	28	18.5	38	57	529	443	509	428	506	426	499	420
		12	13	10.2	40	58	298	251	287	243	286	242	283	239
		13	5	4.6	42	59	137	116	132	112	132	112	131	111
		14	1	1.1	43	60	32	27	31	27	31	27	31	26
				500	169.5		4434	3645	4192	3461	4114	3401	3906	3227

ARITH. MEAN DBH= 7.6 , QUADRATIC MEAN DBH= 7.9 , WEIBULL PARAMETERS A= 1.6 , B= 6.73 , C= 3.02  
 MEAN CROWN RATIO= 31.6 , LAMBDA= .661  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73 \*

30	55	2	2	.0	13	19	1	0						
		3	15	.7	16	29	12	9						
		4	39	3.4	20	37	65	49						
		5	69	9.4	23	42	197	153	183	143	160	125	96	71
		6	95	18.7	26	46	422	336	398	318	378	302	308	244
		7	108	28.9	28	49	697	563	664	538	645	523	598	485
		8	101	35.3	31	52	909	744	870	713	857	703	822	674
		9	79	34.9	33	54	946	782	909	753	899	745	879	729
		10	50	27.3	35	55	766	639	737	616	732	612	720	602
		11	26	17.2	37	57	491	412	472	397	470	395	464	390
		12	11	8.6	39	58	252	213	243	205	242	204	240	203
		13	4	3.7	40	59	110	93	106	90	105	89	104	89
		14	1	1.1	42	60	32	27	31	27	31	27	31	26
				600	189.1		4900	4020	4613	3800	4519	3725	4262	3513

ARITH. MEAN DBH= 7.3 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.5 , B= 6.46 , C= 2.98  
 MEAN CROWN RATIO= 28.9 , LAMBDA= .723  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	2	5	.1	10	18	2	1						
		3	29	1.4	14	29	24	17						
		4	59	6.0	20	37	115	87						
		5	113	15.4	20	42	322	251	300	235	263	205	157	116
		6	144	28.3	23	46	640	509	604	482	573	458	467	369
		7	151	40.4	25	49	975	787	928	752	902	731	837	678
		8	126	44.0	28	52	1134	928	1085	890	1069	877	1025	841
		9	86	38.0	30	54	1030	851	990	820	979	811	956	793
		10	47	25.6	32	56	731	610	704	583	699	585	687	575
		11	21	13.9	34	57	409	345	395	333	393	332	389	328
		12	7	5.5	36	59	163	137	157	133	156	132	155	131
		13	2	1.8	38	60	56	47	54	46	53	45	53	45
				800	220.4		5601	4570	5217	4280	5087	4176	4726	3876

ARITH. MEAN DBH= 6.8 , QUADRATIC MEAN DBH= 7.1 , WEIBULL PARAMETERS A= 1.4 , B= 6.03 , C= 2.92  
 MEAN CROWN RATIO= 24.7 , LAMBDA= .820  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_s$ —

$A_p$  10

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	31	2	6	.1	64	20	2	1				
		3	30	1.5	54	25	23	14				
		4	75	6.5	64	28	104	71				
		5	117	16.0	64	30	259	186	235	170	212	153
		6	108	21.2	64	31	348	258	318	238	302	226
		7	52	13.9	64	32	232	176	214	164	207	159
		8	11	3.8	64	33	65	51	61	47	60	46
		9	1	.4	64	34	8	6	7	6	7	6
			400	63.5		1041	763	835	625	788	590	681
												506

ARITH. MEAN DBH= 5.2 , QUADRATIC MEAN DBH= 5.4 , WEIBULL PARAMETERS A= .5 , B= 5.16 , C= 4.21  
 MEAN CROWN RATIO= 64.4 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

10	31	1	1	.0	60	11	0	0				
		2	13	.3	51	21	4	2				
		3	54	2.7	61	26	42	27				
		4	121	10.6	61	29	172	119				
		5	158	21.5	61	31	359	258	325	237	293	212
		6	113	22.2	61	32	373	277	341	256	323	242
		7	36	9.6	61	33	164	125	152	116	147	113
		8	4	1.4	61	34	24	19	23	18	22	17
							1138	827	841	627	785	584
												661
			500	68.2								489

ARITH. MEAN DBH= 4.9 , QUADRATIC MEAN DBH= 5.0 , WEIBULL PARAMETERS A= .5 , B= 4.82 , C= 4.16  
 MEAN CROWN RATIO= 61.1 , LAMBDA= .017  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

10	31	1	2	.0	54	11	0	0				
		2	22	.5	56	21	7	4				
		3	86	4.2	57	26	67	43				
		4	174	15.2	58	29	248	171				
		5	192	26.2	59	31	436	314	395	288	356	258
		6	102	20.0	59	32	336	250	308	231	292	219
		7	21	5.6	60	33	96	73	89	68	86	66
		8	1	.3	60	34	6	5	6	4	6	4
							1196	860	798	591	740	547
												608
												445

ARITH. MEAN DBH= 4.6 , QUADRATIC MEAN DBH= 4.7 , WEIBULL PARAMETERS A= .4 , B= 4.55 , C= 4.12  
 MEAN CROWN RATIO= 58.5 , LAMBDA= .078  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

**YIELDS GIVEN  $T_s$  —**

**A<sub>P</sub> 10**

**S<sub>I</sub> 60**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME					
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		2 INCHES	
0.B.	I.B.	0.B.	I.B.	0.B.	I.B.	0.B.	0.B.	I.B.	0.B.	I.B.	0.B.	I.B.
Ft <sup>3</sup>												

10	31	1	5	.0	46	11	0	0					
		2	52	1.1	50	21	14	7					
		3	176	8.6	52	27	141	91					
		4	286	25.0	54	30	418	288					
		5	215	29.3	56	32	500	361	454	331	408	296	
		6	61	12.0	57	33	206	153	189	142	179	134	
		7	5	1.3	58	34	23	18	22	17	21	16	
			800	77.4		1302	918	665	490	608	446	481	349

ARITH. MEAN DBH= 4.1 , QUADRATIC MEAN DBH= 4.2 , WEIBULL PARAMETERS A= .3 , B= 4.12 , C= 4.05  
 MEAN CROWN RATIO= 54.3 , LAMBDA= .175  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

10	31	1	11	.1	40	11	1	0					
		2	103	2.2	46	21	28	15					
		3	298	14.6	49	26	207	134					
		4	377	32.9	52	29	537	369					
		5	184	25.1	54	31	418	301	379	276	341	247	
		6	26	5.1	55	33	88	65	81	60	76	57	
		7	1	.3	57	34	5	4	4	3	4	3	
			1000	80.3		1284	888	464	339	421	307	328	235

ARITH. MEAN DBH= 3.7 , QUADRATIC MEAN DBH= 3.8 , WEIBULL PARAMETERS A= .3 , B= 3.79 , C= 4.00  
 MEAN CROWN RATIO= 51.1 , LAMBDA= .251  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

10	31	1	31	.2	35	9	2	1					
		2	227	5.0	42	20	60	31					
		3	517	25.4	46	26	360	232					
		4	424	37.0	50	30	590	419					
		5	97	13.2	52	32	226	163	205	149	184	134	
		6	4	.8	54	34	14	10	13	10	12	9	
			1300	81.5		1252	856	218	159	196	143	148	106

ARITH. MEAN DBH= 3.3 , QUADRATIC MEAN DBH= 3.4 , WEIBULL PARAMETERS A= .2 , B= 3.40 , C= 3.94  
 MEAN CROWN RATIO= 47.3 , LAMBDA= .339  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN T<sub>S</sub> —

A<sub>P</sub> 20

S<sub>I</sub> 60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	1.B.	O.B.	1.B.	O.B.	1.B.	O.B.	O.B.	1.B.	O.B.	1.B.	O.B.	1.B.	O.B.	1.B.	O.B.	1.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								Ft <sup>3</sup>	
20	53	3	2	.1	34	32	2	1	51	39	45	34	28	20		
		4	8	.7	38	39	13	10	55	42	51	39	41	32	117	92
		5	19	2.6	41	44	55	42	578	125	149	118	141	112		
		6	35	6.9	43	47	158	125	149	118	335	276	333	273	327	269
		7	51	13.6	45	49	331	266	314	253	305	246	283	228		
		8	61	21.3	47	52	551	449	525	431	517	424	495	406		
		9	56	24.7	49	53	657	541	629	520	622	515	605	501		
		10	39	21.3	50	54	578	481	554	463	550	459	541	451		
		11	20	13.2	52	56	351	287	335	276	333	273	327	269		
		12	7	5.5	53	57	150	124	144	119	143	119	141	117		
		13	2	1.8	54	57	51	42	49	41	49	41	48	40		
				300	111.7		2897	2368	2750	2260	2705	2223	2585	2124		
ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.2 , WEIBULL PARAMETERS A= 1.3 , B= 7.40 , C= 3.96																
MEAN CROWN RATIO= 47.2 , LAMBDA= .421																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																
20	53	2	1	.0	25	23	0	0								
		3	4	.2	29	33	4	3								
		4	15	1.3	33	40	26	20								
		5	35	4.8	37	44	102	78	94	72	82	63	51	37		
		6	59	11.6	39	47	267	210	251	199	238	189	198	155		
		7	79	21.1	42	50	521	419	494	400	480	388	445	359		
		8	83	29.0	44	52	749	611	715	586	703	576	674	552		
		9	66	29.2	46	53	774	638	741	613	733	607	713	590		
		10	38	20.7	48	55	572	476	549	459	545	455	535	447		
		11	15	9.9	50	56	279	234	268	225	267	224	263	221		
		12	4	3.1	51	57	86	71	82	68	82	68	81	67		
		13	1	.9	53	57	26	21	24	20	24	20	24	20		
				400	131.8		3406	2781	3218	2642	3154	2590	2984	2448		
ARITH. MEAN DBH= 7.5 , QUADRATIC MEAN DBH= 7.8 , WEIBULL PARAMETERS A= 1.2 , B= 6.97 , C= 3.89																
MEAN CROWN RATIO= 43.1 , LAMBDA= .518																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																
20	53	2	1	.0	21	24	0	0								
		3	8	.4	36	34	7	5								
		4	25	2.2	30	41	45	34								
		5	54	7.4	34	45	162	127	151	119	132	103	75	55		
		6	87	17.1	37	48	400	316	376	299	357	283	296	232		
		7	108	28.9	39	51	724	583	687	556	667	540	619	500		
		8	102	35.6	42	53	935	764	893	732	878	720	841	690		
		9	70	30.9	44	54	834	688	799	662	790	655	768	636		
		10	33	18.0	46	55	497	413	477	398	473	395	465	388		
		11	10	6.6	48	57	189	158	182	153	181	152	178	150		
		12	2	1.6	50	57	45	38	43	37	43	37	43	36		
				500	148.6		3838	3126	3608	2956	3521	2885	3285	2687		
ARITH. MEAN DBH= 7.2 , QUADRATIC MEAN DBH= 7.4 , WEIBULL PARAMETERS A= 1.2 , B= 6.63 , C= 3.84																
MEAN CROWN RATIO= 39.8 , LAMBDA= .593																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																

**YIELDS GIVEN T<sub>S</sub> —**

**A<sub>P</sub> 20**

**S<sub>I</sub> 60**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	—CUBIC FOOT VOLUME—									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
20	53	2	3	.1	17	25	1	1								
		3	18	.9	22	35	16	12								
		4	53	4.6	26	42	96	74								
		5	104	14.2	30	46	316	249	295	233	259	203	146	108		
		6	150	29.5	33	49	699	559	661	530	626	503	509	404		
		7	161	43.0	36	52	1096	883	1041	844	1011	819	937	758		
		8	122	42.6	39	54	1136	928	1085	891	1067	876	1022	839		
		9	64	28.3	41	55	774	639	742	615	734	609	714	592		
		10	21	11.5	44	56	321	267	308	258	306	256	301	251		
		11	4	2.6	46	57	76	63	73	61	72	61	71	60		
		---	---	---	---	---	---	---	---	---	---	---	---	---		
			700	177.2			4531	3675	4205	3432	4074	3327	3700	3012		

ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.8 , WEIBULL PARAMETERS A= 1.1 , B= 6.13 , C= 3.76  
 MEAN CROWN RATIO= 34.9 , LAMBDA= .707  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	2	6	.1	14	24	2	1								
		3	34	1.7	19	34	31	22								
		4	93	8.1	23	41	166	127								
		5	167	22.8	27	46	508	399	474	374	414	326	235	173		
		6	216	42.4	31	49	1007	804	951	763	902	724	733	582		
		7	199	53.2	34	51	1326	1073	1264	1026	1228	998	1138	924		
		8	124	43.3	37	53	1137	928	1085	890	1067	876	1023	839		
		9	49	21.6	40	55	593	489	568	471	562	466	546	453		
		10	11	6.0	42	56	168	140	161	135	160	134	157	132		
		11	1	.7	45	57	19	16	18	15	18	15	18	15		
		---	---	---	---	---	---	---	---	---	---	---	---	---		
			900	199.9			4957	3999	4521	3674	4351	3539	3850	3118		

ARITH. MEAN DBH= 6.2 , QUADRATIC MEAN DBH= 6.4 , WEIBULL PARAMETERS A= 1.0 , B= 5.76 , C= 3.70  
 MEAN CROWN RATIO= 31.3 , LAMBDA= .792  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	2	11	.2	12	24	4	2								
		3	57	2.8	17	34	51	37								
		4	142	12.4	21	41	253	193								
		5	238	32.5	25	46	724	569	675	534	590	464	335	246		
		6	278	54.6	29	49	1296	1035	1224	982	1161	932	943	749		
		7	221	59.1	32	52	1495	1211	1426	1159	1385	1127	1283	1044		
		8	113	39.4	35	54	1049	859	1005	825	990	813	948	780		
		9	34	15.0	38	56	418	345	400	332	396	329	385	319		
		10	6	3.3	41	57	93	78	89	75	89	74	87	73		
		---	---	---	---	---	---	---	---	---	---	---	---	---		
			1100	219.3			5383	4329	4619	3907	4611	3739	3981	3211		

ARITH. MEAN DBH= 5.9 , QUADRATIC MEAN DBH= 6.0 , WEIBULL PARAMETERS A= .9 , B= 5.46 , C= 3.66  
 MEAN CROWN RATIO= 28.4 , LAMBDA= .860  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_s$ —

$A_p$  30

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP				5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --				2 INCHES			
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
30	66	4	2	.2	29	41	4	3	14	11	13	10	7	5				
		5	5	.7	32	47	15	12	51	41	48	39	39	31				
		6	11	2.2	34	52	54	43	51	41	48	39	39	31				
		7	18	4.8	37	56	130	105	124	101	120	98	111	90				
		8	25	8.7	39	59	250	206	240	198	236	195	226	186				
		9	30	13.3	41	62	402	333	386	322	382	318	371	309				
		10	33	18.0	42	64	566	473	545	458	541	454	531	446				
		11	29	19.1	44	66	622	524	601	508	597	505	589	498				
		12	22	17.3	46	67	572	485	553	470	551	468	545	464				
		13	14	12.9	47	68	434	370	420	359	419	358	416	355				
		14	7	7.5	48	70	259	221	251	215	250	215	249	213				
		15	3	3.7	50	71	129	111	125	108	125	108	124	107				
		16	1	1.4	51	72	50	42	48	41	48	41	48	41				
		200	109.7		3487	2928	3358	2832	3330	2809	3256	2745						

ARITH. MEAN DBH= 9.7 , QUADRATIC MEAN DBH= 10.0 , WEIBULL PARAMETERS A= 1.9 , B= 8.75 , C= 3.66  
 MEAN CROWN RATIO= 42.0 , LAMBDA= .534  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	1	.0	19	34	1	1	31	25	17	12						
		4	5	.4	23	43	9	7	104	84	84	67						
		5	12	1.6	26	49	38	30	36	28	31	25						
		6	23	4.5	29	54	115	93	109	88	104	84						
		7	35	9.4	31	58	258	210	247	202	240	196	219	179				
		8	45	15.7	34	61	462	380	444	367	437	361	418	346				
		9	51	22.5	36	63	692	575	666	555	659	549	640	533				
		10	47	25.6	38	65	817	684	788	662	781	656	767	645				
		11	37	24.4	40	67	804	678	777	657	773	654	762	645				
		12	24	18.8	42	68	632	536	611	520	609	518	603	513				
		13	13	12.0	44	70	414	352	401	342	399	341	396	339				
		14	5	5.3	45	71	187	160	182	156	181	155	180	155				
		15	2	2.5	47	72	67	75	85	73	84	73	84	72				
		300	142.9		4516	3781	4346	3650	4298	3612	4170	3506						

ARITH. MEAN DBH= 9.1 , QUADRATIC MEAN DBH= 9.3 , WEIBULL PARAMETERS A= 1.7 , B= 8.14 , C= 3.57  
 MEAN CROWN RATIO= 36.1 , LAMBDA= .670  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	3	.1	16	35	3	2	58	46	31	23						
		4	9	.8	19	44	17	13	104	84	140	112						
		5	22	3.0	22	50	71	56	66	53	58	46						
		6	38	7.5	25	55	194	156	183	148	174	140						
		7	55	14.7	28	58	406	331	388	317	377	308	344	282				
		8	67	23.4	31	61	687	566	661	546	651	538	622	515				
		9	69	30.5	33	63	941	783	908	757	898	749	876	731				
		10	59	32.2	35	65	1043	875	1009	848	1001	842	984	829				
		11	41	27.1	37	67	891	751	861	729	856	724	844	714				
		12	23	18.1	39	68	603	513	566	498	583	496	578	491				
		13	10	9.2	41	70	318	271	308	263	307	263	305	261				
		14	3	3.2	43	71	112	96	109	93	109	93	108	93				
		15	1	1.2	45	72	44	37	42	36	42	36	42	36				
		400	170.9		5333	4450	5121	4288	5056	4235	4874	4086						

ARITH. MEAN DBH= 8.6 , QUADRATIC MEAN DBH= 8.9 , WEIBULL PARAMETERS A= 1.6 , B= 7.71 , C= 3.50  
 MEAN CROWN RATIO= 32.0 , LAMBDA= .768  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_s$ —

$A_p$  30

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME					
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
30	66	3	4	.2	13	35	4	3	88	70	47	35
		4	15	1.3	17	44	28	22				
		5	33	4.5	20	51	108	86	101	81	1121	936
		6	56	11.0	23	55	285	230	270	219	1135	956
		7	77	20.6	26	59	576	470	551	451	535	438
		8	91	31.8	28	62	946	780	910	752	896	741
		9	85	37.6	31	64	1175	978	1134	946	1094	914
		10	66	36.0	33	66	1182	993	1144	963	1116	940
		11	42	27.7	35	68	955	809	926	786	921	782
		12	21	16.5	37	69	560	475	542	461	540	459
		13	8	7.4	39	70	255	217	247	211	246	210
		14	2	2.1	41	72	76	65	74	63	73	63
			500	196.6			6150	5128	5899	4933	5811	4862
											5573	4664

ARITH. MEAN DBH= 8.2 , QUADRATIC MEAN DBH= 8.5 , WEIBULL PARAMETERS A= 1.6 , B= 7.38 , C= 3.45  
 MEAN CROWN RATIO= 28.7 , LAMBDA= .843  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	2	1	.0	8	22	0	0				
		3	7	.3	12	35	6	5				
		4	23	2.0	15	44	43	33				
		5	47	6.4	18	51	154	122	144	115	125	99
		6	77	15.1	21	55	392	316	372	300	352	285
		7	101	27.0	24	59	756	616	723	592	702	575
		8	110	38.4	26	62	1144	943	1100	909	1083	896
		9	98	43.3	29	64	1354	1127	1307	1090	1292	1079
		10	71	38.7	31	66	1271	1068	1230	1035	1221	1028
		11	40	26.4	33	68	909	771	882	749	877	745
		12	18	14.1	36	69	480	407	465	395	463	394
		13	6	5.5	38	70	191	163	185	158	184	158
		14	1	1.1	40	72	38	32	37	32	37	31
			600	218.4			6738	5603	6445	5375	6336	5290
											6034	5038

ARITH. MEAN DBH= 7.9 , QUADRATIC MEAN DBH= 8.2 , WEIBULL PARAMETERS A= 1.5 , B= 7.11 , C= 3.41  
 MEAN CROWN RATIO= 26.1 , LAMBDA= .905  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	2	2	.0	6	21	1	0				
		3	14	.7	9	34	13	9				
		4	42	3.7	12	43	77	59				
		5	82	11.2	15	50	265	210	248	197	216	171
		6	124	24.3	18	55	631	508	599	484	566	458
		7	149	39.8	21	59	1115	909	1067	873	1035	848
		8	148	51.7	23	62	1539	1269	1480	1224	1457	1205
		9	117	51.7	26	64	1617	1346	1560	1302	1543	1288
		10	72	39.3	28	66	1289	1083	1248	1050	1239	1043
		11	34	22.4	31	68	773	655	750	637	746	633
		12	12	9.4	33	69	336	287	327	280	325	278
		13	3	2.8	35	70	102	88	99	86	99	85
		14	1	1.1	37	72	38	32	37	32	37	31
			800	258.1			7796	6455	7415	6165	7263	6040
											6832	5680

