

# ***TallTimber 4.0 Carbon Operator's Manual (with Timberpad Pro Supplement)***



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## Guide to the TallTimber Forest Inventory and Growth Processor

### About this Manual

The front section of this document is intended to help people better understand and use TallTimber. The last 20 pages strive to do the same for Timberpad Pro. Our goal is to provide you with thoughtful instruction in a variety of formats, so that we communicate in a way that is effective for you, putting you on a pathway to success in your timber inventory and growth modeling. If you are struggling with a technical issue or just need some general feedback, consider the below options for getting back on track. We want your computer time to be productive, and suggest you keep this operator's manual nearby when questions arise. For a Quick Start guide to TallTimber 4.0 Carbon, go to page 55.

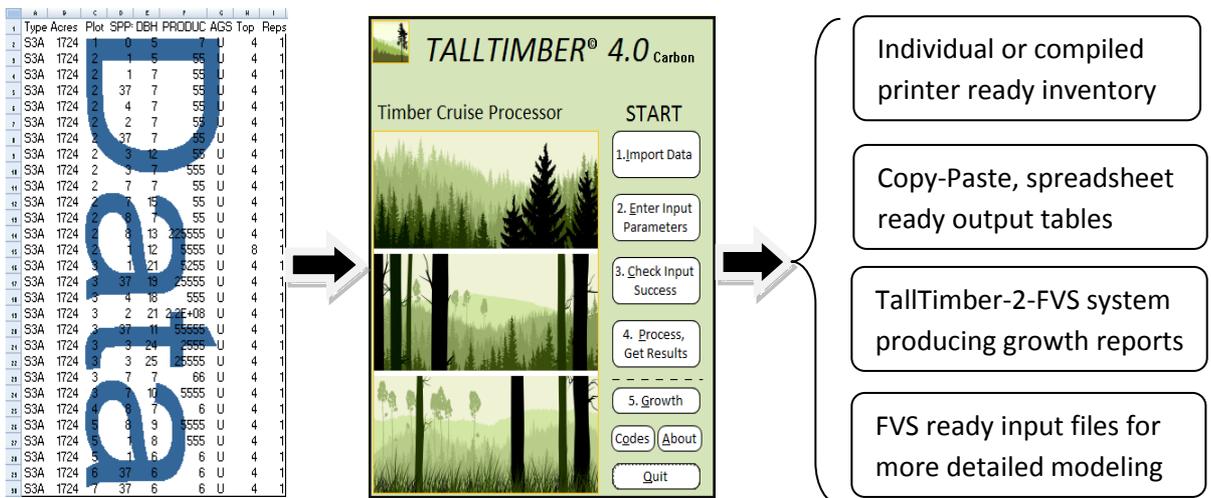
Forms of Technical Support:

1. Operator's manual (this document)
  2. Program itself has some instructions under the  icons.
  3. Instructional videos on YouTube channel playlist (TTimber channel, Appendix C has link)
  4. Website: [www.ttimmer.com](http://www.ttimmer.com)
  5. Email us: [support@ttimmer.com](mailto:support@ttimmer.com)
  6. Call us: 207.377.3956 or schedule a visit or a workshop for you or your group
-



## What is TallTimber 4.0 Carbon?

TallTimber is a computer application that provides forest products, carbon inventory and growth & yield modeling reports along with spreadsheet ready, copy/paste output tables. Earlier versions have been used to process and report on millions of acres of timberland across the United States from Maine to California to Alabama. By forest products and carbon inventory, we mean the characterization of the standing timber and forest carbon stocks by whole tree components derived from a timber cruise dataset. The growth & yield modeling relies on TallTimber's handy tool (TallTimber 2 FVS) that seamlessly converts the timber cruise dataset into Forest Vegetation Simulator (FVS) input files, opens FVS for growth modeling, and then brings FVS output back into TallTimber for additional reporting at the stand/stratum or property level. In this way, the full functioning of TallTimber is to create a professional report profiling the timber and carbon inventory while also including outputs of future stocking and forest change (gross growth, mortality, net growth) as projected by FVS. The first two thirds of this manual will be targeted towards describing this process, with the last third describing the companion data collection software, Timberpad Pro. Figure 1 shows a simplified characterization of TallTimber. The section titled *TallTimber 4.0, Microsoft Access (MS-Access) and Its Free Runtime Version* is located near the end of this manual. Go there if you are interested in learning about your computer's versioning and set up questions.



**Figure 1.** Timber cruise data is imported into TallTimber 4.0, which then converts the data into a suite of information products, including growth reports as a standard component of a regular inventory. It also produces FVS-ready input files that can be stored and shared for further growth and yield modeling efforts.



## TallTimber 4.0 Input Data Formats ([Videos 1 & 2 on Playlist](#))

TallTimber will accept and import cruise data from Excel spreadsheets and comma-delimited text files. Those collecting datasets with Timberpad Pro may not need to read this section as carefully as its text output is already in the correct format (see the Timberpad supplement at the back of this document for more information on the comma-delimited file format). The columns and order of data are identical whichever data format you use. Text files must end in ".txt", however.

Example of data input structure and a named-range called "Data" (the name box at the end of the arrow has the correct name in it). It shows the word "Data" because the range is selected as you can tell by the black outlined region.

	A	B	C	D	E	F	G	H	I	J
1	Type	Acres	Plot	SPP#	DBH	PRODUCT	AGS/UGS	Top	Reps	
2	S3A	1724	1		5	7	U	0	1	
3	S3A	1724	2	1	4.2	6	A	0	1	
4	S3A	1724	2	1	4.4	6	A	0	1	
5	S3A	1724	2	37	4.7	6	A	0	1	
6	S3A	1724	2	4	5.1	5	U	0	1	
7	S3A	1724	2	2	4.3	5	U	0	1	
8	S3A						A	0	1	
9	S3A						A	0	1	
10	S3A						U	0	1	
11	S3A						U	0	1	
12	S3A						A	0	1	
13	S3A						A	0	1	
14	S3A	1724	2	8	13.3	22555	A	0	1	
15	S3A	1724	2	1	17.4	22222555	A	0	1	
16	S3A	1724	3	1	10.9	22255	A	0	1	
17	S3A	1724	3	3	6.4	666	A	0	1	
18	S3A	1724	3	4	5.9	555	U	0	1	
19	S3A	1724	3	9	16.4	1234555	A	0	1	
20	S3A	1724	3	3	6.2	666	A	0	1	
21	S3A	1724	3	3	6.3	666	A	0	1	
22	S3A	1724	3	3	5.9	666	A	0	1	
23	S3A	1724	3	7	6.2	66	A	0	1	
24	S3A	1724	3	7	7.8	5555	U	0	1	
25	S3A	1724	4	8	7.1	665	A	0	1	
26	S3A	1724	5	8	8.3	5555	U	0	1	
27	S3A	1724	5	1	6.8	666	A	0	1	
28	S3A	1724	5	1	7.4	6666	A	0	1	
29	S3A	1724	6	37	7.3	2222	A	0	1	
30										
31										

**Figure 2.** This Excel dataset shows six points/plots and uses TallTimber's default species codes. Row 1 contains the required header fields, while row 2 has the first line of data. DBH (column E) is to the first decimal place, but could be an integer value. The AGS/UGS field (column G) can be blank, but all other columns must be filled out. Top DIB values must be 0 if no Top estimate is made, as opposed to null, which is not allowed. Plot requires an integer value.



One item that is important when importing Excel datasets is that the data, including the header row, must be made into a named-range called "Data" (again- only when the Excel format). This named-range concept is just a tool within all versions of Excel that allows you to reference a particular set of cells and give them any name you want. You can create a named-range by selecting cells in Excel and then typing the name in the "Name Box" in the upper left corner of the spreadsheet, located below the ribbon. Creating a named-range is quite easy, you just need to do it once to get the hang of it, see Figure 2.

	A	B	C	D	E	F	G	H	I	J
1	Type	Acres	Plot	SPP#	DBH	PRODUCT	AGS/UGS	Top	Repls	
2	S3A	1724	1	0	5	7	U	0	1	
3	S3A	1724	2	WP	4	6	A	0	1	
4	S3A	1724	2	WP	4	6	A	0	1	
5	S3A	1724	2	BS	5	6	A	0	1	
6	S3A	1724	2	BF	5	5	U	0	1	
7	S3A	1724	2	HE	4	5	U	0	1	
8	S3A	1724	2	BS	5	66	A	0	1	
9	S3A						A	0	1	
10	S3A						U	0	1	
11	S3A						U	0	1	
12	S3A						A	0	1	
13	S3A						A	0	1	
14	S3A						A	0	1	
15	S3A	1724	2	WP	17	22222555	A	0	1	
16	S3A	1724	3	WP	11	22255	A	0	1	
17	S3A	1724	3	RS	6	666	A	0	1	
18	S3A	1724	3	BF	6	555	U	0	1	
19	S3A	1724	3	PB	16	1234555	A	0	1	
20	S3A	1724	3	RS	6	666	A	0	1	
21	S3A	1724	3	RS	6	666	A	0	1	
22	S3A	1724	3	RS	6	666	A	0	1	
23	S3A	1724	3	HM	6	66	A	0	1	
24	S3A	1724	3	HM	8	5555	U	0	1	
25	S3A	1724	4	RM	7	665	A	0	1	
26	S3A	1724	5	RM	8	5555	U	0	1	
27	S3A	1724	5	WP	7	666	A	0	1	
28	S3A	1724	5	WP	7	6666	A	0	1	
29	S3A	1724	6	BS	7	2222	A	0	1	
30										
31										

**Figure 3.** This dataset shows the same 6 points/plots as in Figure 2, except it has alpha species codes and integer DBH values. Row 1 contains the required header fields, while row 2 has the first line of data, the 0-tally point consistent with Figure 2. Alpha species codes must be remapped after the dataset is imported into TallTimber the first time. TallTimber 4.0 will then retain your species code settings if the "Keep My Codes" functionality is used.



Two examples of TallTimber datasets are shown in Figures 2 and 3. The Figure 2 dataset uses TallTimber's default numeric species codes and has DBH entered to the first decimal point (generally only important in growth modeling), while Figure 3 shows data with some alpha codes and integer values for DBH. When using your own species codes, you are required to map your codes to the TallTimber default codes after importing the data. It's a simple, one-time process and allows experienced timber cruisers to work with the same codes they may have used in the past. See pages 11-12 for more information.

TallTimber is delivered with an example dataset. Excel format file headers can be copied and pasted into new datasets for the Excel input data option. As mentioned, txt, xls, or xlsx files will work with TallTimber's import routine. TallTimber-ready datasets do not have tree ID numbers or the prism/plot size; this information is handled within TallTimber. Table 4 below shows the format and length for each heading (column) in an Excel dataset, providing comments for better understanding. An example of a text file section is shown on page 77.

Column Heading	Formats Accepted	Max. Length	Comments
Type	Text only	26	Type, stand, strata or however plots get aggregated. <b>Common error is to use an integer only here.*</b>
Acres	Numeric	15	Area units are assumed to be acres. Decimal places are allowed
Plot	Integer Only	4	Can be longer than 4, but FVS is limited to 4 characters (9999)
SPP#	Integer or Text	2	Integer or alpha codes, either the default integers or other codes defined by you
DBH	Numeric	2	Integer or to one decimal place, 0.5 to 99 inches
Product	Text or Integer	14	Combinations of integers from 1 to 7, <b>but can be text formatted or a general number, no decimals.</b>
AGS/UGS	Text	1	"A", "U", "C", or "L", can be left blank
Top	Integer	2	Diameter Inside Bark at the limit of merchantability, 0 is an option, cannot be null.
Reps	Integer	2	Rarely used, a multiplier for a given tree entry helpful for plantations

**Table 4.** TallTimber datasets have nine columns (fields) with the headings shown above. All must be filled in, except for AGS/UGS which can be blank. The Top field directs how TallTimber will calculate the top diameter of the tree bole. If a non-zero value is entered, TallTimber will taper the end of the tree to that value. When Top is set equal to 0, TallTimber uses taper rates to estimate the top DIB of the tree. **\*The Type field cannot be a sole number, "Stand 1" is ok, while just "1" is not.**



Remember, integers are whole numbers as compared to numbers with decimal places. References to the word numeric in Table 4 means both whole numbers and numbers with decimal places. When we say "text" format, we mean items that sort alphabetically and while usually letters, can also be numbers that are treated as text. For example, when you have a number in a text string, like in a stand type "H3B", they will be sorted as text. The product field has numbers (1 to 7) that are combined into a string from 1 to 14 characters long. It can be viewed as either a number or a string by Excel, as long as there are no additional characters (no 0's or .'s). The contents will be a combinations of the characters 1 through 7.

TallTimber allows 2 product cruising methods; multiproduct and saw-pulp height. Popular in many northern states, the multiproduct method requires cruisers to assess each 8' section of the tree from the stump to the limit of merchantability, as specified in the cruise design associated with the field work. TallTimber 4.0 can use this approach, and accommodates up to seven products and fourteen product sections in any order. TallTimber has a flexible heading system, that allows you to create your own flexible labels for 4 board foot products and 2 cord or ton based products. The seventh product is always cull. The saw-pulp product mode simply has the cruiser enter the saw height and pulp height of the tree, and estimates these two products only. This is fast, leaves out discriminating product calls, but may be desirable in pine dominated cruising locales or when information on multiple products isn't important to collect. This style has a different input format for product data as is shown on the bottom of page 8. Timberpad Pro data collection software allows both methods.

As stated above, TallTimber does not determine your specifications for a saw log or other product, or what you call it. The standard reporting accommodates board foot units for product codes 1-4, and cord/ton units for product codes 5-6. Additionally, the Grid Data functioning within TallTimber also offers cubic foot estimates for product codes 1-4 and cord/ton estimates for product 7 (cull). Grid Data buttons exist on the individual report form, and allows you easy access to spreadsheet-ready tables of estimates for your own analysis and development. Grid Data tables include columns for the log rule, the cubic foot volume equation, and the conversion rate of cubic feet per cord. They can be copied and pasted into a spreadsheet, or just exported directly to Excel via the "external data" tab if using the full version of MS Access (people using Access Runtime will have the copy and paste option). Board foot products are reported in 3 log rules; International 1/4", Scribner, and Doyle.

A closing comment on multiproduct cruising and TallTimber. Cruises can be designed many ways, but when assigning products and heights to standing trees, there will be some level of estimation error. Visibility may be restricted, defects are viewed from a distance and mostly



from below, and upper inside bark diameters are ocular guesses. One of the areas that is also estimated occurs with partial sections, either at the top of the tree or somewhere else along the products. Well run cruises will have an agreed upon system for handling these factors, such as rounding down on the top section of the tree or rounding up on product.

Product Section Code	Product Label (Default)	Unit of Scale	Comments on Individual Section Codes
1	Veneer	Bd ft., cubic ft.	Highest grade products, rotary/slicer logs
2	Sawlog	Bd ft., cubic ft.	Generally grade 2 or better quality
3	Pallet	Bd ft., cubic ft.	Generally a number 3 or lower grade log
4	Boltwood	Bd ft., cubic ft., cords, tons	Also has been used as peeler or flooring log, small diameter with high quality is typical
5	Pulp	Cords, tons	Section that has no potential for grade appreciation
6	Pot. log	Cords, tons	Section that is pulp because of size alone, also defined as growing stock sections in some cruises
7	Cull	Cords, tons	Cull estimates only available as Grid Data output

**Table 5.** Product codes used in column F will be interpreted by TallTimber as shown, with units of measure listed. The Grid Data functionality is where cull values (code 7) are available.

### Converting Height-Style Data Into TallTimber Format - An Important Reminder!

This format discussion ends with a description of how you can format data collected with heights alone into TallTimber ready input. We have worked with many styles and structures of timber cruise data and understand that everyone doesn't use the multi-product format. TallTimber accommodates those datasets as well, which is how it successfully imports Timberpad data collected in Saw-Pulp Height mode. Here's how it works.

If you have the height above the ground at which saw material ends and the height of where pulp material or merchantability ends, you have enough information. The coding works as follows and results in a single, 6-character string. The number "9" is used to signal this format style. We show it below for 1) a tree with 57 feet of pulp only, 2) a tree with a 25-foot saw height and a total merchantable height of 57 feet, and 3) a cull tree with no sawlog or pulp material. The merchantable lengths are limited to 2 digits, or 99 feet.

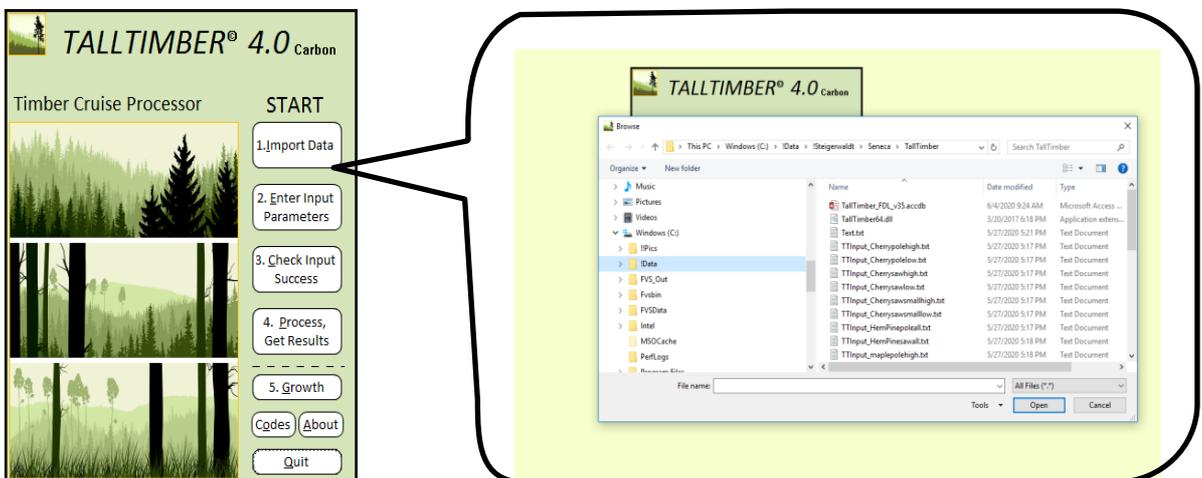
- 1) Tree with pulp only: 9, 00, 9, 57 = "900957" is the PRODUCT value
- 2) Tree with both saw and pulp: 9, 25, 9, 57 = "925957" is the PRODUCT value
- 3) Tree with cull only, non-merchantable: 9, 00, 9, 00 = "900900" is the PRODUCT value



## Working with TallTimber: Step 1. Import Data ([Video 3 on Playlist](#))

TallTimber has a five-step main menu that leads you through the steps necessary to create and compile your own self-titled, inventory reports. This may or may not include growth report production using the US Forest Service's FVS growth model. In the case where no growth modeling is done, it is a four-step process as can be observed on the main switchboard shown in Figure 6. While it is not as simple as just clicking four or five buttons, it is surprisingly simple to produce reports or access tables of spreadsheet ready output. There are checks in place along the way to help you stay in touch with the process. Let's start by following Step 1: Import Data.

Clicking the import button located under “Start” opens a File Explorer window which lets you navigate to the Excel spreadsheet or text file where your data resides. Select the appropriate input file with your mouse and the File Explorer will close, followed by the import process. You will be notified of success with a message box titled “Successful Import and Reminder”. The reminder is that either the default settings within TallTimber have been restored, or that your prior specifications have been maintained, as described in the next paragraph.



**Figure 6.** Importing your field tally into TallTimber uses the Windows File Explorer as shown above. Your data can be in Excel spreadsheets with versions from Excel 97 to current, or comma-delimited text. Successful imports conclude with a Message Box telling you that it was successful and reminding that either default settings were restored or your codes have been maintained. You also may be notified of formatting problems that need to be resolved.



The settings we speak of here are related to species codes, wood density modifications (pounds per cubic foot), cubic feet per cord, product merchandizing, and other options in Step 2. **If you have modified these settings and want to keep your adjustments, you can tell TallTimber this by checking the "Keep My Codes" box on the TallTimber Inputs form (Step 2) shown on the following page.** The dialogue box appearing after the Step 1 Import reacts to whether this box was checked or not.

Keep in mind Table 4 when trying to diagnose a data format error. It is ok to have alpha species codes, but blank or alpha diameters won't work. Type names must be in text format, not numeric alone ("H3B" is okay, while "3" alone is not okay as number format). Remember to check the example spreadsheet data provided in the setup package and the 0-tally format. **Lastly, remember to get the column headings named correctly when using the spreadsheet input file format. The best way to do this is by copying and pasting from the example spreadsheet file into your own new input file.**



## Working with TallTimber: Step 2. Enter Input Parameters ([Videos 4-6 on Playlist](#))

The Inputs form (largest image in Figure 7) is where you enter specific cruise information, shaping the inventory to conform to the standards you choose for the dataset being processed. The only setting that is required is the sample point basal area factor (BAF) for variable-radius points, or the plot size for fixed-radius plots and 100% tally sampling (Item 1 on Inputs form). Be aware that individual datasets are not allowed to use varying BAFs or plot radii across plots, the entered BAF or plot size is for the entire overstory.

**Figure 7.** Step 2, Input Parameters, occurs after importing your data. **To initiate 100% tally sampling, set the fixed-radius plot size equal to the Acres field value in the input data. For example, a 7-acre patch of 100% tally timber would have both Acres and Plot Size set to 7.**



If multiple prism BAFs or plot sizes were used amongst your dataset for overstory trees, you will need to split the data and process the datasets individually as separate inventories. If different species codes are used, TallTimber will instruct you to “map” the species codes before a BAF or plot size can be successfully entered. Mapping codes is either typing or pasting your codes in a provided column. These and other modifications are described here and on the next page (also shown on the YouTube playlist).

**TALLTIMBER® Modifications**

Enter your species codes\*, change the default Girard Form Class (FC) values, the pounds/cubic foot, or the order of appearance that species will be shown in reports.

Name	User Codes (Species)	Form Class	Pounds per CuFt
Baldcypress	36	0.78	
Balsam fir	4	0.80	
Black spruce	37	0.80	
E. Redcedar	62	0.78	
Hemlock	2	0.78	
Jack pine	61	0.78	
Loblolly pine	57	0.78	
Longleaf pine	59	0.78	
Norway Spruce	29	0.80	

Record: 1 of 62 | No Filter | Search

\*Species codes MUST be 2 characters, e.g. WP, for white pine. Be sure to use care when entering species codes, KNOW YOUR INPUT DATA.

Return

**TALLTIMBER® 4.0 Carbon**

Timber Cruise Processor

**START**

- 1. Import Data
- 2. Enter Input Parameters
- 3. Check Input Success
- 4. Process, Get Results
- 5. Growth

Codes About Quit

**TALLTIMBER® Inputs**

1. Prism BAF or Plot Size (required): Click to Select

OPTIONAL SETTINGS BELOW:

2. Species Codes, Taper, Weight, and Sorting: Click to Select

3. Regeneration/Merchantability Setting: Click to Select

4. Cubic Foot Per Cord Setting: Click to Select

5. Board Foot Merchandizing: Log Length Preference ?  
 8' always  16' if possible

6. Cubic Foot Volume Equation (Smalian default): Cubic Volume Equation ?  
 Huber  Newton  Smalian

7. Modify Headers on Tabular Reports: Click to Select

Keep My Codes (2-7) Return to Start

**Figure 8.** The second item on the Inputs form allows control of species codes and other species values. You can preserve your choices for future inventories via "Keep My Codes."



As mentioned on page 10, TallTimber accommodates differing species codes, lower stem taper (through Girard Form Class), density values, and order of appearance in reports. These changes are species level modifications and are accessible through Item 2 in the Inputs form, located in the Optional Settings section. Clicking Item 2 allows you to work with the Modifications form, seen in Figure 8. Differing species codes can be "mapped in" by either typing each code in for the 62 different species codes, or simply copying and pasting a column from a spreadsheet where you have your own species codes stored into the Modifications form. Similarly, you can have different densities, form class or sort order stored in columns in your own spreadsheet which can be copied and pasted into the modifications form. The density (pounds per cubic foot) values are converted into tonnage estimates based on the net cubic feet per cord value used.

