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Forest Metrix PRO Instruction Manual

The Basics

Complete system capabilities are available on any of the following devices, and users can access project files on multiple platforms.

- iPad or iPhone running iOS 11 or later
- Windows 7 or later desktop systems
- Windows 10 tablets
- Mac OS

Forest Metrix PRO is a database file that runs on Filemaker database software. In the iOS environment, Forest Metrix PRO runs on Filemaker Go 17, a free app that is available in the App Store. The desktop version of Filemaker Pro is available for Windows and Mac, and can be purchased separately if the user wishes to access and work with their templates and project files in the desktop environment, but this is not necessary, and is typically used only by administrators.

Full system features are available in any environment, including iPhones and iPads. You can move files among devices, so you could start a cruise on the iPhone, continue it on your iPad, and review it on your desktop. Geolocation and photos are not available on non-iOS devices.

When you download, install, or open Forest Metrix PRO, you will be looking at your Master Template. You can maintain as many separate templates as you wish, but we encourage people to work within a single template. Once you understand how the Settings are controlled, you will see how easy it is to change your sampling method or tree measurement method before starting a project, and nearly any Setting can be changed after you begin a project.

Program Layout- Working with your Master Template

For the iPad and desktop, the program utilizes the same interfaces. The iPhone utilizes a separate set of interfaces. There are very few differences among the two, and differences with the iPhone will be highlighted in purple.

***THROUGHOUT THIS MANUAL, SYSTEM LIMITATIONS OR POTENTIAL PITFALLS WILL BE HIGHLIGHTED IN RED. YOU LIKELY WON'T WANT READ THIS ENTIRE MANUAL, BUT IT WOULD BE WISE TO SCAN THROUGH THE PARTS IN RED.**

The Home Page

When opening a template, you will be on the Home page:

Start Project From This Template: begin a new project.

Close This Template: close this template in order to open a different template or a project file.

Template Settings: change Settings for this template.

Create New Template: make a copy of the current template, which will then open in order for you to make changes.

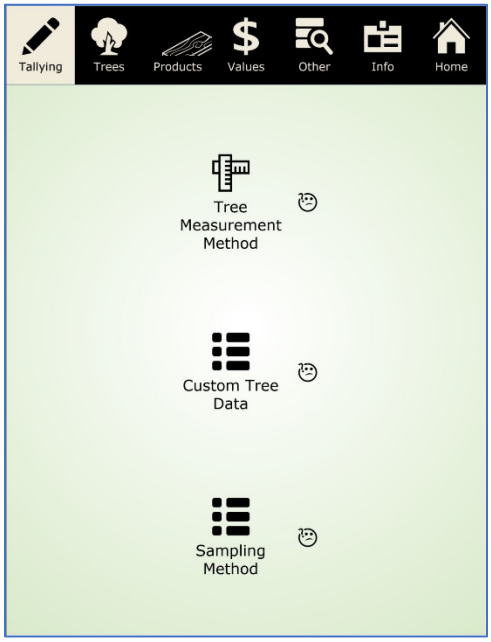
Help: locate online and local resources, perform administrative functions. Throughout the program you will find this Help icon. Touch this icon and you will see descriptions of the particular topic.

Subscribe: this button will show when you are in trial mode

Touch the Template Settings button in the lower right to access your Settings.

Template (and Project) Settings

Across the top toolbar you will see the following icons whether you are working with a template or a project file:



Tallying: this is the current page, where you control how you are tallying trees, your custom (optional) tree data, and your template sampling method.

Trees: set up your tree pick list

Products: set up products, volume rules, taper function, topwood

$: set values by product by species

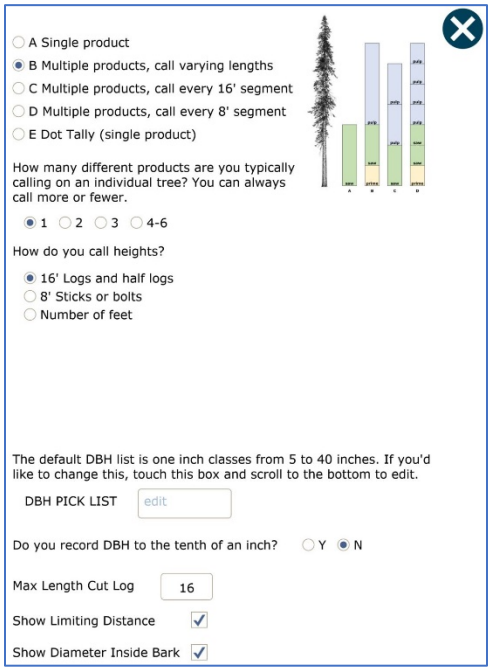
Other: set up other plot level custom data collection, statistical requirements, and general cruising options.

Info: set up your company info and logo to be displayed on the onboard reports.

Home: return Home.

Tallying

Tree Measurement Method



There are several ways to measure (tally) trees in Forest Metrix Pro. Unless you are using Double Plot sampling, you will be entering species, DBH, HT, and product for every tree using one of the following methods.

A. Single product by merchantable height (or log length)

- Tree ex.- 2 logs of sawtimber
- Log ex. - 9' of veneer

B. Multiple products, call varying lengths, between one and six varying lengths of different products from stump to crown.

- Ex. 1.5 logs of sawtimber and 1 log of pulp
- Ex. 32' grade 1, 16' grade 2, 32' low grade, 40' pulp

C. D. Multiple products, calling every 8' or 16' section as you evaluate from stump to crown.

- Ex. Sawtimber, sawtimber, pulp, pulp, pulp

E. Dot Tally, where you have 16 dot tally sheets and you are tallying trees on a grid of DBH and HT, just like a conventional paper dot tally sheet- one touch per tree entry. This is most commonly associated with 100% tallies but can also be used in sample cruises.

***IMPORTANT: THE TREE MEASUREMENT METHOD CANNOT BE CHANGED ONCE YOU HAVE BEGUN TALLYING. THIS IS ONE OF ONLY THREE THINGS THAT CANNOT BE CHANGED MID-PROJECT: THE OTHERS ARE PRODUCT NAMES AND SPECIES NAMES.**

Depending on the Tree Measurement Method that you select, you will see the options that are relevant to the chosen method. On the iPhone, you will need to swipe across the screen to access these deeper settings.

How many different products are you typically calling on an individual tree? In method B, you can indicate how many products you are typically calling. This does NOT refer to how many products that you work with overall- it is asking if you are generally just calling one product on a tree, such as sawtimber, or you are usually calling some sawtimber, and then some pulp beyond that, or more products. All this option does is it will close down the pick lists once you enter the first, second, third, or more products on the bole. You can always call more or fewer products; this is simply an option that can reduce the number of screen touches that are required when you are tallying.

How do you call heights? Indicate if you are accustomed to thinking in terms of 16' logs and half logs, 8' sticks and bolts, or number of feet. If you select Number of Feet, you will see a pick list that you can edit to utilize the height increments that you need. With this and most other pick lists, scroll to the bottom of the list and you will see an option to "Edit…", and the keypad will pop up. Place the cursor and edit the list as necessary.

The default DBH list. You can change the pick list to utilize the DBH values that you need, such as 1" or 2" increments, change the list to use smaller classes if you are working with nested plots, etc.

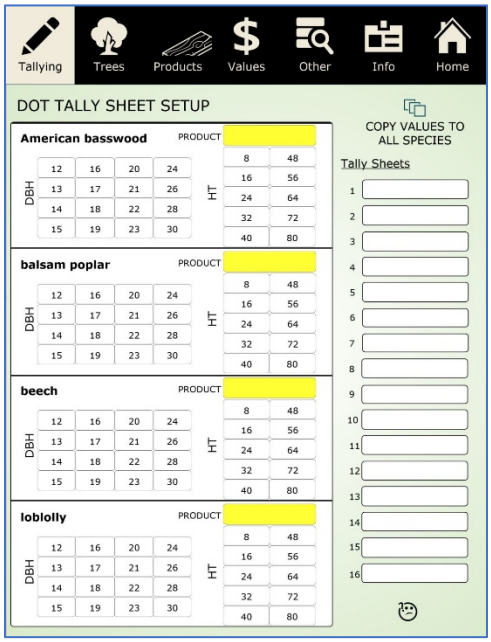
Max Length Cut Log. When you are using any of the multiple product measurement methods and you call heights, this number refers to the maximum length log into which you want those segments cut. For instance, if you say that you have 40' of sawtimber, and you Max Length Cut Log is 16', Forest Metrix Pro will cut that tree into two 16' and one 8' logs, and calculate volumes on those sections.

Show Limiting Distance. In Variable Radius Plots, your Limiting Distance of a tree will be shown in blue on the tally page after you enter the DBH. If you need more precision, you can touch the toolbar above the tally page and enter DBH with decimal values or enter the distance of the tree to the plot center and see the minimum required DBH.

Show Diameter Inside Bark. In multiple product methods, there is a taper function being applied to the tree (see more in the Products section below). When tallying, you will see a number in red that indicates the diameter inside bark at the top of the section as you walk up the tree. This can be helpful to determine if you are using appropriate form classes. If you find that your indicated DIB numbers appear higher than they should be based on what you are seeing in the tree, that is an indicator that you may want to reduce your form class.

Dot Tally Setup

When you select Dot Tally, you will see a Dot Tally icon. Touch this icon to access Dot Tally setup.



Your will see a list of all the trees in your Saved List. Each of these species will be its' own dot tally sheet, where you simply touch a field on the grid to add a tree of a particular size. This will be exceptionally intuitive once you see it in action.

DBH- these values are the DBH increments that will appear down the left hand side of the tally sheet. The default values are 12-24 in one inch increments, and 26, 28, and 30. You can touch each of these fields to change. For instance, if you need to tally pulp down to 6", you can do this on one sheet, and leave the others as 12"+ for sawtimber. If you are doing a log scaling or mill tally, consider these to be your small end diameter.

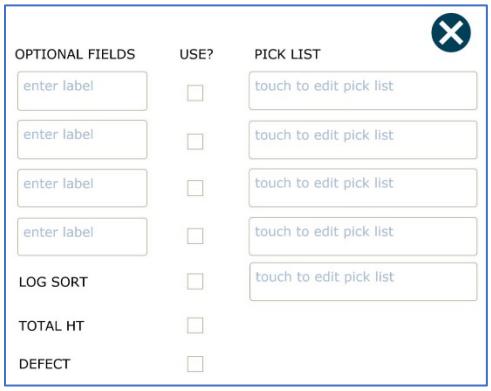
HT- these are the values in feet of the tree heights, and these values appear across the top of each tally sheet. The default is 8' increments from one half log to 5 logs. If you are doing a log scaling or mill tally, you can change these "heights" to "lengths", and use 8', 9', 10', 12', 14', 16', etc.

PRODUCT- for each tally sheet you will select a product from your product pick list (shown in yellow when empty). Most of your tally sheets will most likely be a sawtimber product, but if you need to tally two different products of the same species, such as Loblolly sawtimber and Loblolly pulp, you will find 3 "other hardwood" and 3 "other softwood" species in your Trees list. You can use the default Loblolly species for your sawtimber, and then rename "1 other softwood" as "Loblolly pulp", then set up that tally sheet accordingly with the appropriate DBH and HT increments.

TALLY SHEETS- You can use up to 16 tally sheets concurrently. As you are tallying you will simply flip among these sheets, just as you would in the old days of paper. You must assign the species/sheets that you want to use to each of these 16 fields down the right hand side. You do not need to use all.

Custom Tree Data

When using methods other than Dot Tally, you can set up many other fields to capture tree level data.



Optional Fields- in addition to species, DBH, product, and height, you may need to record additional tree attributes such as growing status, canopy position, live crown ratio, cut/leave, etc. You can define each of these fields by entering a label on the left. Touch the field under Pick List in order to type in your pick list. These values will be available for filtering in your reports. You should set up your master template with everything you need- ever- and you can leave them turned off unless you need them, by checking the "Use?" box.

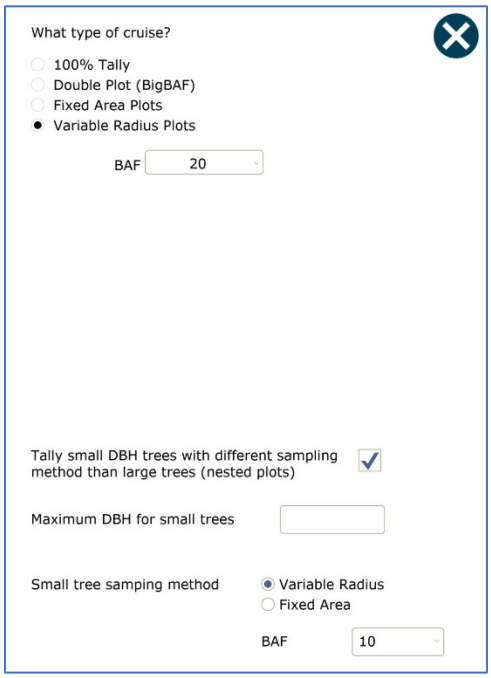
Log Sort- in Multiple Product, Varying Lengths mode, you can enter a log sort in addition to your product call.