ARITH. MEAN DBH= 7.4 , QUADRATIC MEAN DBH= 7.7 , WEIBULL PARAMETERS A= 1.4 , B= 6.68 , C= 3.34  
 MEAN CROWN RATIO= 21.9 , LAMBDA= 1.002  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

**YIELDS GIVEN T<sub>S</sub> —**

**A<sub>P</sub> 10**

**S<sub>I</sub> 70**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		CUBIC FOOT VOLUME	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft					Ft <sup>3</sup>	
10	37	2	3	1	58	23	1	1				
		3	16	.8	50	29	14	9				
		4	49	4.3	61	33	77	54				
		5	95	13.0	61	35	236	172	15	158	193	141
		6	120	23.6	62	37	442	331	408	309	388	293
		7	84	22.4	63	38	427	327	397	307	385	297
		8	29	9.1	63	39	196	153	183	144	180	141
		9	4	1.8	64	40	35	28	33	26	32	26
				400	75.0		1428	1075	1236	944	1178	898
											1036	786
ARITH. MEAN DBH= 5.8 , QUADRATIC MEAN DBH= 5.9 , WEIBULL PARAMETERS A= .5 , B= 5.71 , C= 4.57												
MEAN CROWN RATIO= 62.0 , LAMBDA= .095												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												
10	37	2	6	.1	53	24	2	1				
		3	30	1.5	55	30	26	17				
		4	83	7.2	57	33	130	91				
		5	143	19.5	58	35	356	258	324	238	290	212
		6	145	28.5	59	37	534	400	493	373	468	354
		7	76	20.3	60	38	386	295	359	277	349	269
		8	16	5.6	61	39	108	84	101	79	99	78
		9	1	.4	62	40	9	7	8	7	8	6
				500	83.2		1551	1153	1285	974	1214	919
											1043	784
ARITH. MEAN DBH= 5.4 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A= .5 , B= 5.37 , C= 4.52												
MEAN CROWN RATIO= 58.7 , LAMBDA= .171												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												
10	37	1	1	.0	43	13	0	0				
		2	10	.2	48	25	3	2				
		3	49	2.4	52	30	43	28				
		4	126	11.0	54	34	203	141				
		5	189	25.8	56	36	481	350	438	322	392	287
		6	158	31.0	58	38	594	445	549	416	521	394
		7	59	15.8	59	39	306	234	285	220	276	214
		8	8	2.8	60	40	55	43	52	41	51	40
				600	89.0		1685	1243	1324	999	1240	935
											1041	777
ARITH. MEAN DBH= 5.1 , QUADRATIC MEAN DBH= 5.2 , WEIBULL PARAMETERS A= .4 , B= 5.10 , C= 4.47												
MEAN CROWN RATIO= 56.1 , LAMBDA= .232												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												

**YIELDS GIVEN  $T_s$  —**

**$A_p$  10**

**$S_i$  70**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF -- 2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
10	37	1	2	.0	36	13	0	0						
		2	25	.5	43	25	7	4						
		3	106	5.2	47	30	80	52						
		4	231	20.2	50	34	348	250						
		5	269	36.7	53	36	684	498	624	458	558	408	412	295
		6	141	27.7	55	38	530	397	490	371	165	352	400	300
		7	25	6.7	57	39	130	99	121	93	117	90	108	83
		8	1	.3	58	40	7	5	6	5	6	5	6	5
			800	97.3			1786	1305	1241	927	1146	855	926	683
<b>ARITH. MEAN DBH= 4.6 , QUADRATIC MEAN DBH= 4.7 , WEIBULL PARAMETERS A= .3 , B= 4.67 , C= 4.41</b>														
<b>MEAN CROWN RATIO= 51.9 , LAMBDA= .329</b>														
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50=102</b>														
10	37	1	4	.0	31	12	0	0						
		2	50	1.1	39	24	14	8						
		3	190	9.3	44	31	145	96						
		4	351	30.6	48	34	528	380						
		5	302	41.2	51	37	785	572	716	527	640	469	471	337
		6	95	18.7	54	38	357	268	330	250	314	237	270	202
		7	8	2.1	56	40	42	32	39	31	38	30	35	27
			1000	103.0			1871	1356	1085	808	992	736	776	566
<b>ARITH. MEAN DBH= 4.2 , QUADRATIC MEAN DBH= 4.3 , WEIBULL PARAMETERS A= .3 , B= 4.34 , C= 4.36</b>														
<b>MEAN CROWN RATIO= 48.7 , LAMBDA= .405</b>														
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50=102</b>														
10	37	1	12	.1	27	10	1	0						
		2	114	2.5	35	23	39	25						
		3	366	18.0	41	29	270	177						
		4	509	44.4	46	33	752	539						
		5	263	35.9	50	36	663	499	608	462	536	405	352	255
		6	35	6.9	53	38	132	99	122	92	116	87	99	74
		7	1	.3	55	40	5	4	5	4	5	4	4	3
			1300	107.9			1862	1343	735	558	657	496	455	332
<b>ARITH. MEAN DBH= 3.8 , QUADRATIC MEAN DBH= 3.9 , WEIBULL PARAMETERS A= .2 , B= 3.95 , C= 4.30</b>														
<b>MEAN CROWN RATIO= 44.9 , LAMBDA= .493</b>														
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50=102</b>														

**YIELDS GIVEN T<sub>S</sub> —**

A<sub>P</sub> 20

S<sub>I</sub> 70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	--CUBIC FOOT VOLUME--											
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
20	62	3	1	.0	28	38	1	1										
		4	5	.4	32	45	9	7										
		5	12	1.6	35	51	39	31	37	29	32	25	17	13				
		6	26	5.1	38	55	133	106	125	100	119	95	98	77				
		7	42	11.2	41	58	312	253	298	243	289	235	267	217				
		8	57	19.9	44	60	579	476	555	458	546	450	522	431				
		9	62	27.4	46	62	830	689	798	665	790	658	767	639				
		10	50	27.3	48	64	857	717	826	694	819	688	805	676				
		11	30	19.8	50	65	635	535	613	518	610	515	601	508				
		12	12	9.4	51	66	293	242	281	234	280	237	276	230				
		13	3	2.0	53	67	88	74	85	71	85	71	84	70				
				300	125.0		3776	3131	3618	3012	3570	2970	3437	2861				

ARITH. MEAN DBH= 8.6 , QUADRATIC MEAN DBH= 8.8 , WEIBULL PARAMETERS A= 1.3 , B= 7.95 , C= 4.32  
 MEAN CROWN RATIO= 44.8 , LAMBDA= .575  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	3	2	.1	24	39	2	1										
		4	9	.8	28	46	17	13										
		5	23	3.1	32	52	77	61	72	57	62	49	33	24				
		6	45	8.8	35	55	229	185	217	176	206	166	166	133				
		7	69	18.4	38	58	513	416	489	399	474	387	439	357				
		8	84	29.3	40	60	853	701	818	675	804	664	769	635				
		9	79	34.9	43	62	1058	878	1017	848	1006	839	977	814				
		10	54	29.5	45	64	926	775	892	750	885	743	869	730				
		11	26	17.2	47	65	550	463	531	449	528	446	521	440				
		12	8	6.3	49	66	205	174	198	169	197	168	196	166				
		13	1	.9	51	67	29	25	28	24	28	24	28	23				
				400	149.3		4459	3692	4262	3547	4190	3486	3998	3322				

ARITH. MEAN DBH= 8.1 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.2 , B= 7.52 , C= 4.25  
 MEAN CROWN RATIO= 40.7 , LAMBDA= .672  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	3	4	.2	21	40	4	3										
		4	15	1.3	25	47	29	23										
		5	37	5.0	29	52	123	98	115	92	100	80	53	39				
		6	68	13.4	32	56	351	283	333	270	315	255	254	204				
		7	98	26.2	35	59	733	598	702	574	681	558	622	509				
		8	111	38.7	38	61	1144	940	1097	906	1078	890	1031	851				
		9	90	39.8	41	62	1205	1000	1159	966	1146	955	1113	928				
		10	52	28.4	43	64	891	746	859	722	852	716	837	703				
		11	20	13.2	46	65	423	357	409	345	406	343	401	339				
		12	4	3.1	48	66	103	87	99	84	99	84	98	83				
		13	1	.9	50	67	31	26	30	25	30	25	29	25				
				500	170.2		5037	4161	4803	3984	4707	3906	4438	3681				

ARITH. MEAN DBH= 7.7 , QUADRATIC MEAN DBH= 7.9 , WEIBULL PARAMETERS A= 1.2 , B= 7.18 , C= 4.20  
 MEAN CROWN RATIO= 37.4 , LAMBDA= .747  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

**YIELDS GIVEN T<sub>S</sub> —**

**A<sub>P</sub> 20**

**S<sub>I</sub> 70**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
						ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft		Ft <sup>3</sup>									
20	62	2	1	.0	12	29		0	0								
		3	10	.5	17	40		10	7								
		4	33	2.9	21	48		65	51								
		5	75	10.2	25	53		253	201	237	189	206	164	110	81		
		6	125	24.5	29	57		654	528	621	503	587	476	474	380		
		7	159	42.5	32	59		1189	970	1138	932	1105	905	1009	826		
		8	149	52.0	35	62		1550	1278	1490	1232	1467	1214	1403	1162		
		9	97	42.9	38	63		1316	1093	1267	1056	1253	1045	1217	1014		
		10	40	21.8	41	65		69	582	670	563	665	559	653	549		
		11	10	6.6	44	66		21	181	207	175	206	174	203	172		
		12	1	.8	46	67		26	22	25	21	25	21	25	21		
				700	204.7			5973	4913	5655	4671	5514	4558	5094	4205		
ARITH. MEAN DBH= 7.1 , QUADRATIC MEAN DBH= 7.3 , WEIBULL PARAMETERS A= 1.1 , B= 6.68 , C= 4.12																	
MEAN CROWN RATIO= 32.5 , LAMBDA=.861																	
CORRESPONDING SITE INDEX FOR BASE AGE 50*102																	
20	62	2	3	1	10	28		1	1								
		3	19	.9	15	40		19	14								
		4	59	5.1	19	48		117	91								
		5	124	16.9	23	53		418	333	391	313	340	271	181	133		
		6	192	37.7	26	57		1005	811	954	773	902	732	728	583		
		7	216	57.7	30	60		1638	1337	1568	1285	1522	1248	1390	1139		
		8	170	59.3	33	62		1768	1458	1700	1406	1674	1385	1601	1326		
		9	87	38.4	36	64		1197	995	1152	961	1139	951	1106	923		
		10	26	14.2	39	66		458	384	442	371	438	368	430	362		
		11	4	2.6	42	67		87	73	84	71	84	71	82	70		
				900	233.1			6708	5497	6291	5180	6099	5026	5518	4536		
ARITH. MEAN DBH= 6.7 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.0 , B= 6.31 , C= 4.06																	
MEAN CROWN RATIO= 28.9 , LAMBDA=.946																	
CORRESPONDING SITE INDEX FOR BASE AGE 50*102																	
20	62	2	5	.1	9	27		2	1								
		3	31	1.5	13	39		30	22								
		4	93	8.1	17	47		182	141								
		5	185	25.2	21	53		624	496	584	467	507	404	270	199		
		6	262	51.4	25	57		1372	1107	1301	1055	1231	998	993	796		
		7	263	70.3	28	60		1994	1628	1910	1564	1853	1519	1692	1387		
		8	174	60.7	32	62		1810	1492	1740	1439	1713	1417	1639	1357		
		9	70	30.9	35	64		967	805	934	779	923	771	901	753		
		10	15	8.2	38	66		264	221	255	214	253	212	248	209		
		11	2	1.3	41	67		43	37	42	36	42	35	41	35		
				1100	257.9			7298	5950	6766	5554	6522	5356	5784	4736		
ARITH. MEAN DBH= 6.4 , QUADRATIC MEAN DBH= 6.5 , WEIBULL PARAMETERS A= .9 , B= 6.01 , C= 4.02																	
MEAN CROWN RATIO= 26.0 , LAMBDA= 1.013																	
CORRESPONDING SITE INDEX FOR BASE AGE 50*102																	

# YIELDS GIVEN T<sub>S</sub> —

A<sub>P</sub> 30

S<sub>I</sub> 70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	2 INCHES O.B. I.B.	3 INCHES O.B. I.B.	4 INCHES O.B. I.B.	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>			
30	77	4	1	.1	23	47	2	2				
		5	3	.4	26	55	10	8	10	8	4	3
		6	7	1.4	29	61	39	31	37	30	27	22
		7	13	3.5	32	66	107	87	102	84	90	74
		8	21	7.3	35	69	239	198	230	191	217	180
		9	28	12.4	37	72	426	356	412	345	395	331
		10	33	18.0	39	75	650	547	629	531	612	517
		11	32	21.1	41	77	786	666	763	648	748	636
		12	27	21.2	43	78	803	684	780	666	769	656
		13	19	17.5	45	80	681	583	662	568	655	562
		14	10	10.7	46	81	422	362	410	353	407	350
		15	5	6.1	48	82	245	211	239	206	237	205
		16	1	1.4	50	83	56	49	55	48	55	47
							4466	3784	4329	3678	4296	3652
											4216	3583
				200	121.1							

ARITH. MEAN DBH= 10.3 , QUADRATIC MEAN DBH= 10.5 , WEIBULL PARAMETERS A= 1.9 , B= 9.30 , C= 4.02  
 MEAN CROWN RATIO= 39.6 , LAMBDA= .687  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	1	.0	15	39	1	1				
		4	3	.3	18	49	6	5				
		5	8	1.1	21	57	28	23	27	21	12	9
		6	16	3.1	24	62	89	73	85	69	62	50
		7	27	7.2	27	67	224	184	215	177	209	157
		8	39	13.6	30	70	449	372	433	360	426	354
		9	49	21.6	32	73	758	634	734	615	725	609
		10	50	27.3	35	75	1001	845	972	822	964	816
		11	45	29.7	37	77	1106	937	1073	911	1066	906
		12	32	25.1	39	79	963	820	935	799	931	795
		13	18	16.6	41	80	646	552	627	538	625	536
		14	8	8.6	43	81	337	290	328	283	327	282
		15	3	3.7	45	83	149	128	145	125	145	125
		16	1	1.4	47	83	56	49	55	48	55	47
				300	159.3		5813	4913	5629	4768	5576	4728
											5444	4615

ARITH. MEAN DBH= 9.6 , QUADRATIC MEAN DBH= 9.9 , WEIBULL PARAMETERS A= 1.7 , B= 8.69 , C= 3.93  
 MEAN CROWN RATIO= 33.7 , LAMBDA= .824  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	1	.0	12	41	1	1				
		4	5	.4	15	51	10	8				
		5	14	1.9	18	58	51	40	47	38	22	16
		6	28	5.5	21	64	161	131	153	125	144	118
		7	45	12.0	24	68	378	311	363	299	352	290
		8	61	21.3	27	71	711	590	686	570	675	562
		9	71	31.4	29	74	1111	930	1076	903	1064	893
		10	67	36.5	32	76	1357	1146	1318	1115	1308	1107
		11	53	35.0	34	78	1361	1159	1325	1129	1318	1124
		12	33	25.9	36	80	1004	856	976	834	971	830
		13	16	14.7	38	81	580	496	564	484	562	482
		14	5	5.3	41	82	213	183	207	179	207	178
		15	1	1.2	43	83	50	43	48	42	48	41
				400	191.3		6988	5894	6763	5718	6690	5659
											6499	5498

ARITH. MEAN DBH= 9.1 , QUADRATIC MEAN DBH= 9.4 , WEIBULL PARAMETERS A= 1.6 , B= 8.26 , C= 3.86  
 MEAN CROWN RATIO= 29.6 , LAMBDA= .921  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

**YIELDS GIVEN T<sub>S</sub> —**

**A<sub>P</sub> 30**

**S<sub>I</sub> 70**

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	2 INCHES	3 INCHES
											Ft <sup>3</sup>	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft						
30	77	3	2	.1	10	41	2	2				
	4	9	.8	13	51	19	15					
	5	22	3.0	16	58	79	64	74	60	64	52	34 25
	6	42	8.2	19	64	241	196	229	187	216	177	167 134
	7	65	17.4	22	68	546	449	524	432	508	420	463 382
	8	84	29.3	24	71	979	812	944	785	929	773	888 740
	9	92	40.6	27	74	1440	1205	1395	1170	1379	1157	1345 1129
	10	80	43.6	29	76	1621	1368	1574	1331	1562	1321	1536 1300
	11	56	37.0	32	78	1438	1224	1400	1193	1392	1188	1376 1174
	12	31	24.3	34	80	992	852	967	832	963	828	956 822
	13	12	11.1	36	81	435	372	423	363	422	362	418 359
	14	4	4.3	39	82	171	147	166	143	166	143	165 142
	15	1	1.2	41	83	50	43	48	42	48	42	48 41
		500	221.0			8013	6749	7744	6538	7649	6463	7396 6248

ARITH. MEAN DBH= 8.7 , QUADRATIC MEAN DBH= 9.0 , WEIBULL PARAMETERS A= 1.6 , B= 7.93 , C= 3.81  
 MEAN CROWN RATIO= 26.3 , LAMBDA= .997  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	3	.1	9	41	3	2				
	4	13	1.1	12	52	27	21					
	5	32	4.4	14	59	117	94	110	88	95	76	50 37
	6	59	11.6	17	65	343	279	326	266	308	252	237 191
	7	88	23.5	20	69	748	615	719	593	697	575	634 524
	8	109	37.7	23	72	1273	1057	1229	1023	1209	1007	1155 965
	9	112	49.5	25	75	1773	1485	1718	1442	1698	1426	1656 1392
	10	89	48.5	28	77	1824	1540	1771	1499	1758	1488	1729 1404
	11	57	37.6	30	79	161	1261	1441	1229	1434	1223	1417 1209
	12	27	21.2	32	81	874	751	852	733	849	730	842 725
	13	10	9.2	35	82	393	340	384	333	383	332	380 330
	14	2	2.1	37	83	86	74	84	72	84	72	83 72
						8942	7519	8634	7278	8515	7181	8183 6907

ARITH. MEAN DBH= 8.4 , QUADRATIC MEAN DBH= 8.7 , WEIBULL PARAMETERS A= 1.5 , B= 7.66 , C= 3.77  
 MEAN CROWN RATIO= 23.7 , LAMBDA= 1.058  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	2	1	.0	4	25	0	0				
	3	7	.3	7	40	7	5					
	4	25	2.2	9	51	52	40					
	5	57	7.8	12	58	206	165	193	155	167	134	88 65
	6	99	19.4	15	64	568	462	540	441	510	417	394 317
	7	138	36.9	17	68	1159	952	1113	918	1079	891	983 811
	8	156	54.5	20	72	1839	1527	1775	1477	1747	1455	1669 1391
	9	140	61.9	22	75	2217	1857	2148	1803	2123	1783	2070 1740
	10	99	54.0	25	77	2029	1714	1970	1667	1956	1655	1923 1629
	11	52	34.3	27	79	1351	1151	1315	1122	1308	1116	1293 103
	12	20	15.7	29	81	647	556	631	543	629	541	624 537
	13	5	4.6	32	82	197	170	192	166	191	166	190 165
	14	1	1.1	34	83	47	41	46	40	46	40	46 40
						10319	8640	9923	8332	9756	8198	9280 7798

ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.2 , WEIBULL PARAMETERS A= 1.4 , B= 7.23 , C= 3.70  
 MEAN CROWN RATIO= 19.5 , LAMBDA= 1.156  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102



**APPENDIX II**  
**Yield Tables Given Site Index, Age,  
Number of Trees Planted, and Ideal Survival**

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME--					
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES			
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>					
10	21	1	2	.0	74	6	0	0						
		2	23	.5	74	13	5	3						
		3	66	3.2	74	17	38	23						
		4	98	8.6	74	19	103	69						
		5	85	11.6	74	20	141	99	125	89	116	82	93	65
		6	39	7.7	74	21	95	69	85	63	82	60	74	54
		7	9	2.4	74	22	31	23	28	21	27	20	25	19
		8	1	.3	74	23	5	3	4	3	4	3	4	3
				323	34.3		418	289	242	176	229	165	196	141