With Item 3 on the Inputs form, TallTimber accepts a fixed-radius regeneration plot (subplot) entered along with the typical overstory point or plot. From a data structure standpoint, these understory trees are simply included in the dataset just like any other trees. Their diameter is required to be smaller than the lower merchantable limit of the overstory trees. The default for this limit is the 5" diameter class, or trees from 4.6" to 5.5" DBH would be considered as trees having merchantable volume. This lower limit along with the expansion factor for that fixed-radius subplot can be changed up or down by clicking Item 3 on the Inputs form and working with the Merchantability and Regeneration form shown in Figure 9 (page 14). These values are changed in one of two controls. The minimum diameter class is set by a combo box (drop down) with a default value of 5, while the expansion factor is set with a text box. A 1/500-acre fixed-radius subplot would have an entry of 500, the trees per acre for an individual sapling or seedling. The default of 1, means no change from the BAF.

TallTimber uses a default of 85 net cubic feet per merchantable cord, a common assumption for a cord of wood in the Northeast (net means that bark and voids are deducted from the 128 cubic foot gross cord). The fourth item on the Inputs form allows you to modify that assumption. This standard varies across regions, and can be impacted by the softwood-hardwood mixture and the common diameter size of wood being sold. Like other units of measure, much of its validity is simply based on past usage and conformity to a standard that people have tacitly agreed to over time. People in the Lakes States commonly use a 79 net cubic foot cord standard, and we've seen softwood dominated regions use a 90 net cubic foot standard. TallTimber's 85 cubic foot assumption can be changed by entering a different value in a combo box as shown in Figure 10 (page 15), but it resets to that standard whenever a new dataset is imported. It also opens a popup window whenever the net cubic foot volume per cord form is closed to confirm any changes made, making these changes purposeful and evident. Lastly, every TallTimber report has the cubic feet per cord assumption printed on it as a last measure to avoid confusion and promote clarity. Checking Keep My Codes preserves this setting as well as the others mentioned.



**Merchantability and Regeneration**

MERCHANTABILITY- TallTimber assumes DBH classes straddle the integer value they represent. For example, TallTimber uses a default minimum DBH of 4.56" for the merchantability threshold. This is represented as the 5" DBH class, trees from 4.56"-5.55" DBH are in this class. You can change this below:

Minimum DBH Class for Merchantability:

REGENERATION- (This section for FVS users only). TallTimber's default method is that all trees, regardless of size, are expanded according to the BAF or PLOT size entered in the "Input Parameters" process (the step after importing data). To give trees below the Minimum DBH for Merchantability (shown above) a different expansion factor (such as 500 for a 1/500-acre subplot), enter that value in the below text box (1 means no change):

Trees Per Acre Factor for All Regeneration:

**TALLTIMBER® Inputs**

1. Prism BAF or Plot Size (required):

OPTIONAL SETTINGS BELOW:

2. Species Codes, Taper, Weight, and Sorting:

3. Regeneration/Merchantability Setting:

4. Cubic Foot Per Cord Setting:

5. Board Foot Merchandizing : Log Length Preference   
 8' always  16' if possible

6. Cubic Foot Volume Equation (Smalian default): Cubic Volume Equation   
 Huber  
 Newton  
 Smalian

7. Modify Headers on Tabular Reports:

Keep My Codes (2-7)

**Figure 9.** The third item on the Inputs form controls the minimum DBH class for merchantability along with the expansion factor to be used for trees below the minimum diameter class. There are two input controls that you work with in this regard. You can change either one or both, depending on the specifications.



**TALLTIMBER® Inputs**

1. Prism BAF or Plot Size (required):

OPTIONAL SETTINGS BELOW:

2. Species Codes, Taper, Weight, and Sorting:

3. Regeneration/Merchantability Setting:

4. Cubic Foot Per Cord Setting:

5. Board Foot Merchandizing: Log Length Preference   
 8' always  16' if possible

6. Cubic Foot Volume Equation (Smalian default): Cubic Volume Equation   
 Huber  
 Newton  
 Smalian

7. Modify Headers on Tabular Reports:

Keep My Codes (2-7)

**Net Cubic Foot Volume Per Cord**

TALLTIMBER estimates the cubic foot volume in each 8' section in the data. These cubic foot volumes are then converted into 85 cubic foot net cords by default. No cubic foot volume equations are perfect for all trees, and some users may wish to adjust them based on their experience. Also, some regions use different standards for the number of NET cubic feet in a cord. Lake States users will often use a 79 cubic foot cord, while others may use 90 or 95. This adjuster allows a user to change the numerator in the ratio of NET cubic feet per merchantable cord.

PLEASE BE AWARE THAT THIS VALUE IS RESET EVERY TIME YOU CLOSE THIS FORM, WITH A DEFAULT OF 85. BE SURE TO HAVE IT SET TO WHAT YOU PREFER WHEN YOU CLICK THE RETURN BUTTON.

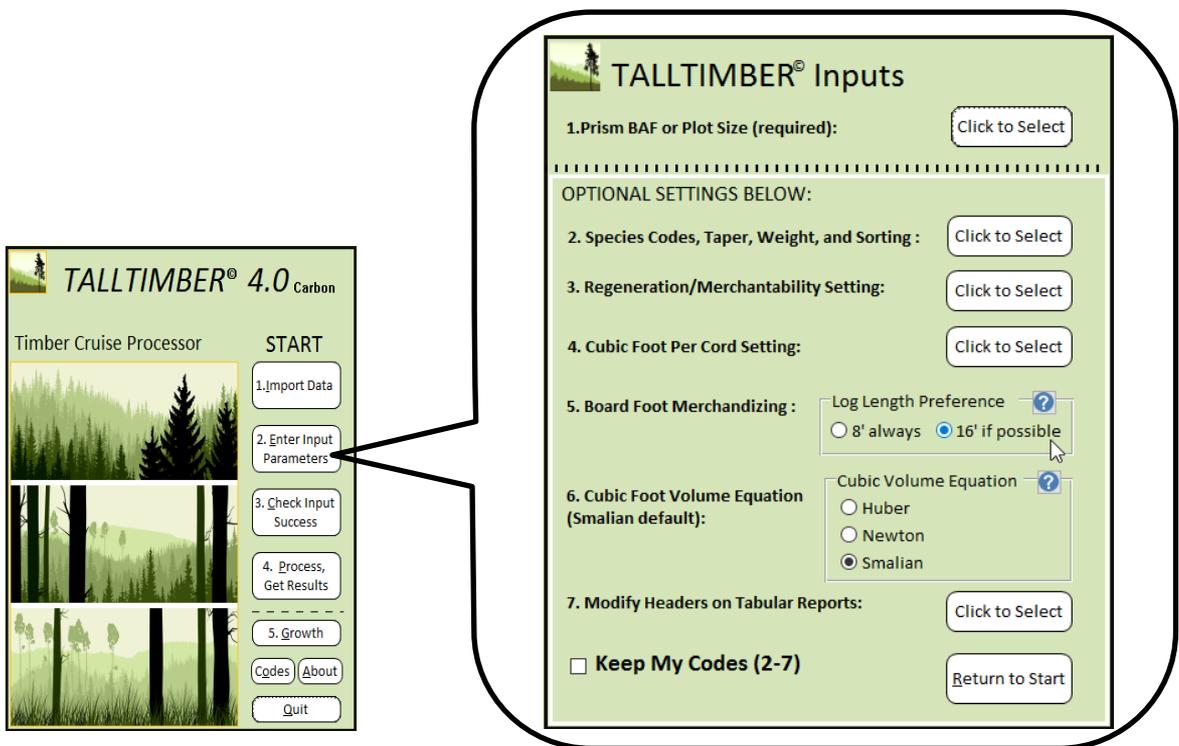
Cubic Feet Per Cord

**Figure 10.** The fourth item on the Inputs form accommodates changing the cubic foot per cord assumption, which is 85 by default, and resets whenever a new dataset is imported. This is an optional change.



TallTimber processes section data for each individual tree, and provides options as to how this is done. One of these options is "log length preference" and it is important because it impacts the board foot volume estimates produced. Because the scaled yield of a log is limited by the diameter of its small end, scaling two contiguous 8-foot logs individually will produce a different board foot estimate than if scaled as a single 16-foot log unless they taper as the log rule assumes. More specifically, there is less slabbing deduction applied by Doyle and Scribner log rules when scaling two individual 8-foot sections as compared to when they are scaled combined into a 16-foot log (these rules assume a straight cylinder). Of the three TallTimber log rules, the impacts tend to be greatest for Doyle, then Scribner and least for International  $\frac{1}{4}$ ", which assumes  $\frac{1}{2}$ " taper per 4-foot section. The impact of this choice varies by inventory, but can be quite substantial for Doyle and Scribner log rules.

TallTimber provides you a choice of two "log length preference" modes as shown as the fifth item on the Inputs form (Figure 11). The default is shown as "16' if possible" while the alternative is shown as "8' always". The default, 16' if possible, is also called "merchandizing mode" because it seeks to make 16' logs when it can. For example, in the default mode a tree with a product code of 1223555 (a 7-section tree with "veneer-saw-saw-tie-pulp-pulp-pulp")

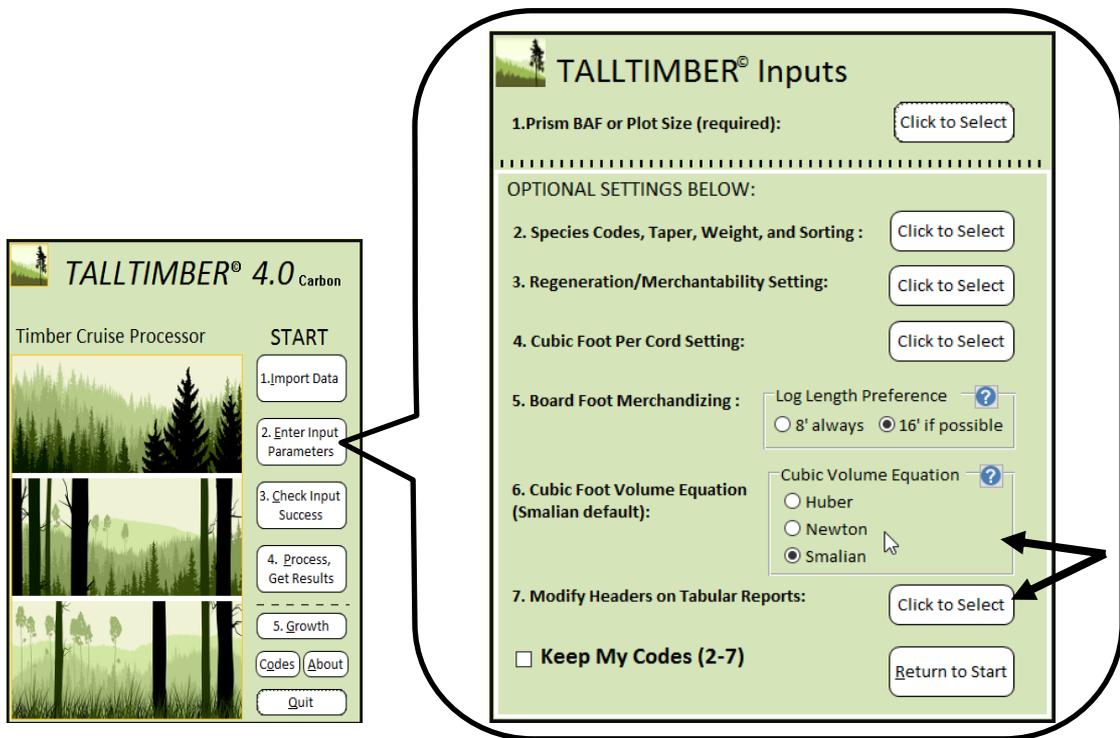


**Figure 11.** Board foot merchandizing is the fifth option on the Inputs form. This choice is related to how TallTimber applies log rules internally, and is in "merchandizing mode" (16-foot if possible) by default. The "8' always" choice produces significantly more volume in Doyle and Scribner rules.



products and 56 feet of merchantable bole) will have the 2<sup>nd</sup> and 3<sup>rd</sup> sections scaled as a single, 16-foot log. The first and fourth sections (vener and tie/pallet, respectively) are scaled as 8-foot logs as they have no adjacent sections of similar product. The other option, “8’ always”, takes each section independently and produces estimates as if each section were bucked into individual 8’ bolts. Additional log length preference help can be accessed by clicking on the  icon shown in Figures 11 and 12 by the Log Length Preference box.

Traditional forest mensuration literature<sup>1,2,3</sup> profiles a variety of methods to estimate the cubic volumes of felled or standing trees. Basic discussions cover the idea of estimating bole volumes as approximations of more uniform geometric solids, applying the formula of log cross section area times log length to estimate solid volume. Of course trees aren’t uniform,



**Figure 12.** The cubic foot volume equation option is listed as the 6<sup>th</sup> item on the Inputs form. It provides cubic volume equation choices aligning with formulas from the forestry literature. Smalian’s equation is the default. The 7<sup>th</sup> item allows reports to have different product headers as described on page 18. Clicking the “Modify Headers...” button opens a table where you can enter new heading(s).

<sup>1</sup> Clutter, et al. 1992. Timber Management: A Quantitative Approach. Kreiger Publishing, Malabar, Fl.

<sup>2</sup> Avery, T.E. and H.E. Burkhart. 1994. Forest Measurements. McGraw-Hill Inc., NY.

<sup>3</sup> Forestry Handbook: 2<sup>nd</sup> Edition, edited by Karl Wenger for the Society of American Foresters. 1984. John Wiley & Sons, NY.



and getting the true average cross section area is generally impractical because it would require taking many slices of the tree section being measured. The three formulas most often referenced are Huber's, Newton's and Smalian's. Smalian's is the most commonly used as it does not require a midpoint measurement and its bias can be mitigated by keeping bole sections short. The 6th item on the Inputs form provides the three equations as options for computing cubic foot volumes, with Smalian's used as the default. This choice is printed on each report page. Additional help can be found by clicking the  icon shown in Figure 12 (previous page), by the Cubic Volume Equation box.

The seventh option, "Modify Headers on Tabular Reports", is lastly shown in Figure 12. Located near the bottom of the Input form, this option was added to the version 4.0 Carbon release. It allows you to change the product headings printed to the tabular style product reports produced by TallTimber. This facilitates the use of differing product names than the defaults typically shown on individual or combined tabular reports. For example, you might prefer to change product from the default "Boltwood" to "Mat Log". Similarly, you might prefer to use product 6, by default "Pot. Log", to "Firewood". The new flexibility allows the 4 board foot products and 2 cord/ton products to be renamed other appropriate board foot and cord/ton products. As a reminder, products 1-4 will continue to be processed as board foot products and 5-6 processed as cord/ton products.

### **Working with TallTimber: Step 3. Check Input Success ([Video 7 on Playlist](#))**

We've built TallTimber in a way that allows some checking to make sure the data has been imported properly, a measure twice and cut once mentality. Step 3 is where you can take the time to make sure the data is being represented correctly. Clicking on Step 3 opens the Profile Report, a report on the partially completed data workup. It allows operators to scroll through the strata, making sure they are named correctly and have the correct number of acres and points. For example, a typo of a stand/stratum name on one tree record in the spreadsheet data will result in a new, erroneous stand/stratum. The Profile Report mitigates the chances of these types of mistakes, but it is optional.

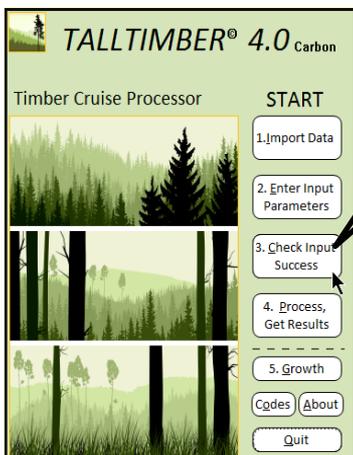
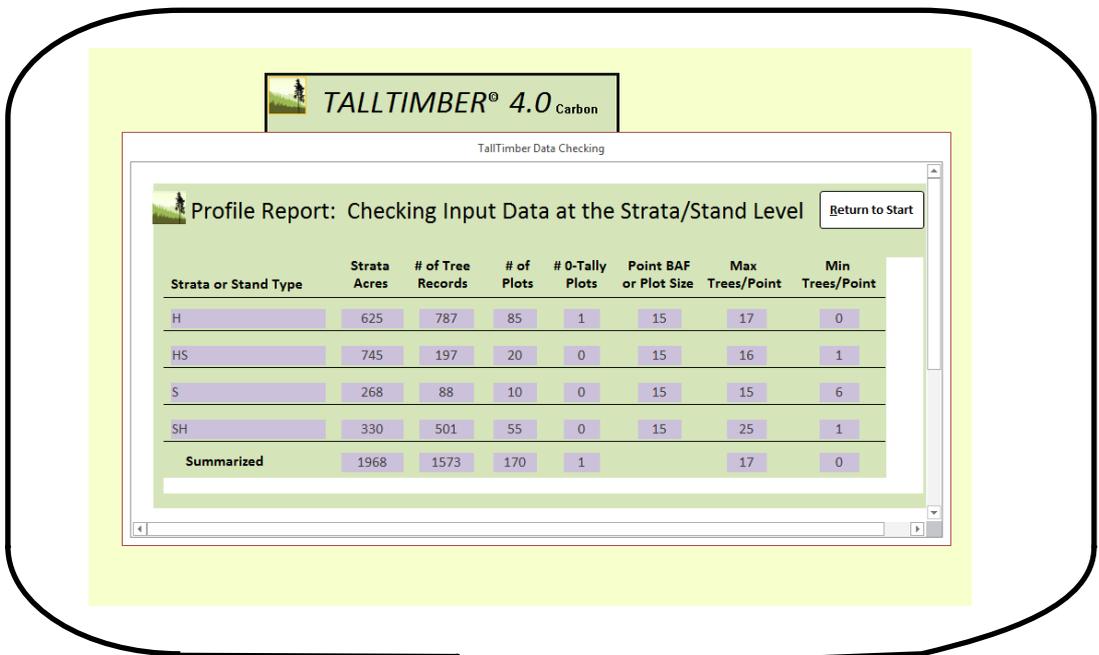
The following idea is important enough to us that we want to give it its own paragraph and this somewhat awkward topic sentence. The Profile Report shows how many 0-tally points are in the dataset. This insight is a critical piece as 0-tally points are generally among the most influential points in any stratum, and often any cruise. Moreover, 0-tally points are often where mistakes are made when datasets are shared electronically and communications falter. On industrial-size cruises, it's good practice to keep track of this information, as it helps understand how the sample frame treated non-forest and was deployed to the real world sampling of roads, yards, and water conditions where 0-tally is common.

A minor point regarding the column titled "# of Tree Records". This column is a count of rows in the spreadsheet dataset for a given stratum or stand, which contrasts with the columns "Max Trees/Point" and "Min Trees/Point" which account for the Repts value. For example,



a point may have eight tree records, but twelve trees if there was a Repts field value of 5 in one of the tree records  $(7 \times 1) + (1 \times 5) = 12$ . While sparingly used, Repts is helpful to cruisers in plantations and softwood thickets where a cluster of trees of the same species, diameter, and product exists on the same point. Max and Min capture the tally spectrum.

Lastly, for cruises with five or more strata, it will be necessary to scroll down the report to view them all. With more than four strata, the scroll bar should appear on the right hand margin, but can be missed until operators get used to viewing the report. Figure 13 shows an example with four strata, so the scroll bar is not present.



**Figure 13.** The Profile Report provides broad stratum or stand level metrics related to the input dataset. This is an optional, but suggested, step on the way to producing reports.



## Working with TallTimber: Step 4. Process & Get Results [\(Videos 8-9 on Playlist\)](#)

TallTimber is built in a fashion that allows two different mindsets with respect to getting information out of it. This is the result of how our projects have generally worked out. There are situations when you want to view a single report, pop in and out of different reports, or

The top screenshot displays a window titled "PER ACRE VOLUME ESTIMATES BY TYPE OR STAND" with a table of data. The table includes columns for Species, Volume, Tons, and other metrics. The middle screenshot shows the "TALLTIMBER® Reports" menu with options like "Per Acre Volume Reports at Strata, Type or Stand Level" and "Per Acre Volume Reports with Strata Combined to Forest or Property Level". The bottom screenshot shows the "TALLTIMBER® Report Selection" dialog box with options for "Individual Reports and Grid Data", "Build Combined Report", and "Return to Start".

**Figure 14.** Individual Report mode allows quick access to single reports or copy/paste table output.



just work with the Grid Data output in a spreadsheet on your own. That is what we call Individual Report mode, and fits well when you have less time and may revisit the inventory later on. There are other times when you want to create an inventory report masterpiece, the final report you present your client or create for your own file. This style of report has a cover sheet, a second page with codes and assumptions, and then a compilation of all the sub-reports you find important enough to include. This is Combined Report mode and uses what we sometimes call the compiler. The next few pages take you through Step 4, which is about producing output with TallTimber in either Individual Report or Combined Report modes. Figure 14 (previous page) shows Individual Report mode used to create a report.

The figure illustrates the workflow for generating an individual report in TallTimber. It starts with the main menu where users click 'START'. This leads to a report selection dialog where 'International 1/4" Log Rule' is chosen. The user then selects 'Individual Reports and Grid Data'. This action opens a menu of specific reports, where 'Grid Data' is selected for a chosen report. The final output is a spreadsheet containing detailed tabular data for each tree species and stand.

**Figure 15.** Individual Report mode allows operators to quickly access tabular information as shown above. This can be directly exported or copied and pasted into other documents.

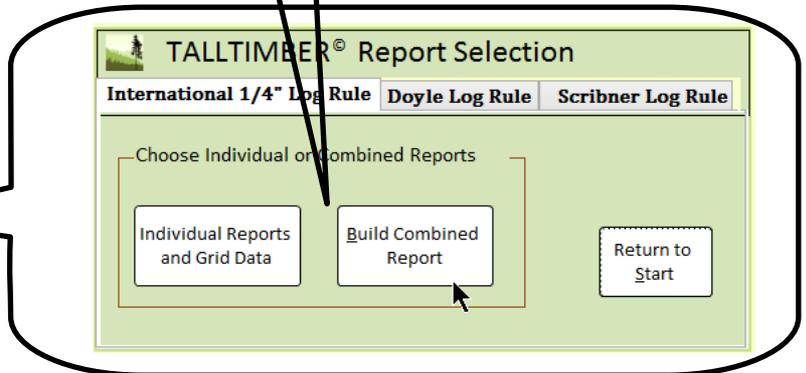
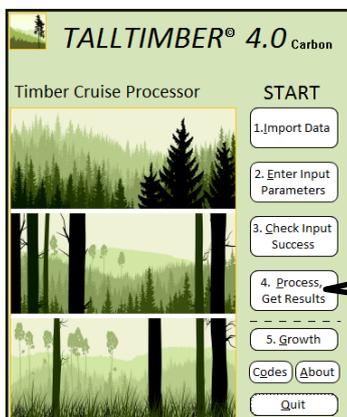
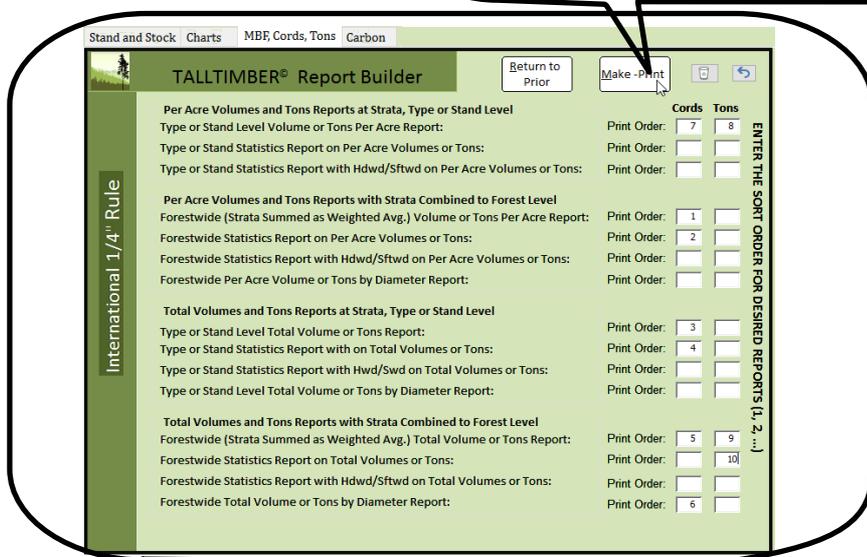
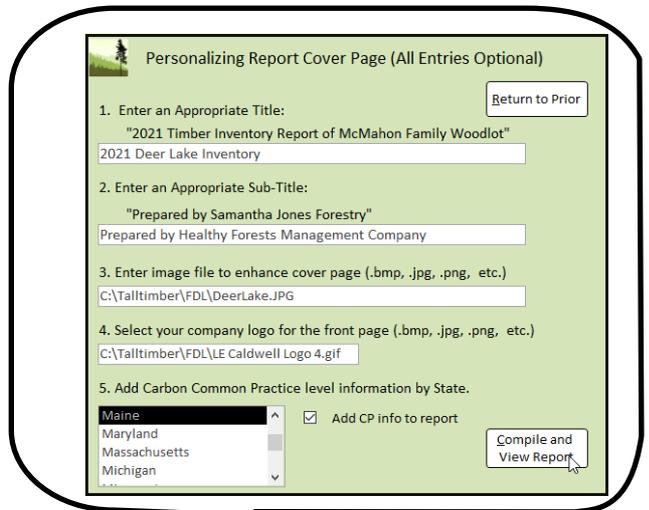
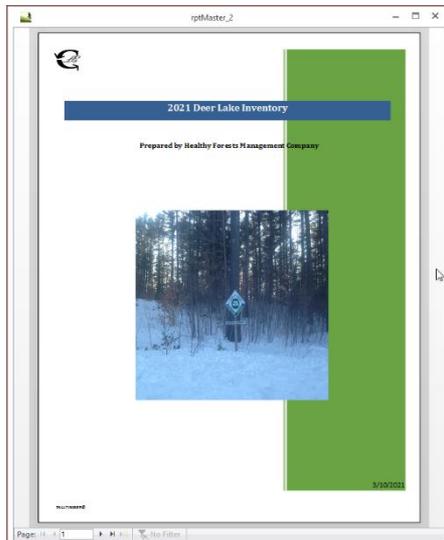


Whether using Individual Report mode or Combined Report mode, the choice of log rule is determined by the tab chosen on the form titled Report Selection (shown in Figures 14 & 15 previous pages). When the Report Selection form opens, the International ¼” tab is selected by default. Operators can easily change this by clicking on the tab for Doyle or Scribner log rules also visible on the Report Selection form.