Total HT- select this if you need to record total tree height, and this will be available on the raw Excel exports, but this metric is not employed in any of the volume calculations.

Defect- In Single Product and Multiple Product, Varying Lengths modes, select this option and you can apply defect for each section of tree. You will see an orange caution icon next to each tree on the taly page. Touch this icon and you can defect a section by reducing the diameter inside bark, culling length, apply a percent defect, or even deduct a number of units of calculated volume.

Sampling Method

In your template you indicate your default sampling method, and this will be applied to all stands when starting a project. Once a project file is started, sampling method is controlled at the Stand page, as your sampling method can be different among stands, if desired.



100% Tally- Record all trees in the stand on a single fixed area plot, the size of which equals your total stand acreage. You can tally multiple stands (blocks) in a project file, but trees can not be moved among stands. You will have full compilation reports, but you cannot merge trees that are tallied on different devices into a single stand/block. This is on the development slate for 2019.

Double Plot- This method allows you to evaluate height and product on a subset of your trees. On every tree, you will call species and DBH. If you select the tree as a measure tree, you will be able to call heights and products as appropriate. The manner in which you determine which trees to measure is not indicated- you can use a large BAF, or any other method you determine. Every tree that you tally will count toward your BA; your measure trees will be a subset of your count trees.

Fixed Area Plots- Enter your fixed area plot size using the pick list or you can enter a custom plot size in square feet. The fixed area plot method can also be used for strip cruising. Enter the size of your strip(s) in square feet.

Variable Radius Plots- Select your Basal Area Factor from the pick list. You can edit that list to enter a custom BAF if necessary.

Tallying Small DBH Trees with a different sampling method, sometimes called a nested plot. When this option is selected, you can indicate the maximum DBH for which the small tree protocol applies, and select the method with which you are sampling small trees. For instance, if you wish to sample everything less than 6" with a 5 BAF, you would indicate 5" for your maximum DBH for small trees.

Trees

On the Trees page, you will see a list of all the tree species in the database, filtered by state.

Saved List and Pick List- The system of managing your tree species has two levels. When you select a state, this will reveal the 100-200 species that likely exist in your state according to the FIA. By selecting "Save to Top" on the left side of the list, you will keep the species at the top of the entire list. These are the species that you want to keep handy, like the species that you encounter in your region, but not necessarily all the time. If there is a species that doesn't appear in your state list, select "All" at the top of the state list.

The next level is to select which of these trees you'd like in your Pick List. You should think of this as your top 10 or 15 list- the trees that you are always tallying. Keep this list as trim as possible, so you don't need to scroll through the pick list as frequently- it is very easy to add a species to your pick list during a project.

Species names can be anything you'd like. The default is a common name, but you can change these to numeric codes, abbreviations, or anything- simply touch on the name and a keyboard will appear. These names are how the trees will be tallied and presented on your reports.

***IMPORTANT: SPECIES NAMES CANNOT BE CHANGED AFTER THAT SPECIES HAS BEEN TALLIED; CHANGING THE NAME HERE WILL NOT CHANGE THE TREES THAT YOU'VE ALREADY TALLIED. THIS IS ONE OF ONLY THREE THINGS THAT CANNOT BE CHANGED MID-PROJECT: THE OTHERS ARE PRODUCT NAMES AND THE TREE MEASUREMENT METHOD.**

Import Tree Settings- This function is used to replace an entire tree database with one from another template or project file. This can be handy when setting up a new template, such as after you install a new version of Forest Metrix Pro. It can also be helpful when you are importing a project. You can use this function to import the proper tree settings from the old project to ensure that the template is consistent with the data that was tallied. Simply touch the icon, and you will be asked to enter the name of the template from which you'd like to import your tree list.

Conversion Factors are set at the Species level by touching the icon to the right of the species name, but this button can be used to auto-fill values to all HW and SW products to quickly change from the default values.

Form Class- The default form class is 78. This means that the diameter *inside bark* at 17.3' (1' stump plus 3" trim) is 78% of the diameter at breast height. This form class is used in the taper function when using International/Doyle/Scribner or Tons/Cords in Multiple Product methods. In all methods, each deviation from 78 will change your volume by ~3%.

Tons/Cord- When using a Multiple Product tree measurement method, this conversion factor will impact your mass (volume) when using the Tons volume rule. Tons is calculated by taking the CF volume of the log, converting it to Cords using the CF/Cord factor, and converting that to Tons using the Tons/Cord factor. This factor is also employed in the topwood model.

Tons/MBF- This is only employed when converting board feet that you merchandised to a volume unit chosen in Topwood, in order to subtract your merchandised product from the gross biomass of the tree, the residual of which is considered topwood.

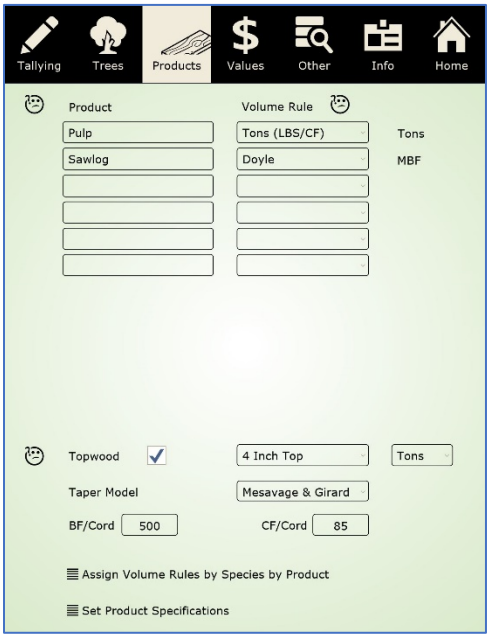
CF/Ton is also only employed when dealing with topwood conversions.

LBS/CF is employed when using the Tons (LBS/CF) volume rule.

The  icon will also access these and additional settings, such as FIA code, state designation, and you can indicate commercial status that is utilized in the regeneration reports. If you are using Custom Merchantable Specifications (see Products below), this is one place where you can change allowable products and merchantable diameters. Lastly, this is where the top diameter fraction and bark factor is set when using Behre's Hyperbola as a taper model.

Products

You can use up to 6 different products on a project (12 products later in 2019), such as sawtimber, pulp, veneer, chip n saw, etc. Products can be named anything, including numeric codes, letter abbreviations, or common language.



Product- enter your product name or code in this field. Pulp and Sawlog are offered as default values but can be changed.

***IMPORTANT: PRODUCT NAMES CANNOT BE CHANGED AFTER THAT PRODUCT HAS BEEN TALLIED IN A PROJECT; CHANGING THE PRODUCT NAME HERE WILL NOT CHANGE THE PRODUCTS THAT YOU'VE ALREADY TALLIED. THIS IS ONE OF ONLY TWO THINGS THAT CANNOT BE CHANGED MID-PROJECT: THE OTHERS ARE SPECIES NAMES AND TREE MEASUREMENT METHODS.**

Volume Rule- select the desired volume rule for each product. See below.

***IMPORTANT: THE PICK LIST FOR VOLUME RULES VARIES BASED ON THE TREE MEASUREMENT METHOD THAT YOU SELECT. THE SINGLE PRODUCT AND DOT TALLY METHOD USE A DIFFERENT SET OF MODELS THAN THE MUTLIPLE PRODUCT METHODS. AS SUCH, YOU SHOULD SET PRODUCT RULES AFTER CHANGING A TREE MEASUREMENT METHOD.**

Topwood- indicate if you wish to see topwood estimates, and if you wish to see topwood calculated to a 4" top, or total tree biomass. See below.

Taper Model- Mesavage & Girard is the default and the most commonly used model, but you can select from others if necessary in your region.

Assign Volume Rules by Species by Product- the volume rule for every species will use the volume rule indicated on this page, unless you need to use different rules for different species of the same product. For instance, let's say that Doyle is your default volume rule for sawtimber. If you are selling Oak sawtimber in Doyle to one mill, and Loblolly sawtimber in Scribner to another mill, you should touch this icon, and next to Loblolly you will want to enter Scribner in the sawtimber volume rule field. You do not have to do anything to other species, such as Doyle, as it will default to whatever volume rule you have indicated on this main Products page.

Set Product Specifications- In Multiple Product method, you can assign allowable products for each species, as well as minimum and/or maximum diameters inside bark for each product. In single product mode you can assign allowable products, but not minimum and maximum diameters inside bark. See below.

Volume Rules

There are two sets of volume rules that are employed, depending on the tree measurement method that you have selected, as follows:

Single Product & Dot Tally

If you are using single product or dot tallying, there is a large library of formulas that are based on DBH and merchantable height. These are derived from lookup tables, where you have a single value for a specified height, the entirety of which is considered a single product. In this method we can offer a larger assortment of volume rules, many of which are species/region specific, as follows:

- The usual Doyle/International/Scribner tables, based on Wiant (1986) regressions[1], which replicate the Mesavage & Girard lookup tables from 1946. All can be reported in BF or MBF.
- Doyle/International/Scribner log rules, which are used in a mill tally or log scaling context of individual cut logs- not whole trees.
- Cords and Tons- these are the Richard Oderwald models from Virginia Tech.
- Georgia Forestry Commission research papers 19, 60, and 79, where you have volumes in tons for natural pine, hardwoods, and planted pine to 2, 4, 7, or 9" top diameters, and you are entering a merchantable height based on the volume rule that you are using.
- Mississippi State University loblolly tables
- UGA PMRC technical papers for planted pine pulpwood, CNS, and sawtimber.
- Southeast Research station paper 250, which is hardwood pulp and sawtimber tables.
- FIA equations for board feet and cubic feet.

Since these volume rules are based on lookup tables, they cannot be used for multiple product methods, as they do not employ actual taper functions, so we cannot calculate diameters inside bark at specific heights on the tree. For the same reason, while you can set allowable products by species, you cannot indicate minimum and maximum diameters inside bark, as that calculation isn't being completed with whole tree volume rules

Multiple Product

When using one of the Multiple Product tree measurement methods, Forest Metrix Pro employs a taper function that calculates diameter inside bark at every height increment up the tree, and then applies a volume rule for each section of tree, as the user specifies.

- The default taper equation is Mesavage & Girard, as derived by Robert Parker (1998)[2]. This function replicates the math that underlies the lookup tables from 1946 by calculating the diameter inside bark at any height on the tree stem.
- Interestingly, those original lookup tables have variance in them. Half-log intervals were simply established as straight line averages of the full log estimates- they do not follow the natural curve of the regression. As such, you will often notice deviations of one percent or less from the lookup tables. Occasionally you will see it deviate by two percent, but these deviations tend to average out across the spectrum of DBH and HT. Regardless, the Parker function is likely more accurate anyways, as the regression more accurately reflects how trees grow- which is not really step-wise up a table, but a smooth curve.

[1] Wiant, Harry V, Formulas for Mesavage & Girard's Volume Tables, Northern Journal of Applied Forestry, 3 (1986).
[2] Parker, Robert C, Field and computer Application of Mesavage and Girard Form Class Volume Tables, Southern Journal of Applied Forestry, Vol 22, No 2, May 1998.

- Behre's Hyperbola is also an available taper function, most commonly employed in the Northwest. The settings that impact this taper function are form class (form factor in the case of Behre's), Top Diameter Fraction, and Bark Factor, all of which can be changed in the individual tree species settings on the Trees page.
- Doyle/International/Scribner tables each calculate the volume of every individual log, based on the height intervals that you call, in accordance with the chosen log rule, after the diameter inside bark is calculated by the chosen taper function. Each of these log rules can also be reported in tons, based on your specified Tons/MBF conversion factor by species. All three are available for both BF and MBF.
- For non-sawtimber products, the volume of each log section is calculated in cubic feet. User can show this result in cords based on their CF/Cord conversion factor (default= 85), or show this result in tons based on a species-specific LBS/CF conversion factor, the default values of which are obtained from the FIA database, but can be modified by the user. User can also report in tons based on a tons/cord conversion factor, which is also set at the species level.
- On the Tree Measurement window of your Settings, you will see a setting for Max Length Cut Log. When you are calling trees in varying heights, and you say that you have 2.5 logs, or 64 feet of logs, or whatever height unit you use, the tree will be cut into lengths no greater than what you indicate. 16' is the default, but you can select 8' (common in the Lake States), 12' (Indiana), 32' (Pacific Northwest), or any custom length you require.