ARITH. MEAN DBH= 4.2 , QUADRATIC MEAN DBH= 4.4 , WEIBULL PARAMETERS A= .6 , B= 4.03 , C= 3.31  
 PERCENT SURVIVAL= 80.7 , MEAN CROWN RATIO= 73.8 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

15	30	2	4	.1	61	15	1	1						
		3	19	.9	61	21	13	8						
		4	43	3.8	61	24	53	36						
		5	66	9.0	61	27	135	97	121	88	111	80	85	60
		6	74	14.5	61	29	227	167	207	154	196	146	173	128
		7	58	15.5	61	30	246	186	226	173	219	167	205	156
		8	33	11.5	61	31	187	144	173	134	170	132	163	127
		9	12	5.3	61	32	89	69	82	65	81	64	79	62
		10	3	1.6	61	33	28	22	26	21	26	21	25	20
				312	62.3		279	730	835	635	803	610	730	553

ARITH. MEAN DBH= 5.8 , QUADRATIC MEAN DBH= 6.0 , WEIBULL PARAMETERS A= 1.0 , B= 5.34 , C= 3.27  
 PERCENT SURVIVAL= 78.0 , MEAN CROWN RATIO= 60.9 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	2	2	.0	53	15	1	0						
		3	11	.5	53	22	8	5						
		4	27	2.4	54	26	35	24						
		5	44	6.0	54	29	95	68	86	62	78	56	59	42
		6	56	11.0	54	32	185	137	169	127	160	120	140	104
		7	57	15.2	54	33	260	197	240	194	233	179	217	166
		8	46	16.1	54	35	286	222	266	208	261	204	250	195
		9	30	13.3	54	36	242	190	226	173	223	177	217	172
		10	15	8.2	54	37	154	122	144	115	142	114	139	112
		11	6	4.0	54	38	76	62	72	58	71	59	70	57
		12	2	1.6	54	38	31	25	29	24	29	23	28	23
				296	78.2		1373	1052	1232	957	1197	931	1120	871

ARITH. MEAN DBH= 6.7 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.3 , B= 5.97 , C= 3.02  
 PERCENT SURVIVAL= 74.0 , MEAN CROWN RATIO= 53.7 , LAMBDA= .012  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

## YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

T<sub>p</sub> 400

S<sub>I</sub> 40

ARITH. MEAN DBH= 7.3 . QUADRATIC MEAN DBH= 7.7 . WEIBULL PARAMETERS A= 1.6 , B= 6.46 , C= 2.81  
 PERCENT SURVIVAL= 70.0 . MEAN CROWN RATIO= 48.5 . LAMBDA= .129  
 CORRESPONDING SITE INDEX FOR BASE AGE 50- 58

ARITH. MEAN DBH= 7.9 . QUADRATIC MEAN DBH= 8.3 . WEIBULL PARAMETERS A= 1.8 . B= 6.88 . C= 2.65  
 PERCENT SURVIVAL= 66.0 . MEAN CROWN RATIO= 44.3 . LAMBDA= .223  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_I$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME-- 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	21	1	7	.0	69	7	0	0				
		2	60	1.3	69	14	14	7				
		3	138	6.8	69	18	82	50				
		4	152	13.3	69	20	166	111				
		5	81	11.0	69	21	139	98	123	88	114	81
		6	19	3.7	69	22	48	35	43	32	41	30
		7	2	.5	69	23	7	5	6	5	6	5
				459	36.7		456	306	172	125	161	116
											134	95

ARITH. MEAN DBH= 3.7 , QUADRATIC MEAN DBH= 3.8 , WEIBULL PARAMETERS A=.5 , B= 3.51 , C= 3.23  
 PERCENT SURVIVAL= 76.5 , MEAN CROWN RATIO= 68.7 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

15	30	2	11	.2	56	16	3	2				
		3	41	2.0	56	22	28	18				
		4	81	7.1	56	25	103	70				
		5	107	14.6	56	27	219	157	197	142	179	129
		6	98	19.2	56	29	300	222	274	204	260	194
		7	61	16.3	56	30	259	196	238	182	231	176
		8	25	8.7	56	31	142	109	131	102	129	100
		9	6	2.7	56	32	44	35	41	32	41	32
		10	1	.5	56	33	9	7	9	7	9	7
				431	71.4		1107	816	890	669	849	638
											753	565

ARITH. MEAN DBH= 5.3 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A=.9 , B= 4.86 , C= 3.20  
 PERCENT SURVIVAL= 71.8 , MEAN CROWN RATIO= 56.2 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	2	5	.1	45	16	1	1				
		3	22	1.1	47	22	14	9				
		4	48	4.2	48	27	63	44				
		5	72	9.8	49	30	160	119	146	109	133	99
		6	82	16.1	49	32	279	214	258	200	247	191
		7	74	19.8	50	34	362	285	339	258	330	261
		8	52	18.2	50	35	343	274	322	259	317	255
		9	28	12.4	51	36	226	178	211	167	208	165
		10	11	6.0	51	77	113	90	105	85	104	84
		11	3	2.0	52	38	38	31	36	29	36	29
		12	1	.8	52	38	15	12	14	12	14	12
				398	90.4		1614	1257	1431	1129	1389	1096
											1274	1002

ARITH. MEAN DBH= 6.2 , QUADRATIC MEAN DBH= 6.4 , WEIBULL PARAMETERS A=1.3 , B= 5.53 , C= 2.95  
 PERCENT SURVIVAL= 66.3 , MEAN CROWN RATIO= 49.4 , LAMBDA= .112  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_I$  40

GROWING SEASONS SINCE EST.	AV. D+C	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME												
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.		2 INCHES		3 INCHES		4 INCHES						
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>														
25	40	2	3	.1	36	15	1	0													
		3	14	.7	39	23	9	6													
		4	32	2.8	41	28	43	30													
		5	51	7.0	42	32	118	88	108	81	98	74	66	48	176	136					
		6	63	12.4	44	35	229	177	213	165	203	158	176	136							
		7	65	17.4	45	37	339	268	318	253	310	246	289	230							
		8	56	19.5	46	38	393	315	371	299	365	295	352	283							
		9	40	17.7	47	40	373	303	353	288	349	285	341	278							
		10	24	13.1	47	41	283	232	269	222	267	220	263	217							
		11	12	7.9	48	42	175	145	167	139	166	138	164	136							
		12	5	3.9	49	42	87	73	83	69	83	69	82	68							
		13	2	1.8	49	43	42	35	40	33	40	33	39	33							
				367		104.2		2092	1672	1922	1549	1881	1518	1772	1429						

ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.2 , WEIBULL PARAMETERS A= 1.5 , B= 6.06 , C= 2.75  
 PERCENT SURVIVAL= 61.2 , MEAN CROWN RATIO= 44.6 , LAMBDA= .220  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

30	44	2	1	.0	30	14	0	0									
		3	10	.5	33	23	7	5									
		4	24	2.1	35	29	34	25									
		5	38	5.2	37	33	90	67	83	62	75	56	50	36	140	108	
		6	49	9.6	39	36	181	140	169	132	161	125					
		7	53	14.2	40	39	288	228	271	216	264	210	246	196			
		8	51	17.8	41	41	380	306	360	291	354	287	340	276			
		9	42	18.6	43	42	407	332	386	316	382	313	373	305			
		10	30	16.4	44	43	368	303	350	289	347	287	342	283			
		11	19	12.5	45	45	294	244	280	234	279	232	276	230			
		12	11	8.6	45	46	207	173	198	166	197	165	195	164			
		13	5	4.6	46	46	111	93	106	89	105	89	105	88			
		14	2	2.1	47	47	52	44	50	42	50	42	50	42			
		15	1	1.2	48	48	31	26	29	25	29	25	29	25			
				336		113.4		2450	1986	2282	1862	2243	1831	2146	1753		

ARITH. MEAN DBH= 7.5 , QUADRATIC MEAN DBH= 7.9 , WEIBULL PARAMETERS A= 1.7 , B= 6.52 , C= 2.60  
 PERCENT SURVIVAL= 56.0 , MEAN CROWN RATIO= 40.8 , LAMBDA= .304  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME							
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --				2 INCHES			
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
-----	----	----	-----	-----------------	-----	----	-----------------	--	--	--	--	--	--	--	--	--

10	21	1	19	.1	65	8	1	0								
		2	118	2.6	65	15	30	15								
		3	219	10.8	65	18	130	80								
		4	172	15.0	65	20	188	125								
		5	54	7.4	65	22	96	67	85	61	78	56	62	43		
		6	6	1.2	65	23	16	11	14	10	13	10	12	9		
			588	37.0			461	298	99	71	91	66	74	52		

ARITH. MEAN DBH= 3.2 , QUADRATIC MEAN DBH= 3.4 , WEIBULL PARAMETERS A= .4 , B= 3.14 , C= 3.18  
 PERCENT SURVIVAL= 73.5 , MEAN CROWN RATIO= 65.1 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

15	30	1	1	.0	51	·	0	0								
		2	21	.5	52	17	6	3								
		3	69	3.4	52	22	48	30								
		4	124	10.8	53	26	163	111								
		5	144	19.6	53	28	303	217	274	198	248	178	189	134		
		6	110	21.6	53	30	346	256	315	236	300	224	263	195		
		7	54	14.4	53	31	235	178	216	165	210	161	196	149		
		8	16	5.6	54	32	93	72	86	67	84	66	81	63		
		9	3	1.3	54	33	23	18	21	17	21	16	20	16		
			542	77.2			1217	885	912	683	863	645	749	557		

ARITH. MEAN DBH= 4.9 , QUADRATIC MEAN DBH= 5.1 , WEIBULL PARAMETERS A= .9 , B= 4.52 , C= 3.14  
 PERCENT SURVIVAL= 67.7 , MEAN CROWN RATIO= 52.9 , LAMBDA= .034  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	2	9	.2	40	16	2	1								
		3	35	1.7	42	23	23	15								
		4	71	6.2	44	28	55	67								
		5	100	13.6	45	31	227	169	208	156	188	141	127	92		
		6	105	20.6	47	33	365	281	339	262	324	250	282	217		
		7	85	22.7	48	34	416	327	389	308	379	300	355	280		
		8	52	18.2	48	36	350	280	330	252	325	261	313	251		
		9	24	10.6	49	37	210	170	199	162	196	160	192	156		
		10	8	4.4	50	38	85	73	81	69	83	69	82	67		
		11	2	1.3	50	38	27	22	26	21	25	21	25	21		
			491	99.5			1804	1405	1575	1243	1520	1202	1376	1084		

ARITH. MEAN DBH= 5.8 , QUADRATIC MEAN DBH= 6.1 , WEIBULL PARAMETERS A= 1.2 , B= 5.21 , C= 2.90  
 PERCENT SURVIVAL= 61.4 , MEAN CROWN RATIO= 46.4 , LAMBDA= .1 ;  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_I$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --				
							O.B.	I.B.	O.B.	I.B.	2 INCHES	3 INCHES	4 INCHES
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft					Ft <sup>3</sup>		
25	40	2	.4	.1	32	16	1	1					
		3	22	1.1	35	23	16	11					
		4	46	4.0	37	28	61	43					
		5	69	9.4	39	32	160	120	147	110	133	100	89
		6	82	16.1	41	35	297	230	277	215	264	205	230
		7	78	20.8	42	37	407	321	382	303	372	296	347
		8	63	22.0	44	38	442	355	417	337	411	332	396
		9	42	18.6	45	40	391	318	371	303	367	300	358
		10	23	12.5	46	41	271	223	258	212	256	211	252
		11	10	6.6	47	42	146	121	139	116	138	115	137
		12	4	3.1	47	42	70	58	66	55	66	55	66
		13	1	.9	48	43	21	18	20	17	20	17	20
		444	115.3				2283	1819	2077	1668	2027	1631	1895
													1522
ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.4 , B= 5.77 , C= 2.71													
PERCENT SURVIVAL= 55.5 , MEAN CROWN RATIO= 41.8 , LAMBDA= .285													
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58													
30	44	2	2	.0	26	15	1	0					
		3	15	.7	30	23	11	7					
		4	32	2.8	32	29	46	33					
		5	50	6.8	34	33	121	92	112	85	101	77	65
		6	62	12.2	36	36	230	178	214	167	204	159	177
		7	65	17.4	38	39	353	280	332	265	323	258	301
		8	59	20.6	39	41	440	354	416	337	410	332	394
		9	46	20.3	41	42	446	363	423	347	418	343	408
		10	32	17.5	42	44	400	329	381	315	378	313	372
		11	19	12.5	43	45	294	244	280	234	279	232	276
		12	10	7.9	44	46	188	157	180	151	179	150	177
		13	4	3.7	45	46	88	74	85	71	84	71	84
		14	2	2.1	46	47	52	44	50	42	50	42	50
		15	1	1.2	47	48	31	26	29	25	29	25	29
		399	125.8				2701	2181	2502	2039	2455	2002	2333
													1903
ARITH. MEAN DBH= 7.2 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.7 , B= 6.27 , C= 2.56													
PERCENT SURVIVAL= 49.9 , MEAN CROWN RATIO= 38.3 , LAMBDA= .362													
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58													

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME--				5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.			
							O.B.	I.B.	O.B.	I.B.	2 INCHES O.B.	I.B.	3 INCHES O.B.	I.B.	4 INCHES O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft								Ft <sup>3</sup>		
10	21		1    37    .2    62    8    2    0													
		2    196    4.3    62    15    50    25														
		3    292    14.3    62    18    174    107														
		4    159    13.9    62    20    173    116														
		5    28    3.8    62    22    50    35					44	31	41	29	32	23				
		6    1    .2    62    23    3    2					2	2	2	2	2	1				
				713	36.7		452	285	46	33	43	31	34	24		
ARITH. MEAN DBH= 2.9 , QUADRATIC MEAN DBH= 3.1 , WEIBULL PARAMETERS A=.4 , B= 2.85 , C= 3.13																
PERCENT SURVIVAL= 71.3 , MEAN CROWN RATIO= 62.3 , LAMBDA= .000																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58																
15	30		1    2    .0    45    7    0    0													
		2    33    .7    48    17    8    4														
		3    103    5.1    49    23    67    43														
		4    168    14.7    50    26    214    150														
		5    174    23.7    51    28    366    262					331	239	299	216	228	162				
		6    113    22.2    51    30    355    263					324	242	308	230	270	200				
		7    44    11.8    52    31    192    145					176	135	171	131	159	122				
		8    10    3.5    52    32    58    45					54	42	53	41	51	39				
		9    1    .4    53    33    8    6					7	6	7	5	7	5				
				648	82.1		1268	918	892	664	838	623	715	528		
ARITH. MEAN DBH= 4.6 , QUADRATIC MEAN DBH= 4.8 , WEIBULL PARAMETERS A=.8 , B= 4.26 , C= 3.10																
PERCENT SURVIVAL= 64.8 , MEAN CROWN RATIO= 50.3 , LAMBDA= .094																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58																
20	35	2    14    .3    37    17    3    2														
		3    51    2.5    39    23    33    21														
		4    96    8.4    42    28    128    90														
		5    125    17.0    43    31    284    211					260	195	235	176	159	115				
		6    124    24.3    45    33    431    332					400	310	382	296	333	256				
		7    91    24.3    46    34    445    350					417	329	406	321	380	300				
		8    50    17.5    47    36    337    269					317	255	312	251	301	242				
		9    20    8.8    48    37    175    142					165	135	164	133	160	130				
		10    6    3.3    49    38    67    54					63	52	63	51	61	51				
		11    1    .7    49    38    13    11					13	11	13	11	13	10				
				578	107.1		1916	1482	1635	1287	1575	1239	1407	1104		
ARITH. MEAN DBH= 5.6 , QUADRATIC MEAN DBH= 5.8 , WEIBULL PARAMETERS A= 1.1 , B= 4.97 , C= 2.86																
PERCENT SURVIVAL= 57.8 , MEAN CROWN RATIO= 44.0 , LAMBDA= .238																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58																

**YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —**

$T_p$  1000

$S_I$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF		2 INCHES		3 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
25	40	2	7	.2	29	16	2	1						
		3	30	1.5	33	23	21	15						
		4	61	5.3	35	29	87	64						
		5	87	11.9	37	32	202	151	185	139	167	125	113	81
		6	97	19.0	39	35	352	272	327	254	312	243	271	209
		7	90	24.1	41	37	469	371	441	350	429	341	401	318
		8	67	23.4	42	38	470	377	444	358	437	353	421	339
		9	42	18.6	43	40	391	318	371	303	367	300	358	292
		10	21	11.5	44	41	248	203	235	194	234	193	230	190
		11	8	5.3	46	42	117	97	111	92	111	92	109	91
		12	3	2.4	46	42	52	44	50	42	50	41	49	41
		13	1	.9	47	43	21	18	20	17	20	17	20	17
		514	123.9				2432	1931	2184	1749	2127	1705	1972	1578
ARITH. MEAN DBH= 6.3 , QUADRATIC MEAN DBH= 6.6 , WEIBULL PARAMETERS A= 1.4 , B= 5.55 , C= 2.67														
PERCENT SURVIVAL= 51.4 , MEAN CROWN RATIO= 39.6 , LAMBDA= .335														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58														
30	44	2	3	.1	24	15	1	0						
		3	20	1.0	27	24	15	10						
		4	41	3.6	30	29	58	43						
		5	61	8.3	33	34	150	115	139	107	126	96	81	59
		6	74	14.5	35	37	280	219	263	206	252	198	213	167
		7	76	20.3	36	39	413	327	388	309	378	301	352	280
		8	66	23.0	38	41	492	396	465	377	458	371	441	357
		9	50	22.1	39	43	494	403	469	385	464	380	453	371
		10	33	18.0	41	44	413	340	393	325	390	322	384	317
		11	18	11.9	42	45	279	231	266	221	264	220	261	218
		12	9	7.1	43	46	169	141	162	136	161	135	160	134
		13	4	3.7	44	47	90	76	86	73	86	72	85	72
		14	1	1.1	45	48	27	22	25	22	25	22	25	21
		456	134.6				2881	2323	2656	2161	2604	2117	2455	1996
ARITH. MEAN DBH= 7.0 , QUADRATIC MEAN DBH= 7.4 , WEIBULL PARAMETERS A= 1.6 , B= 6.07 , C= 2.53														
PERCENT SURVIVAL= 45.6 , MEAN CROWN RATIO= 36.4 , LAMBDA= .407														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58														

YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —

$T_p$  1200

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								
10	21	1	66	.4	60	8	3	1							
		2	293	6.4	60	15	74	38							
		3	340	16.7	60	19	211	130							
		4	124	10.8	60	21	140	94							
		5	12	1.6	60	23	22	16	20	14	18	13	14	10	
				835	35.9		450	279	20	14	18	13	14	10	

ARITH. MEAN DBH= 2.7 , QUADRATIC MEAN DBH= 2.8 , WEIBULL PARAMETERS A= .3 , B= 2.61 , C= 3.09  
 PERCENT SURVIVAL= 69.6 , MEAN CROWN RATIO= 60.0 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

15	30	1	4	.0	41	8	0	0							
		2	50	1.1	44	17	12	6							
		3	141	6.9	46	23	92	59							
		4	213	18.6	48	26	271	190							
		5	194	26.5	49	29	421	312	384	266	350	260	239	172	
		6	107	21.0	50	30	347	265	321	247	307	236	269	206	
		7	34	9.1	51	32	152	115	140	107	136	104	126	96	
		8	6	2.1	51	33	36	28	33	26	32	25	31	24	
				749	85.3		1331	975	878	666	825	625	665	498	

ARITH. MEAN DBH= 4.4 , QUADRATIC MEAN DBH= 4.6 , WEIBULL PARAMETERS A= .8 , B= 4.04 , C= 3.07  
 PERCENT SURVIVAL= 62.4 , MEAN CROWN RATIO= 48.2 , LAMBDA= .144  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

20	35	1	1	.0	29	6	0	0							
		2	20	.4	34	17	6	3							
		3	68	3.3	37	23	44	28							
		4	122	10.6	40	28	163	115							
		5	152	20.7	41	31	345	257	316	237	286	214	194	140	
		6	138	27.1	43	33	480	369	445	345	425	329	371	285	
		7	93	24.9	45	34	455	358	426	336	415	328	388	306	
		8	46	16.1	46	36	310	248	292	244	287	231	277	222	
		9	16	7.1	47	37	140	114	132	108	131	107	128	104	
		10	4	2.2	48	38	44	36	42	35	42	34	41	34	
		11	1	.7	49	38	13	11	13	11	13	11	13	10	
				661	113.1		2000	1539	1666	1306	1599	1254	1412	1101	

ARITH. MEAN DBH= 5.3 , QUADRATIC MEAN DBH= 5.6 , WEIBULL PARAMETERS A= 1.1 , B= 4.77 , C= 2.83  
 PERCENT SURVIVAL= 55.1 , MEAN CROWN RATIO= 42.1 , LAMBDA= .283  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

**YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —**

$T_p$  1200

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF -- 2 INCHES		3 INCHES	
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
25	40	2	10	.2	27	16	3	2				
		3	39	1.9	31	24	29	20				
		4	76	6.6	33	29	109	79				
		5	105	14.3	36	33	249	186	228	172	206	155
		6	112	22.0	38	35	406	314	378	294	361	280
		7	99	26.5	39	37	516	408	485	385	472	375
		8	70	24.4	41	39	502	403	474	383	467	377
		9	41	18.1	42	40	382	311	362	296	358	293
		10	19	10.4	44	41	224	184	213	175	211	174
		11	7	4.6	45	42	102	85	97	81	97	80
		12	2	1.6	46	43	36	30	34	28	34	28
				580	130.6		2557	2022	2271	1814	2206	1762
											2027	1619

ARITH. MEAN DBH= 6.1 . QUADRATIC MEAN DBH= 6.4 . WEIBULL PARAMETERS A= 1.4 , B= 5.37 , C= 2.64  
PERCENT SURVIVAL= 48.3 , MEAN CROWN RATIO= 37.9 , LAMBDA= .375  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

30	44	2	5	.1	22	15	1	1				
		3	25	1.2	26	24	18	13				
		4	50	4.4	29	29	71	52				
		5	73	10.0	31	34	180	137	166	128	150	115
		6	85	16.7	33	37	322	252	302	237	289	228
		7	84	22.4	35	39	455	362	430	343	419	335
		8	71	24.8	37	41	529	426	501	405	493	399
		9	52	23.0	36	43	514	419	488	400	482	396
		10	33	18.0	40	44	413	340	393	325	390	322
		11	18	11.9	41	45	279	231	266	221	264	220
		12	8	6.3	42	46	151	126	144	121	143	120
		13	3	2.8	43	47	68	57	65	55	64	54
		14	1	1.1	44	48	27	22	25	22	25	21
				508	142.5		3028	2438	2780	2257	2719	2211
											2553	2073

ARITH. MEAN DBH= 6.8 . QUADRATIC MEAN DBH= 7.2 . WEIBULL PARAMETERS A= 1.6 , B= 5.91 , C= 2.50  
PERCENT SURVIVAL= 42.3 , MEAN CROWN RATIO= 34.8 , LAMBDA= .444  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1500

$S_i$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		—CUBIC FOOT VOLUME— 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	2 INCHES	3 INCHES
											O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft					Ft <sup>3</sup>	
10	21	1	135	.7	57	8	6	1				
		2	456	9.9	57	15	115	59				
		3	355	17.4	57	19	220	136				
		4	65	5.7	57	21	73	49				
		5	2	.3	57	23	4	3	3	2	3	2
			1013	34.1			418	248	3	2	3	2
											2	2
ARITH. MEAN DBH= 2.4 , QUADRATIC MEAN DBH= 2.5 , WEIBULL PARAMETERS A= .3 , B= 2.32 , C= 3.05 PERCENT SURVIVAL= 67.5 , MEAN CROWN RATIO= 57.2 , LAMBDA= .000 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58												
15	30	1	8	.0	37	7	0	0				
		2	81	1.8	41	17	20	10				
		3	206	10.1	44	23	134	86				
		4	275	24.0	45	26	350	245				
		5	211	28.8	47	29	458	339	418	312	380	283
		6	91	17.9	48	30	295	226	273	210	262	201
		7	21	5.6	49	32	98	77	92	72	89	70
		8	2	.7	50	33	13	10	12	9	12	9
			895	88.9			1368	993	795	603	743	563
ARITH. MEAN DBH= 4.1 , QUADRATIC MEAN DBH= 4.3 , WEIBULL PARAMETERS A= .7 , B= 3.77 , C= 3.03 PERCENT SURVIVAL= 59.7 , MEAN CROWN RATIO= 45.6 , LAMBDA= .204 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58												
20	35	1	1	.0	25	6	0	0				
		2	31	.7	31	17	9	5				
		3	97	4.8	35	24	71	49				
		4	163	14.2	37	28	217	153				
		5	186	25.4	40	31	423	315	386	290	350	262
		6	155	30.4	41	33	539	414	500	387	478	370
		7	92	24.6	43	35	460	362	431	341	420	333
		8	39	13.6	45	36	263	210	247	199	244	196
		9	11	4.9	46	37	96	78	91	74	90	73
		10	2	1.1	47	38	22	18	21	17	21	17
			777	119.6			2100	1604	1676	1308	1603	1251
ARITH. MEAN DBH= 5.1 , QUADRATIC MEAN DBH= 5.3 , WEIBULL PARAMETERS A= 1.0 , B= 4.53 , C= 2.79 PERCENT SURVIVAL= 51.8 , MEAN CROWN RATIO= 39.7 , LAMBDA= .338 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58												

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1500

$S_I$  40

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME							
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
									O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>							
25	40	2	14	.3	24	16	4	2								
		3	54	2.7	28	24	40	27								
		4	99	8.6	31	29	141	104								
		5	130	17.7	34	33	314	239	290	222	263	201	169	124		
		6	135	26.5	36	35	490	378	456	354	435	338	378	291		
		7	109	29.1	38	37	568	449	534	424	520	413	485	385		
		8	72	25.1	40	39	516	414	487	393	480	388	462	373		
		9	38	16.8	41	40	354	288	336	274	332	271	324	265		
		10	16	8.7	43	41	189	155	179	148	178	147	175	144		
		11	5	3.3	44	42	73	60	70	58	69	57	68	57		
		12	1	.8	45	43	13	15	17	14	17	14	17	14		
				673	139.7		2707	2131	2369	1887	2294	1829	2078	1653		

ARITH. MEAN DBH= 5.9 , QUADRATIC MEAN DBH= 6.2 , WEIBULL PARAMETERS A= 1.3 , B= 5.15 , C= 2.61  
 PERCENT SURVIVAL= 44.9 , MEAN CROWN RATIO= 35.7 , LAMBDA= .425  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

30	44	2	7	.2	20	15	2	1								
		3	33	1.6	24	23	24	16								
		4	64	5.6	27	29	91	67								
		5	89	12.1	29	34	219	168	203	156	183	141	118	86		
		6	100	19.6	32	37	379	297	355	279	340	268	288	225		
		7	96	25.7	34	39	520	414	491	393	479	383	446	357		
		8	77	26.9	35	41	574	463	545	441	537	435	516	419		
		9	54	23.9	37	43	533	435	507	415	501	411	489	401		
		10	32	17.5	39	44	400	329	381	315	378	313	372	308		
		11	17	11.2	40	45	263	218	251	209	249	208	247	205		
		12	7	5.5	41	46	132	110	126	105	125	105	124	104		
		13	3	2.8	43	47	68	57	65	55	64	54	64	54		
		14	1	1.1	44	48	27	22	25	22	25	22	25	21		
				580	153.5		3232	2597	2949	2390	2881	2340	2689	2180		

ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 7.0 , WEIBULL PARAMETERS A= 1.5 , B= 5.71 , C= 2.47  
 PERCENT SURVIVAL= 38.7 , MEAN CROWN RATIO= 32.9 , LAMBDA= .489  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 58

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	2 INCHES	3 INCHES
											0.B.	I.B.
												4 INCHES
												0.B. I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft						Ft <sup>3</sup>
10	26	1	1	.0	70	8	0	0				
		2	9	.2	70	16	2	1				
		3	36	1.8	70	21	24	15				
		4	77	6.7	70	24	95	65				
		5	99	13.5	70	25	192	136	172	123	157	112
												122 86
		6	76	14.9	70	27	221	163	201	149	191	142
		7	30	8.0	70	28	121	91	111	84	108	82
		8	5	1.7	70	28	26	20	24	19	24	18
												23 18
			333	46.9			681	491	508	375	480	354
												415 306
ARITH. MEAN DBH= 4.9 , QUADRATIC MEAN DBH= 5.1 , WEIBULL PARAMETERS A= .6 , B= 4.78 , C= 3.83												
PERCENT SURVIVAL= 83.2 , MEAN CROWN RATIO= 69.9 , LAMBDA= .000												
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73												
15	38	2	1	.0	54	19	0	0				
		3	9	.4	55	26	7	4				
		4	26	2.3	56	30	38	26				
		5	50	6.8	56	33	119	86	108	79	97	71
		6	71	13.9	57	35	251	187	231	174	218	164
												73 52
		7	74	19.8	57	37	368	281	342	264	332	256
		8	54	18.8	58	38	358	278	334	262	327	257
		9	27	11.9	58	39	232	183	217	173	214	171
		10	8	4.4	58	40	87	70	82	66	81	65
		11	1	.7	59	41	14	11	13	10	13	10
												12 10
			321	79.1			1474	1126	1327	1028	1282	994
												1182 914
ARITH. MEAN DBH= 6.5 , QUADRATIC MEAN DBH= 6.7 , WEIBULL PARAMETERS A= 1.0 , B= 6.10 , C= 3.78												
PERCENT SURVIVAL= 80.2 , MEAN CROWN RATIO= 57.0 , LAMBDA= .080												
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73												
20	44	2	1	.0	40	18	0	0				
		3	5	.2	43	27	4	2				
		4	15	1.3	45	32	22	16				
		5	31	4.2	47	35	78	59	72	54	63	48
		6	48	9.4	48	39	189	147	176	138	168	131
												42 30
		7	59	15.8	49	41	333	265	314	251	305	244
		8	58	20.2	51	43	424	332	398	314	390	307
		9	45	15.9	52	44	426	338	401	321	396	316
		10	26	14.2	52	45	311	250	294	238	291	236
		11	11	7.3	53	46	164	133	155	127	154	126
												152 124
		12	3	2.4	54	47	55	45	52	43	52	43
		13	1	.9	55	48	22	18	21	17	21	17
												21 17
			303	95.8			20.8	1605	1883	1503	1840	1468
												1731 1378
ARITH. MEAN DBH= 7.4 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.3 , B= 6.73 , C= 3.53												
PERCENT SURVIVAL= 75.7 , MEAN CROWN RATIO= 49.9 , LAMBDA= .243												
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73												

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.8. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
25	50	3	3	.1	34	27	2	2										
		4	10	.9	37	34	15	11										
		5	21	2.9	39	39	56	42	52	39	45	34	28	21				
		6	34	6.7	41	42	141	110	132	104	126	99	105	82				
		7	45	12.0	43	45	273	218	258	207	251	202	233	187				
		8	51	17.8	45	47	424	344	403	329	397	324	381	310				
		9	46	20.3	46	49	506	415	483	398	477	393	465	383				
		10	35	19.1	47	50	486	403	465	387	462	384	454	378				
		11	22	14.5	49	51	378	315	362	303	360	302	356	298				
		12	11	8.6	50	52	230	193	220	186	219	185	217	183				
		13	4	3.7	51	53	96	79	92	76	91	76	90	75				
		14	1	1.1	51	54	29	24	27	23	27	23	27	23				
				283	107.7		2636	2156	2494	2052	2455	2022	2356	1940				

ARITH. MEAN DBH= 8.1 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.6 , B= 7.24 , C= 3.33  
 PERCENT SURVIVAL= 70.7 , MEAN CROWN RATIO= 44.8 , LAMBDA= .356  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	3	2	.1	28	28	2	1										
		4	7	.6	31	35	11	8										
		5	15	2.0	34	41	42	33	39	31	35	27	21	15				
		6	25	4.9	36	45	109	86	103	81	98	77	81	63				
		7	35	9.4	38	48	223	179	212	171	206	166	191	154				
		8	43	15.0	40	50	376	306	358	293	352	288	338	276				
		9	41	18.1	41	52	473	390	453	374	448	371	436	360				
		10	36	19.6	43	54	534	444	512	427	508	424	499	417				
		11	27	17.8	44	56	503	421	483	406	480	404	474	398				
		12	17	13.4	46	57	384	323	369	312	368	311	364	308				
		13	9	8.3	47	58	243	206	234	199	233	198	231	197				
		14	4	4.3	48	59	127	108	123	105	122	104	122	104				
		15	1	1.2	49	60	37	32	36	31	36	31	36	30				
				262	114.7		3064	2537	2922	2430	2886	2401	2793	2322				

ARITH. MEAN DBH= 8.7 , QUADRATIC MEAN DBH= 9.0 , WEIBULL PARAMETERS A= 1.8 , B= 7.69 , C= 3.17  
 PERCENT SURVIVAL= 65.5 , MEAN CROWN RATIO= 40.9 , LAMBDA= .443  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_i$  50

GROWING SEASONS SINCE EST.	AV. HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME-- 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --			
							O.B.	I.B.	2 INCHES O.B. I.B.	3 INCHES O.B. I.B.	4 INCHES O.B. I.B.	

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>			
10	26	1	2	.0	65	9	0	0				
		2	25	.5	65	17	7	4				
		3	85	4.2	65	21	57	35				
		4	147	12.8	65	24	182	123				
		5	138	18.8	65	26	275	196	247	178	225	161
									174	123	174	123
		6	63	12.4	65	27	183	135	166	124	158	118
		7	12	3.2	65	28	48	37	44	34	43	33
		8	1	.3	65	28	5	4	5	4	5	4
				473	52.3		757	534	462	340	431	316
									359	261		

ARITH. MEAN DBH= 4.3 , QUADRATIC MEAN DBH= 4.5 , WEIBULL PARAMETERS A= .5 , B= 4.26 , C= 3.75  
 PERCENT SURVIVAL= 78.8 , MEAN CROWN RATIO= 64.8 , LAMBOA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

15	38	2	4	.1	45	20	1	1				
		3	20	1.0	48	27	14	9				
		4	52	4.5	50	31	74	53				
		5	90	12.3	51	34	219	159	199	146	179	130
		6	111	21.8	52	36	400	299	369	278	348	262
											133	95
		7	94	25.1	53	38	478	365	444	343	431	333
		8	52	18.2	54	39	352	274	329	258	322	253
		9	18	8.0	55	40	158	125	148	118	146	116
		10	3	1.6	56	41	33	27	31	25	31	25
				444	92.5		1729	1312	1520	1168	1457	1119
											1314	1005

ARITH. MEAN DBH= 6.0 , QUADRATIC MEAN DBH= 6.2 , WEIBULL PARAMETERS A= .9 , B= 5.61 , C= 3.71  
 PERCENT SURVIVAL= 74.0 , MEAN CROWN RATIO= 52.3 , LAMBOA= .190  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

20	44	2	2	.0	33	20	1	0				
		3	10	.5	37	29	7	5				
		4	28	2.4	40	34	42	30				
		5	54	7.4	42	37	139	105	127	97	112	85
		6	77	15.1	44	40	308	240	288	226	274	215
											73	53
		7	85	22.7	46	42	489	389	461	369	448	359
		8	74	25.8	47	44	583	472	553	450	545	443
		9	47	20.8	49	45	482	394	458	377	453	372
		10	22	12.0	50	46	285	235	272	225	270	224
		11	7	4.6	51	47	106	86	101	82	100	80
		12	2	1.6	52	48	37	30	35	29	35	29
				408	113.0		2479	1986	2295	1855	2237	1809
											2084	1682

ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.1 , WEIBULL PARAMETERS A= 1.2 , B= 6.29 , C= 3.46  
 PERCENT SURVIVAL= 68.0 , MEAN CROWN RATIO= 45 , LAMBOA= .343  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

## YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

T<sub>P</sub> 600

S<sub>I</sub> 50

ARITH. MEAN DBH= 7.6 , QUADRATIC MEAN DBH= 7.9 . WEIBULL PARAMETERS A= 1.5 . B= 6.83 . C= 3.27  
PERCENT SURVIVAL= 61.8 . MEAN CROWN RATIO= 40.9 LAMBDA= .447  
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

ARITH. MEAN DBH= 8.3 , QUADRATIC MEAN DBH= 8.6 , WEIBULL PARAMETERS A= 1.7 . B= 7.33 , C= 3.12  
 PERCENT SURVIVAL= 55.5 , MEAN CROWN RATIO= 37.4 , LAMBDA= .524  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_I$  50

GROWING SEASONS SINCE EST.	AV. HT.	DBH	STEMS PER ACRE	BASAL . AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME					
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.		
10	26	1	5	.0	61	10	0	0	254	183	231	166	179	126
		2	52	1.1	61	18	15	6						
		3	152	7.5	61	22	105	66						
		4	215	18.8	61	25	274	187						
		5	142	19.4	61	26	283	202						
		6	38	7.5	61	27	111	81	100	75	96	71	84	62
		7	3	.8	61	28	12	9	11	8	11	8	10	8
							800	553	365	266	338	245	273	196
<hr/>														
ARITH. MEAN DBH= 3.9 . QUADRATIC MEAN DBH= 4.1 . WEIBULL PARAMETERS A= .4 , B= 3.88 , C= 3.69														
PERCENT SURVIVAL= 75.9 . MEAN CROWN RATIO= 61.2 . LAMBDA= .000														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
15	38	2	8	.2	40	21	2	1						
		3	35	1.7	43	28	25	17						
		4	85	7.4	46	32	123	88						
		5	133	18.1	48	34	322	242	295	223	267	201	178	129
		6	144	28.3	50	36	533	413	497	387	474	369	411	318
		7	100	26.7	51	38	508	389	473	365	459	354	424	326
		8	43	15.0	52	39	291	227	272	214	266	209	255	200
		9	10	4.4	53	40	88	69	82	66	81	65	79	63
		10	1	.5	54	41	11	9	10	8	10	8	10	8
							1903	1455	1629	1263	1557	1206	1357	1044
<hr/>														
ARITH. MEAN DBH= 5.6 . QUADRATIC MEAN DBH= 5.8 . WEIBULL PARAMETERS A= .9 , B= 5.27 , C= 3.66														
PERCENT SURVIVAL= 69.9 . MEAN CROWN RATIO= 49.0 , LAMBOA= .267														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
20	44	2	3	.1	29	20	1	1						
		3	17	.8	33	29	14	10						
		4	44	3.8	36	34	66	48						
		5	79	10.8	39	38	207	156	190	145	167	127	105	76
		6	105	20.6	41	40	420	328	393	308	374	293	313	243
		7	107	26.6	43	42	615	490	580	464	564	452	526	420
		8	81	28.3	45	44	639	516	606	492	596	485	573	465
		9	45	19.9	47	45	461	377	439	361	434	357	423	348
		10	17	9.3	48	46	220	182	210	174	209	173	205	170
		11	4	2.6	50	47	64	53	61	51	61	51	60	50
		12	1	.8	51	48	19	15	18	15	18	14	17	14
							2726	2176	2497	2010	2423	1952	2222	1786
<hr/>														
ARITH. MEAN DBH= 6.5 . QUADRATIC MEAN DBH= 6.8 . WEIBULL PARAMETERS A= 1.2 , B= 5.97 , C= 3.41														
PERCENT SURVIVAL= 62.9 . MEAN CROWN RATIO= 42.6 , LAMBOA= .414														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														

# YIELDS GIVEN T<sub>P</sub> WITH IDEAL SURVIVAL —

T<sub>P</sub> 800

S<sub>I</sub> 50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME-- 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.			
							O.B.	I.B.	2 INCHES O.B. I.B.	3 INCHES O.B. I.B.	4 INCHES O.B. I.B.	