Individual Report mode has 72 different reports available in each of the three log rules, among which are eight pie charts and eight bar charts. Additionally, Individual Report mode provides a button for producing table data associated with 30 of the 72 reports, one of these tables is shown at the top of Figure 15. The tables can be copied and pasted into a spreadsheet, or directly exported using the External Data menu located on the MS Access ribbon. These tables have several pieces of information not available in the printer ready reports. For example, some tables provide sawn products in cubic foot volumes along with board foot, and cull volumes (associated with the product = 7 code) are also available. These tables provide accessible material for further analysis, charting and development to meet your unique needs.

Combined Report mode provides two flexible input forms that help you create a master report (an inventory document with multiple tables & charts). First, the Report Builder form allows you to include and order the subreports for your master report. There are 74 subreports to choose from among four tabs on the Report Builder form. Up to 15 of the 74 subreports can be selected and put in the desired order of presentation. Secondly, the Personalization form allows pictures and logos to be entered on the cover page, along with titles and subtitles as shown in Figure 16 (next page).

The Personalization form also has an option (#5) of including a subreport including Common Practice carbon levels for one of the lower 48 states. These Common Practice levels are output by “Supersection” and “Assessment Area”, carbon offset protocol terms used to compartmentalize area and forest types within that area. To include that subreport, you click on a state from the list box and then select the “Add CP info to report” checkbox. These levels are provided by California EPA Air Resources Board (ARB) for carbon offset forest projects and get printed to the beginning of the report for those wanting to compare their forest’s carbon levels to the current ARB Common Practice. This is just an option, and does not print out if not selected.



**Figure 16.** Combined Report mode allows building compiled sub-reports in the sequential order of your choosing, along with personalized business logo and imagery for the cover.



The functioning of the Report Builder in Combined Report mode is built to be instinctive, and has a similar layout structure as the Individual Reports form, but there are some obvious differences. The Report Builder is a 4-tabbed form that has blank text boxes made for entering numerical values corresponding to the order that you want your sub- reports to be shown in.

Choosing a report means entering a number in the text box next to it, as reports with blank text boxes will not be included. This entering process occurs over the 4 tabs titled “Stand and Stock”, “Charts”, “MBF, Cords, Tons” and “Carbon” as shown in the center of Figure 16 (page 23), where the “MBF, Cords, Tons” tab is selected and 10 reports are ordered from 1 to 10. For the sake of completeness, we point out that it would be possible for more than 10 to be selected as you can only see one tab in Figure 16. Reports 11 to 15 could be selected on the “Stand and Stock”, “Charts” or “Carbon” tabs. In summary, 15 reports of the 74 possible can be included into a combined report, and TallTimber will sort them according to the numbers ordered in the text boxes with empty text boxes excluded from the master report. Reports can be in units of green tons or cords or both for low grade products.

After using TallTimber, you will likely settle in to a certain selection and order of reports that become your preferred standard master report. In anticipation of this, TallTimber stores and retrieves the reports and order from the last master report produced. These values are automatically filled in the text boxes when the Report Builder is next opened. If a different combination of reports is desired, you can easily clear the text boxes by clicking the Trash icon  on the Report Builder form. This erases the data in the text boxes on all 4 tabs. If the trash icon is clicked inadvertently, the Undo Arrow icon  can be selected to bring back the erased values.

The top of Figure 16 shows how the Personalization form, described earlier, allows operators to customize the master report cover page, along with the resultant report to its right. These customizations are optional entries. Operators do not have to add values to the empty text boxes for titles and the other fields, they can simply click the “Compile and View” button to create the report with a generic cover page. This is not a bad approach until you have settled into a definite selection of reports and order. Filling out the Personalization form is generally saved for the final version or versions to be printed or otherwise saved. Once the master report is created it can be printed to a pdf, a paper version, or whatever print format currently installed on operators' systems. Closing the master report returns you to the Report Builder form.

The forms shown in Figure 16 also show the stepwise path typical of how you can back out of different locations within TallTimber. All the forms beyond Start have a Return button that allows you to retreat from your location one step at a time, which is the way we suggest people maneuver within TallTimber. The actual master report has a close button in the upper right hand corner, as is common with MS Windows programs.



## Carbon Reporting

New to version 4.0 is carbon reporting. The carbon reports are an extension of the existing reporting form structure, with 2 additional tabs added to the individual report form (Figure 17), and a single tab added to the combined report form. These additional tabs accommodate 16 new carbon reports and extra grid data buttons for directly exporting table output to your spreadsheet. The 2 additional tabs within individual report mode offer carbon per acre and total carbon output as computed by the Jenkins, et al method published in Forest Science (2003), with additional information provided by the United States Forest Service GTR NRS-88 (2011). The carbon calculations within TallTimber start with the cubic feet of wood in the bole of the tree, and then proceed from there with the Jenkins system. TallTimber is flexible, allowing you the choice of using either Scott’s equation or TallTimber’s to calculate cubic feet, “seeding” the process. The results differ only slightly, but there is already an existing use of Scott’s equation by those computing carbon values with FIA, so TallTimber provides utility for those professionals already using Scott’s in an established process (see Figure 17).

The carbon reporting process uses a tree components approach. In other words, each tallied tree in your dataset is broken into its constituent parts (roots, stump, bole, tops & limbs) and the carbon is estimated in metric tons (or tonnes) for each of those components. A metric ton equals 2204.62 pounds, and is the international standard in forest carbon reporting. The acronym “AG” shown in the report means “Above Ground” while “AG CO2eq” means “Above

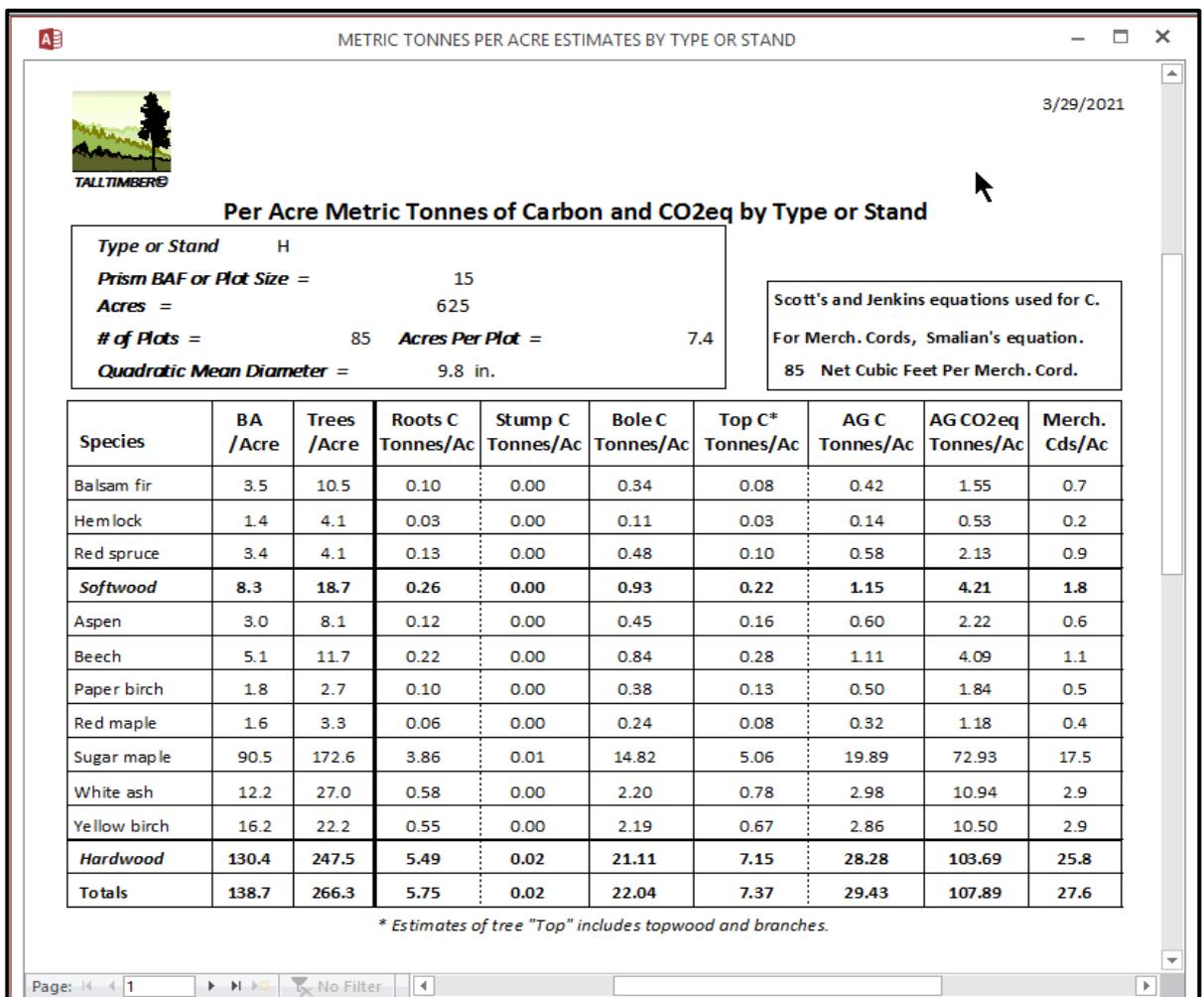
The screenshot shows the 'Carbon Per Acre' and 'Total Carbon' tabs selected in the navigation bar. The main content area is titled 'TALLTIMBER® Reports' and features a vertical sidebar on the left labeled 'International 1/4" Rule'. The interface is divided into two main sections: 'Per Acre Metric Tonnes Carbon Reports at Strata, Type or Stand Level' and 'Per Acre Metric Tonnes Reports with Strata Combined to Forest or Property Level'. Each section contains several rows of report options, each with a 'Report' button and a 'Grid Data' button. The 'Report' buttons are highlighted in a light blue color. The 'Grid Data' buttons are in a light green color. The interface also includes 'Return to Prior' and 'Return to Start' buttons at the top right.

**Figure 17.** Individual Report Mode in TallTimber 4.0 provides tabs for Carbon Per Acre and Total Carbon. Reports are based on Scott’s equation or TallTimber’s cubic foot calculation, which by default is Smalian’s, but could be modified to Huber’s or Newton’s in Step 2.



Ground CO2 equivalents". Using CO2 equivalents simply allows both the implied atmospheric effect of sequestered carbon to be reported as well as the standard by which the global-warming-potential of other greenhouse gasses can be compared. One unit of carbon has the ability to impact *approximately* 3.67 units of atmospheric CO2.

The TallTimber reporting process is one that brings traditional forestry measures such as basal area, trees per acre, and merchantable cords alongside estimates of carbon language shown in Figures 18-19. We've done this to help forestry professionals more easily think about carbon values. For example, *metric tons* of above-ground carbon tend to compare similarly to *merchantable cords* of timber. While they are not always as close as shown in Figures 18-19, it is not unusual for them to be quite similar. We encourage TallTimber users to make these comparisons as they work with carbon reporting. Stumps contribute the least carbon mass compared to other components of the tree shown in Figure 18.

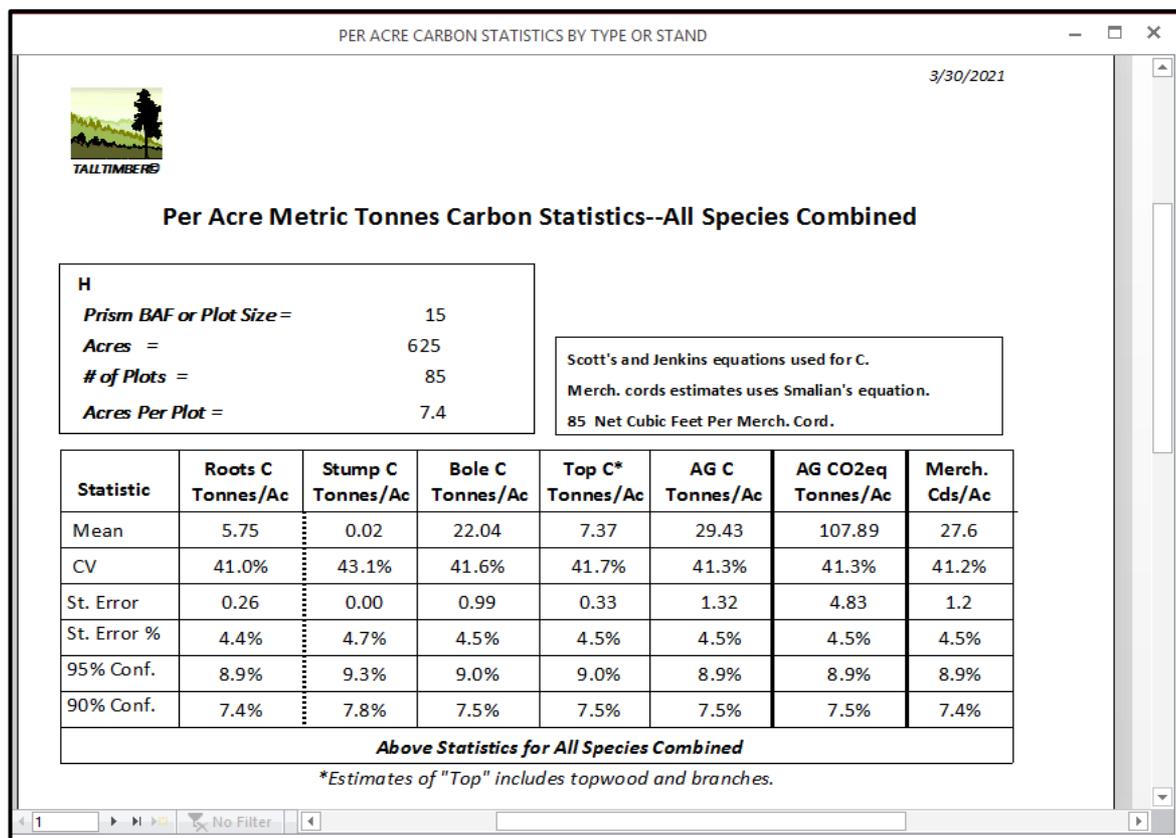


**Figure 18.** TallTimber reports carbon by tree component, summed into above-ground carbon, and finally as AG CO2eq. Merchantable cords, BA, and TPA are also included.



Internally, TallTimber performs the carbon calculations in a stepwise approach, moving from cubic feet of bole material, to volume of components, to dry biomass of components, to carbon in components, to above-ground carbon. Along this process, TallTimber builds tables and stores them in the navigation pane for inspection by the more curious or serious-minded analyst. Most people will not care to venture into these background tables, but we have provided them for clarity, for equation proofing, and for curious minds.

Statistical reports produced from the carbon tabs follow the structure of the Per Acre and Total Carbon output, with component estimates made with their confidence values, standard error's, and CV's (coefficients of variation). The variability of AG Carbon/Acre, shown in Figure 19, is nearly identical to the variability of Merchantable Cords/Acre, an anticipated outcome. The reports have an asterisk item for the "Top" heading, reminding readers that this component includes branches. Foliage is generally not included in estimates of AG carbon, but is calculated by TallTimber and included in the previously mentioned tables.



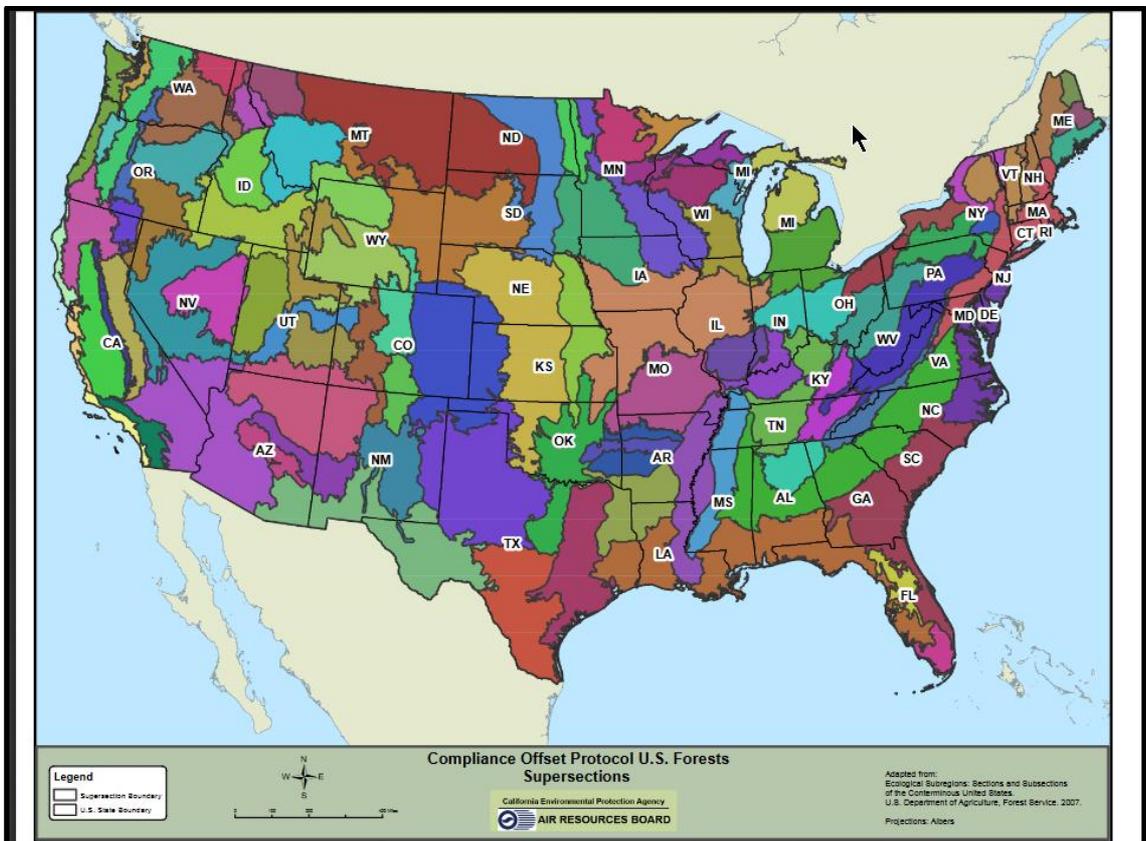
**Figure 19.** An example of a carbon statistics report providing variability information on the estimated carbon and merchantable cord values. The assumptions regarding the volume equation process and cubic feet per cord are printed in a box above and to the right.



## Supersections, Assessment Areas and Common-Practice Levels

A better understanding of TallTimber’s carbon reporting potential can be built on a few more pieces of information relating to how different forest properties in the country can be ranked or assessed with regards to their carbon offset potential. In other words, forest acreage gets classified into differing buckets by a set of standards that are already in place. TallTimber has some of these standards built in, making them easily accessible. The following describes in general terms how the most common classification system currently works.

California’s Environmental Protection Agency has a department called the Air Resources Board (ARB). The ARB is involved with standards and protocols related to carbon offset projects done under California’s regulated compliance market. ARB protocols are used in forest carbon offset projects outside of California as well. One of the basic elements to ARB’s classing of forested land is based on a generalized map of similar biophysical land conditions, shown below in Figure 20. Each of the colored regions in Figure 20 is called a “Supersection” and is the first division of forested land within the ARB’s classing system. TallTimber has this



**Figure 20.** U.S. Supersections mapped by California’s Air Resources Board. Supersections are an early level of classifying forested land, and can cross state boundaries. The above map is accessible from TallTimber’s main switchboard “Codes” button.



map embedded in it and can be viewed by starting from the main switchboard and selecting: Codes > Calif. EPA ARB Supersection Map.

Within each Supersection is a secondary division of forest land called an Assessment Area. Assessment Areas can be thought of as a very broad collection of forest types that are irrespective of stand age or development class (e.g. “Cove Forests”). There are generally between 3-6 Assessment Areas for each of the 97 Supersections, creating a current total of 322 Assessment Areas. Lastly, because some of the Assessment Areas are further subdivided by site productivity classes, such as “Cove Forests/Site Class 1-4” and “Cove Forests/Site Class 5-7”, we calculate a total of 432 Assessment Area strata currently in the lower 48 states.

Importantly, the stocking levels for each of these Assessment Areas are calculated from a 5-year panel of USFS FIA plots with the mean stocking levels for these different strata getting benchmarked as “Common-Practice Levels” (CP’s). These CP levels are by basal area/acre, board feet/acre, and tons/tonnes carbon per acre stocking. TallTimber 4.0 has this CP level information at the ready and allows you to print out any State’s CP information along with your other reports by using Combined Report Mode (Figure 21). Corresponding to the USFS’s FIA process, board feet/acre values are in units of International  $\frac{1}{4}$ ” Log Rule.

The CP levels rely on FIA data, with some of them also relying on FIA’s site productivity class code (SITECLCD) variable as a further distinguishing metric (stated above). Information on this variable can be accessed by starting from the main switchboard and selecting: Codes > CP-Level Site Class Codes. The site productivity class code values go from 1 to 7 and are calibrated in units of expected cubic foot growth/acre/year. You might reference this information if your project includes classifying forest land into correct Assessment Areas.

To make the most use of the Common-Practice level information provided by TallTimber, you will need to figure out which Supersection your property lies within, and then do your best job of assigning your inventory strata to the appropriate Assessment Areas. While some TallTimber users don’t need to work with carbon at this time, others that want to work with carbon will still have different needs. Some people will just want to make a general comparison of the property in question to Common-Practice levels, while others will have a bigger process.

A bigger process may involve multiple Supersections and several dozen or more Assessment Areas. These projects might benefit by stratifying the input data by Supersection x Assessment Area under the TYPE variable so that you can directly compare your forest to Common-Practice levels in the appropriate Supersection. In either case, TallTimber allows you to check out how the property in question measures up to public benchmarks.