Topwood

Forest Metrix employs the component ratio method (Jenkins, Heath and others, 2009) used in FIADB 4.0. The total biomass (tons) or biomass to a 4" top is calculated for every tree based on this model, which applies species-specific coefficients applied to the DBH.

From this biomass figure, the products that you merchandised are converted to CORDS or TONS, as you indicate in your settings. This figure is subtracted from the biomass, and the residual value is considered topwood.

VOLUME MEASURE UNIT	TOPWOOD UNIT	CONVERSION METHOD
BOARD FOOT	CORDS	BF / (BF/CORD)
BOARD FOOT	TONS	BF / 1,000 * (TONS/MBF)
TONS	CORDS	TONS / (TONS/CORD)
CORDS	TONS	CORDS * (TONS/CORD)

Example of topwood calculation when using Multiple Product methods

14" Loblolly with 24' sawlog and 32' pulp

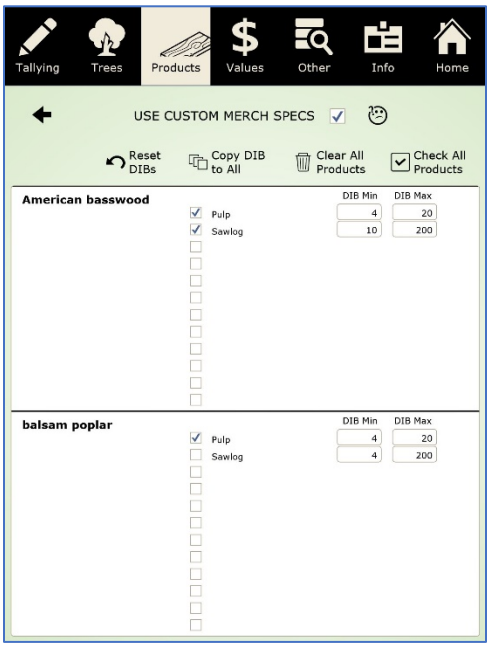
1) Total biomass (FIADB 4.0) calculated = 0.94 tons
2) Sawlog volume (Doyle) calculated = 68.9 BF
3) Sawlog volume converted into tons based on your Tons/MBF factor for that species (default 7.1 for softwood).
   68.9 BF / 1,000 * 7.1 = 0.49 tons
4) Pulp volume calculated in cubic feet and converted into tons based on your CF/Cord (default 85) and species Tons/Cord factors (default 2.5 for softwood).
   10.65 / 85 * 2.5 = 0.31 tons
6) Total biomass, less sawlog mass, less pulp mass:
   0.94 - 0.49 - 0.31 = 0.18 tons of topwood

As illustrated here, this topwood value will depend a great deal on your conversion factors and volume rules, and you will want to adjust them over time based on the results that you observe based on your cruising habits and utilization

rates. You can change conversion factors and re-process the Analysis after your cruise as many times as you wish and observe how your topwood results change.

Setting Product Specifications

You can assign allowable products and diameter inside bark limits by species by product as follows:



Use Custom Merch Specs- select this box in order to turn on this capability. All of the species that appear in your Saved List will show up in this page. Scroll down the list to see them all.

Reset DIBs- revert all minimum DIBs to 4" and maximum DIBs to 200".

Copy DIB to All- this will copy the minimum and maximum DIBs of the selected species to all species.

Clear All Products- deselect all products from all species.

Check All Products- select all products for all species.

Allowable Products- in the example at left, sawlog is not selected for balsam poplar, as we wouldn't ever call that species sawlog. When tallying a balsam poplar, the only product that would appear in the pick list would be pulp. American basswood could be tallied as either pulp or sawlog.

DIB Min and Max- in the example at left you see pulp must be at least 4" diameter inside bark at the small end of the log, and no more than 20" DIB. Our sawlogs must be at least 10" diameter inside bark, and there is no maximum size.

Note that these minimum and maximum numbers are based on **diameter inside bark** at the height you are at in the tree. Due to taper, if you tally a 12" tree with a form class of 78, and your minimum sawlog diameter is 10", sawlog will NOT show up in your pick list, as the diameter inside bark at the top of the first log is only 9.8".

***IMPORTANT- When using custom merchantable specifications, you may find there are no available products in your pick list when tallying. This is because there are no products that satisfy the criteria you have indicated. In this case, you need to either change the DBH of the tree in question, or double check your settings here.**

$ Values

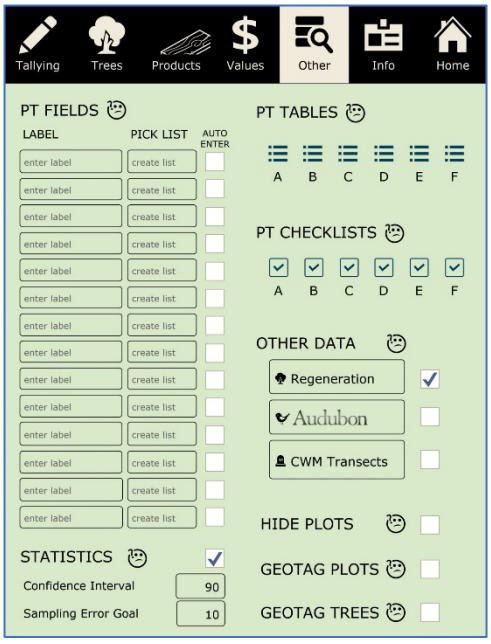
Touch the $ icon to access valuation. In the top section of the page you will set default values for each product. Think of this as an auto-fill feature. This value will be copied to all your species, which will be helpful for some products like pulp, where many species might use the same unit value.

Copy Values- After filling in default unit values for each product at left, touch this button and these values will be copied to all species.

Scroll down through the species list and edit values where necessary, such as your sawtimber products. The unit values that you assign are based on the units of reporting that are shown on the Products page: tons, cords, MBF, BF, etc.

Other

Within Forest Metrix Pro you have many ways of capturing standard and custom non-timber data. Touch the Other button in the Settings toolbar.



Custom Plot Data

PT FIELDS- Custom plot fields are used to capture general plot level attributes such as access, canopy height, presence of invasives, subjective evaluation of regeneration, or anything else that you are typically capturing for planning or operational purposes. For each field, you assign a label, at which point this custom field will be surfaced on your Plot data collection page. Touch the Pick List and use the keyboard to create your pick list. You can also paste long lists into this box, so you can email long lists from your desktop and copy/paste them from the body of an email. **Auto Enter**- when checked, this will automatically copy the value of the existing plot when you create a new plot, provided you are adding plots as you cruise.

PT TABLES- Custom tables are used to inventory other features where you have potentially multiple records, each with multiple fields of data. For instance, say you need to actually inventory the invasive species on a parcel. You can set up a custom table- tables A-F contain various numbers of fields. Tables A and B are 2-field tables, where you might enter Species and Severity level of the invasive present. Table C has 3 fields, in case you needed to capture Species, Severity, and Recommended

Treatment, perhaps. Tables D, E, and F have 4, 5, and 6 fields. These related records are available in .xlsx export with the location data, so you could convert them to a shapefile for GIS or other analysis, as these related records are reported, but not analyzed, within Forest Metrix Pro.

PT CHECKLISTS- Plot checklists are used when you are capturing multiple values. For instance, you may need to simply note presence of invasive species at the plot, and there might be multiple observations. You would set up a checklist with all of the invasive species, and each plot you might select 2 or 3. These, too, are reported within the program and available for .xlsx export.

Other Data

Regeneration sampling- At every timber plot user can tally seedlings and saplings up to 4" DBH on a standard or custom fixed area plot size, independent of the timber sampling method. Touch the icon to indicate your regen plot size and set up optional fields if desired. At a minimum you will record Species, Size Class, and Count. Optionally, you can set up custom fields to capture attributes like browse level, growing status, etc.

Audubon Forestry for the Birds- Turn on this checkbox and you will be able to record the plot level attributes as recommended in Audubon's protocol. These values are reported at the plot level reports. Touch the icon to set up your value lists for soft mast, invasives, and bird lists if desired.

CWM Transects- Touch this icon to set up Coarse Woody Material transect sampling. You will indicate your transect length, as well as 3 fields, such as species, length, and diameter at transect intersection. At present, this data is reported but not analyzed. CWM analysis is slated for development in early 2019.

Other cruise functions

Hide Plots- by selecting this option, plots that have been completed will be hidden from your plot pick list. This can be helpful when you are cruising a stand with 100 plots. As you progress, your pick list of plots will become shorter!

Geotag Plots- by selecting this option, your plot location will be automatically recorded when you tally your first tree at the plot.

Geotag Trees- by selecting this option, each tree location will be automatically recorded upon tally. This can be helpful on high value 100% tallies, but accuracy is limited by the device GPS, so it will not be absolutely exact. Additionally, using this option can add a delay when tallying, as the device needs to refresh location data upon each tally.

Statistics- Setup

The onboard analysis provides for instant results and reports of the following:

- Plot, Stand, and Tract level species composition by basal area and tree per acre- sorted and filtered by optional variables if desired, and optionally by diameter class
- Timber and biomass volume and valuation- filtered or sorted by species, by product, by status, by diameter, by tree height, or any combination therein.
- Regeneration reports, showing stems per acre by size class by species
- Log sort reports with the same capabilities as species composition and timber volume, where results are compiled by the cut logs, rather than individual trees.
- Statistical summary reports at the stand level, showing sampling error among plots, with probable lower and upper limits based on user-specified confidence interval for the following:
    - Basal area and tree per acre
    - Volume in each of the three primary units, according to which volume rules were employed for the cruise. Each product that is reported in a given unit will be combined for this statistic.

        - MBF
        - Tons
        - Cords
- The sequence used to calculate sampling error for each of these metrics is as follows:
    - Standard Deviation = S = sqrt [sum(dev^2) / n-1]
    - Coefficient of Variation = CV = S / mean
    - Standard Error % = Sampling Error = CV / sqrt(n) * t

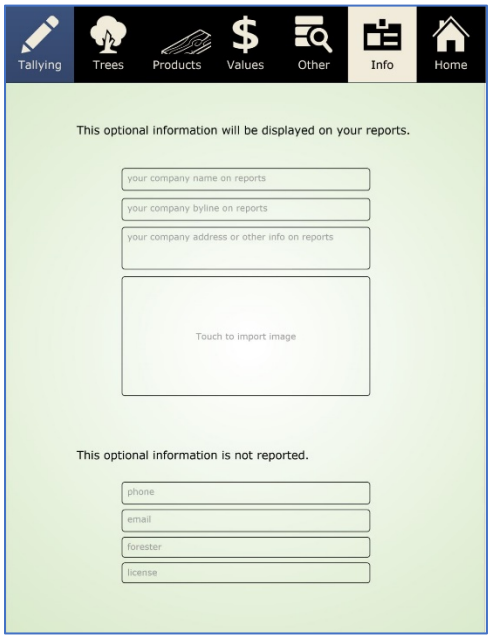
Confidence Interval- select your confidence interval.

Sampling Error Goal- select your desired sampling error.

When you run the analysis, Forest Metrix Pro will report your current sampling error, and also estimate how many additional plots will be required to satisfy your sampling error goal, assuming the remainder of the stand is similarly composed as the plots you've completed so far.

Info

Touch the Info button on the toolbar to enter your Company Info



Optional Information- Enter information into these fields that will show up on the left side of your report footer. You don't need to enter the specified data, such as Company Name and Byline- you can write anything in these fields and they will be arranged as such in the footer.

You can import your logo (or any image) in the large field. The easiest way to do this is to save your logo image to the Photos app, and when you touch this field you will see the option to import an image. Your logo will show up on the right hand side of the report footer.

Start A Project

From the Home page of your template, touch the icon in the upper left to start a new project using this template.

Enter a new cruise file name first. This will be the actual file name, but it will not appear on reports.

You can enter optional project information here that will show in the report headers, but this can be added later once the project has begun.

Start Cruise With One PT- By selecting this option, you will start a new cruise file that has a single stand (Stand 1) and a single plot (Plot 1). If your template is a 100% Tally, this will be the only option. On sample cruises, once you begin the project you'll be able to add plots as you go. You can also add stands and move plots among stands, and you can renumber plots later.