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
25	50	2	1	.0	22	19	0	0				
		3	10	.5	26	29	8	6				
		4	27	2.4	30	36	44	33				
		5	50	6.8	33	40	138	107	128	100	115	90
		6	72	14.1	35	43	304	241	286	228	274	218
		7	84	22.4	38	46	518	415	491	395	477	384
		8	80	27.9	40	48	676	550	644	526	633	517
		9	62	27.4	41	50	693	570	662	546	655	541
		10	37	20.2	43	51	523	433	500	416	496	413
		11	18	11.9	45	52	315	263	301	253	300	251
		12	6	4.7	46	53	127	107	122	103	122	103
		13	2	1.8	48	54	51	43	49	41	49	41
				449	140.2		3397	2768	3183	2608	3121	2558

ARITH. MEAN DBH= 7.3 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.4 , B= 6.55 , C= 3.22  
 PERCENT SURVIVAL= 56.1 , MEAN CROWN RATIO= 38.1 , LAMBDA= .511  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	2	1	.0	17	18	0	0				
		3	6	.3	22	29	5	3				
		4	17	1.5	25	36	28	21				
		5	33	4.5	28	42	94	73	88	69	77	60
		6	50	9.8	31	45	219	174	206	164	196	156
		7	63	16.8	33	48	400	323	381	308	370	300
		8	66	23.0	35	51	585	478	559	458	551	452
		9	60	26.5	37	53	704	580	674	558	667	552
		10	46	25.1	39	54	682	567	654	546	649	541
		11	29	19.1	40	56	540	452	519	436	516	434
		12	15	11.8	42	57	339	285	326	276	325	274
		13	7	6.5	44	58	189	160	182	155	181	154
		14	2	2.1	45	59	64	54	61	52	61	52
		15	1	1.2	46	60	37	32	36	31	36	31
				396	148.3		3886	3202	3686	3053	3629	3006

ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.7 , B= 7.08 , C= 3.08  
 PERCENT SURVIVAL= 49.5 , MEAN CROWN RATIO= 35.0 , LAMBDA= .582  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_I$  50

GROWING SEASONS SINCE EST.	A. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								
10	26	1	11	.1	58	10	1	0							
		2	91	2.0	58	18	27	14							
		3	233	11.4	58	22	161	101							
		4	262	22.9	58	25	334	227							
		5	120	16.4	58	26	240	170	215	154	196	140	151	107	
		6	18	3.5	58	27	52	39	48	35	45	34	40	30	
		7	1	.3	58	28	4	3	4	3	4	3	3	3	
			736	56.5			819	554	267	192	245	177	194	140	

ARITH. MEAN DBH= 3.6 , QUADRATIC MEAN DBH= 3.7 , WEIBULL PARAMETERS A= .4 , B= 3.60 , C= 3.64  
 PERCENT SURVIVAL= 73.6 , MEAN CROWN RATIO= 58.4 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

15	38	1	1	.0	30	9	0	0							
		2	13	.3	36	21	4	2							
		3	55	2.7	40	28	40	26							
		4	122	10.6	43	32	177	126							
		5	77	24.1	46	35	437	329	401	304	362	273	241	175	
		6	166	32.6	48	37	627	486	585	456	557	435	476	368	
		7	97	25.9	49	39	527	417	495	395	482	384	450	358	
		8	32	11.2	51	40	221	172	207	163	202	159	193	152	
		9	5	2.2	52	41	45	35	42	33	41	33	40	32	
			668	109.7			2078	1593	1730	1351	1644	1284	1400	1085	

ARITH. MEAN DBH= 5.3 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A= .8 , B= 5.01 , C= 3.61  
 PERCENT SURVIVAL= 66.8 , MEAN CROWN RATIO= 46.4 , LAMBDA= .327  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

20	44	2	5	.1	26	21	2	1							
		3	25	1.2	31	29	20	14							
		4	62	5.4	34	35	100	75							
		5	105	14.3	37	38	275	208	253	193	222	168	140	101	
		6	131	25.7	40	41	534	417	500	393	476	374	397	309	
		7	123	32.9	42	43	720	574	680	545	661	530	615	492	
		8	84	29.3	44	45	674	546	640	521	630	513	605	492	
		9	41	18.1	46	46	428	350	407	335	403	331	393	323	
		10	13	7.1	47	47	172	142	164	136	162	135	160	133	
		11	3	2.0	49	48	49	41	47	39	47	39	46	38	
			592	136.2			2974	2368	2691	2162	2601	2090	2356	1888	

ARITH. MEAN DBH= 6.3 , QUADRATIC MEAN DBH= 6.5 , WEIBULL PARAMETERS A= 1.1 , B= 5.73 , C= 3.38  
 PERCENT SURVIVAL= 59.2 , MEAN CROWN RATIO= 40.2 , LAMBDA= .469  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_I$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								Ft <sup>3</sup>	
25	50	2	2	.0	20	20	1	0								
		3	13	.6	24	29	11	8								
		4	36	3.1	28	36	59	44								
		5	65	8.9	31	40	179	139	166	130	150	117	88	65		
		6	90	17.7	33	44	387	307	365	290	349	278	283	223		
		7	101	27.0	36	46	623	499	590	475	573	462	533	428		
		8	91	31.8	38	48	769	625	732	598	720	588	691	564		
		9	65	28.7	40	50	726	597	694	573	587	567	668	552		
		10	36	19.6	42	51	509	422	487	405	483	402	475	395		
		11	15	9.9	44	52	262	219	251	211	250	209	247	207		
		12	5	3.9	45	53	106	89	102	86	101	85	100	85		
		13	1	.9	47	54	25	21	24	21	24	21	24	20		
				520	152.2		3657	2970	3411	2789	3337	2729	3109	2539		

ARITH. MEAN DBH= 7.1 , QUADRATIC MEAN DBH= 7.3 , WEIBULL PARAMETERS A= 1.4 , B= 6.33 , C= 3.19  
 PERCENT SURVIVAL= 52.0 , MEAN CROWN RATIO= 36.0 , LAMBDA= .561  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	2	1	.0	16	19	0	0								
		3	8	.4	20	29	7	5								
		4	22	1.9	23	37	37	28								
		5	42	5.7	26	42	120	93	111	87	98	76	58	43		
		6	62	12.2	29	46	276	219	260	208	247	197	201	159		
		7	75	20.0	31	49	484	391	461	373	448	363	415	337		
		8	76	26.5	34	52	684	559	655	537	645	529	618	507		
		9	67	29.6	36	54	798	658	764	633	756	627	735	609		
		10	48	26.2	37	55	723	601	694	579	688	575	676	565		
		11	29	19.1	39	57	548	459	527	443	524	441	517	435		
		12	14	11.0	41	58	321	270	309	261	308	260	305	258		
		13	6	5.5	43	59	164	139	158	135	158	134	157	133		
		14	2	2.1	44	60	65	55	62	53	62	53	62	53		
				452	160.4		4227	3477	4001	3309	3934	3255	3744	3099		

ARITH. MEAN DBH= 7.8 , QUADRATIC MEAN DBH= 8.1 , WEIBULL PARAMETERS A= 1.6 , B= 6.88 , C= 3.05  
 PERCENT SURVIVAL= 45.2 , MEAN CROWN RATIO= 33.0 , LAMBDA= .627  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1200

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET. FOR 0.B. TOPS OF --		2 INCHES		3 INCHES	
							0.B.	I.B.	O.B.	I.B.	O.B.	I.B.	0.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft								Ft <sup>3</sup>
10	26	1	20	.1	55	10	1	0						
		2	144	3.1	56	18	42	22						
		3	320	15.7	56	23	228	143						
		4	283	24.7	56	25	361	246						
		5	88	12.0	56	27	180	129	162	117	147	106	113	80
		6	7	1.4	56	28	21	15	19	14	18	13	16	12
				862	57.0		833	555	181	131	165	119	129	92
ARITH. MEAN DBH= 3.3 , QUADRATIC MEAN DBH= 3.5 , WEIBULL PARAMETERS A= .3 , B= 3.36 , C= 3.61														
PERCENT SURVIVAL= 71.8 , MEAN CROWN RATIO= 56.1 , LAMBDA= .019														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
15	38	1	1	.0	27	9	0	0						
		2	20	.4	34	21	7	4						
		3	78	3.8	38	28	56	37						
		4	164	14.3	41	32	238	170						
		5	215	29.3	44	35	531	399	487	369	440	332	293	212
		6	180	35.3	46	37	680	527	634	495	604	471	516	399
		7	88	23.5	48	39	478	379	449	358	438	349	408	325
		8	23	8.0	50	40	168	135	159	129	157	127	150	122
		9	3	1.3	52	41	27	21	25	20	25	20	24	19
				772	116.1		2185	1672	1754	1371	1664	1299	1391	1077
ARITH. MEAN DBH= 5.1 , QUADRATIC MEAN DBH= 5.2 , WEIBULL PARAMETERS A= .8 , B= 4.79 , C= 3.58														
PERCENT SURVIVAL= 64.3 , MEAN CROWN RATIO= 44.3 , LAMBDA= .376														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														
20	44	2	7	.2	24	21	2	1						
		3	34	1.7	29	29	28	20						
		4	81	7.1	32	35	130	98						
		5	132	18.0	35	38	351	271	326	253	293	227	174	127
		6	157	30.8	38	41	640	500	599	571	570	448	476	370
		7	135	36.1	41	43	790	630	746	592	726	582	675	540
		8	84	29.3	43	45	674	546	640	521	630	513	605	492
		9	35	15.5	45	46	365	295	348	286	344	293	335	276
		10	10	5.5	46	47	132	103	125	104	125	104	123	102
		11	2	1.3	48	48	33	27	31	26	31	26	31	26
				677	145.4		3145	2501	2816	2259	2719	2183	2419	1933
ARITH. MEAN DBH= 6.0 , QUADRATIC MEAN DBH= 6.3 , WEIBULL PARAMETERS A= 1.1 , B= 5.53 , C= 3.35														
PERCENT SURVIVAL= 56.4 , MEAN CROWN RATIO= 38.3 , LAMBDA= .51'														
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73														

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1200

$S_I$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								
25	50	2	3	.1	18	20	1	1							
		3	18	.9	23	29	15	10							
		4	46	4.0	26	36	75	57							
		5	80	10.9	29	40	220	171	205	160	184	143	108	80	
		6	108	21.2	32	44	464	368	437	348	419	334	339	268	
		7	115	30.7	35	46	707	568	672	542	653	527	606	490	
		8	99	34.6	37	48	837	680	797	650	784	640	752	614	
		9	66	29.7	39	50	738	606	704	582	697	576	678	560	
		10	34	18.5	41	51	480	398	460	383	456	380	449	373	
		11	13	8.6	43	52	227	190	218	183	216	181	214	179	
		12	4	3.1	44	53	85	71	81	69	81	68	80	68	
		13	1	.9	46	54	25	21	24	21	24	21	24	20	
				587	162.7		3874	3141	3598	2938	3514	2870	3250	2652	

ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.1 , WEIBULL PARAMETERS A= 1.3 , B= 6.15 , C= 3.16  
 PERCENT SURVIVAL= 48.9 , MEAN CROWN RATIO= 34.2 , LAMBDA= .602  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

30	55	2	1	.0	14	19	0	0						
		3	10	.5	18	29	8	6						
		4	28	2.4	22	37	47	35						
		5	51	7.0	25	42	145	113	135	106	119	93	71	52
		6	73	14.3	28	46	324	258	306	244	290	232	237	187
		7	88	23.5	30	49	568	459	541	438	526	426	488	395
		8	86	30.0	32	52	774	633	741	607	730	599	700	574
		9	71	31.4	35	54	851	703	817	677	808	670	790	655
		10	49	26.7	36	55	738	614	708	591	702	586	690	577
		11	28	18.5	38	57	529	443	509	428	506	426	499	420
		12	13	10.2	40	58	298	251	287	243	286	242	283	239
		13	5	4.6	42	59	137	116	132	112	132	112	131	111
		14	1	1.1	43	60	32	27	31	27	31	27	31	26
				504	170.2		4451	3658	4207	3473	4130	3413	3920	3236

ARITH. MEAN DBH= 7.6 , QUADRATIC MEAN DBH= 7.9 , WEIBULL PARAMETERS A= 1.6 , B= 6.72 , C= 3.02  
 PERCENT SURVIVAL= 42.0 , MEAN CROWN RATIO= 31.4 , LAMBDA= .664  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 73

**YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —**

$T_p$  1500

$S_i$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME										
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.		FOR O.B. TOPS OF --								
								2 INCHES		3 INCHES		4 INCHES							
								O.B.	I.B.	O.B.	I.B.	O.B.	I.B.						
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft									Ft <sup>3</sup>				
10	26	1	41	.2	50	9	2	0											
		2	250	5.5	52	18	73	39											
		3	443	21.7	53	22	705	191											
		4	267	23.3	54	25	341	232											
		5	43	5.9	55	27	88	63	79	57	72	52	55	39					
		6	1	.2	55	28	3	2	3	2	3	2	2	2					
				1045	56.8			812	527	82	59	75	54	57	41				
<b>ARITH. MEAN DBH= 3.0 . QUADRATIC MEAN DBH= 3.1 . WEIBULL PARAMETERS A= .3 . B= 3.07 . C= 3.56</b>																			
<b>PERCENT SURVIVAL= 69.7 . MEAN CROWN RATIO= 53.3 . LAMBDA= .084</b>																			
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50= 73</b>																			
15	38	1	2	.0	24	9	0	0											
		2	33	.7	31	21	11	7											
		3	120	5.9	36	28	87	57											
		4	230	20.1	39	32	333	238											
		5	270	36.8	42	35	667	501	612	463	553	417	367	267					
		6	186	36.5	45	37	703	545	655	511	625	487	533	412					
		7	69	18.4	47	39	375	297	352	281	343	273	320	255					
		8	12	4.2	49	40	88	71	83	67	82	66	79	63					
		9	1	.4	51	41	9	7	8	7	8	7	8	6					
				923	123.1			2273	1723	1710	1329	1611	1250	1307	1003				
<b>ARITH. MEAN DBH= 4.8 . QUADRATIC MEAN DBH= 4.9 . WEIBULL PARAMETERS A= .7 . B= 4.53 . C= 3.54</b>																			
<b>PERCENT SURVIVAL= 61.5 . MEAN CROWN RATIO= 41.7 . LAMBDA= .436</b>																			
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50= 73</b>																			
20	44	2	11	.2	22	21	4	2											
		3	50	2.5	26	29	41	29											
		4	113	9.9	30	34	178	133											
		5	172	23.5	34	38	457	353	424	330	382	296	226	166					
		6	189	37.1	37	41	771	602	721	567	686	539	573	446					
		7	147	39.3	39	43	861	686	812	651	790	634	735	588					
		8	79	27.6	41	45	634	513	602	490	593	482	569	463					
		9	28	12.4	44	46	292	239	278	229	275	226	268	221					
		10	6	3.3	46	47	79	65	76	63	75	62	74	61					
		11	1	.7	47	48	16	14	16	13	16	13	15	13					
				796	156.3			3333	2636	2929	2343	2817	2252	2460	1958				
<b>ARITH. MEAN DBH= 5.8 . QUADRATIC MEAN DBH= 6.0 . WEIBULL PARAMETERS A= 1.0 . B= 5.29 . C= 3.31</b>																			
<b>PERCENT SURVIVAL= 53.1 . MEAN CROWN RATIO= 35.9 . LAMBDA= .569</b>																			
<b>CORRESPONDING SITE INDEX FOR BASE AGE 50= 73</b>																			

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1500

$S_I$  50

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
25	50	2	5	.1	16	20	2	1										
		3	25	1.2	21	30	21	15										
		4	62	5.4	24	36	101	76										
		5	104	14.2	28	41	292	227	271	212	244	190	143	105				
		6	134	26.3	30	44	576	457	543	432	519	414	421	332				
		7	136	36.3	33	47	850	684	808	653	786	635	729	590				
		8	107	37.4	35	49	918	749	877	717	864	707	829	678				
		9	66	29.2	38	50	738	606	704	582	697	576	678	560				
		10	30	16.4	40	52	431	357	413	344	409	341	403	335				
		11	10	6.6	42	53	178	148	170	143	169	142	167	140				
		12	2	1.6	44	54	43	36	41	35	41	35	41	34				
				681	174.6		4150	3356	3827	3118	3729	3040	3411	2774				
ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.3 , B= 5.93 , C= 3.13																		
PERCENT SURVIVAL= 45.4 , MEAN CROWN RATIO= 32.1 , LAMBDA= .652																		
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73																		
30	55	2	2	.0	13	19	1	0										
		3	14	.7	17	29	11	8										
		4	36	3.1	20	37	60	45										
		5	64	8.7	23	42	182	142	170	133	149	116	89	65				
		6	89	17.5	26	46	396	315	373	298	354	283	289	228				
		7	104	27.8	29	49	671	542	639	518	621	504	576	467				
		8	97	33.9	31	52	873	714	836	685	823	675	789	648				
		9	77	34.0	33	54	922	762	886	734	877	726	856	710				
		10	50	27.3	35	55	766	639	737	616	732	612	720	602				
		11	27	17.8	37	57	510	428	491	413	488	410	481	405				
		12	11	8.6	39	58	252	213	243	205	242	204	240	203				
		13	4	3.7	41	59	110	93	106	90	105	89	104	89				
		14	1	1.1	42	60	32	27	31	27	31	27	31	26				
				576	184.2		4786	3928	4512	3719	4422	3646	4175	3443				
ARITH. MEAN DBH= 7.4 , QUADRATIC MEAN DBH= 7.7 , WEIBULL PARAMETERS A= 1.5 , B= 6.52 , C= 2.99																		
PERCENT SURVIVAL= 38.4 , MEAN CROWN RATIO= 29.5 , LAMBDA= .709																		
CORRESPONDING SITE INDEX FOR BASE AGE 50= 73																		

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	31	2	4	.1	67	19	1	1				
		3	20	1.0	67	25	15	10				
		4	52	4.5	67	28	72	50				
		5	89	12.1	67	30	197	142	178	130	161	115
		6	96	18.8	67	31	309	229	282	211	268	200
		7	59	15.8	67	32	263	199	242	186	235	180
		8	18	6.3	67	33	107	83	99	77	97	76
		9	2	.9	67	34	15	12	14	11	14	11
		---	---	340	59.5		979	726	815	615	775	583

ARITH. MEAN DBH= 5.5 , QUADRATIC MEAN DBH= 5.7 , WEIBULL PARAMETERS A= .6 , B= 5.40 , C= 4.25  
 PERCENT SURVIVAL= 85.0 , MEAN CROWN RATIO= 66.7 , LAMBDA= .000  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

15	45	2	1	.0	43	23	0	0				
		3	4	.2	46	31	3	2				
		4	15	1.3	49	36	23	17				
		5	34	4.6	51	40	94	69	86	64	77	56
		6	58	11.4	52	42	236	178	219	167	208	158
		7	76	20.3	54	44	434	334	406	315	393	305
		8	70	24.4	55	46	541	424	509	402	499	394
		9	45	19.9	56	47	449	357	425	340	418	335
		10	18	9.8	57	48	227	183	215	175	213	173
		11	4	2.6	58	49	63	51	60	49	59	48
		---	---	325	94.6		2070	1615	1920	1512	1867	1469

ARITH. MEAN DBH= 7.1 , QUADRATIC MEAN DBH= 7.3 , WEIBULL PARAMETERS A= 1.0 , B= 6.73 , C= 4.20  
 PERCENT SURVIVAL= 81.3 , MEAN CROWN RATIO= 54.0 , LAMBDA= .266  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	3	2	.1	34	32	2	1				
		4	8	.7	38	39	13	10				
		5	20	2.7	41	44	58	45	54	41	47	36
		6	36	7.1	43	47	163	128	153	121	145	115
		7	52	13.9	45	49	337	271	320	258	311	251
		8	61	21.3	47	52	55	449	525	431	517	424
		9	56	24.7	49	53	657	541	679	520	622	515
		10	39	21.3	50	55	587	488	564	471	559	467
		11	20	13.2	52	56	351	287	335	276	333	273
		12	7	5.5	53	57	150	124	144	119	143	119
		13	2	1.8	54	57	51	42	49	41	49	40
		---	---	303	112.3		2920	2386	2773	2278	2726	2241

ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.2 , WEIBULL PARAMETERS A= 1.3 , B= 7.38 , C= 3.96  
 PERCENT SURVIVAL= 75.7 , MEAN CROWN RATIO= 47.1 , LAMBDA= .424  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							0.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
									2 INCHES	3 INCHES	4 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>			
25	60	3	1	.0	27	33	1	1				
		4	5	.4	30	41	9	7				
		5	13	1.8	34	46	40	31	37	29	32	25
		6	24	4.7	36	51	116	92	109	87	103	82
		7	36	9.6	39	54	253	204	240	195	233	189
		8	47	16.4	41	56	451	369	431	355	424	349
		9	50	22.1	43	58	633	523	607	505	601	499
		10	44	24.0	45	60	714	596	687	575	681	571
		11	31	20.5	46	62	630	529	607	512	604	509
		12	17	13.4	48	63	419	354	404	343	402	341
		13	7	6.5	49	64	206	175	199	169	198	169
		14	2	2.1	51	65	67	57	65	55	65	55
							3539	2938	3386	2825	3343	2789
											3234	2698
ARITH. MEAN DBH= 8.7 , QUADRATIC MEAN DBH= 9.0 , WEIBULL PARAMETERS A= 1.6 , B= 7.92 , C= 3.76 PERCENT SURVIVAL= 69.2 , MEAN CROWN RATIO= 42.3 , LAMBOA= .530 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88												
30	66	3	1	.0	22	33	1	1				
		4	3	.3	25	42	5	4				
		5	8	1.1	29	48	25	20	23	19	20	16
		6	16	3.1	31	53	79	64	75	60	71	57
		7	26	6.9	34	57	189	154	181	148	176	144
		8	34	11.9	36	60	345	284	331	273	325	269
		9	40	17.7	38	62	536	444	515	429	509	425
		10	40	21.8	40	64	686	574	661	555	655	551
		11	34	22.4	42	66	729	615	705	596	700	592
		12	24	18.8	44	67	624	529	603	513	601	510
		13	14	12.9	45	69	440	375	426	364	424	363
		14	6	6.4	47	70	222	190	215	184	215	184
		15	2	2.5	48	71	86	74	84	72	83	71
		16	1	1.4	49	72	50	43	48	42	48	41
							4017	3371	3867	3255	3827	3225
											3732	3142
ARITH. MEAN DBH= 9.4 , QUADRATIC MEAN DBH= 9.7 , WEIBULL PARAMETERS A= 1.8 , B= 8.42 , C= 3.61 PERCENT SURVIVAL= 62.2 , MEAN CROWN RATIO= 38.9 , LAMBOA= .607 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88												

