

Growth and yield programs: Cutover Loblolly GYM, CSlash, and NLongleaf

I. Starting the Growth and Yield Programs (Cutover Loblolly GYM, CSlash, and NLongleaf)

The growth and yield systems allow projection of volume and weights into the future, comparison of management alternatives, and economic analysis. The currently available programs are for cut-over site prepared plantation loblolly pine (Cutover Loblolly GYM), cut-over site prepared plantation slash pine (CSlash), and natural thinned longleaf pine (NLongleaf). After starting one of the programs, an empty window will appear with a title and menu bar. Common defaults have been entered throughout the program. Change any default that is different from your circumstances.

Initial Stand menu:

Start by clicking the "Initial Stand" menu. This information is for the current condition of a stand of trees. Age, SI, and TPA are required; all other inputs are optional.

SI = site index

TPA = trees per acre

%HWba = % hardwood basal area per acre

Basal area = Cross-sectional area of stems at 4.5' above ground per acre

Quadratic DBH = Diameter of tree of mean basal area

Manage menu:

Next click on each default management/report line that is displayed in the drop down menu. A "Define Management Regime" dialog box will appear. You may choose a management practice (thinning) and age from the "Management Operation Selection" box or simply request a report for an age with no management practice. If a management practice is selected, choose to "Set Level" and "Set Prices" that are appropriate to the thinning operation. You may also disable/ignore the every 5 year preset (default) reports. **The program requires the management ages selected on the menu to be in ascending order.** Defining the management/report periods in ascending order may require considerable patience. Future program versions will relax the age sequence restriction.

A default harvest age has been entered. Change harvest age and prices by clicking "Harvest @ Age".

MerSpecs menu:

Merchandizing specifications can be set in the MerSpecs menu. Start by selecting "Product" and check each product for which you would like a report. Default specifications for each product can be changed.

Econ menu:

A financial analysis can be performed based on harvest and thinning revenues and establishment and management costs. This analysis can be used to compare the revenues from different management regimes. There are default values for interest rate, "External % i", and "Establishment Cost". Change these defaults to fit your circumstances and enter any other information that applies.

Output menu:

Use the "Output" menu to change the number of reports and page format.

Define menu:

The "Define" menu contains an "Advanced Settings" option that can be used to change survival and site index functions.

II. Running the Growth and Yield Systems

After making all needed selections, click the "Run GYP" button to generate reports.

III. Growth and Yield Reports - general information

- 1) Press **PgDn** key to view next page of printout on screen
- 2) Click on **File** and **Print** to print results

IV. Growth and Yield Reports - types

Depending on previous selections, five types of tables will be produced for each age selected for reporting/management:

- 1) Current stands or harvest merchantable stand/stock table
- 2) Current stands or harvest merchantable pulpwood chip table
- 3) Current stands or harvest product stand/stock table
- 4) Economic values adjusted to age zero dollars
- 5) Current or harvest biomass and carbon table

V. Growth and Yield Reports - units and abbreviations

Units and abbreviations used in the growth and yield programs that are not listed above:

ba = basal area

dc = Dbh class

dbar = average Dbh for Dbh class

tpa = trees per acre

cf-ob = cubic foot merchantable volume outside bark

cf-ib = cubic foot merchantable volume inside bark

Kappa = Kappa number is an indication of the lignin content or bleachability of pulp. Different paper products require different Kappa numbers.

cvob0tp = cubic foot volume outside bark to a 0" top (i.e. the total volume)

brevob = branch cubic foot volume outside bark

***stcarbon = stem (tree bole) elemental carbon

This is the unit important to carbon calculation. Take this number and multiply by 3.67 to get CO₂ equivalents in lbs. and divide 2205 to get CO₂ equivalents in metric tonnes.

npv = net present value

Terms

Profile or taper equation:	These equations describe tree taper along the height of a tree and allow the estimation of volume to merchantable height limits or segments.
Standard volume equation:	Equations for tree volumes that use dbh, height, and possibly form or taper.
Local volume equation:	Equations for tree volumes that use the single variable of dbh.
Outside bark	Measurements (like diameter) taken on the outside of the bark or estimates (like volume) that include wood plus bark. Dbh is always considered outside bark.
Inside bark	Measurements (like diameter on felled trees) taken on the inside of the bark or volume estimates that include wood only.
Form class	Mesavage-Girard form class is the inside bark diameter (scaling diameter) at 17.3' above ground times 100 and quantity divided by dbh. This is a measure of tree taper that is sometimes used in tree volume calculations.
Merchantable height	The length of the stem from which a merchantable product can be obtained. The usable portion of the stem.
Merchantable top diameter limit	The upper minimum diameter of the tree stem below which defines the usable (merchantable) portion of the tree.

References

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