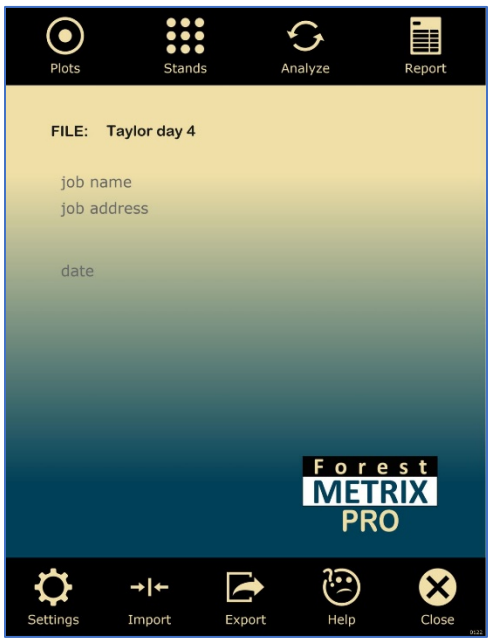
Create Stands and PTs- By selecting this option, you will establish stands and plots before starting. This is more common if you already have a cruise grid or you know how many plots you'll need in the project. You can indicate stand acreage if you know it, or leave the acreage at 1 and update later. You can still add or delete plots and stands once the project is started, and you can also move plots among stands. You can also renumber plots after you begin. When adding plots, they will be numbered sequentially through the stands. In the example at left, Stand 1 will contain plots 1-15, and Stand 2 will contain plots 16-25.

Most commonly, users will create a single stand with the entire number of plots in the tract, and then after beginning the project they will add stands and stratify the plots among stands.

When you are ready, touch the Ready icon, then Start. This will close the template and your new project file will open automatically.

Project- Home

When you start a new project or open an existing project file, you will see the following Home page. Your File name should show near the top of the screen, as well as optional project data. You can change those values by touching the fields:



Plots- Tally trees and record any plot level data, including regen, custom fields, photos, notes, etc.

Stands- Add and delete stands, add multiple plots to stands, change stand sampling method and acreage, and this is one place to review your plots in each stand and the entire tract, and move plots among stands.

Analysis- Run the analysis on each stand and see instant results

Report- After running the analysis, go here to create onboard reports for .pdf export.

Settings- All of the settings that exist in the template can still be accessed once you begin a project.

Import- Use this function to import a project from an earlier version of Forest Metrix Pro, or to merge cruise files from multiple cruisers.

Export- On this page you can export all of your raw data in Excel form, including trees, plot level data, your custom plot tables, and more. You can also export photos, save backups, and other functions.

Help- Access local and online help resources, view program data, register a device, or subscribe.

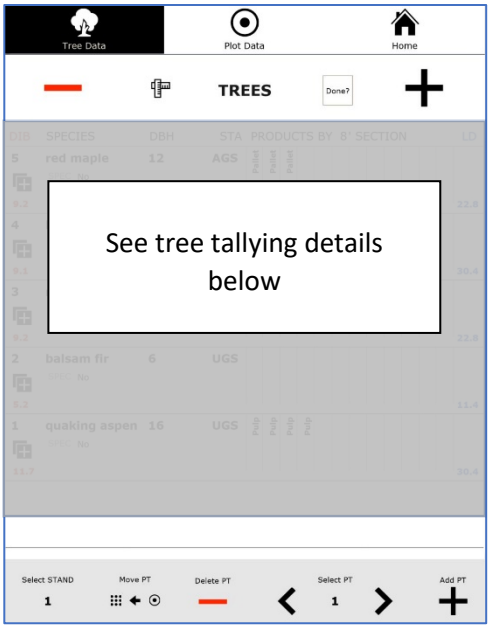
Close- Close this project file and return to the Filemaker launch center.

Plots

When you touch the Plots icon in the top toolbar, you will land on the tree tally page. The interface will look slightly different depending on which tree measurement method you are using. The first time that you enter this page, you will be guided around the various functions.

Validation

When you attempt to leave a tally page, if the plot has not been marked Done (complete) you will be asked if you have finished tallying this plot. This is to ensure that you mark the plot as Done, which checks to see that every tree entry has a species and DBH recorded, and any optional fields if they are turned on. If you have not tallied the plot yet, you can select “No” and you will be able to proceed, but you should get in the habit of marking plots as Done before moving on. When a plot is marked Done, it will be counted in the stand analysis.



On the top toolbar, note that you are on the **Tree Data** page. Touch the **Plot Data** icon to record all non-timber plot data (details below). Return **Home** with the icon in the upper right.

On the next level down you will see **TREES** functions, such as deleting trees (red **-** icon) and adding trees (black **+** icon). The small **tool** icon is where you access the limiting distance calculator and site index calculator. On the right you see the checkbox that you will select when you are **Done** tallying trees at the plot.

At the bottom of the page you see Stand and Plot navigation functions:

Select STAND- touch the stand number to choose which stand you are working in. This will reveal the plots that exist in this stand.

Move PT- touch this icon to move the current plot to a different stand.

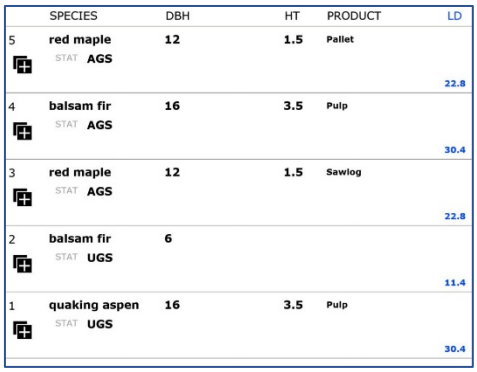
Delete PT and **Add PT**- as labeled.

Select PT- touch this icon to select the plot number that you wish to tally. This list will show the plots in the current stand. If you need to navigate to a plot outside of the current stand, you must select the desired stand on the left.

Optionally, you can use the **<** and **>** icons to move among plots sequentially. These options do not exist on the iPhone interface due to limited display size.

Tallying trees

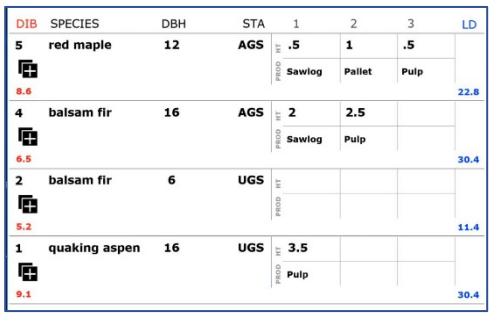
Single Product (Method A)



In the example at left, we are using tree measurement method A. When you touch the icon to add a tree (**+**), your species pick list will appear. Choose the species and the DBH pick list will appear. If you have turned on custom tree data options, you will be prompted to select from that pick list. In this example, the first tree data option was configured to record Status (abbreviated STA). The pick list was established as AGS/UGS. Following this selection, you will be prompted to enter height of your single product. In this example, we are calling heights in 16' logs and half logs, as specified in the Settings. Lastly, you will be prompted to select the product. Note that you do not need to record any products. You must, however, enter a species and DBH for every tree. In Settings, we opted to show the **limiting distance**. This number is shown in **blue** on the right side of the page, and is populated when you enter a DBH. In single product mode, even if selected in Settings, you will not see the diameter inside bark. That value is predicated on the height where you are in the tree, which is not known until after you enter a height. Additionally, the single product mode is using whole tree volume rules, like lookup tables, which aren't explicitly calculating a diameter inside bark at a particular height.

***IMPORTANT: EVEN IF YOU GENERALLY ONLY TALLY A SINGLE PRODUCT IN A TREE (UNLESS YOU MUST USE ONE OF THE REGION OR SPECIES SPECIFIC VOLUME RULES THAT ARE ONLY AVAILABLE IN SINGLE PRODUCT MODE) YOU SHOULD USE THE MULTIPLE PRODUCT METHOD AND SIMPLY TALLY ONLY A SINGLE PRODUCT IN THE TREE. IN MUTLIPLE PRODUCT MODE YOU CAN EXPLOIT MORE FUNCTIONALITY, SUCH AS CHANGING CONVERSION FACTORS AND SPECIES-SPECIFIC COEFFICIENTS, AND YOU'LL SEE DIAMETER INSIDE BARK DETAILS.**

Multiple Product, Varying Lengths, (Method B)

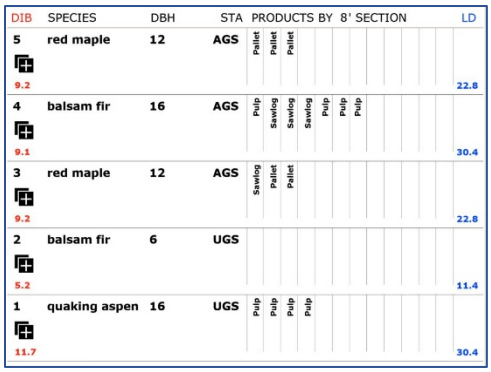


DIB	SPECIES	DBH	STA	1	2	3	LD
5	red maple	12	AGS	.5	1	.5	
				Sawlog	Pallet	Pulp	
8.6							22.8
4	balsam fir	16	AGS	2	2.5		
				Sawlog	Pulp		
6.5							30.4
2	balsam fir	6	UGS				
5.2							11.4
1	quaking aspen	16	UGS	3.5			
				Pulp			
9.1							30.4

In the example at left, we are using tree measurement method B, where we are evaluating (possibly) multiple products in varying lengths. When you touch the icon to add a tree (**+**), your species pick list will appear. Choose the species and the DBH pick list will appear. If you have turned on custom tree data options, you will be prompted to select from that pick list. In this example, the first tree data option was configured to record Status (abbreviated STA). The pick list was established as AGS/UGS. Following this selection, you will be prompted to enter the product call of the first 8' log from the stump (measurement method C uses 16' logs), and you will be walked up the bole until you determine there are no more logs to tally.

In Settings, we have opted to show the **diameter inside bark**. This number is shown in **red** on the left side of the tally page. As you work your way up the bole, this number will show the diameter inside bark at the height where you are tallying. Also in Settings, we opted to show the **limiting distance**. This number is shown in **blue** on the right side of the page, and is populated when you enter a DBH.

Multiple Product By 8' (or 16') Section



DIB	SPECIES	DBH	STA	PRODUCTS BY 8' SECTION	LD
5	red maple	12	AGS	Pallet Pallet Pallet	
9.2					22.8
4	balsam fir	16	AGS	Pulp Sawlog Sawlog Sawlog Pulp Pulp Pulp	
9.1					30.4
3	red maple	12	AGS	Sawlog Pallet Pallet	
9.2					22.8
2	balsam fir	6	UGS		
5.2					11.4
1	quaking aspen	16	UGS	Pulp Pulp Pulp Pulp	
11.7					30.4

In the example at left, we are using tree measurement method D, which behaves the same as C. When you touch the icon to add a tree (**+**), your species pick list will appear. Choose the species and the DBH pick list will appear. If you have turned on custom tree data options, you will be prompted to select from that pick list. In this example, the first tree data option was configured to record Status (abbreviated STA). The pick list was established as AGS/UGS. Following this selection, you will be prompted to enter the product call of the first 8' log from the stump (measurement method C uses 16' logs), and you will be walked up the bole until you determine there are no more logs/pulp to tally.

In Settings, we have opted to show the **diameter inside bark**. This number is shown in **red** on the left side of the tally page. As you work your way up the bole, this number will show the diameter inside bark at the height where you are tallying. Also in Settings, we opted to show the **limiting distance**. This number is shown in **blue** on the right side of the page, and is populated when you enter a DBH.

Deleting a tree

In all measurement methods, in order to delete a tree you can touch on the tree- any field or even the dead space in the row will make the tree highlighted. Then touch the red (**–**) icon and you will be prompted to confirm the tree deletion. Note in the example above of Multiple Products, Varying Lengths, tree # 3 is missing. After tallying other trees, this tree was deleted. The other tree numbers remain how they were entered.

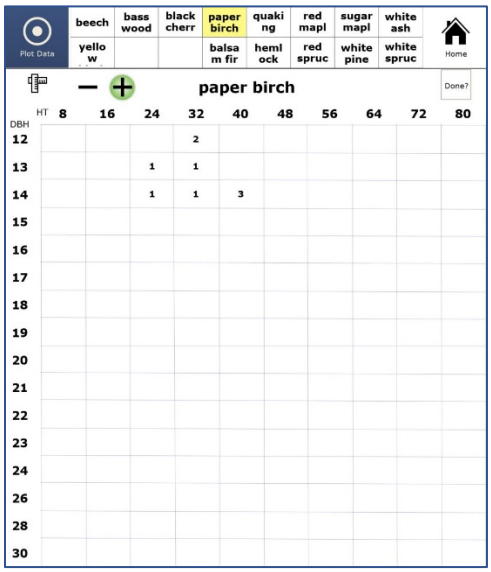
Copying a tree

In all tree measurement methods, you can use the + icon on the tree row to make a copy of that tree. All values will be copied into the new tree, including species, DBH, custom options, etc. If you wish to change one of the values in this

copied tree, simply touch the value that you wish to change and the pick list will appear. Unlike when tallying a new tree, you will not be prompted through the rest of the fields in copied trees.