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET.		FOR O.B. TOPS OF --	
									O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	31	1	1	.0	61	11	0	0				
		2	11	.2	61	21	4	2				
		3	49	2.4	62	26	38	24				
		4	113	9.9	62	29	161	111				
		5	152	20.7	62	31	345	249	313	228	282	204
											212	151
		6	113	22.2	62	32	273	277	341	256	323	242
		7	39	10.4	62	33	178	135	164	126	159	122
		8	5	1.7	62	34	30	24	28	22	28	22
											27	21
			483	67.6			1129	822	846	632	792	590
											670	495

ARITH. MEAN DBH= 4.9 , QUADRATIC MEAN DBH= 5.1 , WEIBULL PARAMETERS A=.5 , B= 4.87 , C= 4.16  
 PERCENT SURVIVAL= 80.5 , MEAN CROWN RATIO= 61.6 , LAMBDA= .005  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

15	45	2	2	.0	35	24	1	0				
		3	10	.5	40	32	8	5				
		4	32	2.8	43	37	51	37				
		5	66	9.0	46	40	179	136	165	126	145	110
		6	101	19.8	48	43	427	334	400	315	380	300
											91	66
		7	109	29.1	50	45	661	529	625	503	608	489
		8	81	28.3	52	46	626	490	589	465	577	456
		9	37	16.3	53	47	370	294	349	280	344	276
		10	10	5.5	55	48	126	102	120	97	118	96
		11	1	.7	56	49	16	13	15	12	15	12
			449	112.0			2465	1940	2263	1798	2187	1739
											1986	1572

ARITH. MEAN DBH= 6.6 , QUADRATIC MEAN DBH= 6.8 , WEIBULL PARAMETERS A=.9 , B= 6.25 , C= 4.13  
 PERCENT SURVIVAL= 74.8 , MEAN CROWN RATIO= 49.3 , LAMBDA= .376  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	2	1	.0	24	23	0	0				
		3	5	.2	29	33	4	3				
		4	16	1.4	33	40	28	21				
		5	36	4.9	36	44	105	80	97	74	84	65
		6	61	12.0	39	47	276	217	259	206	246	195
											52	38
		7	81	21.6	42	50	534	430	507	410	492	398
		8	82	28.6	44	52	740	604	706	579	694	569
		9	67	29.6	46	53	766	648	726	623	744	616
		10	38	20.7	48	55	572	476	549	459	545	455
		11	15	.9	49	56	279	234	268	225	267	224
		12	4	3.1	51	57	86	71	82	68	82	68
		13	1	.9	53	57	26	21	24	20	24	20
			407	133.1			3436	2805	3244	2664	3178	2610
											3006	2466

ARITH. MEAN DBH= 7.5 , QUADRATIC MEAN DBH= 7.7 , WEIBULL PARAMETERS A= 1.2 , B= 6.04 , C= 3.89  
 PERCENT SURVIVAL= 67.8 , MEAN CROWN RATIO= 42.8 , LAMBDA= .524  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
25	60	3	3	.1	23	34	3	2	55	44	31	23				
		4	9	.8	27	42	16	12								
		5	22	3.0	30	47	68	54	63	50	55	44				
		6	39	7.7	33	51	187	150	177	143	168	135	136	108		
		7	56	15.0	35	54	390	317	373	303	362	295	335	273		
		8	66	23.0	38	57	643	527	615	506	604	498	579	476		
		9	65	28.7	40	59	834	691	801	666	793	659	770	640		
		10	51	27.8	42	60	827	690	796	667	789	661	776	650		
		11	31	20.5	44	62	630	529	607	512	604	509	596	503		
		12	14	11.0	46	63	345	292	333	282	331	281	328	279		
		13	5	4.6	47	64	147	125	142	121	142	121	141	120		
		14	1	1.1	49	65	35	30	33	29	33	29	33	28		
				362	143.3		4125	3419	3940	3279	3881	3232	3725	3100		

ARITH. MEAN DBH= 8.3 , QUADRATIC MEAN DBH= 8.5 , WEIBULL PARAMETERS A= 1.5 , B= 7.52 , C= 3.70  
 PERCENT SURVIVAL= 60.3 , MEAN CROWN RATIO= 38.4 , LAMBDA= .621  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	1	.0	19	34	1	1	36	29	20	14			
		4	6	.5	22	43	11	8							
		5	14	1.9	25	49	45	35	42	33	36	29	20	14	
		6	25	4.9	28	54	126	101	119	96	113	91	91	73	
		7	38	10.2	31	58	280	229	268	219	260	213	238	195	
		8	49	17.1	33	61	503	414	483	399	476	393	455	377	
		9	55	24.3	35	63	750	624	723	603	715	597	698	583	
		10	49	26.7	38	65	851	713	821	690	814	684	800	672	
		11	38	25.1	39	67	826	696	796	675	793	671	783	662	
		12	24	18.8	41	68	632	536	611	520	609	518	603	513	
		13	12	11.1	43	70	382	325	370	316	369	315	366	313	
		14	5	5.3	45	71	187	160	182	156	181	155	180	155	
		15	1	1.2	46	72	44	37	42	36	42	36	42	36	
				317	147.2		4638	3879	4459	3743	4408	3702	4276	3593	

ARITH. MEAN DBH= 9.0 , QUADRATIC MEAN DBH= 9.3 , WEIBULL PARAMETERS A= 1.7 , B= 8.06 , C= 3.55  
 PERCENT SURVIVAL= 52.8 , MEAN CROWN RATIO= 35.4 , LAMBDA= .689  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		—CUBIC FOOT VOLUME— 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET. FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	31	1	2	.0	53	11	0	0				
		2	24	.5	55	21	8	4				
		3	93	4.6	57	26	73	46				
		4	185	16.1	58	29	263	181				
		5	197	26.9	58	31	447	322	405	295	365	265
		6	99	19.4	59	32	326	242	299	224	283	212
		7	19	5.1	59	33	87	66	80	61	78	60
		8	1	.3	60	34	6	5	6	4	6	4
			620	73.0			1210	866	790	584	732	541
											600	438

ARITH. MEAN DBH= 4.5 , QUADRATIC MEAN DBH= 4.6 , WEIBULL PARAMETERS A= .4 , B= 4.50 , C= 4.11  
 PERCENT SURVIVAL= 77.5 , MEAN CROWN RATIO= 56.0 , LAMBDA= .089  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

15	45	2	3	.1	31	25	1	1				
		3	18	.9	36	33	14	9				
		4	53	4.6	40	38	86	62				
		5	104	14.2	43	41	287	219	265	203	232	177
		6	143	28.1	45	44	615	483	577	455	548	433
		7	133	35.5	48	46	821	657	777	625	755	608
		8	79	27.6	50	47	657	533	624	509	614	501
		9	27	11.9	52	48	274	218	259	208	256	205
		10	5	2.7	53	49	64	52	61	49	60	49
			565	125.6			2819	2234	2563	2049	2465	1973
											2201	1752

ARITH. MEAN DBH= 6.2 , QUADRATIC MEAN DBH= 6.4 , WEIBULL PARAMETERS A= .8 , B= 5.91 , C= 4.08  
 PERCENT SURVIVAL= 70.6 , MEAN CROWN RATIO= 46.0 , LAMBDA= .453  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	2	1	.0	21	24	0	0				
		3	8	.4	26	34	7	5				
		4	26	2.3	30	41	46	35				
		5	55	7.5	34	45	165	129	154	121	134	105
		6	88	17.3	37	48	405	319	380	302	361	287
		7	107	28.6	39	51	717	577	681	551	661	535
		8	102	35.6	42	53	935	764	893	732	878	720
		9	70	30.9	44	54	834	688	799	662	790	655
		10	33	18.0	46	55	497	413	477	398	473	395
		11	10	6.6	48	57	189	158	182	153	181	152
		12	2	1.6	50	57	45	38	43	37	43	36
			502	148.8			3840	3126	3609	2956	3521	2886
											3283	2686

ARITH. MEAN DBH= 7.2 , QUADRATIC MEAN DBH= 7.4 , WEIBULL PARAMETERS A= 1.2 , B= 6.63 , C= 3.84  
 PERCENT SURVIVAL= 62.7 , MEAN CROWN RATIO= 39.8 , LAMBDA= .595  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
25	60	3	4	.2	20	34	4	3								
		4	14	1.2	24	42	25	19								
		5	32	4.4	27	48	100	79	94	74	82	65	46	34		
		6	54	10.6	30	51	260	208	245	197	233	187	189	150		
		7	75	20.0	33	55	530	431	507	413	492	401	455	371		
		8	85	29.7	36	57	827	678	792	652	778	641	745	613		
		9	76	33.6	38	59	976	808	937	779	927	771	900	749		
		10	54	29.5	40	60	876	731	843	706	836	700	821	688		
		11	29	19.1	42	62	589	495	568	479	565	477	557	470		
		12	12	9.4	44	63	295	250	285	242	284	241	281	239		
		13	3	2.8	46	64	88	75	85	73	85	72	84	72		
		14	1	1.1	48	65	35	30	33	29	33	29	33	28		
				439	161.5		4606	3807	4389	3644	4315	3584	4111	3414		

ARITH. MEAN DBH= 8.0 , QUADRATIC MEAN DBH= 8.2 , WEIBULL PARAMETERS A= 1.4 , B= 7.24 , C= 3.65  
 PERCENT SURVIVAL= 54.9 , MEAN CROWN RATIO= 35.6 , LAMBDA= .685  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	2	.1	16	35	2	1	Ft <sup>3</sup>									
									ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
									O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.		
		4	8	.7	20	43	15	11										
		5	19	2.6	23	50	61	49	57	46	50	40	27	20				
		6	34	6.7	26	54	171	137	162	131	153	124	124	99				
		7	50	13.4	29	58	369	301	353	289	343	280	313	256				
		8	62	21.6	31	61	636	524	611	505	602	498	576	477				
		9	64	28.3	34	63	873	726	842	702	833	694	813	678				
		10	56	30.5	36	65	973	815	938	789	930	782	914	768				
		11	41	27.1	38	67	891	751	861	729	856	724	844	714				
		12	24	18.8	40	68	632	536	611	520	609	518	603	513				
		13	11	10.1	42	70	350	298	339	290	338	289	335	287				
		14	4	4.3	43	71	150	128	145	125	145	124	144	124				
		15	1	1.2	45	72	44	37	42	36	42	36	42	36				
				376	165.4		5167	4314	4961	4162	4901	4109	4735	3972				

ARITH. MEAN DBH= 8.7 , QUADRATIC MEAN DBH= 9.0 , WEIBULL PARAMETERS A= 1.7 , B= 7.81 , C= 3.51  
 PERCENT SURVIVAL= 47.0 , MEAN CROWN RATIO= 32.9 , LAMBDA= .747  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								Ft <sup>3</sup>	
10	31	1	4	.0	47	11	0	0								
		2	43	.9	51	22	15	8								
		3	151	7.4	63	27	121	78								
		4	259	22.6	55	30	378	261								
		5	216	29.5	56	32	502	362	456	332	410	298	307	219		
		6	72	14.1	57	33	243	181	223	168	211	158	184	137		
		7	7	1.9	58	34	33	25	30	23	29	22	27	21		
			752	76.4			1292	915	709	523	650	478	518	377		
ARITH. MEAN DBH= 4.2 , QUADRATIC MEAN DBH= 4.3 , WEIBULL PARAMETERS A= .4 , B= 4.22 , C= 4.06																
PERCENT SURVIVAL= 75.2 , MEAN CROWN RATIO= 55.2 , LAMBDA= .155																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																
15	45	2	5	.1	28	25	2	1								
		3	29	1.4	33	33	26	19								
		4	80	7.0	37	38	129	94								
		5	145	19.8	41	41	401	305	369	283	324	247	202	146		
		6	181	35.5	44	44	778	611	730	576	694	548	578	451		
		7	146	39.0	46	46	901	721	853	686	829	667	770	619		
		8	70	24.4	49	47	582	472	553	451	544	444	522	426		
		9	18	8.0	51	48	183	145	173	139	170	137	165	132		
		10	2	1.1	53	49	26	21	24	20	24	20	24	19		
			676	136.3			3028	2389	2702	2155	2585	2063	2261	1793		
ARITH. MEAN DBH= 5.9 , QUADRATIC MEAN DBH= 6.1 , WEIBULL PARAMETERS A= .8 , B= 5.64 , C= 4.04																
PERCENT SURVIVAL= 67.6 , MEAN CROWN RATIO= 43.4 , LAMBDA= .513																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																
20	53	2	2	.0	19	25	1	0								
		3	12	.6	24	35	11	8								
		4	37	3.2	28	41	66	50								
		5	75	10.2	32	45	225	176	209	165	183	144	104	77		
		6	115	22.6	35	48	528	421	498	399	473	379	384	305		
		7	131	35.0	38	51	878	707	833	675	809	655	750	606		
		8	114	39.8	40	53	1045	853	998	819	981	805	940	771		
		9	69	30.5	43	54	822	678	787	652	779	646	757	627		
		10	28	15.3	45	55	422	351	405	338	401	335	395	329		
		11	7	4.6	47	57	132	111	127	107	126	106	125	105		
		12	1	.8	49	57	23	19	22	18	22	18	21	18		
							4153	3374	3879	3173	3774	3088	3476	2838		
ARITH. MEAN DBH= 6.9 , QUADRATIC MEAN DBH= 7.1 , WEIBULL PARAMETERS A= 1.1 , B= 6.39 , C= 3.80																
PERCENT SURVIVAL= 59.1 , MEAN CROWN RATIO= 37.4 , LAMBDA= .650																
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP				5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --				2 INCHES			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
25	60	2	1	.0	14	24	0	0										
		3	6	.3	18	35	5	4										
		4	20	1.7	22	43	37	28										
		5	42	5.7	26	48	132	104	123	98	107	85	61	45	565	461		
		6	70	13.7	29	52	341	274	323	260	306	247	248	198	849	712		
		7	93	24.9	32	55	658	534	628	512	610	498						
		8	100	34.9	34	58	984	809	945	779	930	767	891	735				
		9	84	37.1	37	60	1094	906	1051	874	1039	865	1010	840				
		10	55	30.0	39	61	905	756	871	730	864	724						
		11	27	17.8	41	63	556	468	536	453	533	450	526	444				
		12	9	7.1	43	64	225	190	217	184	216	183						
		13	2	1.8	45	65	60	51	58	49	57	49						
				509		175.1	4997	4124	4752	3939	4662	3868	4421	3666				

ARITH. MEAN DBH= 7.7 , QUADRATIC MEAN DBH= 8.0 , WEIBULL PARAMETERS A= 1.4 , B= 7.02 , C= 3.62  
 PERCENT SURVIVAL= 50.9 , MEAN CROWN RATIO= 33.5 , LAMBDA= .735  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	3	.1	15	35	3	2										
		4	11	1.0	18	44	21	16										
		5	25	3.4	22	50	81	64	76	60	66	52	35	26				
		6	43	8.4	25	55	219	176	208	168	196	159	159	127				
		7	61	16.3	27	58	450	367	431	352	418	342	382	312				
		8	73	25.5	30	61	749	617	720	595	709	586	678	561				
		9	74	32.7	32	63	1009	839	973	811	963	803	940	784				
		10	61	33.3	34	65	1078	905	1043	877	1035	871	1017	856				
		11	42	27.7	37	67	913	770	882	746	877	742	865	732				
		12	23	18.1	39	68	606	513	586	498	583	496	578	491				
		13	9	8.3	41	70	286	244	277	237	276	236						
		14	3	3.2	42	71	112	96	109	93	109	93	108	93				
		15	1	1.2	44	72	44	37	42	36	42	36	42	36				
				429		179.2	5571	4646	5347	4473	5274	4416	5078	4253				

ARITH. MEAN DBH= 8.5 , QUADRATIC MEAN DBH= 8.7 , WEIBULL PARAMETERS A= 1.6 , B= 7.61 , C= 3.48  
 PERCENT SURVIVAL= 42.9 , MEAN CROWN RATIO= 30.9 , LAMBDA= .791  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1200

$S_i$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME						
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>								
10	31	1	7	.0	43	11	0	0							
		2	70	1.5	48	21	19	10							
		3	221	10.8	51	26	173	110							
		4	327	28.5	53	29	466	320							
		5	208	28.4	55	31	472	340	428	312	385	279	290	206	
		6	45	8.8	56	33	152	113	139	105	132	99	115	86	
		7	2	.5	57	34	9	7	9	7	8	6	8	6	
				880	78.7		1291	900	576	424	525	384	413	298	
ARITH. MEAN DBH= 3.9 , QUADRATIC MEAN DBH= 4.0 , WEIBULL PARAMETERS A= .3 , B= 3.98 , C= 4.03															
PERCENT SURVIVAL= 73.3 , MEAN CROWN RATIO= 52.9 , LAMBDA= .208															
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88															
15	45	2	8	.2	26	25	3	2							
		3	42	2.1	31	33	37	27							
		4	110	9.6	35	38	186	141							
		5	188	25.6	39	41	519	395	479	367	420	320	262	190	
		6	214	42.0	42	44	920	722	863	681	820	648	683	533	
		7	149	39.8	45	46	920	736	870	700	846	681	786	631	
		8	58	20.2	48	47	482	391	458	374	451	368	433	353	
		9	11	4.9	50	48	119	98	113	93	112	92	109	90	
		10	1	.5	52	49	13	10	12	10	12	10	12	10	
				781	145.0		3199	2522	2795	2225	2661	2119	2285	1807	
ARITH. MEAN DBH= 5.7 , QUADRATIC MEAN DBH= 5.8 , WEIBULL PARAMETERS A= .7 , B= 5.42 , C= 4.00															
PERCENT SURVIVAL= 65.1 , MEAN CROWN RATIO= 41.3 , LAMBDA= .562															
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88															
20	53	2	3	.1	17	25	1	1							
		3	17	.8	22	35	16	11							
		4	49	4.3	26	41	87	67							
		5	97	13.2	30	45	291	228	271	214	237	186	135	99	
		6	142	27.9	33	48	652	520	615	493	584	468	475	377	
		7	153	40.9	36	51	1025	826	973	788	945	765	876	708	
		8	121	42.2	39	53	1109	906	1059	869	1041	855	998	818	
		9	65	28.7	42	54	774	639	742	614	734	608	713	591	
		10	22	12.0	44	55	331	276	318	265	315	263	310	259	
		11	5	3.3	46	57	94	79	91	76	90	76	89	75	
		12	1	.8	48	57	23	19	22	18	22	18	21	18	
				675	174.2		4403	3572	4091	3337	3968	3239	3617	2945	
ARITH. MEAN DBH= 6.7 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= 1.1 , B= 6.19 , C= 3.77															
PERCENT SURVIVAL= 56.3 , MEAN CROWN RATIO= 35.5 , LAMBDA= .695															
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88															

YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —

$T_p$  1200

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			Ft <sup>3</sup>			
25	60	2	1	.0	13	24	0	0				
		3	8	.4	17	35	7	5				
		4	26	2.3	21	43	48	37				
		5	54	7.4	24	48	169	134	158	125	138	109
		6	86	16.9	27	52	419	336	397	320	376	303
		7	110	29.4	30	55	778	632	743	606	721	589
		8	112	39.1	33	58	1102	906	1058	872	1042	859
		9	90	39.8	36	60	1172	971	1126	937	1114	927
		10	54	29.5	38	61	888	742	855	717	848	711
		11	24	15.8	40	63	494	416	477	403	474	400
		12	7	5.5	42	64	175	148	169	143	168	143
		13	2	1.8	44	65	60	51	58	49	57	49
				574	187.8		5312	4378	5041	4172	4938	4090
											4655	3852

ARITH. MEAN DBH= 7.5 . QUADRATIC MEAN DBH= 7.7 . WEIBULL PARAMETERS A= 1.3 , B= 6.83 , C= 3.59  
 PERCENT SURVIVAL= 47.8 , MEAN CROWN RATIO= 31.7 , LAMBDA= .776  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