### Personalizing Report Cover Page (All Entries Optional)

[Return to Prior](#)

- Enter an Appropriate Title:  
 "2021 Timber Inventory Report of McMahon Family Woodlot"
- Enter an Appropriate Sub-Title:  
 "Prepared by Samantha Jones Forestry"
- Enter image file to enhance cover page (.bmp, .jpg, .png, etc.)
- Select your company logo for the front page (.bmp, .jpg, .png, etc.)
- Add Carbon Common Practice level information by State.  
 Add CP info to report

[Compile and View Report](#)

<b>Massachusetts</b>		<b>Carbon Project Common Practice Levels</b>				
<i>SuperSection x Assessment Areas</i>	<i>Site Class*</i>	<i>BA</i>	<i>Bd Ft/Ac**</i>	<i>C Short Tons/Acre</i>	<i>C Metric Tonnes/Acre</i>	<i>CO2 Metric Tonnes/Acre</i>
<b>Adirondacks &amp; Green Mountains</b>						
Northeast Conifers	1-4	143.75	8,867.9	29.46	26.72	97.98
Northeast Conifers	5-7	130.19	7,435.4	26.94	24.44	89.60
Northern Hardwood	1-4	122.15	6,432.7	30.53	27.70	101.56
Northern Hardwood	5-7	115.41	5,821.2	30.85	27.98	102.60
<b>Lower New England - Northern Appalachia</b>						
Mixed Hardwood	1-4	122.35	15,390.9	38.84	35.23	129.18
Mixed Hardwood	5-7	101.71	7,509.5	29.74	26.98	98.93
Northern Conifer	1-4	155.07	12,970.6	36.19	32.83	120.38
Northern Conifer	5-7	132.30	10,079.0	30.39	27.57	101.10
Northern Hardwood	1-4	123.75	8,451.1	34.15	30.98	113.61
Northern Hardwood	5-7	114.71	6,730.3	30.92	28.05	102.87
Oak-Hickory	1-4	132.96	11,816.2	43.56	39.52	144.90
Oak-Hickory	5-7	121.62	8,641.4	38.49	34.92	128.03
Shortleaf-Loblolly-Oak	1-7	100.08	3,532.6	20.89	18.95	69.48

**Figure 21.** Common Practice levels by Supersection and Assessment Area for a hypothetical forest in Massachusetts. Massachusetts has 2 Supersections and 13 Assessment Areas.



## Working with TallTimber: Step 5. Growing the Inventory, Including Growth Reports (Videos 10-12 on Playlist)

One of TallTimber's most helpful features is that it simplifies the creation of input files and facilitates the use of the US Forest Service's FVS growth model (Forest Vegetation Simulator), and its Suppose interface. If you have no experience with FVS, skip to the Appendix and read *A Digression on FVS*.



**Figure 17.** The growth process begins by clicking Step 5, followed by clicking the first button on the TallTimber 2 FVS form. This opens the larger FVS Input form, shown above with the FVS Variant choice being made.



Along with easier FVS input file production, TallTimber creates helpful reports that calibrate FVS cubic foot volume output to TallTimber produced volumes. In this way, operators get growth projections that are calibrated to the inventory they have just collected, which may be different than the regional average information relied upon if using uncalibrated FVS output. Operators can produce growth projection reports that can be added as a last page of the inventory report, or just the input files required for starting a larger growth modeling exercise. Either way, TallTimber accommodates the required inputs for growth modeling an inventory.

After clicking the Growth button (Step 5) on the Start form, the TallTimber 2 FVS process starts with entering basic input data required by FVS. Operators click button 1 on the TallTimber 2 FVS form shown in Figure 18 (next page). The first entry required on the FVS Input form shown at the top of Figure 17(previous page) is the FVS Variant, the geographic locale of the model growing their data.

After choosing the variant appropriate for their dataset, the next choice is how the individual plots within a stand, type or stratum are to be aggregated with respect to the tree list input file (\*.fvs files). This is shown at the top of Figure 17 as Item “B. Combine Points at Stand/Strata level?”, a required entry on the FVS Input form. This is a somewhat technical issue to discuss, and most operators should just remember to always select the “Yes” button. We touch on the technical side more in the next paragraph.

In most cases, you will want all points within a stand or stratum to be listed one after the other in a single \*.fvs file. For example, if you have 175 total cruise points over five stands or strata, you would have just five \*.fvs files, one named for each stand or stratum in the inventory. When this is chosen, FVS averages plots within a stand/stratum equally and produces summarized growth output of plot averages for that stand, type or stratum. Occasionally, but not often, you may want to grow each point or plot independently, making a tree list for each point or plot, and then growing them individually. This might be the case if you needed to weight your points or plots differently within a stratum or type, meaning you want to control the averaging process outside of FVS.

TallTimber accommodates this possibility, and allows you to choose “No” for item “B. Combine Points at Stand/Strata Level?”. In that case, rather than name the \*.fvs file after the stratum containing it, TallTimber will name the \*.fvs file after the point or plot number, as in 158.fvs (an FVS tree list file for an assumed point #158). Again, this is the exception, and is only included for those growth modelers who have goals different than the typical TallTimber operator. It’s also important to mention as those choosing this option will not be able to use TallTimber’s growth reporting functionality without modification. However, operators making this choice will likely want to build a stratification process that is specific to their unique project, so we suspect this is a non-issue.



FVS File Building Inputs (\*.loc, \*.slf, \*.fvs)

### 1. FVS Input: A-B-C

Fill in the Blanks

**A. Choose Variant**  
FVS Variant: LS

**B. Combine Points at Stand/Strata Level?**  
 YES (commonly used)  NO (sometimes used)

**C. Site Quality, File Locations, Year**

Stand, Type or Strata Name	Site Index (SI)	SI Species	Input Files Locations (where to put the files)	Simulation Start Year
H	entry fields 70	SM	C:\Scrap\	2017
HS	entry fields 60	RM	C:\Scrap\	2017
S	entry fields 50	BS	C:\Scrap\	2017
SH	entry fields 55	RM	C:\Scrap\	2017

Return

**Figure 18.** The FVS Input form allows assigning (A) a model variant, (B) the tree data combination choice, and (C) four variables determining site index, site index species, location of FVS input files, and the year simulation starts. Clicking Return stores these values and closes the Input form.

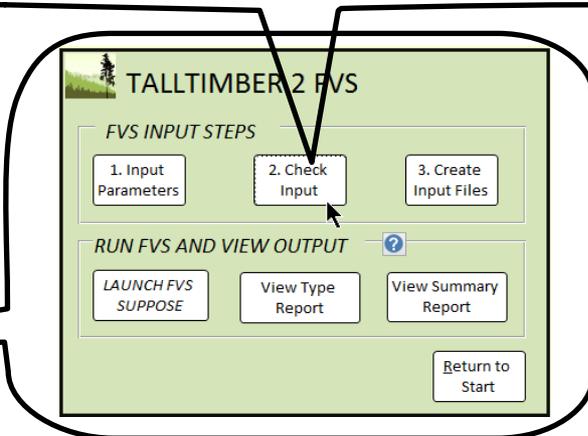
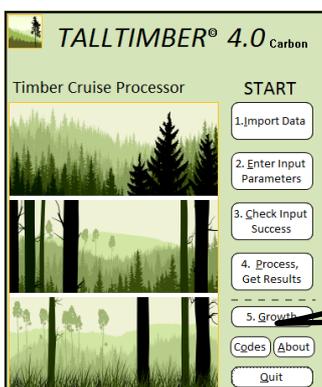
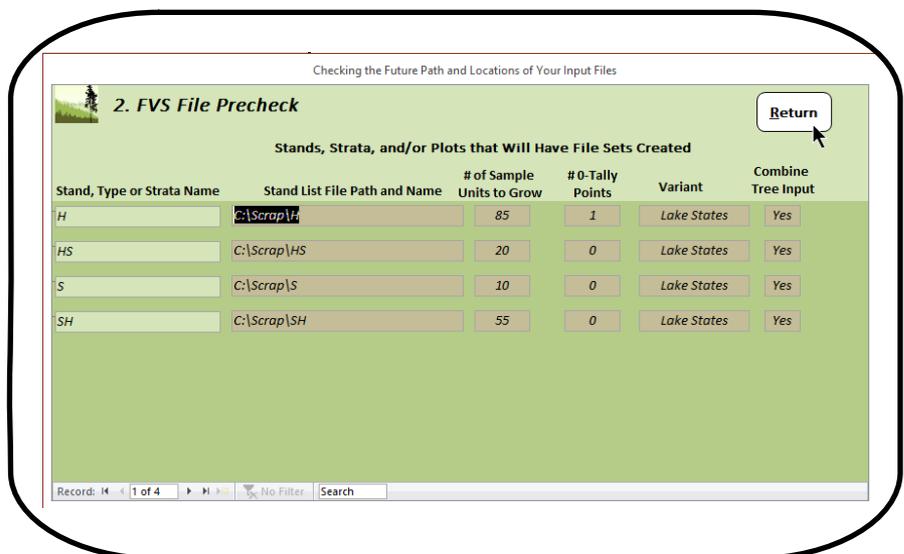
Figure 18 shows the same FVS Input form from Figure 17, but now filled in for a hypothetical forest and its timber cruise dataset from the Lake States region (variant = LS). We can see that the dataset has four strata; H, HS, S, and SH and was hypothetically cruised in the winter of 2017. By entering 2017, the growth modeling results will include the 2017 growing season, rather than beginning with the 2018 growing season, which would be appropriate if the cruise occurred in the fall of 2017 or the winter of 2018. Operators should be alert to this as it relates to the cruise history of their datasets, making sure they don't give or take a year of growth from their output.

From Figure 18, we also see the site index and site index species assigned to the different strata. Site index information is available through a multitude of online sources, including the Forest Service's FIA (Forest Inventory and Analysis) data and the Natural Resources Conservation Service (NRCS). For our hypothetical forest, we buttressed our professional experience with an NRCS paper on site index titled *Michigan Forestry Conservation Technical Note #23* (2003) and entered the values shown in Figure 18. Lastly, we filled in the text boxes associated with the "Input Files Locations" header with a path statement indicating putting the files in a folder called "Scrap" that is located on the C drive (C:\Scrap\). This last part is facilitated by an explorer window that opens when you click on the Input File Locations text boxes. In that fashion, operators can easily navigate with their mouse to the folder where they want the files written and click OK.



Clicking Return on the FVS Input form stores those values and also checks to see that they have been completely filled out. If not completely filled out, operators are warned of that with a message box that pops up and gives them a choice of returning to complete the Input Form, or close it with incomplete information.

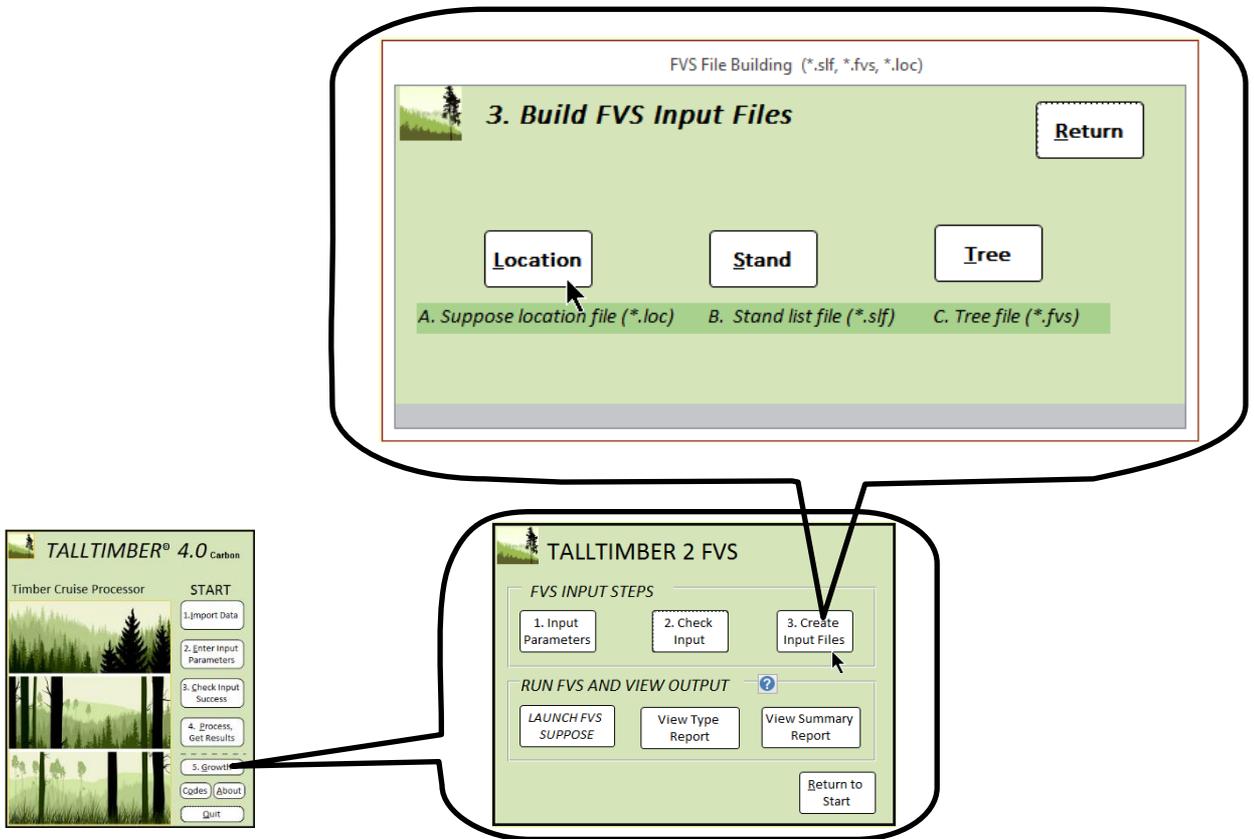
Figure 19 shows the action of Step 2 on the TallTimber 2 FVS form, which simply opens the FVS File Precheck report which gives operators an opportunity to make sure the FVS input files will be created as intended. This is another “measure twice, cut once” step in TallTimber. We want to make sure operators have selected the correct variant, that all the intended strata have been appropriately filled in, and that the 0-tally points are once again accounted for in the FVS input files soon to be created. While this is an optional step, it is suggested to spend a minute looking over the Precheck report.



**Figure 19.** The second item on the TallTimber 2 FVS opens the FVS File Precheck report for operator inspection of their input choices. For example, showing the FVS variant chosen.



The third item on the TallTimber 2 FVS form opens the Build FVS Input Files form, a simple form shown at the top of Figure 20. Clicking the three buttons on this form (Location, Stand, Tree) writes the input files necessary for running FVS to the computer path prescribed earlier. There are three types of files getting written and they are described below from most general to most specific. There is a hierarchy to their structure, with most general (location) moving towards most specific (tree). All three file types are required.



**Figure 20.** The Build FVS Input Files form executes the building of the FVS input files.

Three FVS File Types:

Location file: One per inventory, always named “Suppose.loc”. It lists the names of the stands/strata and where on the computer their files reside.

Stand list file(s): One file for each stand/stratum to be grown, have “slf” file extensions. Has site quality information and other stand level attributes.

Tree file(s): Typically one file for each stand/stratum to be grown, but can be as many as there are points/plots. This depends on the aggregation choice made earlier. Has tree data.



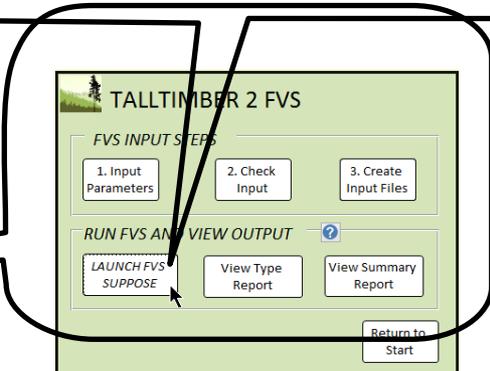
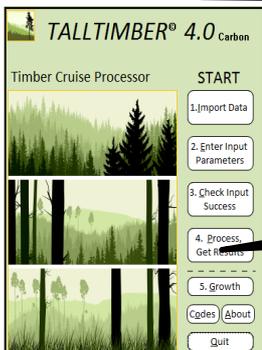
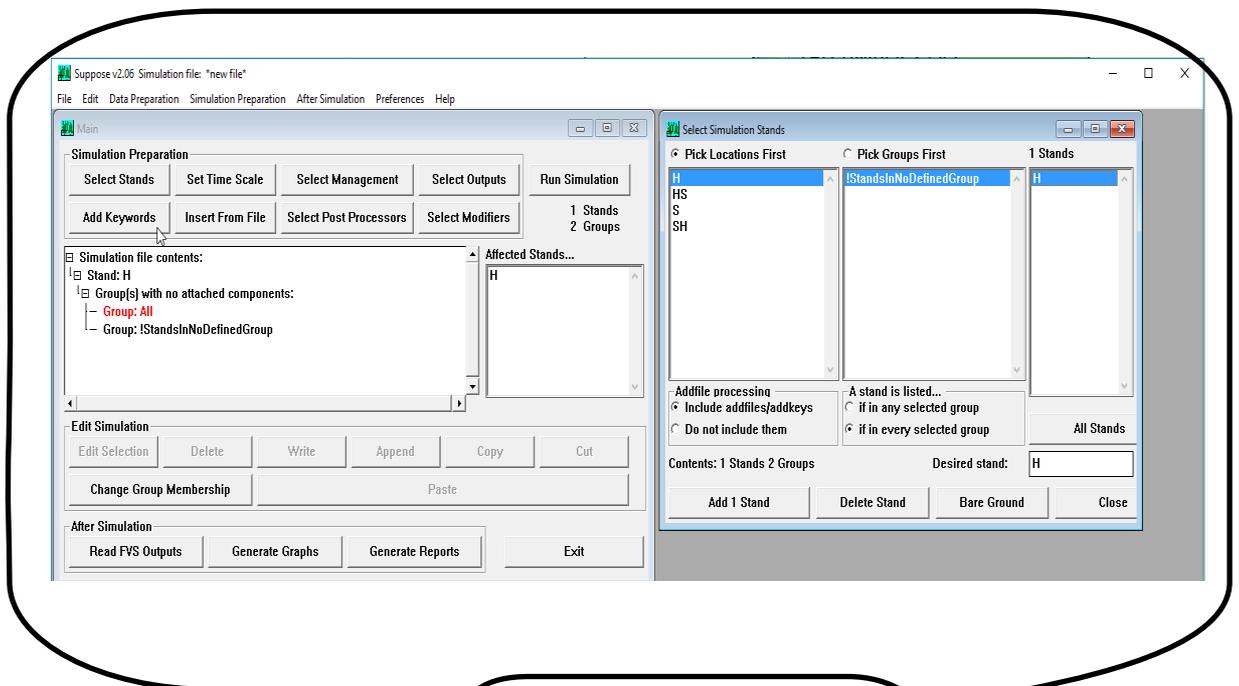
After building the input files, the next step is to launch Suppose, the interface operators interact with to run the FVS growth model. If you do not have FVS Suppose installed, you will need to do that before proceeding. FVS can be downloaded from the Forest Service website and installed as a complete package

(<https://www.fs.fed.us/fmfc/fvs/software/complete.php>). For more information on growth modeling with FVS Suppose, jump ahead in this manual to the Appendix section titled *A Digression on FVS*.

Regarding FVS, our goal with this manual is to provide an overview of FVS function, and how it integrates with TallTimber via the TallTimber 2 FVS process. Operators having had little exposure to FVS modeling or are just starting their journey with computers can be best served through direct instruction, which is why we've worked hard to provide a helpful video resource at the TTimber YouTube channel (videos are listed towards the end of this document). We recommend that all people, with limited FVS experience or not, check out our instructional videos for better understanding how to use FVS and TallTimber generally. Website addresses for FVS manuals and training are listed in the Appendix and our website.



The top of Figure 21 shows the Suppose interface opened with the stand selection form located on its right after the “H” stratum was selected (highlighted in blue) and added by clicking the “Add 1 Stand” button. The stand selection form opened after the Locations file (Suppose.loc) was opened through the File menu shown at the top left of Figure 21. The process is one where operators grow each stand or stratum in a series of steps, which are then repeated for the next stand or stratum (first H, then HS, etc.).



**Figure 21.** The Suppose interface is launched by clicking the button shown above on the TallTimber 2 FVS form. Next, the “File” menu is chosen and the “Select Locations File” option is used to open the Suppose.loc file. Then the stand is added by working with the Select Simulation Stands form shown to the above right.



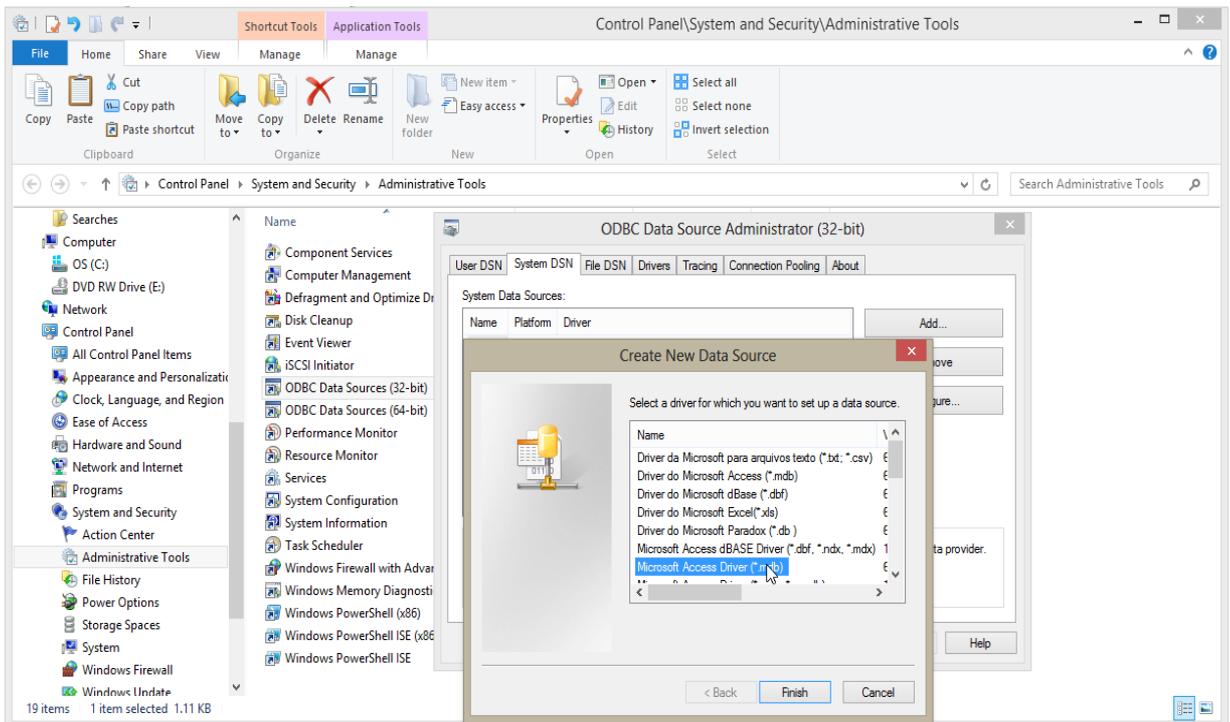
One of the required aspects to make the TallTimber 2 FVS work properly is that FVS needs to send its growth projection output to a database called FVSOOut.mdb. TallTimber links to this FVSOOut database to make its reports, and if the output is not there, the reports won't be available. This database was included with your TallTimber purchase, but really is just a blank MS Access database named FVSOOut.mdb. So, if you accidentally deleted it, or otherwise don't have this database, just create a blank database in the mdb format, making sure it is named FVSOOut and located within the same folder as TallTimber (C:\TallTimber\FDL). FVS does not currently write to accdb style databases, so the mdb format is key.

While stressing that the FVSOOut.mdb is required for successful report production within TallTimber, we add that it is not necessary to simply run an FVS simulation. If it is absent, or not properly linked to TallTimber, FVS will just run and the output won't arrive at the proper location. This ability to send output to the FVSOOut database requires what is called an ODBC connection, a link that allows the FVS model to open FVSOOut.mdb and create tables of information in the FVSOOut database, a "container" of sorts for database objects. Setting up an ODBC connection is something you only need to do once for FVSOOut, and the process is well described in this 2016 Forest Service document (<https://www.fs.fed.us/fmfc/ftp/fvs/docs/gtr/DBSUserGuide.pdf>), and generally shown in Figure 22 (next page) for a 32-bit MS Office installation and 32-bit FVS (the most common version) on a Windows 8 operating system.