Dot Tally

When using the Dot Tally tree measurement method, you will see the following page when you go to Plots. Across the top of the page you will see the 16 tally page labels. In this example, not all of the pages are being used. Pages 1-9 are assigned hardwoods, and pages 12-16 are assigned as softwoods.



Choosing your tally sheet

When you arrive at a plot, you will not see the grid of DBH and HTs. You first need to select the species you wish to tally. Touch the desired label to show a species tally sheet. Once chosen, the species label will be highlighted in yellow and the full species name will appear above the grid.

Add a tree

By default, you see the green + icon is highlighted. This means that you are in the mode to add trees. Simply touch on the desired DBH/HT combination to tally a tree of that size, and the tree count will increase by 1.

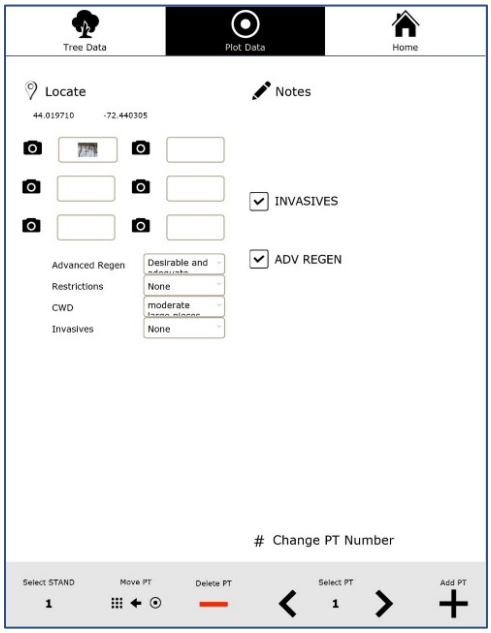
Delete a tree

To delete an errant entry, touch the (-) icon to the left of the species name, then touch the field. This will reduce the tree tally by 1, and the mode will automatically turn back to (+) adding trees. You cannot delete or add multiple trees at a time.

Once you are finished tallying the plot or 100% tally, mark the plot Done, and go to the next plot, return home, or go to the Plot Data page to enter non-timber data.

Plot Data

When you are on the tree data tally page, regardless of the tree measurement method, touch the Plot Data icon and you will see a version of the following page.



Tree Data- return to the tree tally page.

Home- return to the home page.

Locate- touch this button to assign your current location to this plot. If you are automatically geotagging your plots when tallying trees, or if a location value already exists, you will be asked if you wish to overwrite the existing location value.

Notes- Touch this icon and you can type notes or dictate notes if you have a cellular data connection.

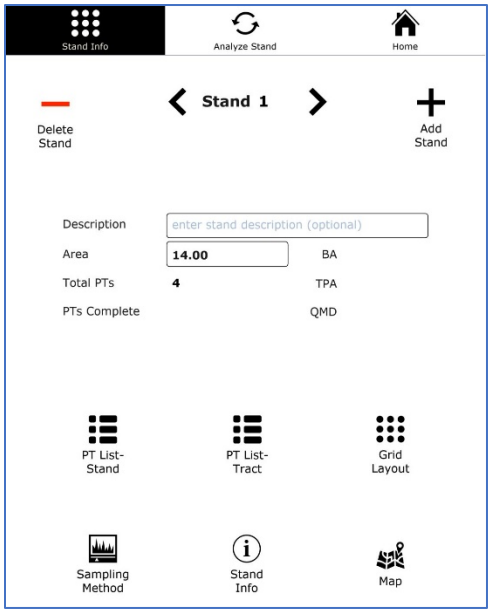
Photos- You will see 6 photo fields. Touch the icon and you will be prompted to touch the field in order to insert an image. You have the ability to insert a photo from the camera or photo roll, or you can insert any number of file types into these "container" fields. These are fields that hold files, so you can record a voice recording, add a .pdf, capture a signature (within which you can use to doodle or sketch), or other functions. These fields will house the files within the project file. If you are taking many photos or using these fields regularly, your file size will grow significantly. This is rarely a limitation, but several hundred photos will grow a project file to one or more gigabytes, which may become a consideration for device storage.

 # Change PT Number- touch this icon and you can change the current plot number. You will be prevented from entering an existing plot number.

In the example above, you will see four fields on the left, and two additional icons on the right. These are optional custom plot level data collection that is set up in Settings under Other. See the Settings section of this manual for details. If you have additional options set up or selected, these icons and features will be surfaced on this Plot Data page. On the iPhone, you may need to touch icons that bring you to additional pages, as there isn't room to show all of the different custom options on that smaller display.

Stands

From the Home page, touch the Stands icon to see the following:



Stand Info- The current page.

Analyze Stand- Go to the Analysis page

Home- Return to the Home page.

Delete Stand- This button will delete the entire stand and all related plots, trees, regen, etc. You will be asked to confirm this action to prevent accidental deletion.

Touch **Stand number** to select a different stand or use the **< / >** icons to move serially among stands. These < /> icons do not exist on the iPhone interface due to limited display size.

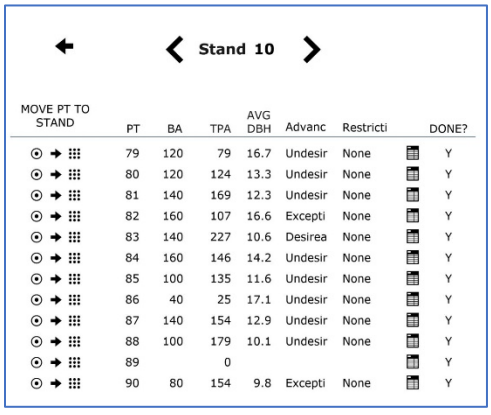
Add Stand- This button will add a stand to your project. Upon adding a stand you will be prompted to add a number of plots to the stand in a yellow field. After you enter a number and exit that field, the plots will be added to your stand. It is not necessary to add any plots to a stand upon creation.

Description- enter a stand name or description. This will show on your reports, in addition to the stand number.

Area- Enter your acreage in this field. You can enter as many digits and decimal places as desired, but only the first two decimal places will show. You can change this acreage at any point, but you will be prompted to run the Analysis when you do.

Total PTs- The number of plots in this stand. **PTs Complete**- the number of plots that you have marked "Done" on the tally pages. **BA, TPA, and QMD** are also shown on this page after your analysis has been run.

Touch **PT List- Stand** to see the following:



This window shows all the plots that exist in the current stand, and some basic plot level information. Slightly less data is displayed on the iPhone pages.

On the left side of each row you see an icon. If you wish to **move a plot** into a different stand, touch this icon and select the desired stand. On the iPad, you will also see an icon toward the right that will show the timber **analysis of each plot**. On the iPhone, you can only access this plot analysis in the Reports.

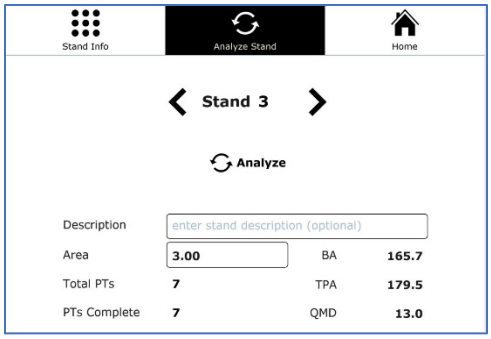
Touch **PT List- Tract** to see the equivalent table with all plots in all stands. At the top of that page you can indicate if you'd like to sort the plots by plot number or by stand number.

Touch **Stand Info** icon to change the stand number. On the iPad, you can also enter custom stand data, but these fields are not reported and will likely be removed in 2019. Touch the **Map** icon to see a view of your plots in that stand. You must have a cellular connection for the basemap to upload. Contact us for several good GPS/GIS options to use in tandem with Forest Metrix Pro.

Analysis

Analyzing your data

From the Home page or the Stand page, touch the Analysis icon to see the following. The page is arranged identically to the Stand page.

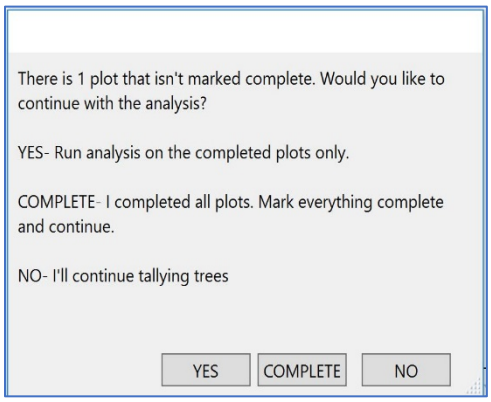


Stand Info- Go to the Stand page.

Analyze Stand- The current page

Home- Return to the Home page.

Touch the **Stand number** to select a different stand or use the **< / >** icons to move serially among stands. These < /> icons do not exist on the iPhone interface due to limited display size.



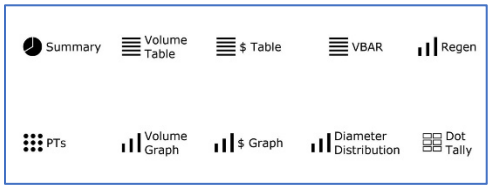
Analyze - This button will be highlighted in yellow when you have not yet run the analysis, and the icons at the bottom of the screen will not be visible. You must run the analysis for each stand individually. Analysis can be run on a stand before you have finished tallying all the plots. If that is the case, you will see the message at left, and you should choose accordingly.

If you have more than 50 or so trees in the stand, you will see a message that estimates how long it will take to process the data, in case you wish to wait until later. There are a great many calculations that take place from the individual log level right through stand level statistical analysis.

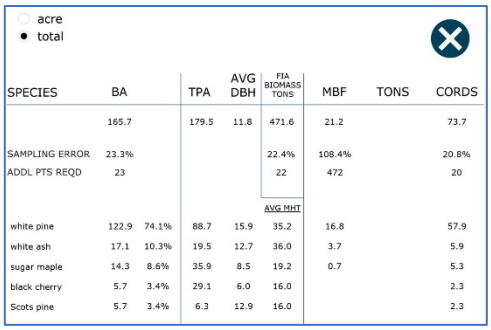
On a current generation iOS device, Forest Metrix Pro processes approximately 300 trees per minute. If your device is one or two generations old, it can be much slower. If you opt to calculate Statistics, the status bar on the next page will pause at the end for a bit and analysis will take much longer. The individual tree calculations are complete, and the data is being evaluated to determine how many additional plots you need to satisfy your sampling error goal.

Following this analysis, when you create Reports, you will also experience a pause as the data is being summarized and compiled at the stand or tract level, particularly if you are doing a lot of filtering and sorting. The duration will be much shorter than the analysis. It will still be proportionate to the number of trees, but also the number of stands.

***IMPORTANT- WHEN YOUR iOS DEVICE GOES TO SLEEP (THE DISPLAY TURNS OFF), YOUR ANALYSIS WILL PAUSE. IF YOU HAVE A LARGE DATA SET, MAKE SURE THAT IN iOS SETTINGS, DISPLAY & BRIGHTNESS, AUTO-LOCK IS SET TO "NEVER".**



Once Analysis is complete, several icons will show at the bottom of the screen. On the iPhone, fewer icons will show immediately; they can be accessed by touching the Quick View icon. All of this data- and much more- is available in the Reports, but this can offer a quick look, particularly as it relates to your sampling error and progress toward your goal.



Summary- On this page you will see either by acre or stand total numbers, as selected with the toggle switch in the top left. All species that were present in this stand will appear in descending order by basal area. You will see the BA, trees per acre, average DBH, and average merchantable height by species. The volume columns indicate the sum of all products that you measured by a given unit. For instance, in the example at left, two products (sawtimber and pallet) were measured in MBF, and two products (growing stock and pulp) were measured in cords. Each of these volume columns show the sum of the respective products.

Near the top of the table there is a row with the Sampling Error and another row for Additional PTs Required. Assuming you have opted to show Statistics in Settings, the following values will appear:

Sampling Error- see below for explanation

Additional PTs Required- based on the Sampling Error Goal that you indicate in Settings, this is the additional number of plots you need to tally to achieve your goal. See details below.

Statistics- Interpretation

Back in school, you may have taken a statistics class or covered stats in a forestry class, but many of us never really understood what those numbers actually mean. Coefficient of variance? Standard deviation? Standard error? T-values? How does it relate to your project? In Forest Metrix PRO, we report sampling error, which is all most any forester needs to know.

