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## Research Report No. 37, Site Index Equations for Loblolly and Slash Pine Plantations in East Texas, Update : 1995

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Site Index Equations  
for  
Loblolly and Slash Pine Plantations  
in  
East Texas

Update: 1995

by

Glen Dirksmeyer  
Kelly Scott  
Curtis VanderSchaaf  
Raymond Worthy

*(all of whom were FOR 317 students Spring '95)*

REPORT 37

From  
the

East Texas Pine Plantation Research Project  
College of Forestry  
SFASU  
Nacogdoches, TX 75962

April ... 1995



## SITUATION

Site index prediction equations for loblolly ( *Pinus taeda* L. ) and slash ( *Pinus elliottii* Engelm. ) pine plantations in East Texas have been previously developed and published by:

Lenhart, J. D., E. V. Hunt, Jr. and J. A. Blackard. 1986. Site index equations for loblolly and slash pine plantations on non-old-field in East Texas. South. J. Appl. For. 10(2):109-112.

Vaughn, A. B., J. Lapongan and J. D. Lenhart. 1993. Site index equations for loblolly and slash pine plantations in East Texas - Update: 1993. ETPPRP Report 27. College of Forestry. SFASU. 6 p.

Members FOR 317 Class Spring '94. 1994. Site index equations for loblolly and slash pine plantations in East Texas - Update: 1994. ETPPRP Report 29. College of Forestry. SFASU. 7 p.

Each published set of equations was developed from analyses of East Texas Pine Plantation Research Project (ETPPRP) data collected from the array of ETPPRP permanent research plots located throughout East Texas.

Since the ETPPRP plots are repeatedly measured on a 3-year cycle, the number of age-height pairs available for site index analysis is increasing:

The 1986 equations: 150 loblolly and 75 slash.  
 The 1993 equations: 608 loblolly and 264 slash.  
 The 1994 equations: 653 loblolly and 296 slash.

In this update, after combining the data from the two subplots comprising each ETPPRP plot, the number of age-height pairs available for this analysis is 1,428 loblolly and 630 slash.

It is anticipated that the equations in this 1995 update may quantify the productivity of East Texas loblolly and slash pine plantations in a more accurate and reliable manner than the three previous sets of equations.

## PLANTATION MEASUREMENTS

Each ETPPRP plot consists of two subplots separated by a 60' buffer zone. An experimental design of this manner provides the opportunity to:

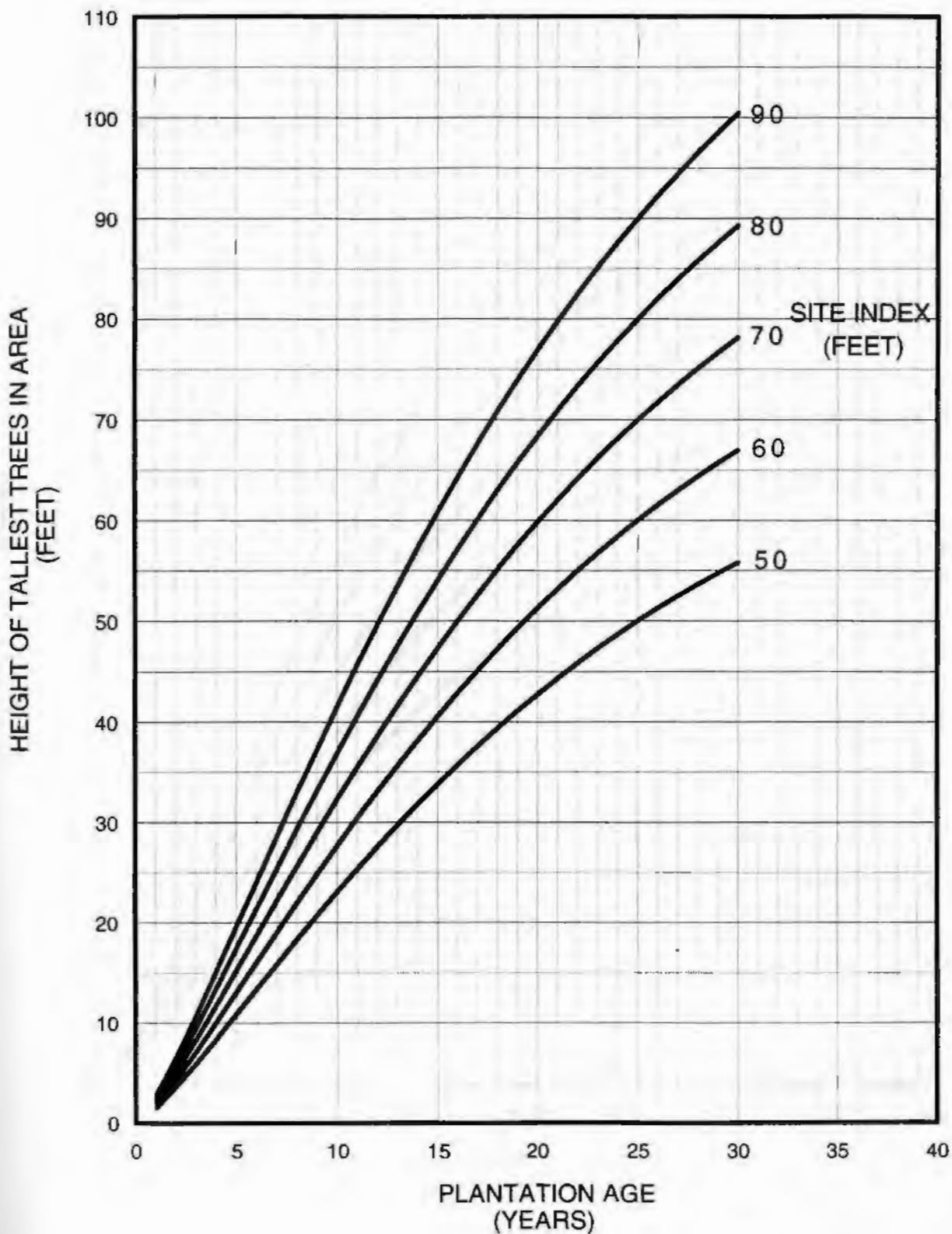
- Evaluate models in an independent manner.
- Explore effects of different treatments.
- Investigate regression models.

In this site index analysis, by combining the subplots, a larger data set for non-linear regression was obtained.

The characteristics of the 1,428 loblolly pine and 630 slash pine observations at least one year old and one foot in height that were utilized in this study can be summarized as:

Plantation Age	Plantation Height	Site Index
Number of Years Since Planting	Average total height in feet of tallest trees in an area of interest	Expected total height in feet of tallest trees in an area of interest at 25 years
(A)	(H)	(S)
LOBLOLLY...	LOBLOLLY...	LOBLOLLY...
Mean = 10.3 yrs. Range = 1- 27 yrs	Mean = 34.4 ft. Range = 2 - 100 ft.	Mean = 69.4 ft. Range = 24 - 238 ft.
SLASH...	SLASH...	SLASH...
Mean = 9.9 yrs. Range = 1- 24 yrs.	Mean = 33.3 ft. Range = 2 - 89 ft.	Mean = 75.2 ft. Range = 15 - 132 ft.

**SITE INDEX CURVES  
FOR SLASH PINE PLANTATIONS IN EAST TEXAS  
BASE AGE 25 YEARS**



# SITE INDEX CURVES FOR LOBLOLLY PINE PLANTATIONS IN EAST TEXAS BASE AGE 25 YEARS