If you look closely at the background of Figure 22, you can observe the slightly shaded selections made to start the ODBC process. First, start by navigating to the *Control Panel*, then to *Administrative Tools* folder under *System and Security*, then double click on the *ODBC Data Sources (32-bit)* file which will open a form titled *ODBC Data Source Administrator*. Within the *ODBC Data Source Administrator* form, choose the second tab, *System DSN (NOT User DSN)*. Clicking the Add button will open the form shown in the center of Figure 22 titled *Create New Data Source*. On that form, select the Microsoft Access (\*.mdb) option, shown highlighted in blue in Figure 22, then click Finish. Now click Add on form *ODBC Data Source Administrator (32-bit)*.

Clicking Add opens the *ODBC Microsoft Access Setup* form shown in Figure 23. Enter FVSOut in the blank text box titled *Data Source Name*, and click the Select button, which opens the *Select Database* form shown in Figure 23 (next page). Use the *Select Database* form to navigate to the FVSOut.mdb database, which must be located in the C:\TallTimber\FDL folder as shown below in Figure 23. After selecting FVSOut.mdb, click OK on the next three forms, closing up this process and finishing the creation of the Data Source Name and the ODBC connection. The three forms are shown one on top of the other in Figure 23. We

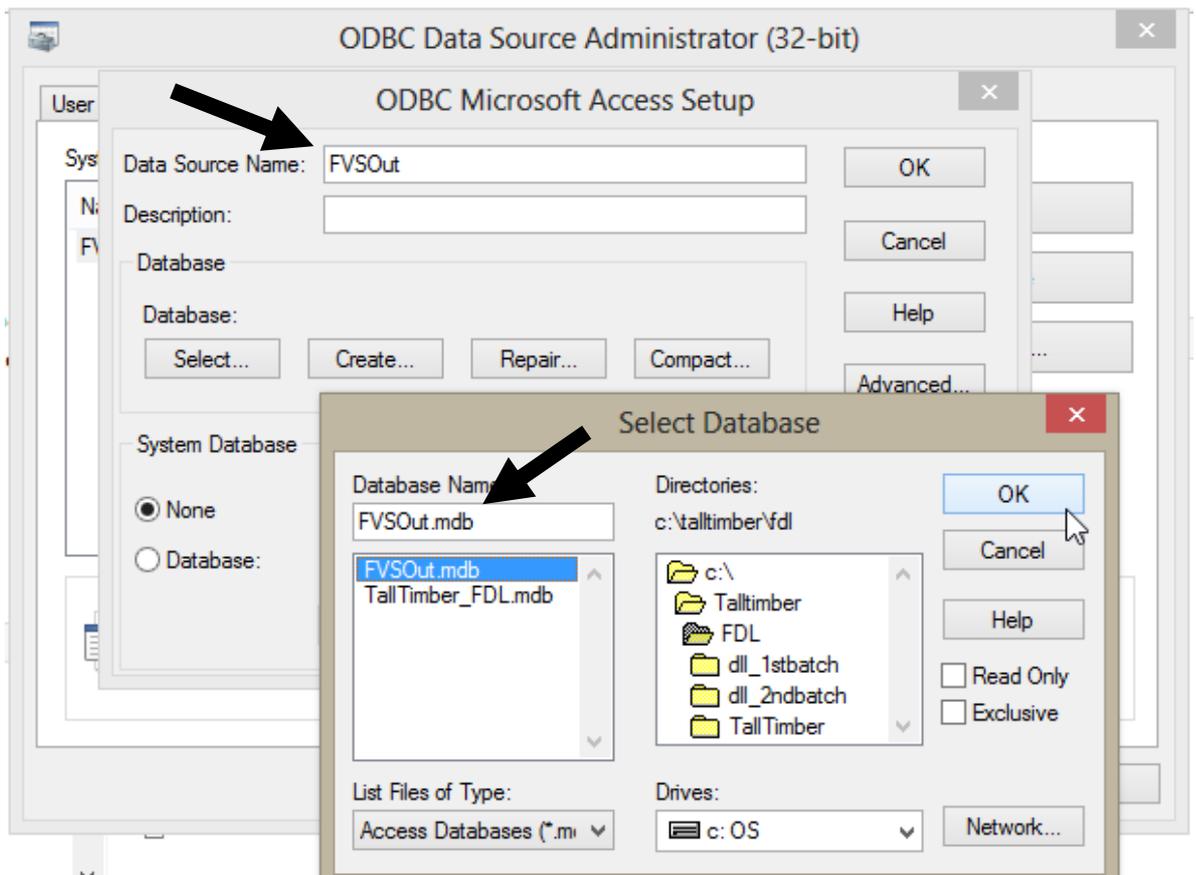


**Figure 22.** The first steps in creating an ODBC connection and DSN for FVSOut.mdb start in the control panel.

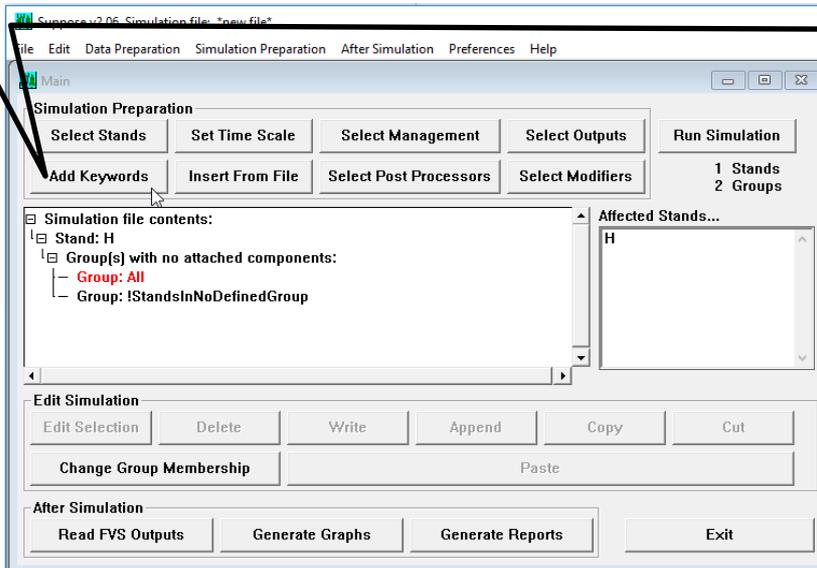
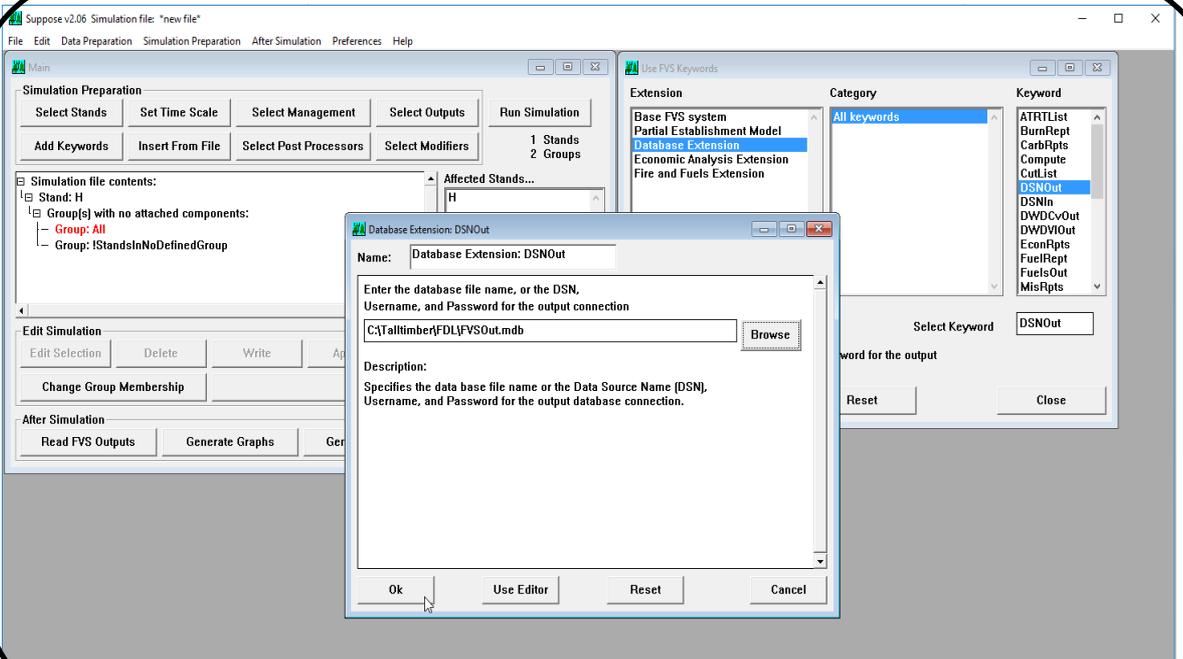


repeat that if done correctly, and the FVSOOut.mdb database is not moved or renamed, you will not have to repeat this process again. The DSN made (FVSOOut) is a durable item that exists after you close FVS and shut the computer off.

TallTimber is set up to look for the FVSOOut.mdb database in the specific location stated in this manual. Lastly, we add the fact that data source names (DSNs) also work with MS Excel and other types of database file, we use MS Access as it's the most common. It's possible to



**Figure 23.** After entering “FVSOOut” in the text box above as a Data Source Name (DSN), clicking the Select button allows us to navigate to the FVSOOut.mdb database located at C:\TallTimber\FDL. Clicking OK is then followed by clicking OK on the ODBC Microsoft Access Setup form, establishing the ODBC connection.



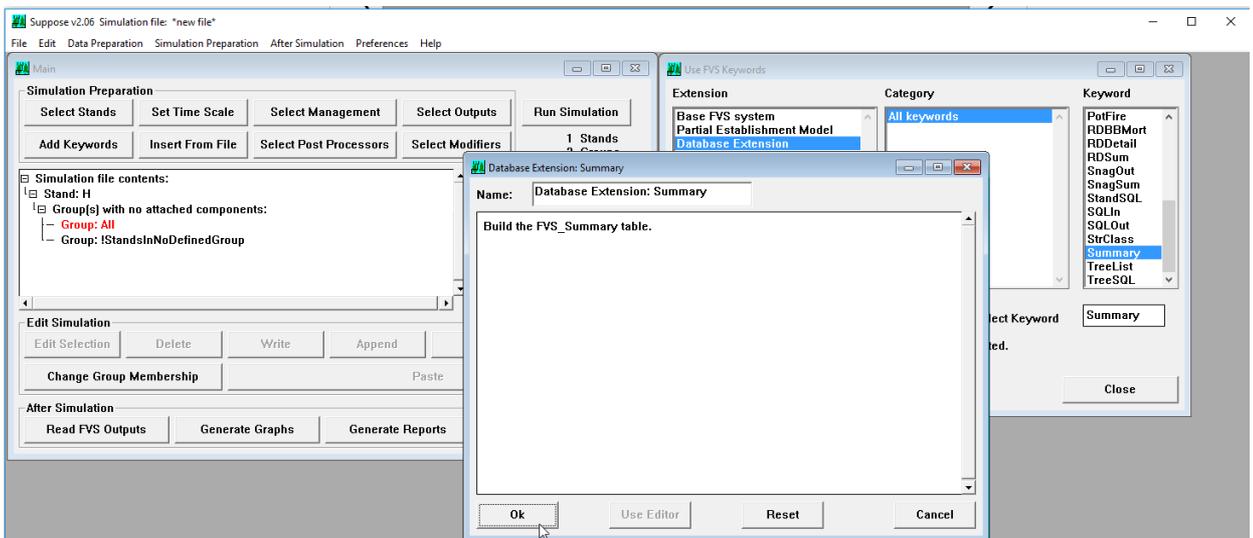
**Figure 24.** Clicking the *Add Keywords* button opens the *Use FVS Keywords* form. Two keywords need to be added in the TallTimber 2 FVS process, DSNOut and Summary. Both of these keywords are found in the Database Extension pane, highlighted above in blue.



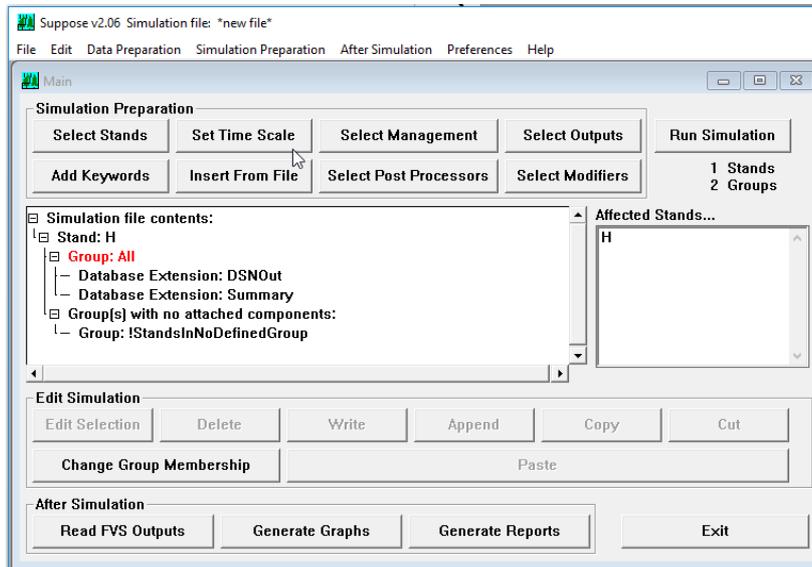
customize TallTimber to look for an Excel spreadsheet DSN rather than FVSOOut.mdb, but that is not the standard formulation we are describing in this section.

Having successfully created the DSN, we move back to the Suppose interface and continue the growth modeling started earlier. We selected “H” as the first stand or stratum we are going to model as shown in Figure 21 and also in Figure 24 on the left side of the *Main* Suppose simulation window pane, where the words "Stand: H" appear. Operators must then select the Database Extension (in blue) in Figure 24 to add Keywords.

To get the output we need, FVS requires us to enter several “keywords” in the assembly of the growth formulation we started earlier. These keywords are easily entered through the Suppose interface, by using the mouse navigation to the keyword form as shown on the right of Figure 24, and double clicking DSNOut. After double clicking DSNOut in the keyword pane, a form titled *Database Extension DSNOut* opens. Operators need to enter the name with path location of the FVSOOut database, just as shown in Figure 24 (enter this: C:\TallTimber\FDL\FVSOOut.mdb). After closing that form, next scroll down the keywords pane and double click the keyword Summary, which instructs FVS to create a summary table of its growth output, sending it to FVSOOut.mdb. The addition of the Summary keyword is shown in Figure 25, with Figure 26 showing how both DSNOut and Summary have been successfully added as keywords.



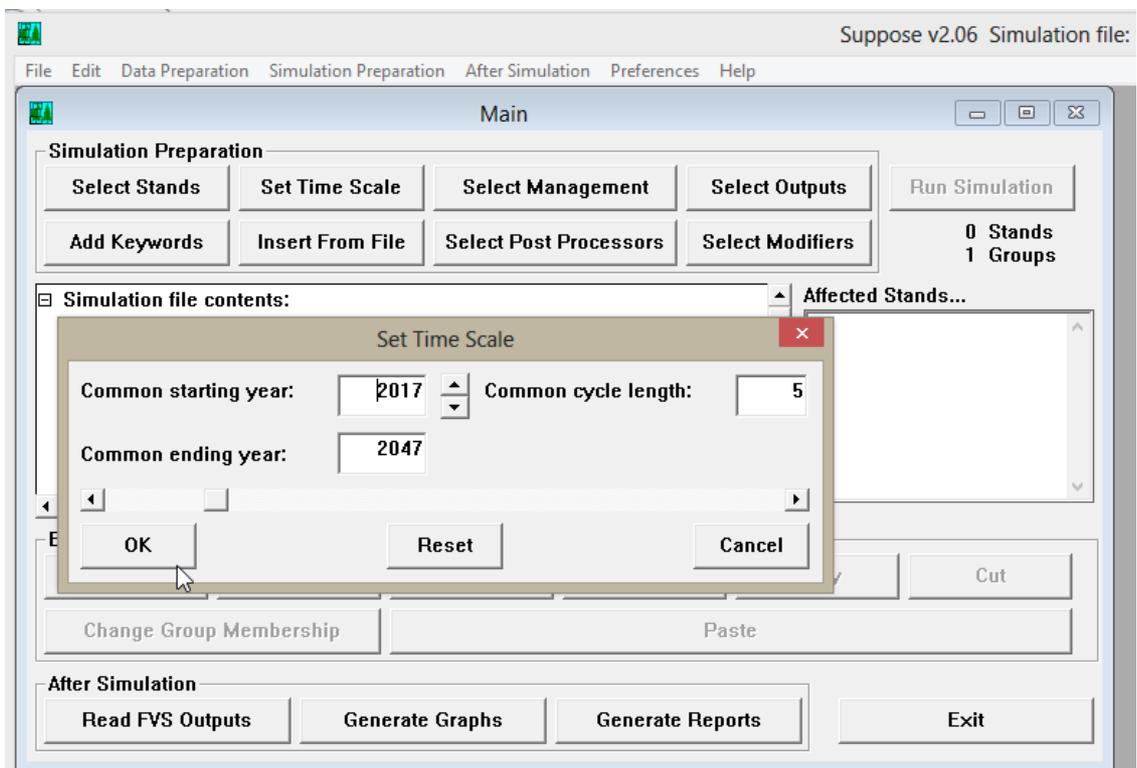
**Figure 25.** Operators add the Summary keyword by double-clicking it, highlighted in blue above. Then choosing ok adds it to the simulation pane.



**Figure 26.** The Suppose interface shows stand/stratum H will be simulated with DSNOut and Summary keywords through the database extension. This can be seen under the red font (Group: All) statement.



The last setting is to adjust the time scale by clicking the Set Time Scale button as shown in Figure 26 and then Figure 27. Figure 27 shows the *Set Time Scale* form with parameters set for a 30-year projection starting in 2017 with a five-year reporting interval. The 2017 matches what we had chosen earlier when we filled in the simulation start year on the TallTimber 2 FVS form. We draw your attention to these numbers as FVS Suppose defaults to ten-year periods and 100-year projections, which may or may not be acceptable. Some operators will want tighter reporting intervals and a shorter projection length. This needs to be reset after each run, if changed from the FVS default. You are ready to click the Run Simulation button.



**Figure 27.** Setting the time scale involves setting the period length (cycle length) and the ending year. The starting year should already match the choice made earlier when entering growth parameters in TallTimber.

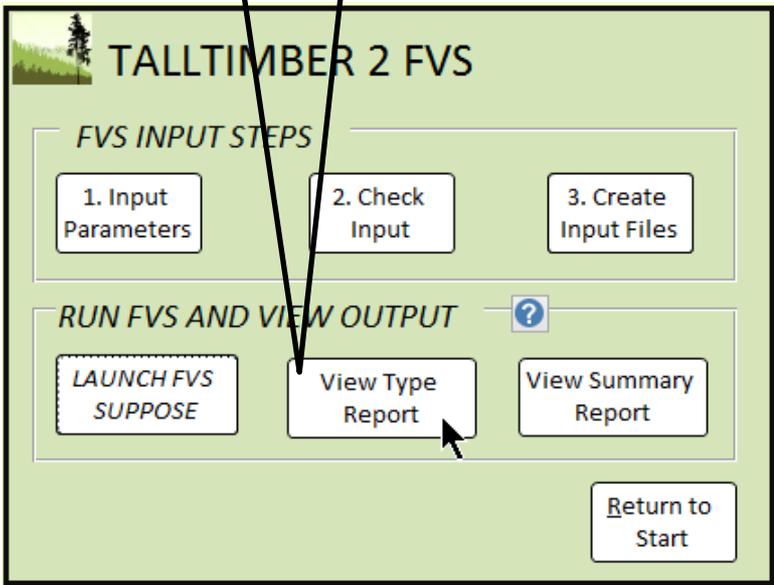
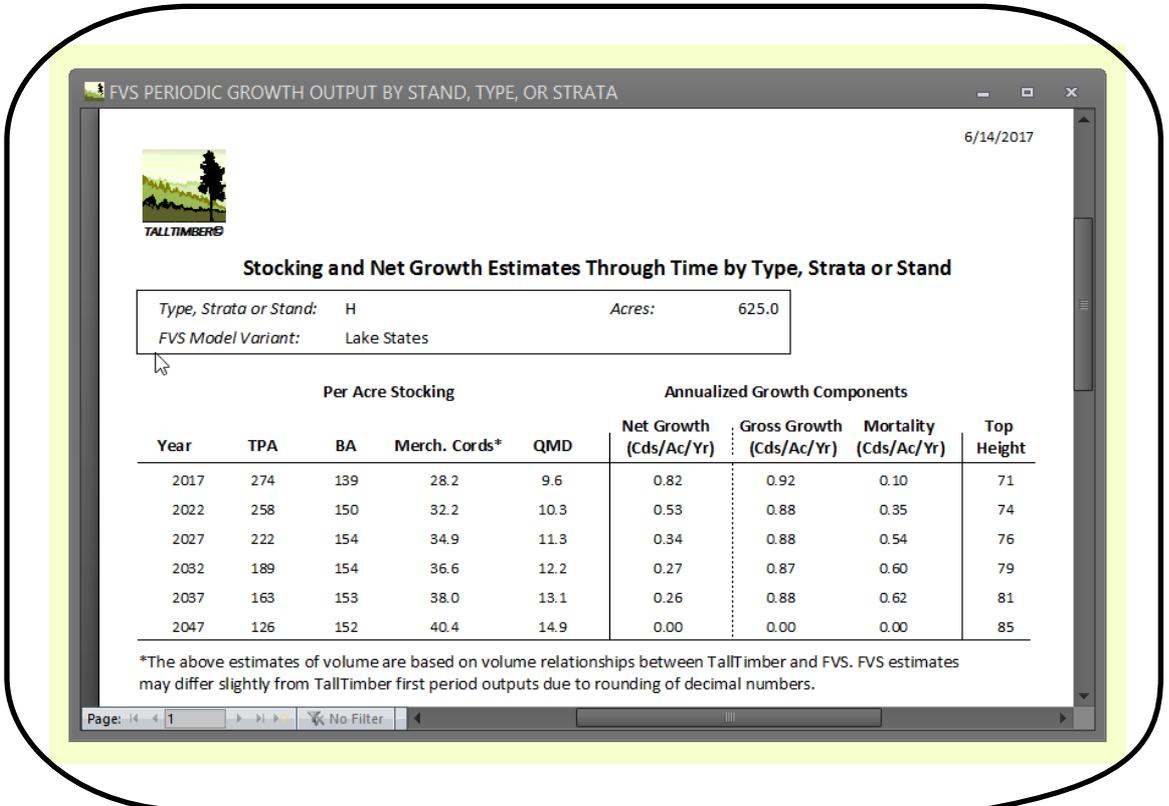


Step 5 is the more complicated part of TallTimber, and takes a few practice runs for most people to smoothly accomplish. At this point we have taken the below steps, finalized by the clicking of the Run Simulation button, which should launch a DOS window where FVS will briefly run. We list the steps to help focus you on what we've done after clicking the Step 5 button to get to this point.

1. Input stand parameters such as site index, site index species, year to start simulation, and regional variant.
2. Checked our stand parameters to make sure we have made the correct choices.
3. Create location file (Suppose.loc), stand files (\*.slf), and tree files (\*.fvs).
4. Launch FVS Suppose.
5. Choose File menu and open the locations file (Suppose.loc) from the folder where it was created in 3.
6. Add the stand by clicking the stand name in the *Select Simulation Stands* form and Add 1 Stand button.
7. Establish DSN with ODBC Manager through Control Panel (**this done just once, first use only, not required for each use of TallTimber**).
8. Add keyword DSNOOut, and designate the database as C:\TallTimber\FDL\FVSOOut.mdb.
9. Add keyword Summary. Both keywords should be visible in the pane under *Simulation File Contents*.
10. Set the timing of the simulation by opening *Set Time Scale* form and modifying it appropriately.
11. Click the Run Simulation button on the upper right hand corner of the *Main* suppose form.