***IMPORTANT- SAMPLING ERROR- THE PERCENT BY WHICH THE ACTUAL VALUE MIGHT VARY FROM THE ESTIMATE, BASED ON THE CONFIDENCE INTERVAL THAT YOU SPECIFY. THE SAMPLING ERRO IS A FUNCTION OF ONLY TWO THINGS BESIDE YOUR CONFIDENCE INTERVAL- HOW MANY PLOTS IN THE STAND/TRACT, AND HOW MUCH VARIABILITY EXISTS AMONG THE PLOTS.**

Confidence interval- How confident you can be in the Sampling Error.

Here is the analysis of an actual cruise. Confidence interval is 90%.

	Stand 1	Stand 2	Stand 3
Acres	8	40	1
Plots	6	24	2
Basal Area	120	139	110
Basal Area Sampling Error	27.4%	8.0%	57.4%
MBF Volume	2.1	10.9	0.9
MBF Sampling Error	69.1%	11.1%	631.4%

THE SIMPLE INTERPRETATION:

- In Stand 1, 90% of the times that you perform a random sampling with 6 plots in this stand, your basal area will be within 27.4% of 120 feet/acre.

- In Stand 2, 90% of the times that you perform a random sampling with 24 plots in this stand, your MBF will be within 11.1% of 10.9/acre.
- In Stand 3, 90% of the times that you perform a random sampling with 2 plots in this stand, your MBF will be within 631.4% of 0.9/acre. Obviously this isn't possible in the forest- you don't have negative volume- but this illustrates how the math works.
- If you use a lower confidence interval, your sampling error will be less. This is where the bell curve of a normal distribution comes in. Google it.

LESSONS:

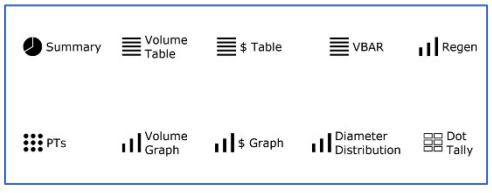
- The sampling error does not reflect on your ability as a cruiser, the accuracy of the program, or anything other than **how many plots you sampled and how variable are the plots**.
- The sampling error has nothing to do with the size of your stand, except to the extent that a poor sampling error on a 5 acre stand will have less effect on the total project than a poor sampling error on a 100 acre stand!
- There is only ONE thing that you can control- how many plots you tally. If your client wants to see a smaller error, or you need more confidence in your estimate for a sale, they can pay you to add more plots.
- If you only have a few plots in a stand, it can be exceptionally difficult to get an acceptable sampling error. Some old school rules of thumb are that you really need at least 10 plots in a stand in order to get any number worth hanging your hat on. Conversely, the way that statistics works is that once your sample size gets beyond 25-30, it becomes increasingly difficult to lower your sampling error, regardless of the size of your stand. Provided that your stand is reasonably homogenous, even if it is 500 acres, 30 plots might get you an error of 10%, but an additional 30 plots may only bring your error down to 8%. The most important thing is that your plots are equally distributed around the entire stand, and their precise location is not biased in any way.

WHAT FOREST METRIX PRO DOES FOR YOU:

- You will see the sampling error of your Basal Area and Trees Per Acre, as well as your volumes in MBF, Tons, and Cords, depending on which volume rules you used. This appears on the Stand Summary and Tract Compilation reports (below), as well as the Summary Analysis (above).
- You will see the number of additional plots that you need in order to achieve your sampling error goal for each of these different metrics on the Analysis page. For instance in the screenshot above, if you must be 90% confident that your cords estimate needs to be within 15% of this estimate, Forest Metrix tells you to tally 20 more plots, assuming the rest of the stand is similarly variable as what you've tallied thus far.

Other data

All of the data on these pages is presented in a publishable format in the onboard Reports (see Reports section below), but a simplified version is available here for a quick look. On most of these pages on the iPhone, you will use your finger to scroll around.



Volume Table- this is a simple table that displays the total volumes and volume/acre by product, as well as topwood.

$Table- this is the same format as above, only showing dollar values rather than volume.

VBAR- this shows the volume by basal area ratio (VBAR) of 6 products for all of your species. VBAR is the units of volume for one foot of basal area. This is a critical value in double plot sampling, but only informational in other sampling methods.

Regen- If you have enabled Regeneration sampling in Settings and tallied seedlings and saplings at your plots, this is a simple graph illustrating your stems per acre by size class by species.

PTs- this will show the same data as the Summary table, but for each individual plot.

Volume Graph- column graphs for all products, sorted by species, but unit. You will need to scroll around to see all of the data, particularly on the iPhone.

$ Graph- the same set of graphs, for dollar values rather than volumes.

Diameter Distribution- this shows the diameter distribution of all the trees tallied ina stand. It is NOT the trees per acre- it is the count of trees by diameter class, which can be helpful for error detection in the field. Trees per acre (stocking tables) are available in the onboard reports.

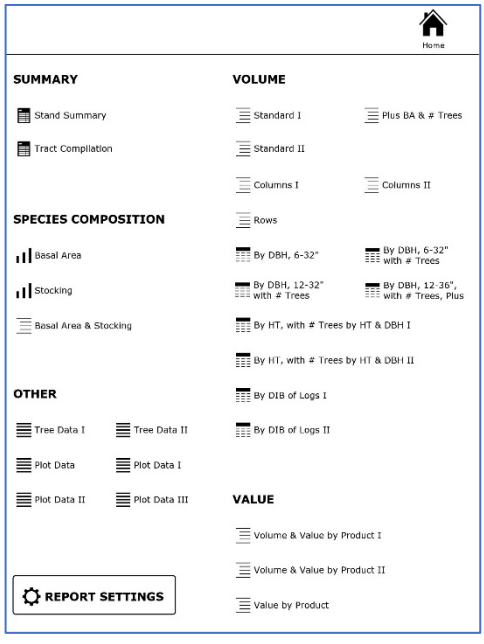
Dot Tally- when using the Dot Tally tree measurement method, this icon will display the total volumes per tally sheet.

Once your analysis is complete, return Home and you can produce reports.

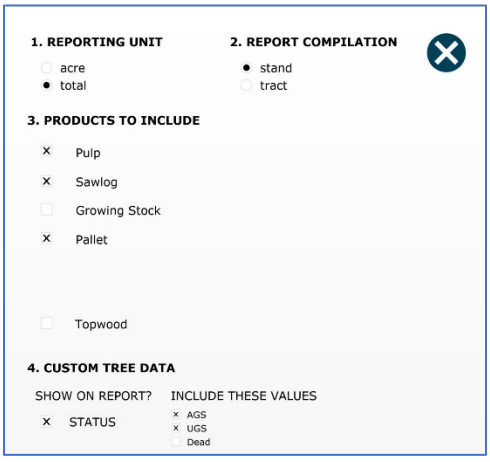
Reports

Report Settings

From the Home page, touch the Reports icon in the upper right to see the following page below on the left. On the iPhone, the page will look slightly different- you will need to touch some icons to access the deeper reports.



Touch **Report Settings** in the lower left (of the page on the left) to control how the reports are displayed. You will see the Report Settings window at below right.



Reporting Unit- On some reports, you can show the results either by acre or by the total unit (stand or tract).

Report Compilation- On most reports, you can either show reports sorted by stand, or compiled for the entire tract.

Products to Include- While you may use many products in the course of a tally, you might wish to produce a report that only includes some, such as a detailed sawtimber report, where for pulpwood you only need a basic set of data. In this example, the

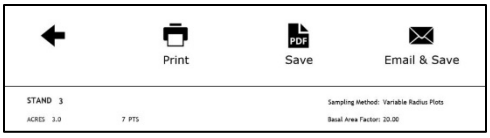
volume of growing stock was recorded for internal purposes, but for the reports that are presented to the public, growing stock will not appear. Additionally, topwood was selected in the general Settings for calculation, but it is not being reported for this cruise.

Custom Tree Data- If you are using one or more of the four custom tree data options in general Settings, they will appear here. You can select if you wish to sort the data by that field, and if you want to show all values. In this example, AGS (acceptable growing stock) and UGS (unacceptable growing stock) were recorded, as well as dead trees, but in most of the reports we do not wish to report on the dead trees, so that value isn't selected.

Report production

After you determine your Report Settings, touch any of the report icons to produce a report. Depending on the size of the project (number of trees) and the settings you indicate, such as whether you want products sorted, compiled by stand or tract, the processing time can take as much as a few minutes depending on your hardware. When you touch an icon to create a report, you will be reminded of the Report Settings that can affect the chosen layout. Please see the **Appendix I: Onboard Report Library** for a complete guide to the onboard reports.

When a report is produced, every report will show the following toolbar in the header.



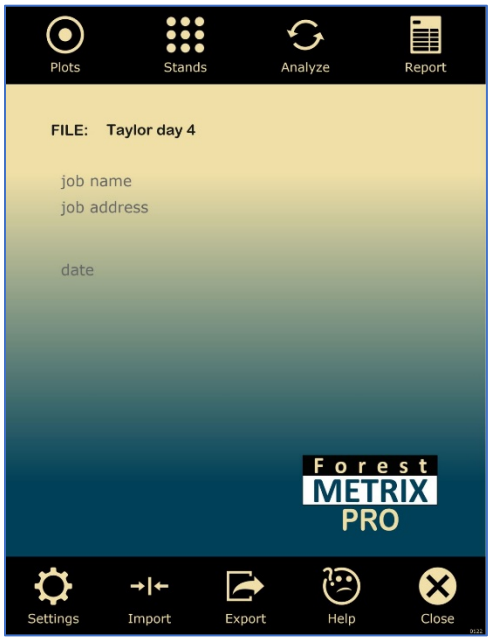
Print- If you are in proximity to a wireless printer, touch this icon to print the report directly from the device. The report will not be saved.

Save- Touch this icon to save the report in .pdf format. Close the project file and in the Filemaker Go Launch Center, touch Device at the bottom of the screen, and scroll down to see report exports. By touching the selection icon in the upper right, you can select files and export them in a number of methods, including texting, emailing, saving to Dropbox, etc.

Email & Save- If you have the default Mail app configured on your iOS device, an email will be created and your .pdf report will be attached. The report will also be saved to the device in the Filemaker Go Launch Center.

Other Project Home Page Functions

Once you start a project file, on the lower tool bar of the home page you can access a number of functions:



Settings- You can access all of the Settings that are available in your template. By changing settings in a project file you will NOT be changing your template. Settings are covered in the Template Settings section of this manual.

Import- Touch this icon to import a project from another file. This function can be used to migrate an older Forest Metrix file into this template, or to merge project files from multiple cruisers.

Export- This page contains various data export functions and other capabilities

Help- Onboard and remote help resources, system license registration information, and contact information.

Close- Close this project file and return to the Filemaker Go Launch Center.

Import or merge projects

Import- This function is used to import a project from an earlier Forest Metrix file, or to merge two or more project files from multiple cruisers. The hardest part of this process is simply gathering all of the files onto a single device. There are a number of ways to do this. If iOS devices are in close proximity, you can use the AirDrop function.

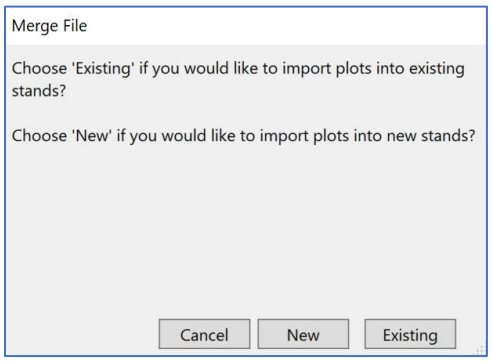
AirDrop sharing- From the "donor" device, open Filemaker Go and go to the Launch Center. Select "Device" to see a list of all files. Touch the checkmark icon in the upper right and select the file you'd like to send. Touch the upward arrow icon in the top toolbar nd you should see Airdrop at the top of the list, with the available devices shown. They may take a few seconds to show up; you'll want to make sure those devices are awake. You may have to try this multiple times, or turn and off AirDrop receiving capabilities. Once AirDrop devices appear, touch the icon of the recipient device. On the recipient device, you will be prompted to accept the file and open it in the appropriate app. Select FileMaker Go and the file should open automatically.

Dropbox sharing- In the iOS environment, Dropbox is a very handy resource to use for file sharing and backup purposes. Firstly, you must install the Dropbox app on each of the devices and create a free account. Once Dropbox is installed, follow the directions above for AirDrop, but instead of selecting an AirDrop recipient, in the lower row of icons you should see "Copy To Dropbox"or "Save To Dropbox". Choose that option and select the Dropbox folder where you wish to save the project file. On the recipient device, open the Dropbox app, locate the file, and export it (copy it or save it) to Filemaker Go.