30	66	3	4	.2	14	35	4	3				
		4	14	1.2	17	44	26	20				
		5	31	4.2	20	51	102	81	95	76	83	66
		6	52	10.2	23	55	265	213	251	203	237	192
		7	72	19.2	26	59	539	439	516	422	500	410
		8	85	29.7	29	62	884	729	850	703	837	692
		9	82	36.2	31	64	1133	943	1094	912	1081	903
		10	65	35.5	33	66	1164	978	1126	948	1118	941
		11	42	27.7	36	68	925	780	894	757	889	752
		12	21	16.5	38	69	560	475	542	461	540	459
		13	8	7.4	40	70	255	217	247	211	246	210
		14	2	2.1	42	72	76	65	74	63	73	63
				478	190.2		5933	4943	5689	4756	5604	4688
											5378	4499

ARITH. MEAN DBH= 8.3 . QUADRATIC MEAN DBH= 8.6 . WEIBULL PARAMETERS A= 1.6 , B= 7.45 , C= 3.46  
 PERCENT SURVIVAL= 39.8 , MEAN CROWN RATIO= 29.4 , LAMBDA= .828  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1500

$S_I$  60

GROWING SEASON SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	31	1	14	.1	39	11	1	0				
		2	126	2.7	45	21	34	18				
		3	345	16.9	48	27	245	159				
		4	399	34.8	51	30	583	402				
		5	166	22.6	53	32	386	279	350	256	315	229
		6	18	3.5	55	34	62	46	57	43	54	41
			1068	80.7		1311	904	407	299	369	270	283
												203

ARITH. MEAN DBH= 3.6 , QUADRATIC MEAN DBH= 3.7 , WEIBULL PARAMETERS A= .2 , B= 3.69 , C= 3.98  
 PERCENT SURVIVAL= 71.2 , MEAN CROWN RATIO= 50.1 , LAMBDA= .273  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

15	45	1	1	.0	16	11	0	0				
		2	14	.3	23	25	5	3				
		3	66	3.2	29	33	58	42				
		4	163	14.2	34	39	281	214				
		5	253	34.5	37	42	711	542	656	504	574	439
			6	249	48.9	41	44	1071	840	1004	793	955
			7	142	37.9	44	46	877	702	829	668	806
			8	41	14.3	47	48	347	282	330	269	325
			9	5	2.2	49	49	55	45	52	43	51
												42
				934	155.6		3405	2670	2871	2277	2712	2149
												2263
												1777

ARITH. MEAN DBH= 5.4 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A= .7 , B= 5.16 , C= 3.96  
 PERCENT SURVIVAL= 62.3 , MEAN CROWN RATIO= 38.7 , LAMBDA= .622  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

20	53	2	4	.1	15	25	1	1				
		3	25	1.2	20	35	23	17				
		4	71	6.2	25	41	127	97				
		5	133	18.1	28	46	405	318	377	298	329	259
		6	182	35.7	32	49	848	678	802	643	760	610
			7	180	48.1	35	52	1218	986	1161	944	1128
			8	125	43.6	38	54	1164	951	1112	913	1093
			9	57	25.2	41	55	690	569	661	548	654
			10	16	8.7	43	56	245	204	235	196	233
			11	2	1.3	45	57	38	32	36	31	36
							4759	3853	4384	3573	4233	3452
				795	188.3							3798
												3087

ARITH. MEAN DBH= 6.4 , QUADRATIC MEAN DBH= 6.6 , WEIBULL PARAMETERS A= 1.0 , B= 5.94 , C= 3.73  
 PERCENT SURVIVAL= 53.0 , MEAN CROWN RATIO= 33.1 , LAMBDA= .750  
 CORRESPONDING SITE INDEX FOR BASE AGE 50= 88

**YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —**

$T_p$  1500

$S_I$  60

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
25	60	2	2	.0	11	24	1	0										
		3	12	.6	16	35	11	8										
		4	35	3.1	19	43	64	49										
		5	71	9.7	23	48	223	176	208	165	181	143	102	75				
		6	110	21.6	26	52	537	430	508	409	481	388	390	311				
		7	133	35.5	29	55	941	764	898	732	872	712	807	659				
		8	129	45.0	32	58	1270	1044	1219	1004	1200	990	1149	948				
		9	95	42.0	34	60	1243	1032	1198	996	1184	986	1156	963				
		10	52	28.4	37	61	855	714	823	690	817	685	802	673				
		11	20	13.2	39	63	412	347	397	335	395	334	390	329				
		12	5	3.9	41	64	125	106	121	102	120	102	119	101				
		13	1	.9	43	65	30	25	29	25	29	24	29	24				
				665	203.9		5712	4695	5401	4458	5279	4364	4944	4083				
ARITH. MEAN DBH= 7.3 , QUADRATIC MEAN DBH= 7.5 , WEIBULL PARAMETERS A= 1.3 , B= 6.61 , C= 3.56																		
PERCENT SURVIVAL= 44.3 , MEAN CROWN RATIO= 29.6 , LAMBDA= .826																		
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																		
30	66	2	1	.0	9	23	0	0										
		3	6	.3	13	35	5	4										
		4	19	1.7	16	44	35	27										
		5	40	5.5	19	51	131	104	123	98	107	85	57	42				
		6	65	12.8	22	55	331	267	314	254	297	240	240	192				
		7	88	23.5	25	59	658	537	630	516	611	501	559	457				
		8	98	34.2	27	62	1019	840	980	810	965	798	923	764				
		9	91	40.2	30	64	1258	1047	1214	1012	1200	1002	1171	978				
		10	69	37.6	32	66	1236	1038	1196	1006	1187	999	1166	982				
		11	41	27.1	34	68	932	790	904	768	899	763	889	755				
		12	19	14.9	36	69	507	430	491	417	488	415	484	412				
		13	7	6.5	39	70	223	190	216	184	215	184	213	182				
		14	2	2.1	40	72	76	65	74	63	73	63	73	63				
				546	206.3		6411	5339	6142	5128	6042	5050	5775	4827				
ARITH. MEAN DBH= 8.1 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.5 , B= 7.25 , C= 3.43																		
PERCENT SURVIVAL= 36.4 , MEAN CROWN RATIO= 27.4 , LAMBDA= .873																		
CORRESPONDING SITE INDEX FOR BASE AGE 50= 88																		

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							0.B.	1.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF -- 2 INCHES	3 INCHES	4 INCHES	
							0.B.	1.B.	0.B.	1.B.	0.B.	1.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft			ft <sup>3</sup>			
10	37	2	2	.0	62	23	1	0				
		3	11	.5	63	29	9	6				
		4	35	3.1	63	32	54	37				
		5	71	9.7	64	35	177	128	161	118	144	105
		6	99	19.4	64	37	365	273	337	255	320	241
		7	83	22.2	64	38	422	323	392	303	381	294
		8	37	12.9	65	39	251	195	234	184	229	180
		9	7	3.1	65	40	61	48	58	46	57	45
											55	44
				345	70.9		1340	1010	1182	906	1131	865
											1008	768
ARITH. MEAN DBH= 6.0 , QUADRATIC MEAN DBH= 6.1 , WEIBULL PARAMETERS A= .6 , B= 5.93 , C= 4.60												
PERCENT SURVIVAL= 86.2 , MEAN CROWN RATIO= 64.1 , LAMBDA= .045												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												
15	53	3	2	.1	39	36	2	1				
		4	9	.8	42	42	16	11				
		5	23	3.1	46	46	69	53	64	49	56	43
		6	44	8.6	48	49	206	162	193	154	184	146
		7	67	17.9	50	51	449	361	426	345	414	335
		8	75	26.2	52	53	651	513	616	489	603	479
		9	61	26.9	54	54	683	546	649	523	639	515
		10	32	17.5	56	55	453	366	431	351	427	347
		11	10	6.6	57	56	176	143	168	138	166	137
		12	2	1.6	58	57	43	35	41	34	41	34
				325	109.3		2748	2191	2588	2083	2530	2036
											2383	1912
ARITH. MEAN DBH= 7.7 , QUADRATIC MEAN DBH= 7.8 , WEIBULL PARAMETERS A= 1.0 , B= 7.28 , C= 4.56												
PERCENT SURVIVAL= 81.3 , MEAN CROWN RATIO= 51.6 , LAMBDA= .419												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												
20	62	3	1	.0	28	37	1	1				
		4	4	.3	32	45	8	6				
		5	12	1.6	36	50	38	30	35	28	31	24
		6	25	4.9	39	54	126	100	119	95	113	90
		7	41	11.0	41	57	301	244	286	233	278	226
		8	56	19.5	44	59	561	461	537	443	528	436
		9	60	26.5	46	61	792	657	762	634	753	627
		10	50	27.3	48	63	846	707	815	684	808	678
		11	30	19.8	50	64	627	527	605	511	601	508
		12	13	10.2	52	65	313	259	301	250	299	249
		13	3	2.8	53	66	87	73	84	70	83	69
		14	1	1.1	55	67	35	29	33	28	33	28
				296	125.1		3735	3094	3577	2976	3527	2936
											3405	2832
ARITH. MEAN DBH= 8.6 , QUADRATIC MEAN DBH= 8.8 , WEIBULL PARAMETERS A= 1.3 , B= 7.97 , C= 4.32												
PERCENT SURVIVAL= 74.0 , MEAN CROWN RATIO= 45.0 , LAMBDA= .570												
CORRESPONDING SITE INDEX FOR BASE AGE 50=102												

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  400

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME											
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES			
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>											
25	70	3	1	.0	22	38	1	1										
		4	3	.3	26	47	6	5										
		5	7	1.0	29	53	24	19	22	18	19	15	10	8				
		6	15	2.9	32	58	80	64	76	61	71	58	58	46				
		7	26	6.9	35	62	202	166	194	159	188	155	172	141				
		8	38	13.3	38	65	413	341	397	329	390	323	373	309				
		9	46	20.3	40	67	658	548	634	530	627	524	609	509				
		10	47	25.6	42	69	860	722	831	700	824	694	809	681				
		11	39	25.7	44	71	892	753	863	732	858	727	847	718				
		12	25	19.6	46	72	693	588	671	572	668	569	662	564				
		13	12	11.1	48	74	401	342	389	333	388	332	365	330				
		14	4	4.3	49	75	157	135	153	131	152	131	152	130				
		15	1	1.2	51	76	45	38	44	37	44	37	43	37				
		264		132.3			4432	3722	4274	3602	4229	3565	4120	3473				

ARITH. MEAN DBH= 9.3 . QUADRATIC MEAN DBH= 9.6 . WEIBULL PARAMETERS A= 1.6 , B= 8.54 , C= 4.13  
 PERCENT SURVIVAL= 66.0 , MEAN CROWN RATIO= 40.6 , LAMBDA= .667  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	4	1	.1	21	48	2	2											
		5	4	.5	25	56	14	11	13	11	11	9	6	4					
		6	10	2.0	28	61	55	45	52	43	50	40	38	31					
		7	17	4.5	30	66	139	114	134	110	130	107	118	97					
		8	26	9.1	33	69	296	245	285	237	281	233	268	223					
		9	33	14.6	35	72	504	422	488	409	483	405	471	395					
		10	38	20.7	38	75	748	630	724	612	718	607	705	595					
		11	36	23.8	40	77	885	749	858	729	853	725	842	715					
		12	29	22.8	42	79	873	743	848	724	843	720	835	714					
		13	19	17.5	44	80	681	583	662	568	660	566	655	562					
		14	10	10.7	45	81	422	362	410	353	409	352	407	350					
		15	4	4.9	47	82	196	169	191	165	191	165	190	164					
		16	1	1.4	49	83	56	49	55	48	55	48	55	47					
		228		132.6			4871	4124	4720	4009	4684	3977	4590	3897					

ARITH. MEAN DBH= 10.1 , QUADRATIC MEAN DBH= 10.3 . WEIBULL PARAMETERS A= 1.8 , B= 9.10 , C= 3.99  
 PERCENT SURVIVAL= 57.0 , MEAN CROWN RATIO= 37.7 , LAMBDA= .732  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_i$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME			
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --	2 INCHES	3 INCHES	4 INCHES
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	37	2	5	.1	53	24	2	1				
		3	28	1.4	56	30	24	16				
		4	79	6.9	57	33	124	86				
		5	138	18.8	59	35	344	249	313	229	280	205
		6	145	28.5	60	37	534	400	493	373	468	354
		7	77	20.6	61	38	391	299	364	281	353	273
		8	17	5.9	61	39	115	90	108	84	105	83
		9	1	.4	62	40	9	7	8	7	8	6
			490	82.6			1543	1148	1286	974	1214	921

ARITH. MEAN DBH= 5.4 , QUADRATIC MEAN DBH= 5.5 , WEIBULL PARAMETERS A= .5 , B= 5.40 , C= 4.52  
 PERCENT SURVIVAL= 81.7 , MEAN CROWN RATIO= 59.0 , LAMBDA= .164  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

15	53	2	1	.0	28	28	0	0				
		3	5	.2	33	38	5	4				
		4	19	1.7	37	43	33	24				
		5	46	6.3	41	47	140	108	130	101	113	87
		6	82	16.1	44	50	389	308	366	292	347	277
		7	108	28.9	47	52	735	593	698	566	678	550
		8	101	35.3	49	54	940	769	898	738	883	725
		9	61	26.9	51	55	694	555	660	531	650	523
		10	22	12.0	53	56	316	256	301	245	298	243
		11	4	2.6	55	57	71	58	68	56	68	56
			449	130.0			3323	2675	3121	2529	3037	2461

ARITH. MEAN DBH= 7.1 , QUADRATIC MEAN DBH= 7.3 , WEIBULL PARAMETERS A= .9 , B= 6.80 , C= 4.49  
 PERCENT SURVIVAL= 74.8 , MEAN CROWN RATIO= 46.9 , LAMBDA= .529  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	3	2	.1	24	39	2	1				
		4	9	.8	28	46	17	13				
		5	23	3.1	32	52	77	61	72	57	62	49
		6	44	8.6	35	55	224	180	212	172	201	163
		7	68	18.2	38	58	506	410	482	393	468	381
		8	84	29.3	41	60	853	701	818	675	804	664
		9	79	34.9	43	62	1058	878	1017	848	1006	839
		10	54	29.5	45	64	926	775	892	750	885	743
		11	26	17.2	47	65	550	463	531	449	528	446
		12	8	6.3	49	66	263	174	198	169	197	168
		13	1	.9	51	67	29	25	28	24	28	24
			398	148.9			4447	3681	4250	3537	4179	3477

ARITH. MEAN DBH= 8.1 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.2 , B= 7.52 , C= 4.25  
 PERCENT SURVIVAL= 66.3 , MEAN CROWN RATIO= 40.7 , LAMBDA= .670  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  600

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	2 INCHES O.B.	I.B.	3 INCHES O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
25	70	3	1	.0	18	39	1	1				
		4	5	.4	22	49	10	8				
		5	13	1.8	26	55	45	36	42	34	37	29
		6	26	5.1	29	60	142	115	135	109	127	104
		7	42	11.2	32	63	331	271	318	261	308	253
		8	58	20.2	34	66	635	525	612	507	602	500
		9	65	28.7	37	68	942	785	908	760	898	751
		10	59	32.2	39	70	1093	918	1057	890	1048	883
		11	42	27.7	42	72	973	822	942	798	936	794
		12	23	18.1	44	73	645	548	625	533	622	530
		13	9	8.3	46	74	301	257	292	250	291	249
		14	2	2.1	48	76	80	68	77	66	77	66
				345	155.9		5198	4354	5008	4208	4946	4159
											4782	4020

ARITH. MEAN DBH= 8.9 , QUADRATIC MEAN DBH= 9.1 , WEIBULL PARAMETERS A= 1.5 , B= 8.14 , C= 4.07  
 PERCENT SURVIVAL= 57.5 , MEAN CROWN RATIO= 36.7 , LAMBDA= .758  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	1	.0	15	39	1	1				
		4	3	.3	18	49	6	5				
		5	7	1.0	22	57	25	20	23	19	20	16
		6	15	2.9	25	62	84	73	80	65	75	61
		7	26	6.9	28	67	216	177	207	171	201	166
		8	38	13.3	30	70	437	363	422	351	415	345
		9	47	20.8	33	73	727	608	704	590	696	584
		10	48	26.2	35	75	961	811	933	789	926	783
		11	44	29.0	37	77	1031	916	1049	891	1042	886
		12	32	25.1	39	79	963	820	935	799	931	795
		13	18	16.6	41	80	646	552	627	538	625	536
		14	8	8.6	43	81	337	290	328	283	327	282
		15	3	3.7	45	82	147	127	143	124	143	123
		16	1	1.4	47	83	56	49	55	48	55	47
				291	155.8		5687	4807	5506	4668	5456	4625
											5330	4519

ARITH. MEAN DBH= 9.6 , QUADRATIC MEAN DBH= 9.9 , WEIBULL PARAMETERS A= 1.7 , B= 8.74 , C= 3.93  
 PERCENT SURVIVAL= 48.5 , MEAN CROWN RATIO= 34.2 , LAMBDA= .814  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_F$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME-- 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	37		1	1	.0	42	13	0	0			
			2	12	.3	47	25	3	2			
			3	56	2.7	51	30	49	32			
			4	139	12.1	53	34	223	156			
			5	203	27.7	55	36	516	376	471	346	421
										308		311
											222	
			6	158	31.0	57	38	594	445	549	416	521
			7	53	14.2	58	39	275	211	256	198	248
			8	6	2.1	60	40	41	32	39	30	38
				---							30	36
				628	90.1		1701	1254	1315	990	1228	924
											1024	762

ARITH. MEAN DBH= 5.0 , QUADRATIC MEAN DBH= 5.1 , WEIBULL PARAMETERS A= .4 , B= 5.03 , C= 4.46  
 PERCENT SURVIVAL= 78.5 , MEAN CROWN RATIO= 55.4 , LAMBDA= .248  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

15	53	2	1	.0	24	29	0	0				
		3	10	.5	30	38	10	7				
		4	33	2.9	34	44	62	48				
		5	75	10.2	38	48	232	179	215	167	187	144
		6	123	24.2	41	50	584	462	549	437	521	415
		7	144	38.5	44	52	980	790	931	754	904	733
		8	112	39.1	47	54	1043	852	996	818	979	805
		9	52	23.0	50	55	629	519	603	500	597	495
		10	13	7.1	52	56	187	151	178	145	176	143
		11	1	.7	54	57	18	15	17	14	17	14
			---				3745	3023	3489	2835	3381	2749
				564	146.1						3090	2505

ARITH. MEAN DBH= 6.7 , QUADRATIC MEAN DBH= 6.9 , WEIBULL PARAMETERS A= .8 , B= 6.46 , C= 4.44  
 PERCENT SURVIVAL= 70.5 , MEAN CROWN RATIO= 43.6 , LAMBDA= .606  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	3	4	.2	21	40	4	3				
		4	15	1.3	25	47	29	23				
		5	36	4.9	29	52	120	95	112	89	97	77
		6	66	13.0	32	56	341	275	323	262	306	248
		7	96	25.7	36	58	714	579	680	555	660	538
		8	105	36.7	38	61	1082	889	1037	857	1019	842
		9	90	39.8	41	62	1205	1000	1159	966	1146	955
		10	53	28.9	44	64	909	760	876	736	868	730
		11	20	13.2	46	65	423	357	409	345	406	343
		12	5	3.9	48	66	128	109	124	105	123	115
		13	1	.9	50	67	31	26	30	25	30	25
			---				4986	4116	4750	3940	4655	3863
				491	168.4						4403	3651

ARITH. MEAN DBH= 7.7 , QUADRATIC MEAN DBH= 7.9 , WEIBULL PARAMETERS A= 1.2 , B= 7.21 , C= 4.20  
 PERCENT SURVIVAL= 61.4 , MEAN CROWN RATIO= 37.7 , LAMBDA= .741  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  800

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET. FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET. FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
25	70	3	2	.1	16	40	2	1								
		4	7	.6	20	49	14	11								
		5	19	2.6	23	55	66	53	62	49	54	43	28	21		
		6	37	7.3	27	60	202	163	192	156	181	147	140	112		
		7	58	15.5	30	64	463	380	445	365	431	355	393	323		
		8	76	26.5	32	66	833	689	802	665	789	655	755	627		
		9	81	35.8	35	69	1194	997	1154	966	1141	955	1113	933		
		10	67	36.5	38	70	1242	1042	1200	1011	1190	1003	1168	985		
		11	43	28.4	40	72	995	841	964	817	958	813	946	802		
		12	20	15.7	42	73	561	476	544	463	541	461	536	457		
		13	6	5.5	44	75	203	173	197	169	196	168	195	167		
		14	1	1.1	46	76	40	34	39	33	39	33	38	33		
				417		175.6	5816	4860	5599	4694	5520	4633	5312	4460		

ARITH. MEAN DBH= 8.6 , QUADRATIC MEAN DBH= 8.8 , WEIBULL PARAMETERS A= 1.4 , B= 7.86 , C= 4.02  
 PERCENT SURVIVAL= 52.1 , MEAN CROWN RATIO= 33.9 , LAMBDA= .822  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	1	.0	13	40	1	1	Ft <sup>3</sup>									
									ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET. FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
		4	4	.3	17	50	8	6										
		5	10	1.4	20	58	36	29	34	27	29	23	15	11				
		6	21	4.1	23	63	119	97	113	92	107	87	83	66				
		7	35	9.4	26	68	294	242	282	233	274	226	249	206				
		8	49	17.1	28	71	571	474	551	458	542	451	518	431				
		9	58	25.6	31	74	908	760	879	738	869	730	848	712				
		10	59	32.2	33	76	1195	1009	1161	982	1152	974	1133	959				
		11	49	32.3	36	78	1218	1032	1182	1004	1174	998	1159	985				
		12	33	25.9	38	80	1004	856	976	834	971	830	962	822				
		13	17	15.7	40	81	617	528	599	514	597	512	593	509				
		14	7	7.5	42	82	299	256	290	250	290	249	288	248				
		15	2	2.5	44	83	99	85	97	83	96	83	96	83				
				345		174.0	6369	5375	6164	5215	610	5163	5944	5032				

ARITH. MEAN DBH= 9.4 , QUADRATIC MEAN DBH= 9.6 , WEIBULL PARAMETERS A= 1.7 , B= 8.48 , C= 3.89  
 PERCENT SURVIVAL= 43.1 , MEAN CROWN RATIO= 31.7 , LAMBDA= .872  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_i$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --			
							O.B.	I.B.	2 INCHES O.B. I.B.	3 INCHES O.B. I.B.	4 INCHES O.B. I.B.	