At this point, we leave FVS Suppose open, and switch back to the TallTimber interface. If we have a successful DSN connection, we should be able to view the growth projection by clicking on the *View Type Report* button, which is shown in Figure 28. This growth report is for individual stands or strata, with the H stratum shown in the diagram. The Summary growth report creates a stratified growth report for all stands grown.

**An important reminder for growth modeling is that TallTimber erases growth output each time the *Launch FVS Suppose* button is executed.** The implication of this fact is that you should keep FVS Suppose open while modeling a given dataset. If you inadvertently close FVS Suppose before finished modeling and don't want to lose the projections made thus far, just re-launch FVS Suppose from the desktop or the File Explorer rather than from within TallTimber. TallTimber is set up this way to reduce the possibility of contaminating or combining old and new inventory projections leading to invalid results. This is important to remember and is a safeguard for clean FVS output.



**Figure 28.** Clicking the View Type Report button builds the stand or strata growth report. The View Summary Report button builds the stratified report, combining grown stands or strata to an average weighted by acres.



Operators have several options regarding retrieving the growth projections from TallTimber. The first would be to simply click the Print button when the report is shown like the one in Figure 28, resulting in either or both of the reports being printed (stand level and stratified property level). Operators can also return to Step 4 of the home menu and navigate to the combined report builder as shown in Figure 16 (page 23). The *Report Builder* form, shown below in Figure 29 (below), has the FVS reports included as options on the Stand and Stock tab. Lastly, operators can simply enter a value in these boxes after growing the inventory and include these individual reports into the final compiled version.

We think that adding a final section of growth projections to a static inventory thoughtfully reminds clients that forests change, and also become an opportunity to consider if, where, and when management may be appropriate at the stand or stratum level. Figure 29 has the FVS reports listed as the fourth and fifth in a series of individual reports. We remind you when looking at Figure 29 that there may be other reports included from entries on the Charts or MBF, Cords, Tons tabs which are not visible in Figure 29.

Report Section	Report Description	Print Order
Stand and Stocking Reports at Strata, Type or Stand Level	Stand, Merchantable Cord, Height Stocking at Type or Stand Level:	<input type="text"/>
	Stand, Merchantable Ton, Height Stocking at Type or Stand Level:	<input type="text"/>
	Stand, Board Foot, Height Stocking at Type or Stand level:	<input type="text" value="3"/>
	Stand and BA Stocking at Type or Stand Level Report:	<input type="text"/>
Stand and Stocking Reports at Combined Forest or Property Level	Stand, Merchantable Cord, Height Stocking at Property Level:	<input type="text" value="2"/>
	Stand, Merchantable Ton, Height Stocking at Property Level:	<input type="text"/>
	Stand, Board Foot, Height Stocking at Property Level:	<input type="text"/>
	Stand and BA Stocking at Property Level:	<input type="text" value="1"/>
FVS Results	Net Growth and Stocking Estimates at Type or Stand Level:	<input type="text" value="4"/>
	Net Growth and Stocking Estimates at Property Level:	<input type="text" value="5"/>
Stocking with AGS/UGS Classes at Strata, Type, or Stand Level	Board Foot and Cord Volume Stocking at Type or Stand Level:	<input type="text"/>
	Board Foot and Tons Stocking at Type or Stand Level:	<input type="text"/>

**Figure 29.** The Report Builder form is shown with five individual sub-reports included on the Stand and Stock tab. FVS reports are selected as 4 and 5. You can select up to fifteen sub-reports to be combined in their master report, typically a shared paper or digital product.



In summary, you will need to understand that the TallTimber 2 FVS component has a few more moving parts than the four menu steps required for processing an inventory and printing out reports. TallTimber requires the first four steps be completed before the growth area can be successfully performed. During the FVS modeling and after, TallTimber reporting requires two successful links. One between FVS and FVSOut.mdb, and the other between TallTimber.mdb and FVSOut.mdb. This means that a DSN must be created to allow FVS to write the necessary tables, and it lastly means that FVSOut.mdb must be located in the correct folder where TallTimber is looking for it (C:\TallTimber\FDL\). Most importantly, call or email us if you are struggling in the TallTimber 2 FVS module, we'll help!



## Appendix A: More on FVS

For new FVS operators, FVS is a national tree growth projection and ecosystem modeling platform, which has over 20 geographic variants suited for particular forest regions around the United States. The four geographic variants directly coded into the FVS Variants combo box (the dropdown list shown in Figure 18) cover the United States east of the Great Plains. Each of the FVS model variants has its own published 80-100 page overview guide that can be found on the FVS part of the Forest Service's website. They are listed below, along with the states covered by each variant. A broader publication intended for all operators is *Essential FVS: A User's Guide to the Forest Vegetation Simulator* (Dixon, 2017). It can be downloaded at: <https://www.fs.fed.us/fmssc/ftp/fvs/docs/gtr/EssentialFVS.pdf> .

CN = Central States; IA, IL, IN, KS, MO, NE, SD

[https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVScs\\_Overview.pdf](https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVScs_Overview.pdf)

LS = Lake States; MI, MN, WI (parts of eastern ND and northeast SD)

[https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSlS\\_Overview.pdf](https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSlS_Overview.pdf)

NE = Northeast; CT, DE, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VT, WV

[https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSnE\\_Overview.pdf](https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSnE_Overview.pdf)

SN = Southern; AL, AR, FL, GA, KY, LA, OK, MS, NC, SC, TN, TX, VA

[https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSsn\\_Overview.pdf](https://www.fs.fed.us/fmssc/ftp/fvs/docs/overviews/FVSsn_Overview.pdf)

The FVS modeling platform is extensive, including numerous optional extensions and menus of choices facilitating modeling of fire, insect outbreaks, and other ecosystem events best tested via computer simulation. However, our goals with TallTimber are more basic. We strive to make FVS accessible to foresters and landowners that are focused on simply growing the inventory they have just processed. These people may not have done much growth modeling, or don't have time to dedicate the many hours required to become an FVS expert. TallTimber does not make using FVS easy, but it does make it much easier. As stated earlier, a major plus to using the TallTimber 2 FVS process is that it overcomes the FVS problem of poor volume estimate calibration to local standards. TallTimber will use the merchantability specifications you established in the inventory processing rather than those internal to FVS.

A smaller group of TallTimber operators may be interested in deeper growth and yield studies, climate where more of FVS's keywords are employed and silviculture is modeled. In this case, we need to state that TallTimber's current input structure allows the basic FVS choices to be made. It is not setup to simplify all of the input options such as adding increment core data to your tree input files (\*.fvs files). It does include the tree history and tree value class codes associated with the input data, based on the AGS/UGS or the product section data originally input. It also is sure to bring the 0-tally points along to the growth modeling input, as would be anticipated.



In cases where more detailed projections are sought, TallTimber remains a very compelling starting point for creating FVS input files from which independent growth analyses can be pursued. In other words, create the input files with TallTimber followed by output processing outside of TallTimber. We again suggest operators obtain the manual mentioned earlier authored by Gary E. Dixon, *Essential FVS: A User's Guide to the Forest Vegetation Simulator* (<https://www.fs.fed.us/fmfc/ftp/fvs/docs/gtr/EssentialFVS.pdf>).



## Appendix B: TallTimber 4.0, Microsoft Access (MS-Access) and Its Free Runtime Version

You don't have to know how to use MS-Access to use TallTimber. The User Interface (UI) built into TallTimber lets you focus on your data, your specifications, and your output. Behind the TallTimber UI, is a Microsoft Access database in a compiled format (mde or accde file depending on what version of Access you are using). Most operators will just work with the UI and will not need to open the tables or queries behind the TallTimber program. However, we've kept many of these objects available for investigation for the more curious and experienced. We distribute TallTimber in a fashion where it must be a purposeful effort to explore the database side of TallTimber, as we don't expect most will want to view or be bothered by the nuts and bolts of the application. Tables and queries are fully accessible, so be warned that problems can arise if you edit or delete them inadvertently by exploring in this area.

One helpful aspect of delivering TallTimber as an MS-Access file is that Microsoft offers a free, run-time version of MS-Access for download from their website. People who are interested in TallTimber, but don't currently have MS Access and don't want to buy the full version, can download MS Access Runtime and use it as long as they want. MS Access Runtime is a limited version of MS Access with no time limit on usage.

You will need to work with the bit version of TallTimber that matches your MS Office. The main point to remember is that MS Office currently comes in two structures (32 and 64-bit), and we provide TallTimber in both of these. Remember that MS Office means the programs (Word, Excel, Access, Powerpoint, Outlook, etc.) while Windows is the operating system. A 64-bit Windows operating system often will have 32-bit MS Office installed, so don't guess your MS Office architecture from your operating system. You only need to care about the MS Office, whether it is 32-bit or 64-bit. You need to determine your setup so you can run the correct instance of TallTimber. Figure 30 shows an example of the identification form found under the File-Help command in a 32-bit, MS Access 2010 installation on a Windows 8 operating system. This might be found under the About command in other MS Office configurations, but the best way to figure out your version is to go to the Microsoft website and check: <https://support.office.com/en-us/article/What-version-of-Office-am-I-using-932788b8-a3ce-44bf-bb09-e334518b8b19>. This link is also posted on our homepage.



**Figure 30.** This image is from an MS Access 2010 version with 32-bit design. To view this image, we selected the following menu options from within Access: FILE-->HELP. This information is also visible in MS Word, Excel, and other MS Office applications. The discovery process varies, but may also be found under ABOUT.

### Download Site for Free Versions of MS Access Runtime:

MS Access Runtime: <https://www.microsoft.com/en-us/download/details.aspx?id=10910>

Regarding how the actual TallTimber file is named. We are using 32-bit format as the default file format in the naming of the TallTimber.mde and .accde files. The TallTimber naming convention, meaning that whenever there is a 64-bit program, we will add the "x64" to the name. So, if you don't see the "x64" in the name, assume it is the 32-bit TallTimber. Remember, TallTimber is a compiled program and the version you run must match your version of MS Access (32-bit or 64-bit). The file names of TallTimber are shown below for instances with 32-bit structure and also with 64-bit structure (x64). As stated elsewhere, we distribute TallTimber as both mde and accde files for older and newer MS Access.



**Full Version (32-bit), file names:** TallTimber\_v40.mde, TallTimber\_v40.accde

**Full Version (64-bit), file names:** TallTimberx64\_v40.mde, TallTimberx64\_v40.accde

You cannot run both 32 and 64-bit Office versions on the same operating system simultaneously (as in 32-bit MS Word and 64-bit MS Access), that choice is made during the initial installation for all MS Office products. We distribute TallTimber in both formats to all customers, and if you choose the wrong version you will simply get a pop-up window giving you feedback that you need the other bit format. Try the other version of TallTimber and you should have success. To restate, we provide all the combinations when we send your distribution kit.

TallTimber will come on a flash drive (hardware dongle) ready to be set up on your computer. It may be in a zip archive (a compressed folder) having 8-12 files in it, or just the 8-12 individual files on the flash drive. These 8-12 files need to be copied to your system. You may need to update the links to the to the FVSOOut.mdb companion file with the *Linked Table Manager* located on Access’s external data tab, as the default location for TallTimber is in the following path: C:\TallTimber\. In other words, TallTimber comes with links to the FVSOOut.mdb file expecting to find it at that path (a folder named “TallTimber” at the first level of your C drive). If you want to store TallTimber elsewhere, just update the FVSOOut links. The extra files that accompany TallTimber are detailed below.

<b>File Name</b>	<b>Description</b>	<b>Importance</b>
Read_Me.txt	Help file for setting up TallTimber	Helpful, not required
DeerLake.xls	Example file of input data	Helpful, not required
TallTimber.ico	Image file that program uses for icons	Icon file, not required
<b>TallTimber.dll</b>	<b>Library file required</b>	<b>Required</b>
<b>TallTimberx64.dll</b>	<b>Library file required</b>	<b>Required</b>
<b>FVSOOut.mdb</b>	<b>FVS output destination database</b>	<b>Required</b>

**Table 31.** TallTimber comes as a compiled MS Access file, in mde and accde versions. It also is provided in both 32 and 64-bit formats. The mde version works on all Access versions, while the accde file works on newer systems only. There are seven additional files, shown above, which vary in importance. Several are critical while others are helpful but not. It is critical that the library files (dll's) are located in the same folder as TallTimber for it to function and that the table links to two tables located in the FVSOOut.mdb.



## Appendix C: Instructional Video Help with TallTimber

YouTube Channel TTimber, organized in a Playlist at this link:

<https://www.youtube.com/playlist?list=PLaZotM2nHrOQMpmN7A5qxPQ3hxTnXD5QJ>

### Video Number

1. Input Data Formats
2. Creating a Named Range
3. Step 1-2: Importing Data and Changing Species Codes
4. Step 2: Changing Weight of Wood, Sort Order in Reports
5. Step 2: Merchantability and Regeneration Settings
6. Step 2: Cubic Feet per Cord, Scaling, Volume Equations
7. Step 3: Profile Report
8. Step 4: Individual Report Mode, Grid Data
9. Step 4: Combined Report Mode
10. Step 5: FVS Set-Up
11. Step 5: FVS Execution
12. Step 5: FVS Report Interpretation and Inclusion



## Appendix D: Quick Start Guide

For those who like to jump in and figure things out with less assistance, we offer the shorthand version of moving ahead with TallTimber. If you already have MS Access on your computer, are not flustered by uncertainty, give the following a try.

1. Create the folder path on your C drive of C:\TallTimber\. Put all files in your TallTimber package in the TallTimber folder. There will be 6-12 files, depending on version. Check out the Read\_Me.txt file. **TallTimber will work in other folders, but this folder structure is the default for the links established with 2 tables in the companion file FVSOut.mdb.**

2A. If you have a paid for version of MS Access:

Change the "Default Database Folder" setting to "C:\TallTimber ", or wherever you plan to locate TallTimber on your system. The "Default Database Folder" property is found by clicking FILE>OPTIONS>GENERAL and then looking on the Options form for "Default Database Folder". Do this with a blank database, or just by starting MS Access without a database opened, **not from within TallTimber.**

2B. If you have MS Access Runtime:

You can't do #2A. Instead copy TallTimber's files into the MY Documents or Documents folder and you are done. You will need to update your FVSOut.mdb table links, but not the "Default Database Folder" shown in #2A.

3. Figure out if you have 32-bit or 64-bit MS Office and use that version of TallTimber (your package has both 32-bit and 64-bit TallTimber). This "bit" info will be somewhere like FILE>HELP (MS Access 2010) or FILE>ACCOUNT>INFO (MS Access 2013). TallTimberx64\_v40.mde and TallTimberx64\_v40.accde are the 64-bit versions.

4. Open TallTimber by double clicking on the version and format matching your system. Remember that the mde formatted TallTimber will work on all systems, the accde formatted TallTimber will work on MS Access systems since 2010.

5. Step 1: Import Data. Choose the example input data file that came with TallTimber (Deer\_Lake.txt or Deer\_Lake.xls). You should get either a "Successful Import" message or a message declaring a problem with the import dataset. Data can be text or Excel.

6. Step 2: Enter Input Parameters. Enter your prism BAF or fixed-radius plot size. All other parameters are optional, and are numbered 2 through 7 on the TallTimber Inputs form. Experiment with these later on, you can save your changes with "Keep My Codes".



7. Step 3: Check Input Success. Verify that your input matches your understanding of the data. Is this the correct number of points, is BAF or plot size correct, is the acreage correct?
8. Step 4: Process, Get Results. View/print output in any of three log rules, and either as single reports or multiple compiled reports (74 prepared reports are offered) with a professionally customized cover page. Copy/paste or export grid tables to Excel for further analysis and reporting. This “Process, Get Results” step is a prerequisite to the TallTimber 2 FVS growth module.
9. Step 5: Growth. Brings you to TallTimber 2 FVS, a growth module allowing you to choose an FVS variant and other stand level parameters, create input files, and grow your inventory. TallTimber then links to the FVS output and provides detailed growth reports from the multiple report interface as in Step 4 (above Item 8). You likely will need to go back in this manual and read about Step 5 or watch our videos for those without FVS experience. See our YouTube channel (TTimber) for direct video instruction and a more granular breakdown. You can do this, the videos can help!

**When importing raw data from an Excel file, be aware that TallTimber requires the data be in a *named range* (an Excel term) called "Data". Alternatively, the input file can be in a comma-delimited text file as is exported by Timberpad Pro. For an example of the Excel dataset style, see the example data included with your TallTimber package. Remember to include the top row (has heading names) in that named range. See the Timberpad Pro supplemental manual for more information about text file input datasets.**



## Appendix E: Species Codes and Default Values

TallTimber	Species Name	FIA	Girard FC	FVS Spp Code	Lbs/Cu. Ft.
1	White pine	129	0.8	WP	50.59
2	Hemlock	261	0.78	EH	56.47
3	Red spruce	97	0.8	RS	49.41
4	Balsam fir	12	0.8	BF	49.41
5	Red pine	125	0.8	RN	50.59
6	White cedar	241	0.76	WC	40
7	Sugar maple	318	0.79	SM	63.53
8	Red maple	316	0.79	RM	52.94
9	Paper birch	375	0.78	PB	52.94
10	Yellow birch	371	0.78	YB	63.53
11	Beech	531	0.84	AB	52.94
12	Red oak	833	0.78	RO	63.53
13	White oak	802	0.78	WO	63.53
14	White ash	541	0.8	WA	52.94
15	Aspen	746	0.78	QA	50.59
16	Black cherry	762	0.8	BC	52.94
17	Basswood	951	0.8	BW	50.59
18	Tamarack	71	0.8	TA	56.47
19	Other hardwd	2	0.78	OH	63.53
20	Other softwd	999	0.78	OS	49.41
21	Black birch	373	0.78	BB	63.53
22	Black gum	693	0.78	BG	52.94
23	Black locust	901	0.78	BL	65.88
24	Black oak	837	0.78	BO	63.53
25	Black walnut	602	0.78	WN	52.94
26	Chestnut oak	832	0.78	CO	63.53
27	Cucumbertree	651	0.78	CU	52.94
28	Hickory(s)	400	0.78	HI	65.88
29	Norway Spruce	91	0.8	NS	49.41
30	Pine(s)	100	0.8	PI	50.59
31	Sassafras	931	0.78	SS	52.94
32	Scarlet oak	806	0.78	SO	63.53
33	Sycamore	731	0.78	SY	52.94
34	Yellow poplar	621	0.78	LP	56.47
35	Snags	-	0.78	-	54.12
36	Black ash	543	0.78	BA	52.94
37	Black spruce	95	0.8	BS	49.41
38	White spruce	94	0.8	WS	49.41
39	Butternut	601	0.78	BN	50.59
40	Elm	972	0.78	AE	52.94
41	Balsam poplar	741	0.78	BP	50.59
42	Hophornbeam	701	0.78	HH	65.88
43	Shagbark hickory	407	0.78	SH	65.88
44	Pignut hickory	403	0.78	PH	65.88



<b>TallTimber</b>	<b>Species Name</b>	<b>FIA</b>	<b>Girard FC</b>	<b>FVS Spp Code</b>	<b>Lbs/Cu. Ft.</b>
45	Shell. hickory	405	0.78	SL	65.88
46	Mocker. hickory	409	0.78	MH	65.88
47	Sweetgum	611	0.78	SU	52.94
48	Silver maple	317	0.79	SV	52.94
49	Cherrybark oak	813	0.78	CB	65.88
50	Live oak	838	0.78	LO	50.59
51	Bur oak	823	0.78	BR	75.80
52	Overcup oak	822	0.78	OV	63.53
53	Water oak	827	0.78	WK	63.53
54	So. red oak	812	0.78	SK	63.53
55	Cottonwood	742	0.78	EC	50.59
56	Baldcypress	221	0.78	BY	56.47
57	Loblolly	131	0.78	LP	58.00
58	Slash pine	111	0.78	SL	60.00
59	Longleaf pine	121	0.78	LO	60.00
60	Shortleaf pine	110	0.78	SH	58.00
61	Jack pine	105	0.78	JP	56.47
62	E. Redcedar	68	0.78	RC	45.00

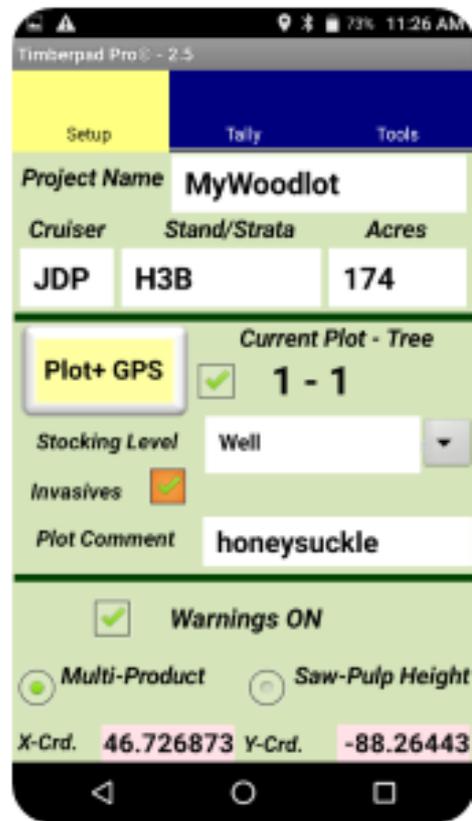


# Supplement on Timberpad Pro 2.5

## Data Collection Software



iOS



Android

L.E. Caldwell Company  
www.ttimmer.com  
support@ttimmer.com



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## Guide to Timberpad Pro 2.5 Data Collection Software

### About this Document

This document is intended to get you going with Timberpad Pro. Different people learn differently. Some are very tactile or "hands on" while others learn faster by reading and thinking. This document does not address every nuance of using Timberpad Pro, it is more of a pictorial to get you going with pictures and some details. You will need to interact with it on your device ultimately, but reading and thinking about it first is a great approach. Readers interested in runtime licenses and platform (iOS & Android) information can go to page 76.

Explaining Timberpad Pro is made slightly more complicated as it is cross platform and can be used on a variety of devices. The 2.5 version being released with this manual (April, 2021) has been developed for iOS (Apple mobile) and Android. However, we also developed a version for the older Windows Mobile 5 system as we have used it extensively ourselves on those older devices and wanted to accommodate 1)foresters trying to stretch out their hardware investment dollar, and 2)those cruising in the harshest conditions where small screens and physical buttons are required. The versions operate similarly, with the iOS and Android versions being smoother-faster outside those severe conditions of deepest cold or heavy rains.

With that said, this manual mixes images of the iOS (lighter images) and Android (darker images) platforms. The iOS and Android versions function almost identically, and screenshots from both devices are included so more readers can view here what to expect on their devices. Your device may provide a slightly different look than what is shown here. If and when questions arise, don't hesitate to contact us. Here are some forms of Timberpad Pro Technical Support:

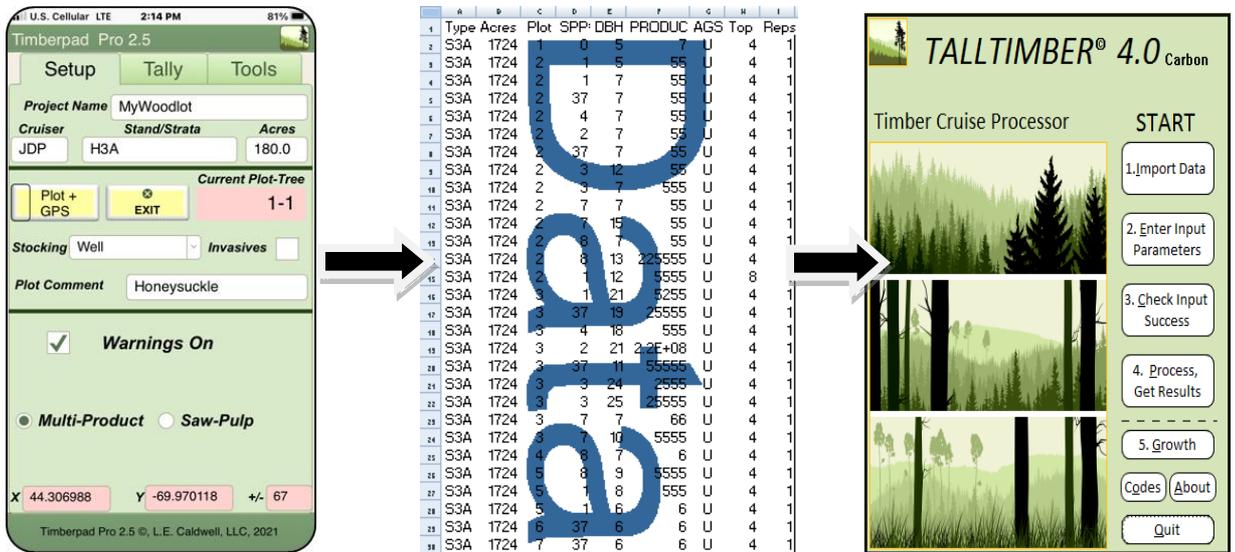
1. Operator's manual (this document)
  2. Instructional videos playlist on YouTube channel (TTimber channel)
  3. Website: [www.ttimmer.com](http://www.ttimmer.com) has an overview video of Timberpad Pro iOS.
  4. Email us: [support@ttimmer.com](mailto:support@ttimmer.com)
  5. Call us: 207.377.3956 or schedule a visit or a workshop for you or your group
-



## What is Timberpad Pro?

Timberpad Pro (or TPad for short) is data collection software designed for forest inventory, commonly called timber cruising. We have used earlier versions for over 10 years. Figure 1 depicts TPad's role at the start of the inventory process. We have tested TPad on a variety of devices running the Android operating system from Honeycomb to Nougat, iOS devices from iPhone 5 and original iPad forward. Timberpad Pro 2.5 has not been styled for the largest iPad, the much larger iPad Pro.