Once the file is on the local device, touch the Import icon and you will be prompted to enter the file name that you wish to import.

There are two ways to import files. In this first scenario, you are importing an entire project from another file into an empty recipient file. This is the scenario you would use if you just installed a new version of Forest Metrix Pro and you want to import an old file into the new version.

- Open your new Pro template and start a new project with a single plot.
- When that new project file opens, go to the Stand page and Delete Stand. At this point, the project file will be empty.
- Return to the Home page and touch the Import icon in the bottom toolbar. Then touch the Import icon at the bottom of that window and you will be prompted to enter the project file that you wish to import. Type the file name exactly. It is not case sensitive.
- Touch OK and you will see the following dialog box:



New- In the case of a complete project import and you have no existing stands in this donor file, touch New, and the entire stands will be imported into this file. Or, if you are merging cruise files and cruisers completed entire stands on their own, and those stands do not exist on the recipient file, the stands will not be merged; the new stands will be imported in their entirety.

Existing- When you are merging multiple files, and the recipient file is set up with all of the stands that cruisers may have tallied, select Existing. This means that the plot and tree data from the donor files will be imported into the existing stands of the donor file. If you choose "existing", but there are additional stands that do not exist in the recipient file, those entire stands will be imported from the donor file.

***IMPORTANT- CONSIDERATIONS WHEN IMPORTING/MERGING FILES-**

1) Your Settings must be consistent among files. Your tree measurement method, species names, product names, etc: all must be the same.
2) If merging from an older Forest Metrix file. After you complete the import, go to the Stand page and review each stand sampling method. Depending on how old the donor file is, certain sampling method attributes may not import, but you can enter them here.
3) If there are redundant plot numbers in the donor file. For instance, there already exists a plot 12 in the recipient file, but a different plot 12 is imported from the donor file, the donor plot will be renumbered by adding 10,000 to the plot number, so the plot from the donor file will be identified as plot 10,010 after import.
4) If there are redundant stand numbers in the donor file. For instance, in the recipient file there exists stand 1, 2, and 3. The donor file also contains a stand numbered 1, but it is an entirely separate stand- not intended to be merged- the donor stand will be renumbered by adding 10,000 to the stand number. The stand from the donor file will be identified as stand 10,001 after import. Plots will only be renumbered if they are redundant.

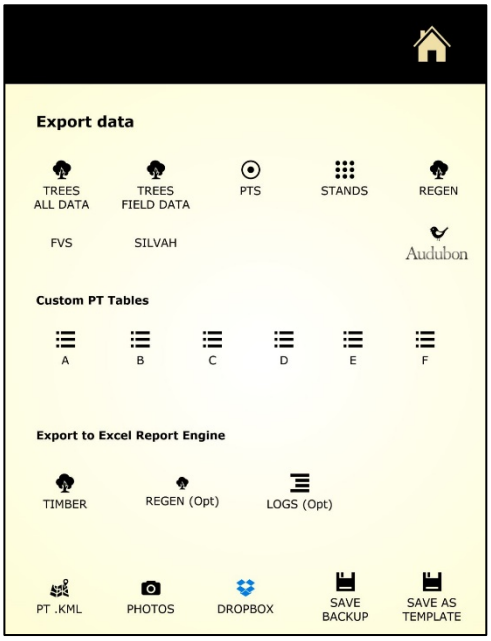
Follow these 3 tips for successful merging:

1) All cruisers ***should*** start from the same template, which could be shared via AirDrop or Dropbox in advance of hitting the field. At the very least, make sure that cruisers are using the same species names, product names, and tree measurement methods.
2) There ***should*** only be a single occurrence of each plot number among all the files. One person should cruise plots 1, 4, and 6. The other person should cruise plots 2, 3, and 5. Those three plots are the only ones that should exist in each of the respective files.

3) The recipient file ***should*** contain all of the stands, even if that cruiser is not tallying plots in all of the stands. This way, you can import the donor files into Existing stands, and that reduces possible stand number conflicts or other confusion.

Export

Touch the Export icon in the lower toolbar to access the following page:



Export Data- This set of icons will export the data in .xlsx format. The data file will be automatically attached to an email, provided you have configured the default iOS Mail app. The data file will also be saved to the local directory- the Filemaker Go Launch Center. After closing this file, touch Device at the bottom of the screen. Scroll down to see the data exports, as well as your .pdf reports.

Trees- All Data- This file contains every tree level field in the database. There are several hundred, including all of your field data collection fields, but also things like FIA code, diameters inside bark for logs, defect values, volumes by product, etc. This can be helpful if you need to do significant additional processing, or import the data into a database, but it is likely far more than you need. Contact us if you need assistance interpreting this data.

Trees- Field Data- This file contains the fields that you collected while tallying and other related data.

PTS- Contains the plot level custom fields, plot summary data (BA, TPA, etc), location data, custom plot checklists and notes.

Stands- Contains basic stand level fields. **Regen**- Contains raw regen observations if that option was used. **FVS**- This file contains fields that are required for import into FVS. **SILVAH**- fields that are typically imported into SILVAH.

Custom PT Tables- these are the custom plot level tables. All exports will include plot and stand identifiers, as well as plot location data. As such, you could convert these spreadsheets into shapefile attribute tables for GIS import.

Export to Excel Report Engine- This is an option available in Forest Metrix PRO Plus package. If you do not subscribe to PRO Plus, you will not see these icons. These data files are necessary for import to the desktop Report Engine.

PT .KML- this will export a .kml file of several plot level fields, including the top 3 species and basal area. A .kml file can be opened directly in Google Earth or any number of GPS and GIS programs.

Photos- This will export all of the photos that you captured at the plot level. The photo files will be named by their plot number and which of the 6 photos at the plot. The photos are not georeferenced and will not synchronize to your Photo roll. They will be exported to the local directory- the Filemaker Go Launch Center.

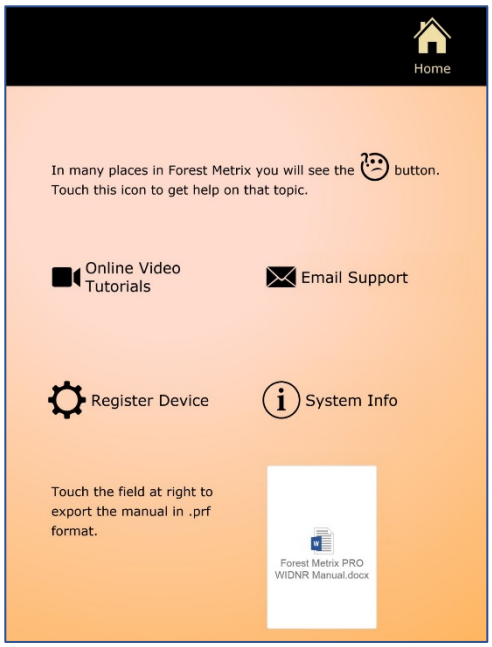
Dropbox- This icon will display the instructions to upload your file to your Dropbox account. You must have the Dropbox app installed on your device.

Save Backup- This is a handy function that simply saves a backup copy of the project file. It will timestamp the file name. Many users develop a habit of saving a backup at the end of each day's progress.

Save As Template- Save the settings of your current project as a template for future use. This is especially helpful if you made a number of changes in your pick lists during the course of a project, and you don't want to repeat the process on an existing template.

Help

Touch the Help icon in the bottom toolbar to access onboard and remote help and administrative functions.



Online Video Tutorials- touch this icon and you will land on the video tutorial page. There are several brief videos that explain various elements of the program.

Email Support- a new email message will be created and addressed to Forest Metrix.

Register Device- this icon should only be used by system administrators, but improper use will cause no harm.

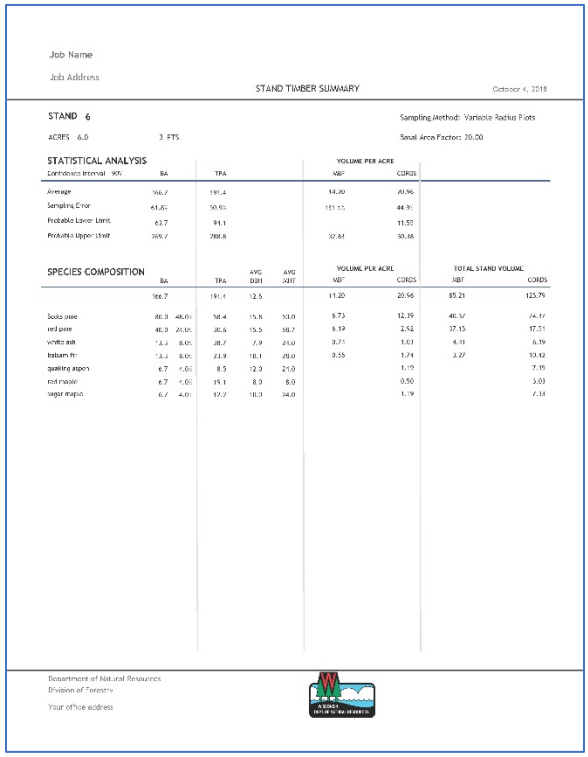
System Info- contains internal administrative information.

Onboard Manual- you can touch the field and you will see the option to Export Field Contents, which will export the written manual.

Appendix I: Onboard Report Library

See the above section for instructions to produce and export reports.

Summary Reports


Job Name

Job Address

STAND TIMBER SUMMARY

October 4, 2018

STAND 6

Sampling Method: Variable Radius Plots

ACRES 6.0

3 PTS

Basal Area Factor: 20.00

STATISTICAL ANALYSIS

Confidence Interval 90%	BA	TPA	VOLUME PER ACRE MBF	CORDS
Average	166.7	191.4	11.20	20.96
Sampling Error	61.85	50.95	151.15	44.91
Probable Lower Limit	63.7	94.1		11.55
Probable Upper Limit	269.7	288.8	37.84	30.66

SPECIES COMPOSITION

	BA		TPA	AVG DBH	AVG HGT	VOLUME PER ACRE MBF	CORDS	TOTAL STAND VOLUME MBF	CORDS
	166.7		191.4	12.6		11.20	20.96	85.21	125.79
Scots pine	88.3	48.0%	58.4	15.8	50.0	9.73	12.39	48.57	74.37
red pine	48.9	24.0%	30.6	15.5	58.7	6.19	2.92	37.15	17.51
white ash	13.3	8.0%	28.7	7.9	43.0	0.73	1.03	4.41	6.19
balsam fir	13.3	8.0%	23.9	10.1	48.0	0.55	1.74	3.27	10.42
quaking aspen	6.7	4.0%	8.5	12.0	24.0		1.19		7.15
red maple	6.7	4.0%	19.1	8.0	8.0		0.50		3.03
sugar maple	6.7	4.0%	12.7	10.0	24.0		1.19		7.14

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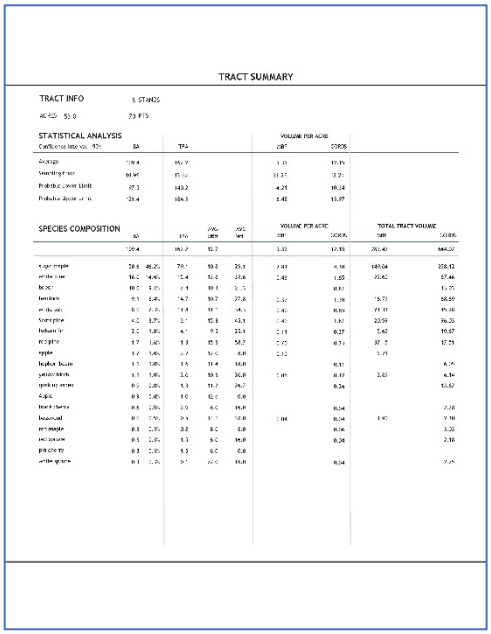
Stand Summary- this is a fixed report with no options, one page per stand, showing the top 25 species, listed by Basal Area, showing BA, TPA, average DBH, average merchantable height, and volumes by acre and total stand, compiled by unit type.

For sample cruises, the top section shows the sampling statistics for primary fields. This section does not show on 100% Tally projects.