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>					
10	37	1	1	.0	37	13	0	0				
		2	22	.5	44	25	6	3				
		3	93	4.6	48	30	70	46				
		4	210	18.3	51	34	338	235				
		5	256	34.9	53	36	651	474	594	436	531	388
		6	147	28.9	55	38	553	414	511	387	485	367
		7	31	8.3	57	39	161	123	150	116	145	112
		8	2	.7	59	40	14	11	13	10	13	10
				762	96.1		1793	1306	1268	949	1174	877

ARITH. MEAN DBH= 4.7 , QUADRATIC MEAN DBH= 4.8 , WEIBULL PARAMETERS A= .3 , B= 4.75 , C= 4.42  
 PERCENT SURVIVAL= 76.2 MEAN CROWN RATIO= 52.6 , LAMBDA= .313  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

15	53	2	2	.0	22	30	1	1				
		3	15	.7	27	39	15	11				
		4	50	4.4	32	45	95	73				
		5	108	14.7	36	48	335	258	310	240	270	208
		6	165	32.4	40	51	795	630	749	597	710	566
		7	173	46.2	43	53	1195	965	1136	922	1103	895
		8	113	39.4	46	55	1068	874	1021	839	1004	825
		9	41	18.1	48	56	504	416	483	401	478	396
		10	7	3.8	51	57	102	83	97	79	96	79
					674	159.9						
							4110	3311	3796	3078	3661	2969

ARITH. MEAN DBH= 6.4 , QUADRATIC MEAN DBH= 6.6 , WEIBULL PARAMETERS A= .6 , B= 6.19 , C= 4.40  
 PERCENT SURVIVAL= 67.4 , MEAN CROWN RATIO= 41.0 , LAMBDA= .656  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	2	1	.0	14	29	0	0				
		3	6	.3	19	40	6	4				
		4	21	1.8	23	48	42	32				
		5	50	6.8	27	53	169	134	158	126	137	109
		6	89	17.5	31	57	466	376	442	358	418	339
		7	122	32.6	34	59	913	745	874	715	848	694
		8	128	44.7	37	62	1337	1100	1282	1060	1260	1042
		9	95	42.0	40	63	1289	1071	1240	1034	1227	1023
		10	48	26.2	42	65	934	698	804	676	797	670
		11	15	9.9	45	66	322	271	311	263	319	261
		12	3	2.4	47	67	78	66	75	64	75	61
					578	184.1						
							5456	4497	5186	4296	5071	4202

ARITH. MEAN DBH= 7.4 , QUADRATIC MEAN DBH= 7.6 , WEIBULL PARAMETERS A= 1.1 , B= 6.97 , C= 4.16  
 PERCENT SURVIVAL= 57.8 , MEAN CROWN RATIO= 35.3 , LAMBDA= .796  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1000

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME							
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF -- 2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>							
25	70	3	3	.1	15	40	3	2						
		4	10	.9	18	49	20	16						
		5	26	3.5	22	56	91	73	86	69	74	59	39	29
		6	49	9.6	25	60	267	216	254	206	240	195	186	149
		7	75	20.0	28	64	599	491	575	472	557	459	508	418
		8	92	32.1	31	66	1008	834	971	805	956	793	914	759
		9	92	40.6	34	69	1356	1132	1311	1097	1296	1085	1264	1059
		10	72	39.3	36	71	1351	1135	1306	1101	1296	1092	1271	1072
		11	42	27.7	39	72	973	822	942	798	936	794	924	784
		12	17	13.4	41	73	477	405	462	394	460	392	456	388
		13	5	4.6	43	75	169	144	164	141	164	140	162	139
		14	1	1.1	45	76	40	34	39	33	39	33	38	33
							6354	5304	6110	5116	6018	5042	5762	4830

ARITH. MEAN DBH= 8.3 , QUADRATIC MEAN DBH= 8.5 , WEIBULL PARAMETERS A= 1.4 , B= 7.64 , C= 3.99  
 PERCENT SURVIVAL= 48.4 , MEAN CROWN RATIO= 31.8 , LAMBDA= .872  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	1	.0	12	41	1	1						
		4	5	.4	15	51	10	8						
		5	14	1.9	18	58	51	40	47	38	41	33	22	16
		6	27	5.3	21	64	155	126	147	120	139	114	107	86
		7	44	11.8	24	68	369	304	355	293	344	284	313	259
		8	60	20.9	27	71	699	580	675	561	664	552	634	528
		9	69	30.5	29	74	1080	904	1046	878	1034	868	1008	847
		10	66	36.0	32	76	1337	1129	1298	1098	1288	1090	1267	1073
		11	52	34.3	34	78	1336	1137	1300	1108	1293	1103	1278	1090
		12	33	25.9	36	80	1004	856	976	834	971	830	962	822
		13	16	14.7	39	81	580	496	564	484	562	482	558	479
		14	6	6.4	41	82	256	220	249	214	248	214	247	213
		15	1	1.2	43	83	50	43	48	42	48	42	48	41
							6928	5844	6705	5670	6632	5612	6444	5454

ARITH. MEAN DBH= 9.1 , QUADRATIC MEAN DBH= 9.4 , WEIBULL PARAMETERS A= 1.6 , B= 8.28 , C= 3.86  
 PERCENT SURVIVAL= 39.4 , MEAN CROWN RATIO= 29.8 , LAMBDA= .917  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN T<sub>P</sub> WITH IDEAL SURVIVAL —

T<sub>P</sub> 1200

S<sub>I</sub> 70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME--							
							O.B.	I.B.	5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
									O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.

Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft					Ft <sup>3</sup>			
10	37		1 3 2 35 3 141 4 286 5 292	.0 .8 6.9 25.0 39.8	33 41 46 49 52	13 25 31 34 37	0 10 108 430 759	0 5 71 309 553	692 510 421 318 1841	619 453 399 302 1340	455 326 343 257 893	343 257 66 51 810	455 326 66 51 864	326 257 51 634
			6 121 7 15	23.8 4.0	54 56	38 40	455 79	341 61	421 74 57	318 72 55	399 72 55	302 55 810	343 257 66 51 864	326 257 51 634
			----- 893	100.2			1841	1340	1187 885	885	1090	810	864	634

ARITH. MEAN DBH= 4.4 , QUADRATIC MEAN DBH= 4.5 , WEIBULL PARAMETERS A= .3 , B= 4.51 , C= 4.38  
 PERCENT SURVIVAL= 74.4 , MEAN CROWN RATIO= 50.3 , LAMBDA= .366  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

15	53	2 4 3 23 4 71 5 145 6 205	.1 1.1 6.2 19.8 40.3	20 25 30 35 38	29 39 44 48 51	2 22 133 455 988	1 17 102 359 783	370 292 337 425 742	370 292 370 337 882	209 154 209 154 703	209 154 902 741 574	1135 918 902 741 574		
		7 192 8 106 9 30 10 4	51.3 37.0 13.3 2.2	42 45 48 50	53 55 56 57	1327 1002 368 62	1071 820 304 52	1261 958 353 60	1023 787 293 50	1225 942 350 59	994 774 290 49	1135 918 340 49	1135 918	
		----- 780	171.2			4359	3509	3987	3232	3828	3102	3374	2718	3374 2718

ARITH. MEAN DBH= 6.2 , QUADRATIC MEAN DBH= 6.3 , WEIBULL PARAMETERS A= .7 , B= 5.98 , C= 4.36  
 PERCENT SURVIVAL= 65.0 , MEAN CROWN-RATIO= 38.9 , LAMBDA= .715  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

20	62	2 1 3 8 4 29 5 66 6 113	.0 .4 2.5 9.0 22.2	13 18 22 26 29	29 40 48 53 57	0 8 57 177 592	0 6 45 208 477	181 167 561 455	181 144 531 431	96 71 428 343	96 71 428 343	939 769 1347 1113	769 502 1217 1014	
		7 148 8 143 9 97 10 43 11 11 12 2	39.6 49.9 42.9 23.5 7.3 1.6	33 36 39 41 44 46	59 62 63 65 66 67	1107 1493 1316 747 236 52	903 1229 1093 626 199 44	1060 133 1267 721 228 50	867 1184 1056 606 193 43	1028 1408 1253 714 277 50	842 1164 1045 600 192 43	939 1164 1045 600 192 50	939 769 1347 1113 102 424 50 42	
		----- 661	198.7			5831	4799	5528	4571	5392	4461	5003	4131	5003 4131

ARITH. MEAN DBH= 7.2 , QUADRATIC MEAN DBH= 7.4 , WEIBULL PARAMETERS A= 1.1 , B= 6.77 , C= 4.13  
 PERCENT SURVIVAL= 55.1 , MEAN CROWN RATIO= 33.4 , LAMBDA= .841  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1200

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	CUBIC FOOT VOLUME									
							ALL TREES GROUND TO TIP		5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR O.B. TOPS OF --		2 INCHES		3 INCHES		4 INCHES	
O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft	Ft <sup>3</sup>									
25	70	3	4	.2	13	41	4	3								
		4	14	1.2	17	49	28	22								
		5	33	4.5	21	56	116	93	109	87	94	75	50	37		
		6	61	12.0	24	60	332	269	316	257	298	243	231	185		
		7	91	24.3	27	64	727	596	697	573	676	557	617	507		
		8	105	36.7	30	66	1150	951	1108	919	1091	905	1043	866		
		9	103	45.5	32	69	1518	1267	1468	1228	1451	1215	1416	1186		
		10	75	40.9	35	71	1431	1205	1387	1171	1377	1162	1353	1143		
		11	40	26.4	38	72	926	783	897	760	891	756	880	746		
		12	15	11.8	40	73	421	357	408	347	406	346	402	343		
		13	4	3.7	42	75	135	116	131	112	131	112	130	111		
		14	1	1.1	44	76	40	34	39	33	39	33	38	33		
		---	---	546	208.2		6828	5696	6560	5487	6454	5404	6160	5157		

ARITH. MEAN DBH= 8.1 , QUADRATIC MEAN DBH= 8.3 , WEIBULL PARAMETERS A= 1.4 , B= 7.46 , C= 3.96  
 PERCENT SURVIVAL= 45.5 , MEAN CROWN RATIO= 30.0 , LAMBDA= .913  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	2	.1	11	41	2	2								
		4	7	.6	14	51	14	11								
		5	17	2.3	17	58	61	49	57	46	50	40	26	19		
		6	33	6.5	20	64	189	154	180	147	170	139	131	106		
		7	53	14.2	23	68	445	366	428	352	414	342	378	311		
		8	70	24.4	26	71	816	677	787	655	774	644	740	616		
		9	77	34.0	28	74	1205	1009	1167	979	1154	969	1125	945		
		10	73	39.8	31	76	1479	1248	1436	1214	1425	1206	1401	1186		
		11	55	36.3	33	78	1413	1203	1375	1172	1367	1166	1351	1153		
		12	32	25.1	35	80	1024	879	998	858	994	855	987	849		
		13	14	12.9	38	81	508	434	494	424	492	422	488	419		
		14	5	5.3	40	82	213	183	207	179	207	178	206	177		
		15	1	1.2	42	83	50	43	48	42	48	42	48	41		
		---	---	439	202.8		7419	6258	7177	6068	7095	6003	6881	5822		

ARITH. MEAN DBH= 9.0 , QUADRATIC MEAN DBH= 9.2 , WEIBULL PARAMETERS A= 1.6 , B= 8.12 , C= 3.84  
 PERCENT SURVIVAL= 36.6 , MEAN CROWN RATIO= 28.2 , LAMBDA= .953  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

**YIELDS GIVEN  $T_p$  WITH IDEAL SURVIVAL —**

$T_p$  1500

$S_i$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP		--CUBIC FOOT VOLUME-- 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF -- 2 INCHES				4 INCHES			
							O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.	O.B.	I.B.
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft										Ft <sup>3</sup>
10	37	1	6	.0	30	12	0	0								
		2	65	1.4	38	24	18	10								
		3	232	11.4	43	30	174	114								
		4	399	34.8	47	34	601	431								
		5	301	41.0	51	36	766	557	698	513	625	457	461	330		
		6	76	14.9	53	38	286	214	264	200	251	190	216	162		
		7	4	1.1	56	40	21	16	20	15	19	15	18	14		
		---	---	---	---	---	---	---	---	---	---	---	---	---		
		1083	104.7			1866	1342	982	728	895	662	695	506			
ARITH. MEAN DBH= 4.1 , QUADRATIC MEAN DBH= 4.2 , WEIBULL PARAMETERS A= .2 , B= 4.22 , C= 4.34 PERCENT SURVIVAL= 72.2 , MEAN CROWN RATIO= 47.5 , LAMBDA= .431 CORRESPONDING SITE INDEX FOR BASE AGE 50=102																
15	53	2	6	.1	18	29	2	2								
		3	36	1.8	23	38	35	26								
		4	107	9.3	28	44	200	154								
		5	205	28.0	33	48	643	507	600	476	523	413	296	218		
		6	263	51.6	37	51	1267	1004	1194	951	1132	902	936	737		
		7	207	55.3	40	53	1430	1154	1360	1103	1320	1071	1223	990		
		8	89	31.1	44	55	841	688	804	661	791	650	757	622		
		9	18	8.0	47	56	221	183	212	176	210	174	204	169		
		10	1	.5	49	57	16	13	15	12	15	12	15	12		
		---	---	---	---	---	4655	3731	4185	3379	3991	3222	3431	2748		
ARITH. MEAN DBH= 5.9 , QUADRATIC MEAN DBH= 6.0 , WEIBULL PARAMETERS A= .7 , B= 5.71 , C= 4.32 PERCENT SURVIVAL= 62.1 , MEAN CROWN RATIO= 36.3 , LAMBDA= .776 CORRESPONDING SITE INDEX FOR BASE AGE 50=102																
20	62	2	2	.0	11	28	1	1								
		3	13	.6	16	40	13	10								
		4	42	3.7	20	48	83	65								
		5	92	12.5	24	53	310	247	290	232	252	201	134	99		
		6	150	29.5	28	56	775	624	735	595	695	563	561	449		
		7	184	49.2	31	59	1376	1123	1317	1078	1278	1047	1168	956		
		8	159	55.5	34	61	1631	1344	1568	1295	1544	1276	1477	1222		
		9	94	41.5	37	63	1276	1060	1227	1023	1214	1013	1179	983		
		10	34	18.5	40	65	591	495	570	479	565	475	555	466		
		11	7	4.6	43	66	150	127	145	123	144	122	142	120		
		12	1	.8	45	67	26	22	25	21	25	21	25	21		
		---	---	---	---	---	6232	5118	5871	4846	5717	4718	5241	4316		
ARITH. MEAN DBH= 7.0 , QUADRATIC MEAN DBH= 7.1 , WEIBULL PARAMETERS A= 1.0 , B= 6.53 , C= 4.10 PERCENT SURVIVAL= 51.9 , MEAN CROWN RATIO= 31.0 , LAMBDA= .896 CORRESPONDING SITE INDEX FOR BASE AGE 50=102																

# YIELDS GIVEN $T_p$ WITH IDEAL SURVIVAL —

$T_p$  1500

$S_I$  70

GROWING SEASONS SINCE EST.	AV. D+C HT.	DBH	STEMS PER ACRE	BASAL AREA	CR	AV. HT.	ALL TREES GROUND TO TIP				CUBIC FOOT VOLUME 5-INCH CLASS AND GREATER, STUMP HEIGHT .5 FEET, FOR 0.B. TOPS OF --			
							0.B.		1.B.		2 INCHES		3 INCHES	
							0.B.	1.B.	0.B.	1.B.	0.B.	1.B.	0.B.	1.B.
Ft <sup>3</sup>														
Yrs	Ft	In	No.	Ft <sup>2</sup>	Pct	Ft								
25	70	2	1	.0	8	28	0	0						
		3	5	.2	12	41	5	4						
		4	19	1.7	16	50	39	30						
		5	45	6.1	19	56	158	126	148	119	128	103	68	50
		6	80	15.7	22	61	442	358	420	342	397	323	307	246
		7	114	30.5	25	65	923	756	885	728	858	707	783	644
		8	130	45.4	28	67	1442	1194	1390	1153	1368	1136	1308	1086
		9	114	50.4	31	70	1701	1421	1645	1377	1626	1362	1587	1330
		10	76	41.5	34	71	1450	1222	1406	1186	1396	1178	1371	1158
		11	36	23.8	36	73	844	713	817	693	812	689	802	680
		12	11	8.6	39	74	312	265	303	258	301	257	298	254
		13	2	1.8	41	76	69	59	66	57	66	57	66	56
							7385	6148	7080	5913	6952	5812	6590	5504
				633	225.7									

ARITH. MEAN DBH= 7.9 , QUADRATIC MEAN DBH= 8.1 , WEIBULL PARAMETERS A= 1.3 , B= 7.24 , C= 3.93  
 PERCENT SURVIVAL= 42.2 , MEAN CROWN RATIO= 27.9 , LAMBDA= .963  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

30	77	3	2	.1	10	41	2	2						
		4	9	.8	13	51	19	15						
		5	22	3.0	16	58	79	64	74	60	64	52	34	25
		6	42	8.2	19	64	241	196	229	187	216	177	167	134
		7	66	17.6	22	68	554	455	532	439	516	426	470	388
		8	85	29.7	24	71	990	822	956	795	940	783	898	748
		9	52	40.6	27	74	1440	1205	1395	1170	1379	1157	1345	1129
		10	80	43.6	29	76	1621	1368	1574	1331	1562	1321	1536	1300
		11	56	37.0	32	78	1438	1224	1400	1193	1392	1188	1376	1174
		12	31	24.3	34	80	992	852	967	832	963	828	956	822
		13	12	11.1	36	81	435	372	423	363	422	362	418	359
		14	4	4.3	39	82	171	147	166	143	166	143	165	142
		15	1	1.2	41	83	50	43	48	42	48	42	48	41
				502	221.6		8032	6765	7764	6555	7668	6479	7413	6262

ARITH. MEAN DBH= 8.7 , QUADRATIC MEAN DBH= 9.0 , WEIBULL PARAMETERS A= 1.6 , B= 7.92 , C= 3.81  
 PERCENT SURVIVAL= 33.5 , MEAN CROWN RATIO= 26.3 , LAMBDA= .998  
 CORRESPONDING SITE INDEX FOR BASE AGE 50=102

Feduccia, D. P., T. R., Dell, W. F. Mann, Jr., T. E. Campbell, and B. H. Polmer.

1979. Yields of unthinned loblolly pine plantations on cutover sites in the West Gulf region, U.S. Dep. Agric. For. Serv. Res. Pap. SO-148, 88 p. South. For. Exp. Stn., New Orleans, La.

Detailed tables of trees per acre, basal area, average height, crown ratio, and cubic-foot volumes are presented by 1-inch diameter classes for several combinations of site index, plantation age, and (1) number of trees surviving, (2) number of trees planted and an ideal survival pattern, and (3) number of trees planted and a typical survival pattern.

**Additional keywords:** *Pinus taeda*, volume predictions, unthinned plantation yields, volume yields of loblolly pine, Weibull distribution, taper curves, crown ratio, survival prediction, problem-free sites.