TPad Android functions as a small collection of files on your device while TPad iOS functions as a single FileMaker Go file. TPad provides several tools to export data from its database table into files that can be imported into spreadsheets and databases. This export is most easily done via email, but can be a cabled copy/paste of the file (iCloud AirDrop, too). Other helpful tools such as a limiting distance calculator and product specification importer/exporter are also part of TPad, and are shown later in this manual, along with version and runtime license information described near the end of the document. Flip to the final pages of this document (p 77) for Quick-Start information if you're in a hurry.

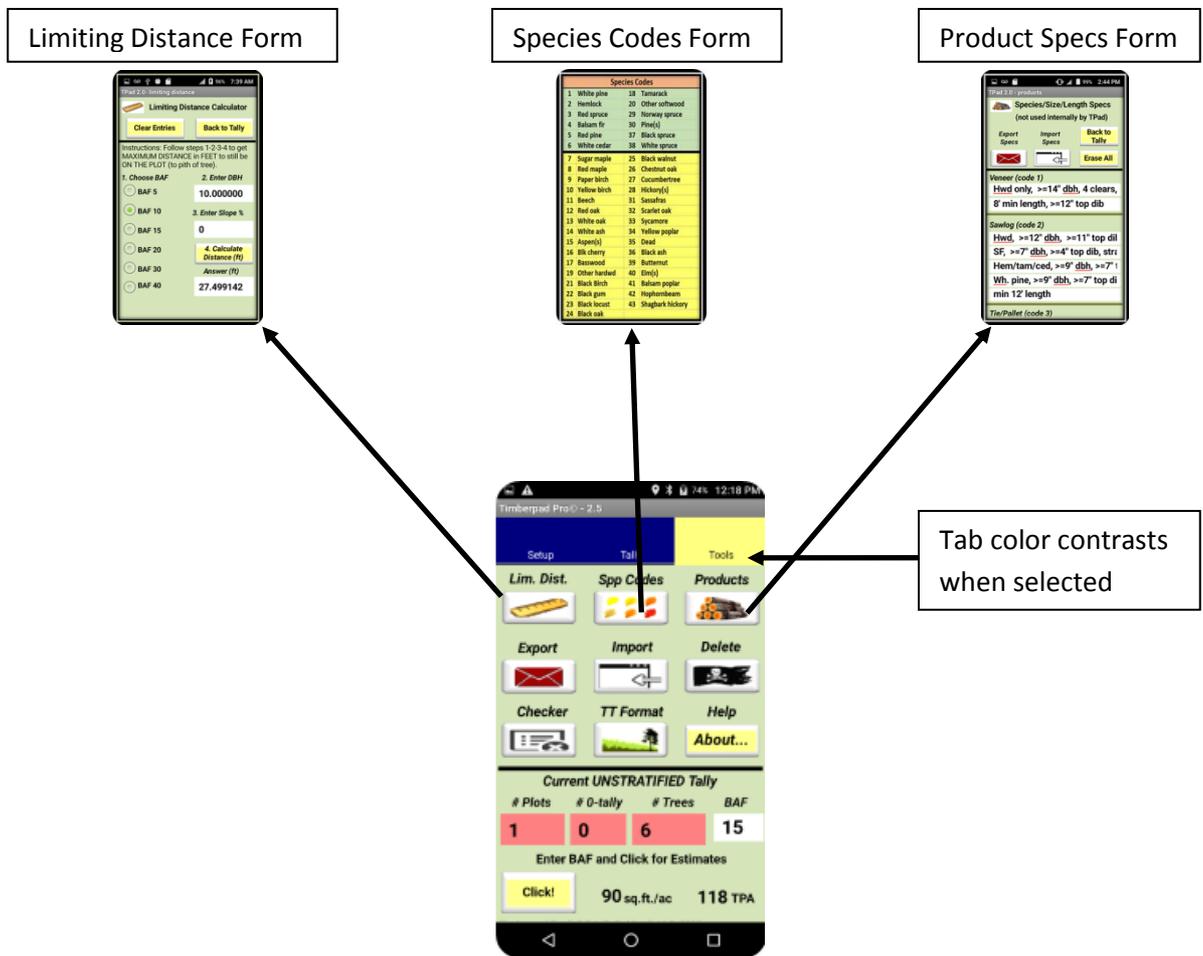


**Figure 1.** Timber cruise data is logged into the tablet/phone/device with Timberpad Pro, which then exports the raw data to comma delimited files that can be emailed or otherwise transferred to spreadsheets and database programs such as TallTimber for processing.



TPad itself does not create the suite of final outputs possible with TallTimber, such as robust reports, spreadsheet tables or charts. It does provide a running tally of basal area per acre, trees per acre, number of total points, number of 0-tally points, and number of tally trees.

Figure 2 shows the forms (Android) you interact with when using TPad. The main form itself is a tabbed form with 3 tabs allowing you to shift between 3 neighboring forms; Setup, Tally, and Tools (Tools shown below and on cover of this document). You spend most of your time using the 3 tabs on the main form, with occasional jumps from the buttons shown below on the Tools tab to other individual forms, the smaller images with the titles shown below.



"Tools" Tab of Home Form (Android Platform)

**Figure 2.** The Timberpad Pro Home form (the bigger image above) has 3 tabs, with the Tools tab shown above. Nine buttons are located on the Tools tab which perform functions supporting the basic data entry of tallying trees (done on the Tally tab). The Setup tab, the most left tab, is where project and plot level data is entered. The above images from an Android device.

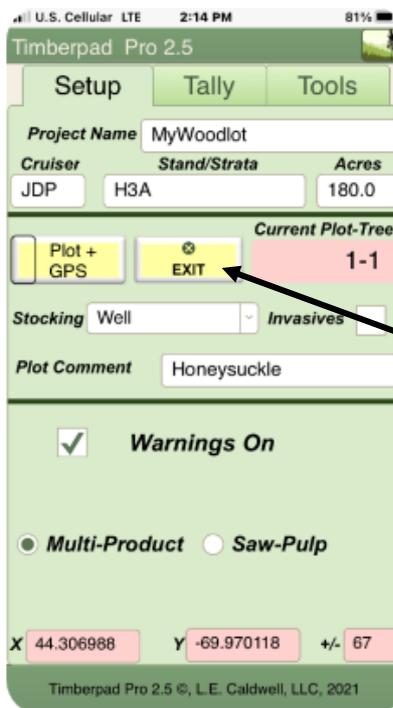


## Stepping Through Timberpad Pro's 3 Tabs

### Rules for File Naming of Your Data Table During Export and Import

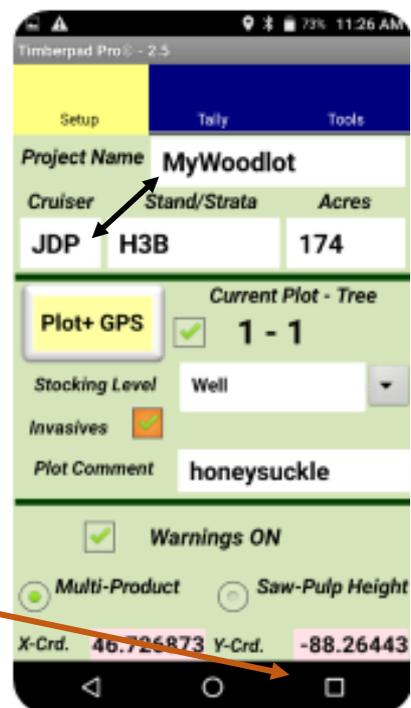
**iOS:** Value of **Project Name** in the **first tree record** is appended to "TPad\_" to make the file name: TPad\_MyWoodlot.txt (Cruiser is not used with iOS)

**Android:** Values of **Project Name** and **Cruiser** fields in the **first tree record** are combined to make the file name: MyWoodlot\_JDP.txt



iOS

iOS has an EXIT button.  
Android uses device's close button.



Android

### "Setup" Tab of Timberpad Pro Home Form

**Figure 3.** Project and plot summary data is entered on the Setup tab. Values entered in the Project Name, Cruiser, Stand/Strata and Acres fields **for the first record** are automatically copied forward for each new record. Changing the Stand/Strata and Acres values when working on a different stand/strata has the new values copied forward. As shown above, Timberpad Pro uses different naming conventions for exporting and importing files depending on whether iOS or Android, but is consistent on using the first record for this information.

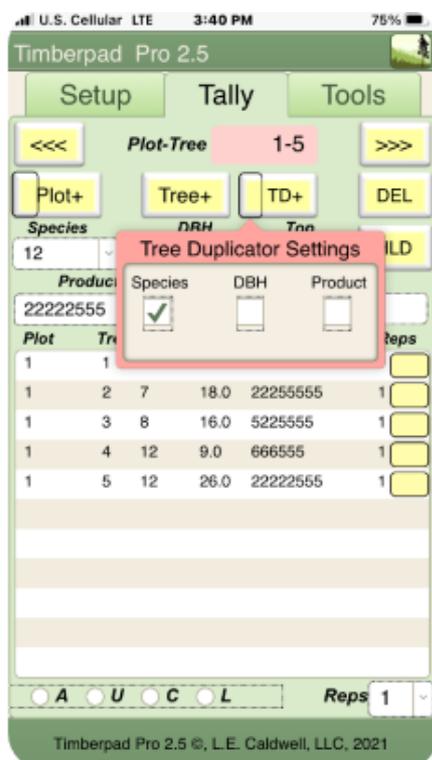
New plots can be added via the autoplot system that increments plot numbers by 1 for each new plot, a manual system that allows cruisers to enter their own integers (pages 64, 71), or by importing a dataset. Plot location is collected when adding a plot via the Plot+GPS button.



## Tally Tab

The TD+ button (Tree Duplicator) allows you to add a tree record with the same species as previously entered, saving time on the species code entry for that tree. This is quite helpful where trees of the same species are "clumped" or just follow each other in the tally on a given plot. **The iOS format allows (shown with checkbox settings) duplication on diameter and product as well as just species. This is handled with via a popover button.**

The Top field is for entering the diameter inside bark (DIB) of the tree at the limit of merchantability. Top can be set to 0 if cruisers don't wish to call a Top DIB. We can set the default value of Top for whatever fits your process and region at purchase time. Top value standards vary by region and pulpwood markets.



iOS

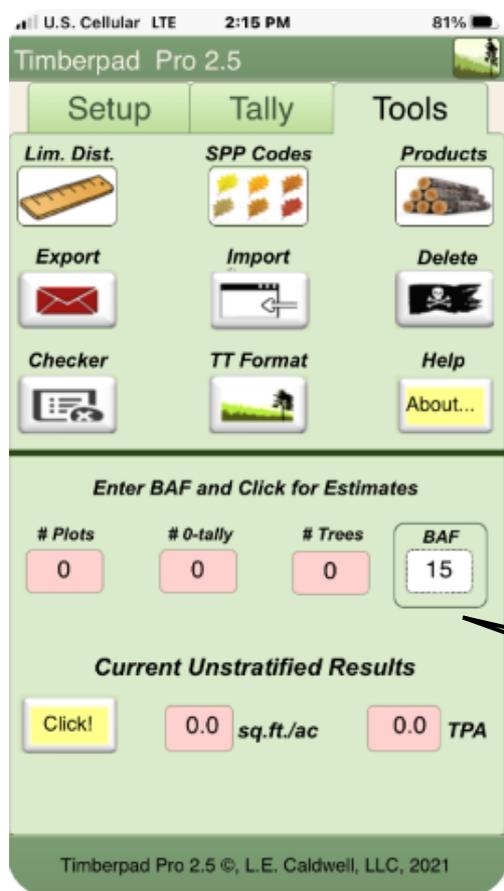


Android

**Figure 4.** The Tally tab is where you collect data on individual trees, and actually spend most of your data entry time. Species codes can be entered as either alpha or numeric codes. The grid control (looks like a table) allows scrolling and jumping to individual records with touch screen devices. With Android, touch the bright red buttons for entering DBH and Multi-Product values. If cruising in Saw-Pulp height mode, enter the merchantable height in feet of sawlog material in the "Saw Ht" box and then the height of any pulpwood or topwood above that in the "Pulp Ht" box (Android shown).



## Tools Tab



UPPER ZONE: 9 BUTTONS THAT JUMP YOU TO A NEW FORM, CHECK DATA, OR PERFORM AN IMPORT/EXPORT TASK.

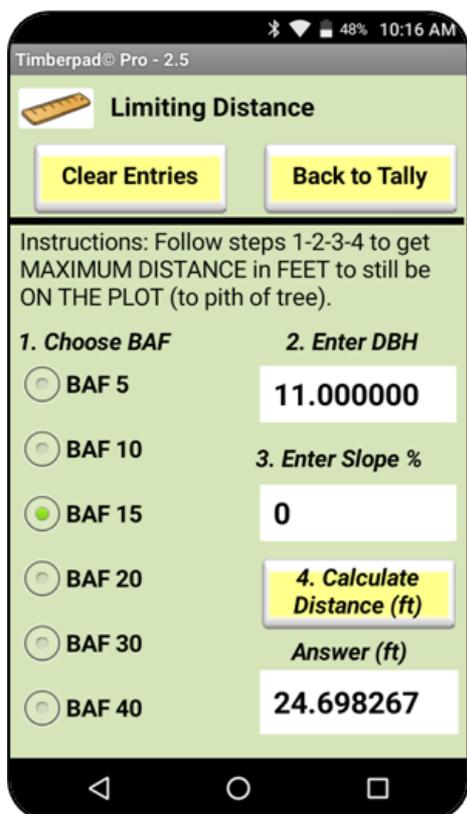
LOWER ZONE: Entering a BAF and then clicking the yellow "Click!" button provides running estimates of the

iOS

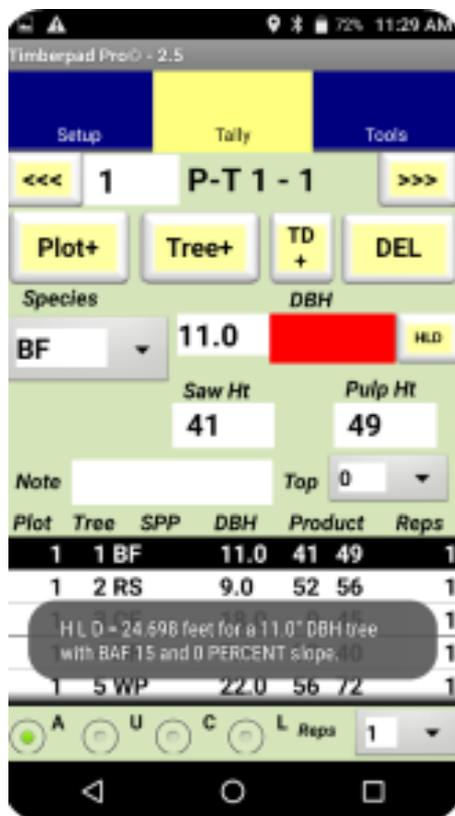
**Figure 5.** The Tools tab has 2 zones. The upper zone provides useful tools related to collecting, saving, and emailing data. An email client must be set up on the device for the auto-email to function (gmail works fine). The TT Format button produces TallTimber ready datasets.

The Tools tab is functionally divided into upper and lower zones. The upper zone has 9 buttons that are linked to useful tools as shown in Figure 5. We cover 8 of the 9 buttons on pages 67-74. The 9th button is labeled "About", and has license and contact information.

The lower zone provides basic information on the current dataset for variable radius sampling. Enter the cruise BAF and press the yellow Click! button to populate the 2nd zone with up to date information. Pop up messages occur alerting cruisers to any null or 0 DBH values that might impact the TPA estimate. The basal area and TPA estimates are rounded down and presented as integer values.



Limiting Distance Calculator



Limiting Distance Ghost Message

(Android Device)

**Figure 6.** Horizontal limiting distances are addressed three ways in TPad. The limiting distance calculator itself, the optional ghost messaging (Android), and the HLD button on the Tally tab.

First is the Limiting Distance Calculator itself, shown above. This is an easy to use tool that you jump to from the Tools tab. It accommodates slope % values, alleviating the need for slope correction factor tables. The DBH value in the tool is automatically populated with the DBH of the last entered tree and in turn populates the BAF value shown in Figure 5 on the previous page. It provides 6 prism BAF choices.

The second method, shown to the right, is a time saving convenience we call ghost messaging, and is for Android devices only. After DBH is entered and any next screen tap occurs, TPad will display a 5-10 second temporary message stating the horizontal limiting distance (HLD) for the tree. The program relies on the BAF and Slope % settings last established in the Limiting Distance Calculator (shown above as BAF 15 with 25% slope). This ghost messaging provides students, cruisers changing to a new prism BAF, and the less experienced consistent feedback and eye calibration on when to check for borderline trees. It can be turned off with the Warnings Checkbox. The third way limiting distances are produced is by simply tapping the HLD button adjacent to DBH (works for iOS and Android). This presents a message box stating the limiting distance for the current DBH, BAF, and slope.

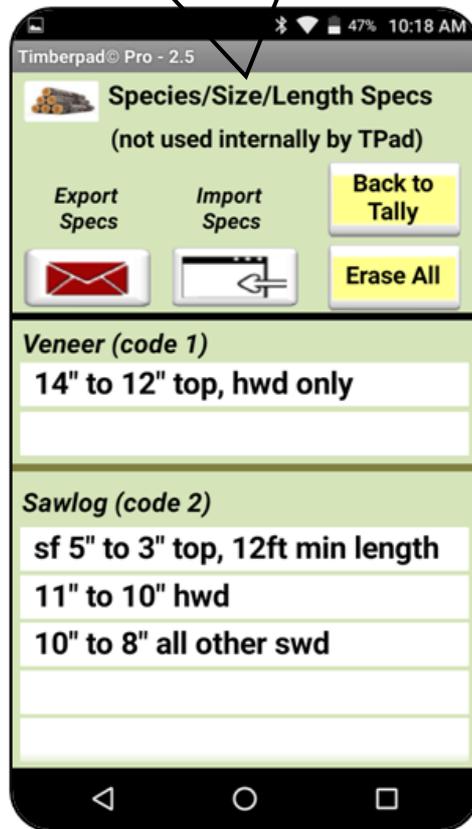


### Species Codes Form Shown After Selecting the "Spp Codes" Button

**Figure 7.** Timberpad Pro allows you to enter your own species codes, and TallTimber allows you to map in your own 1 or 2 character alpha-numeric codes. While a drop down menu of numeric codes is provided on the Species dropdown, we can modify your species dropdown at your direction. The above codes are a lookup guide for people wanting to use the TallTimber alpha codes. Numeric codes have become somewhat standard in the Northeast and are the defaults, subject to modification.



This is a scrollable screen, allowing you to save specifications and share them with your team or store in the cloud. Scrolling down allows entry of information on all 7 multiproduct codes.

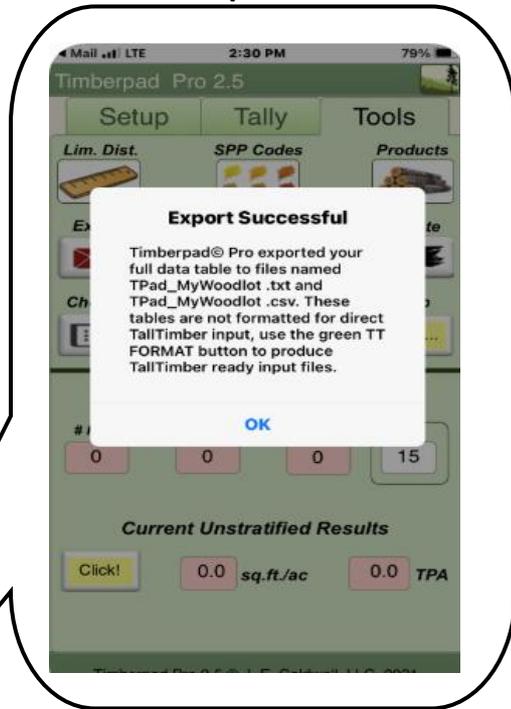


### Product Specifications Form (Android Platform)

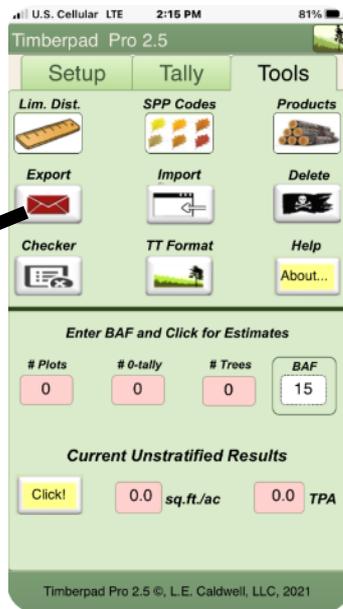
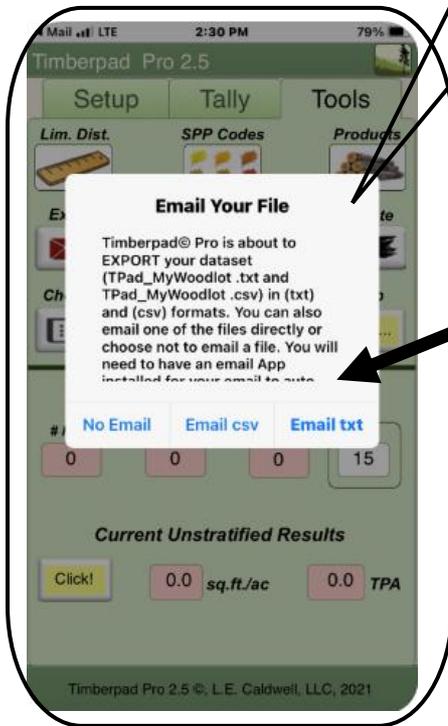
**Figure 8.** The Products form is most helpful for managers and those leading larger projects where teams of cruisers need to have consistent specs stored in a handy spot. The Products tool allows the writing and sharing of record specifications for the 7 product codes used in the Multi-Product system. There are 5 lines for the sawlog product (code 2) and 2 lines for all other products (sawlog products often have more detailed specs). Managers can export their file specifications and share with other cruisers for importing on to their device or store for future reference. Each of the above lines is scrollable to the right, creating adequate space for specifications. As mentioned at the top of the page, the form itself is scrollable up and down. Those not using Multi-Product mode can also readily use this tool for storing and sharing their product specifications, or simply as a note area.



### After Export/Email



### Before Export/Email



(iOS Platform)

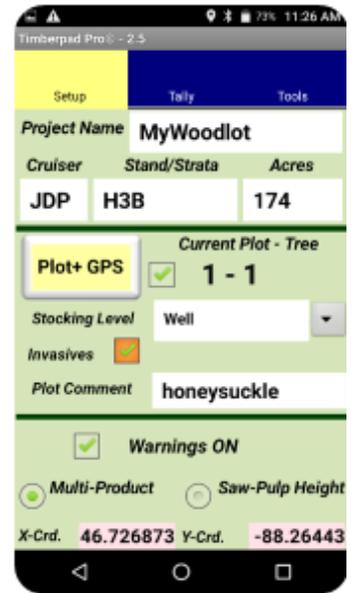
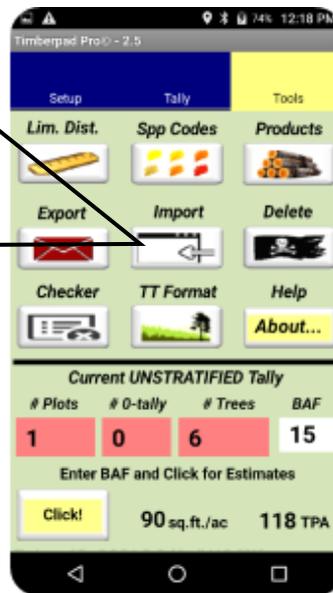
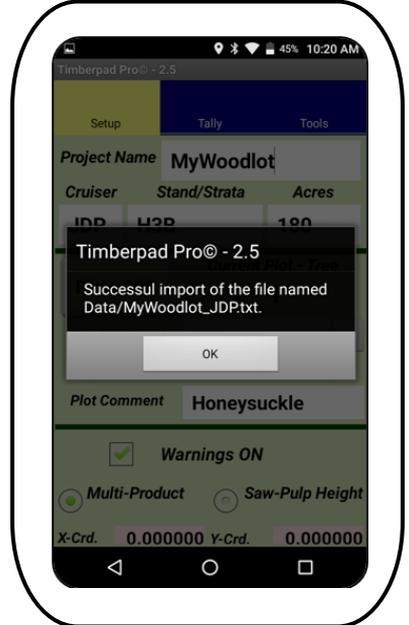
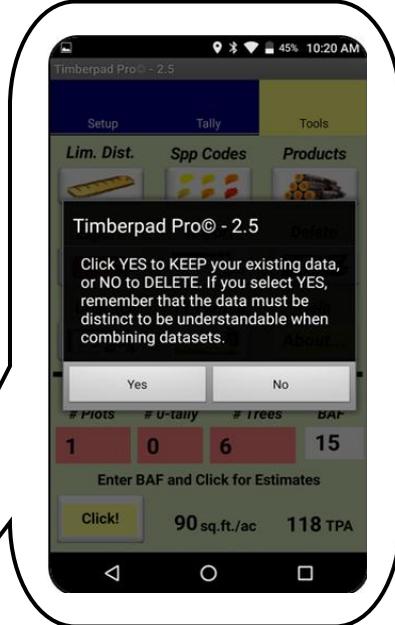
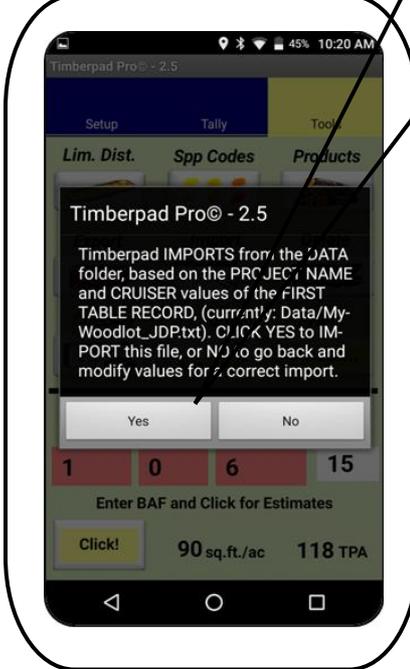
**Figure 9.** Export Tool Dialogues: Exporting the entire TPad data table to text or csv file. As mentioned on page 64, the export function uses input field values from the first record for the file name, such as “MYWoodlot” in the above example, where the saved files are TPad\_MyWoodlot.txt and TPad\_MyWoodlot.csv. You also have the option of emailing your dataset if an email software client has been established on your device or just saving it to your iPad or iPhone for later transfer.



## 2. Append or start fresh?

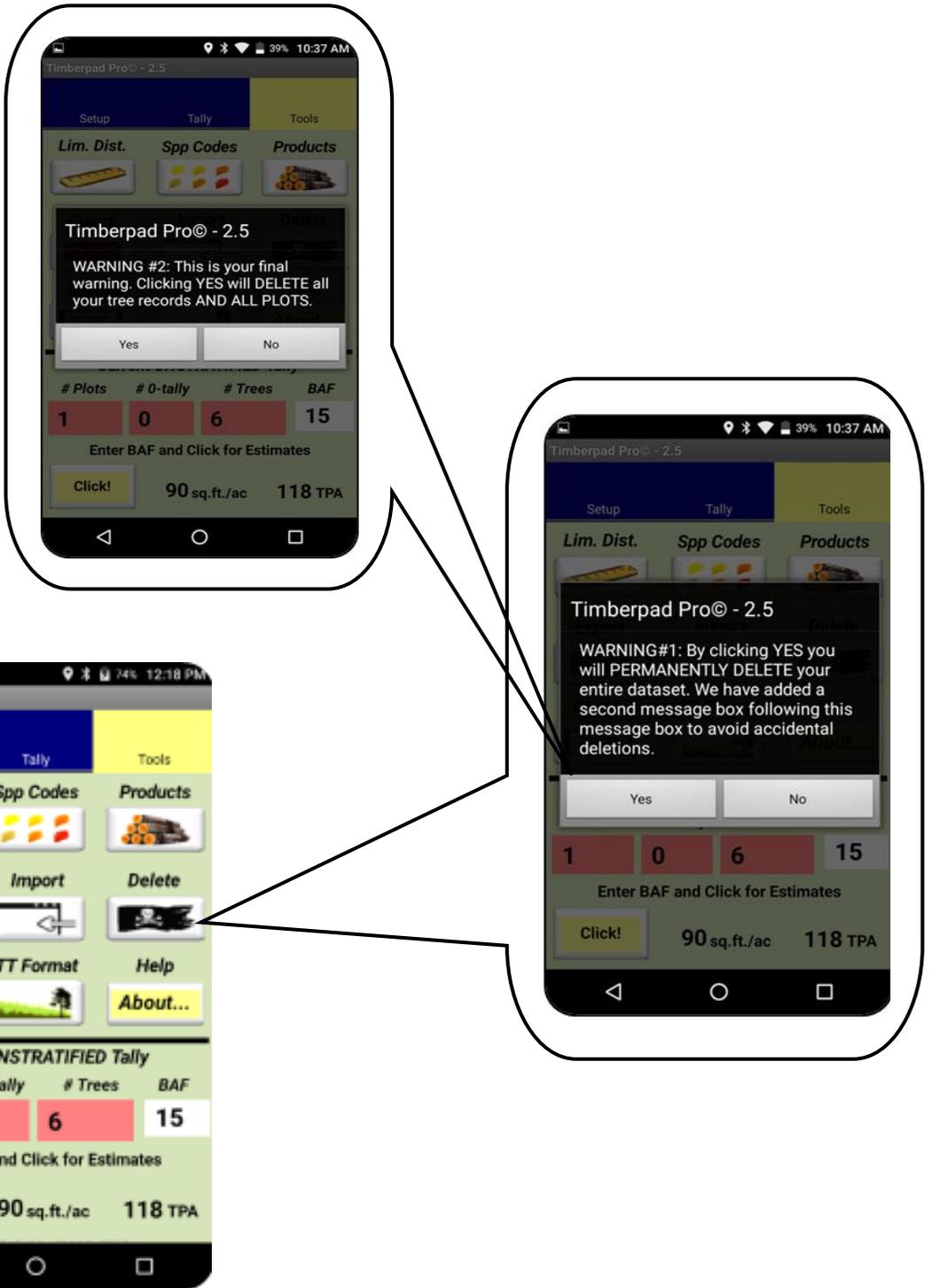
## 3. Successful import

## 1. Before Importing



(Android Platform)

**Figure 10.** Import Tool: Importing a TPad data table from a comma-delimited text file. The import function uses information in the FIRST RECORD to search for the file name. If no dataset exists on the device, you add a single new record and enter the proper values (see Figure 3, page 64) to match the dataset you wish to import. **The Import process provides the option of appending to the existing dataset or total replacement with the imported file.**

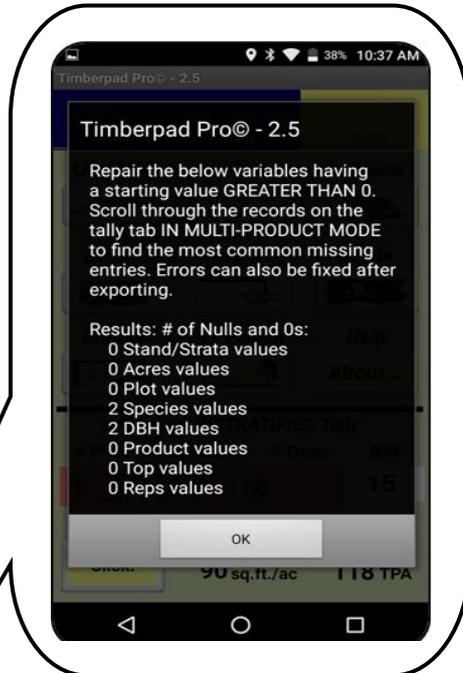


(Android Platform)

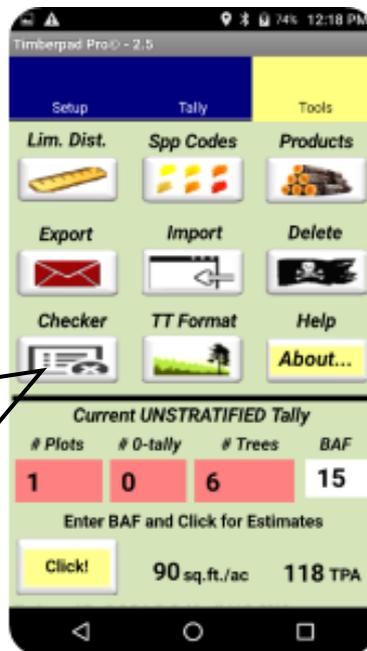
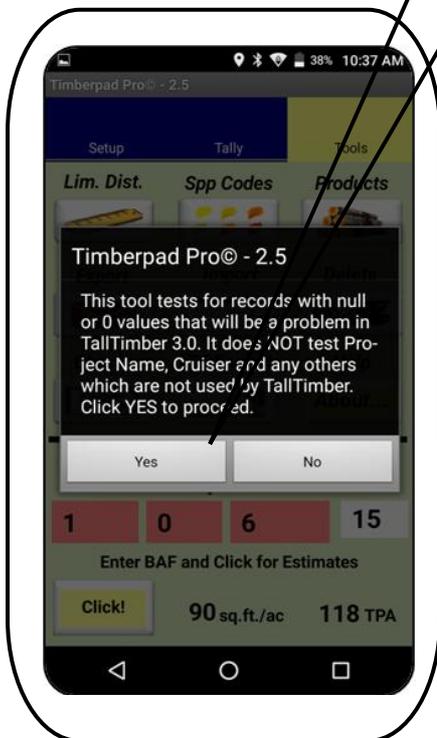
**Figure 11.** Delete Tool: Clicking this button launches a 2-step delete operation that will eliminate all tree records in TPad. You get 2 warnings to avoid accidental deletions. This function can also be accessed through the "hamburger" button (3 lines) on your device, if it has one. This does not eliminate log specifications or limiting distance settings stored on their respective tool forms.



### Results of Checker (with errors)



### First Message

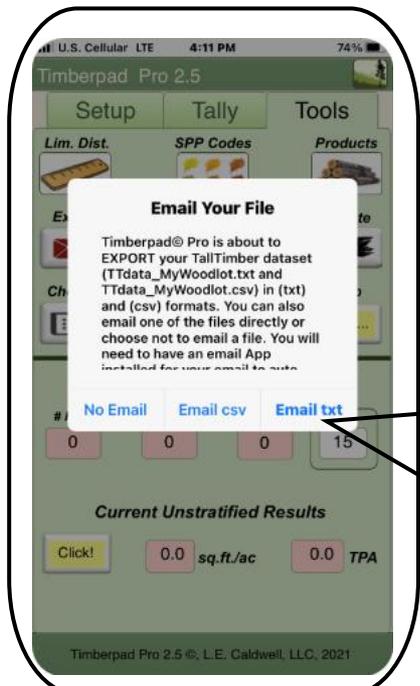


(Android Platform)

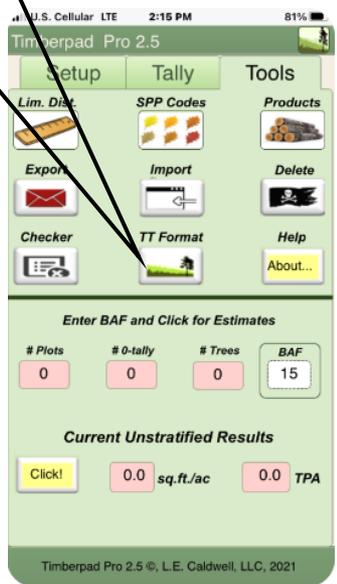
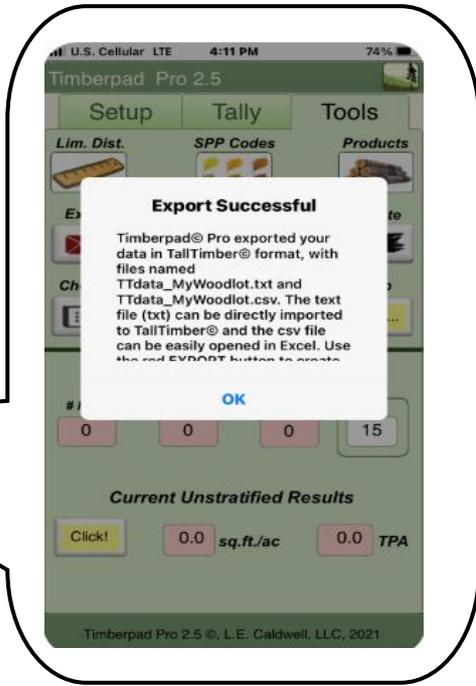
**Figure 12.** Null Checker Tool: The checker tool looks for 0's and Null values in all of the 9 variables necessary to create a TallTimber input dataset. It does not check the other variables that may be collected, and is a helpful step in getting a sound dataset. The dataset used for this diagram was missing 2 diameter values and 2 species values, which can be seen in the "Results of Checker" box.



### Before Export/Email

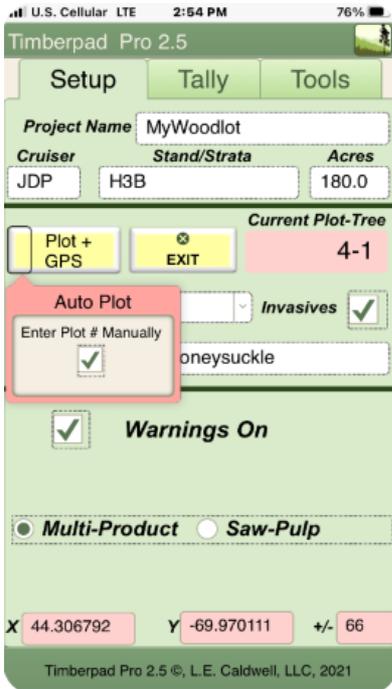


### After Export/Email

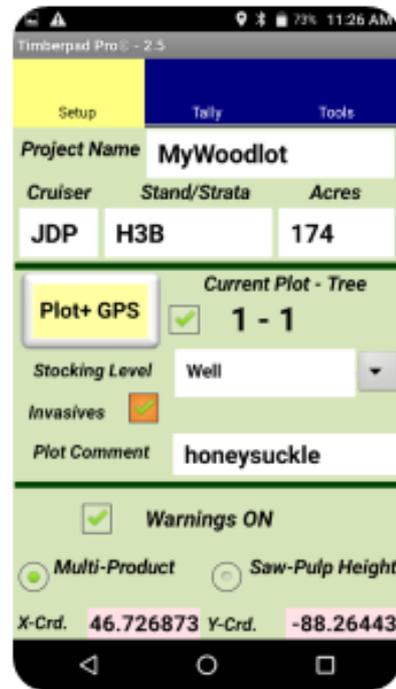


### (iOS Platform)

**Figure 13.** TT Format Tool: This exports a data file with the 9 variables required by TallTimber, making a TallTimber ready input file with correct headings and variables. The filename is based on the Project Name on the Setup Tab, shown above as "MyWoodlot". This produces a file named "TTdata\_MyWoodlot.txt" as stated in the popup message. An overwrite warning message appears if you attempt to export a file with the same name as an existing file on their device. You are given a choice of emailing this file or just writing it to the device.



iOS



Android

### Manual Plot Numbering Activated by a Checkbox

**Figure 14.** Timberpad Pro's default is an automatic plot numbering system which automatically increments (+ 1) to the largest plot number whenever the "Plot+" or "Plot+GPS" buttons are clicked. Manual plot numbering is turned on by selecting the checkbox in either the popover button (iOS) or the checkbox near the Plot+GPS button (Android). Plot numbers must be integer values.

The "Plot+" and "Plot+GPS" buttons are how you typically add a new plot to your dataset, and they do this as tree 1 for the new plot (plot 1 tree 1, plot 2 tree 1, plot 3, tree 1, etc.). At times, however, you may want to assign a different plot number than the naturally incremented + 1 method, we call this manual plot numbering. As described below, the manual plot numbering process differs somewhat between the two Timberpad Pro platforms. In either case, cruisers need to pay attention that they don't enter a plot number that already exists in their dataset when using the manual numbering option.

**iOS:** Timberpad Pro iOS uses a popover button checkbox (shown above in iOS image) that, when checked, will cause the Plot+ buttons to open a keyboard for your manual plot number entry.

**Android:** By selecting a checkbox near the "Plot+GPS" button (shown), Timberpad Android reveals an edit box on the Tally tab where the cruiser then enters the plot number. After typing in the new plot number, the cruiser goes to the Setup tab and clicks the "Plot+GPS" button, creating the new plot. The edit box goes away when the checkbox is deselected.



## **Versions of Timberpad Pro and Runtime Licenses**

Timberpad Pro licenses are available for both Android and Apple's iOS platforms. Similar to needing Microsoft Excel to create Excel spreadsheets, Timberpad Pro requires you to have its runtime environments installed on your data collection device, too. The Android version of TPad requires the installation of the runtime environment DroidDB while the iOS (Apple) version requires FileMaker Go.

FileMaker Go is a free download from the AppStore, and easily installs on your tablet or phone. DroidDB runtime is available for free in the trial version or as a purchased license for \$5 from the DroibDB website, or can be installed by us as part of your Timberpad Pro purchase if we have access to your devices.

You can download and install those runtime programs or consult with us on getting them installed. To be clear, the process is to install the runtime environment (either free or purchased from the above sites) and then install Timberpad Pro. If you struggle with the installation process we encourage you to call, email us for guidance, or consider letting us do the installation by mailing us your device(s) or having them new devices shipped to us directly, after which we would then ship to you.

## **Moving from Timberpad Pro to TallTimber**

Information logged into Timberpad Pro can be transferred to your PC in a number of ways. To get the data to your PC, you can use email/Gmail, Bluetooth, AirDrop, or for Android systems by cabling to a desktop system and simply using a file browser to move your tree tally to your home computer. In any event, the question then becomes how will we process this data, turning it into information? We suggest TallTimber 4.0 as the best tool for doing just that.

The TT Format tool shown in Figure 13 is a fast way to get the data off your device for processing via TallTimber. An example of the resultant text file output is shown in Figure 15. TallTimber has import functionality that accommodates importing either a text file in this format, or an Excel spreadsheet as shown earlier in this manual and on our YouTube Playlist Video #1: Input Data Formats. Additional error checking occurs during the TallTimber import process (Step 1 in TallTimber).



```
Type,Acres,Plot,Spp,DBH,Product,AGS/UGS,Top,Reps,  
"H3B",174,1,"HM",17.0,"1223555","",4,1,  
"H3B",174,1,"WA",15.0,"22222555","",4,1,  
"H3B",174,1,"YB",19.0,"523555","",4,1,  
"H3B",174,1,"RM",8.0,"66555","",4,1,  
"H3B",174,1,"RM",14.0,"5555555","",4,1,  
"H3B",174,1,"WP",22.0,"222222555","",4,1,  
"H3B",174,1,"WP",8.0,"777","",4,1,  
"H3B",174,1,"BF",5.0,"66","A",4,1,
```

**Figure 15.** Above is an example of the TallTimber ready text file that is output by the TT Format tool on the Tools tab. Species can be alpha or numeric, DBH can be integer or decimal, AGS/UGS can be null as shown in all but the last record, which is an "A". This Point 1 had 8 trees.

## Quick Start Comments and Tips

1. Data is entered into a single table for both Timberpad Pro formats. Timberpad Pro Android has a folder named Data under the TPad folder. Android data file exports are made to this folder located as follows (/DCIM/TPad/Data). Timberpad Pro iOS exports are easily viewed in FileMaker Go by selecting the "Device" button at the bottom of FileMaker Go. This will show all files as opposed to the "Recent" button that only shows a subset of files.
2. You create records one at a time by clicking either the Plot+ button to start a new plot with its first tree (plot 1 tree 1, shows as 1-1 on the device) or the Tree+ button to add additional tree records beyond tree 1. New plots are always the highest plot number + 1 if in autoplot mode, or whatever integer you enter for a plot number while in manual plot mode.
3. New trees are added to the plots by clicking the Tree+ button. These will be added to the plot you are currently in, and would start with Tree 2. For example, if you have one record in your table, 1-1, adding a tree will add the record 1-2 (plot 1, tree 2). Trees are always numbered the last tree number + 1.
4. Using the Tally tab's grid object, you can scroll through and jump around your entire data table editing a tree or a plot quickly wherever necessary. Android jumping is done by pressing on the record you wish to jump to, iOS has jump buttons on the right side of the table.



5. It is highly recommended that you be sure to enter the Setup tab information to the first record you create. This information will then be copied forward and you won't have to enter it anymore, avoiding nulls and missing information to be filled in later. The first record info is used when you export, so be thoughtful in your entries of Project Name, Stand/Strata, and Cruiser for record 1. If you have a stratified sample and are adding different stands, you need to update the stand information as you start collecting data for a new stand.

6. If you are trying to import a dataset and Timberpad returns an error message that the file does not exist, try two things. First, make double sure the file exists on your device with the proper name as shown in record 1 of your dataset. If your file does exist in the proper folder, then the problem is likely that your device's registry needs to be refreshed. You can refresh the device's awareness of the files by performing an export of some file, or turning it off and on. We have had luck by exporting a Timberpad Pro table with the TT\_Format button. Be sure not to overwrite any important files and then delete the unnecessary file after the export and retry the import.

7. Getting data out of Timberpad Pro is easily done by exporting a text file, using email, Bluetooth or copy-paste to other devices with a cable (Android only). Storing data in the cloud is a great way to backup as you transition from the woods to your office or lodging while in the field and when cell coverage permits. Timberpad Pro iOS would be best suited to email your data off with the buttons on the Tools tab or use the iCloud capacity if setup on your device.

## **Instructional Videos: Help with Timberpad Pro**

YouTube Channel TTimber, organized in a playlist at this link:

<https://www.youtube.com/playlist?list=PLaZotM2nHrOQybWg8b52w1n5MFIY0uAut>

### Video Number

1. Timberpad Pro Overview: Introducing iOS
2. Timberpad Pro iOS Video 1: Layout and Overview
3. Timberpad Pro Android Video 1: Layout and Overview
4. Timberpad Pro Android Video 2: Exploring the Tally Tab
5. Timberpad Pro Android Video 3: Entering Data with the Tally Tab
6. Timberpad Pro Android Video 3B: Tallying in Saw-Pulp Height Mode
7. Timberpad Pro Android Video 4: Exploring the Tools Tab
8. Timberpad Pro Android Video 5: Exporting and Importing Data
9. Timberpad Pro Android Video 6: Exporting Files and the TallTimber Processor