TRACT SUMMARY

TRACT INFO

5 STANDS

AC 425 53.0

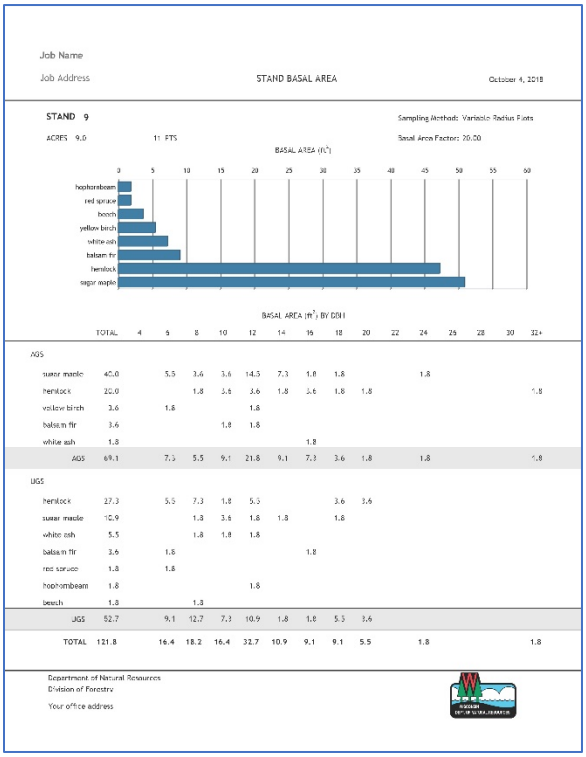
73 PTS

STATISTICAL ANALYSIS

SPECIES COMPOSITION

Tract Compilation- this is identically formatted to the Stand Summary, and is the sum of all stands. It is not a report analyzing all plots as a single unit.

Species Composition


Job Name

Job Address

STAND BASAL AREA

October 4, 2018

STAND 9

Sampling Method: Variable Radius Plots

ACRES 9.0

11 PTS

Basal Area Factor: 20.00

BASAL AREA (ft^2)

hophornbeam
red spruce
beech
yellow birch
white ash
balsam fir
hemlock
sugar maple

BASAL AREA (ft^2) BY DBH

	TOTAL	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
AGS																
sugar maple	40.0		5.5	3.6	3.6	14.5	7.3	1.8	1.8			1.8				
hemlock	20.0			1.8	3.6	3.6	1.8	3.6	1.8	1.8						1.8
yellow birch	3.6		1.8			1.8										
balsam fir	3.6				1.8	1.8										
white ash	1.8							1.8								
AGS	69.1		7.3	5.5	9.1	21.8	9.1	7.3	3.6	1.8		1.8				1.8
UGS																
hemlock	27.3		5.5	7.3	1.8	5.5			3.6	3.6						
sugar maple	12.9			1.8	3.6	1.8	1.8		1.8							
white ash	5.5			1.8	1.8	1.8										
balsam fir	3.6		1.8					1.8								
red spruce	1.8		1.8													
hophornbeam	1.8					1.8										
beech	1.8			1.8												
UGS	52.7		9.1	12.7	7.3	10.9	1.8	1.8	5.5	3.6						
TOTAL	121.8		16.4	18.2	16.4	32.7	10.9	9.1	9.1	5.5		1.8				1.8

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Basal Area- For each stand, a bar graph at the top will show basal area per acre in feet by species. This graph does not appear when using the tract setting (coming in 2019).

The lower table will show basal area by diameter class by species, potentially sorted by your custom data options, as illustrated at right.


Job Name

Job Address

TREES PER ACRE

October 4, 2018

STAND 4

Sampling Method: Variable Radius Plots

ACRES 4.0

15 PTS

Basal Area Factor: 20.00

TREES PER ACRE BY DBH

Trees Per Acre

	TOTAL	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
AGS																
sugar maple	90.3		6.8	19.1	4.5	27.2	15.0	7.6	6.0	1.2	2.0	0.4				
white ash	7.6						2.5	2.9	2.3							
beech	4.4					3.4		1.0								
AGS	102.2		6.8	19.1	4.5	30.6	17.5	11.5	8.3	1.2	2.0	0.4				
UGS																
beech	35.1		6.8	11.5	4.5	1.7	8.7		1.5							
sugar maple	18.7		13.6			1.7		1.9	1.5							
hophornbeam	4.1				2.4	1.7										
white ash	1.0							1.0								
basswood	1.7					1.7										
UGS	60.6		20.4	11.5	7.3	6.8	8.7	2.9	3.0							
TOTAL	162.8		27.2	30.6	12.2	37.3	26.2	14.3	11.3	1.2	2.0	0.4				

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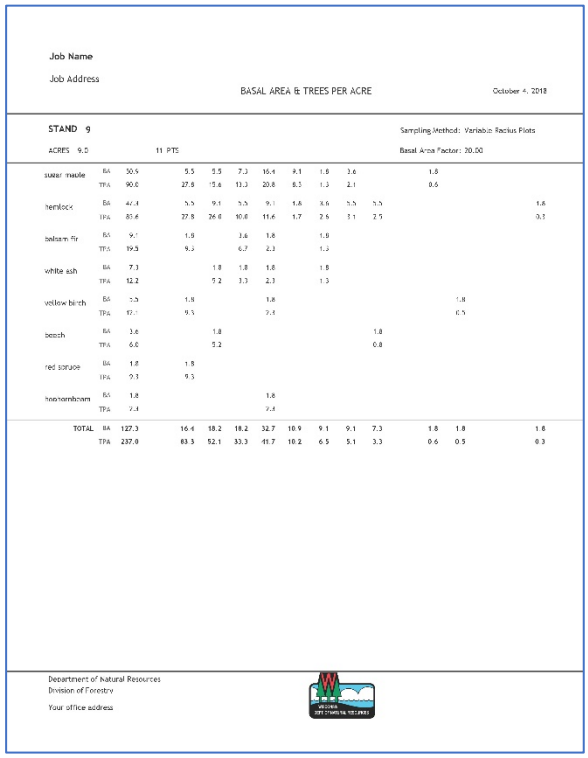
Stocking- For each stand, a stacked column graph at the top will show your diameter distribution, sorted by custom tree options if desired. If you do choose to show options, every value will be shown in this graph. This graph does not appear when using the tract setting (coming in 2019).

The lower table will show trees per acre by diameter class by species, sorted by data options.



Job Name

Job Address

BASAL AREA & TREES PER ACRE

October 4, 2018

STAND 9

Sampling Method: Variable Radius Plots

ACRES 9.0

11 PTS

Basal Area Factor: 20.00

sugar maple	BA	50.9		5.5	5.5	7.3	16.4	9.1	1.8	3.6		1.8			
	TPA	90.0		27.8	15.6	13.3	20.8	8.3	1.3	2.1		0.6			
hemlock	BA	47.4		5.5	9.1	5.5	9.1	1.8	3.6	5.5	5.5				1.8
	TPA	85.6		27.8	26.0	10.0	11.6	1.7	2.6	3.1	2.5				0.3
balsam fir	BA	9.1		1.8		3.6	1.8		1.8						
	TPA	19.5		9.3		6.7	2.3		1.3						
white ash	BA	7.3			1.8	1.8	1.8		1.8						
	TPA	12.2			5.2	3.3	2.3		1.3						
yellow birch	BA	5.5		1.8			1.8						1.8		
	TPA	12.1		9.3			2.3						0.5		
beech	BA	3.6			1.8						1.8				
	TPA	6.0			5.2						0.8				
red spruce	BA	1.8		1.8											
	TPA	9.3		9.3											
hophornbeam	BA	1.8					1.8								
	TPA	2.4					2.4								
TOTAL	BA	127.3		16.4	18.2	18.2	32.7	10.9	9.1	9.1	7.3	1.8	1.8		1.8
	TPA	237.0		83.3	52.1	33.3	41.7	10.2	6.5	5.1	3.3	0.6	0.5		0.3

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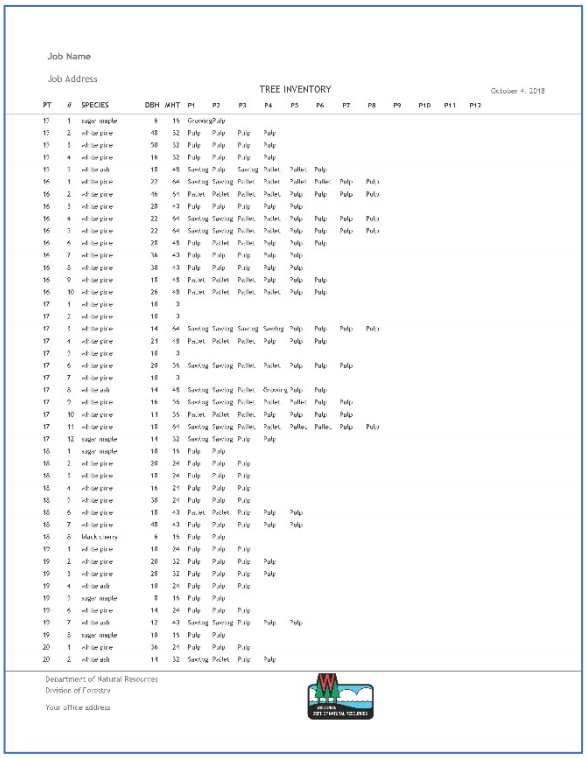
Basal Area and Stocking- For each stand or tract, the table will show both basal area and trees per acre by diameter by species, and sorted by additional options if desired.

Other



Job Name

Job Address

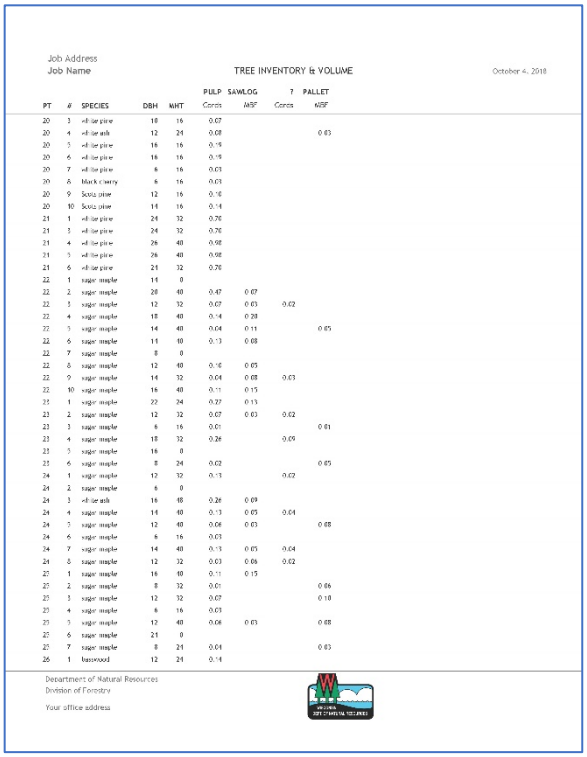
TREE INVENTORY

October 4, 2018

PT	#	SPECIES	DBH	HHT	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
17	1	sugar maple	6	15	Growing	Pulp										
17	2	white pine	48	32	Pulp	Pulp	Pulp	Pulp								
17	3	white pine	50	32	Pulp	Pulp	Pulp	Pulp								
17	4	white pine	18	32	Pulp	Pulp	Pulp	Pulp								
17	5	white ash	18	48	Sawlog	Pulp	Sawlog	Pallet	Pallet	Pulp						
16	1	white pine	22	64	Sawlog	Sawlog	Pallet	Pallet	Pallet	Pallet	Pulp	Pulp				
16	2	white pine	48	51	Pallet	Pallet	Pallet	Pallet	Pulp	Pulp	Pulp	Pulp				
16	3	white pine	28	43	Pulp	Pulp	Pulp	Pulp	Pulp							
16	4	white pine	22	64	Sawlog	Sawlog	Pallet	Pallet	Pulp	Pulp	Pulp	Pulp				
16	5	white pine	22	64	Sawlog	Sawlog	Pallet	Pallet	Pulp	Pulp	Pulp	Pulp				
16	6	white pine	28	48	Pulp	Pallet	Pallet	Pulp	Pulp	Pulp						
16	7	white pine	36	43	Pulp	Pulp	Pulp	Pulp	Pulp							
16	8	white pine	28	43	Pulp	Pulp	Pulp	Pulp	Pulp							
16	9	white pine	18	48	Pallet	Pallet	Pallet	Pulp	Pulp	Pulp						
16	10	white pine	26	48	Pallet	Pallet	Pallet	Pallet	Pulp	Pulp						
17	1	white pine	10	3												
17	2	white pine	10	3												
17	3	white pine	14	64	Sawlog	Sawlog	Sawlog	Sawlog	Pulp	Pulp	Pulp	Pulp				
17	4	white pine	21	48	Pallet	Pallet	Pallet	Pulp	Pulp	Pulp						
17	5	white pine	10	3												
17	6	white pine	28	56	Sawlog	Sawlog	Pallet	Pallet	Pulp	Pulp	Pulp					
17	7	white pine	10	3												
17	8	white ash	14	48	Sawlog	Sawlog	Pallet	Pallet	Growing	Pulp	Pulp					
17	9	white pine	16	56	Sawlog	Sawlog	Pallet	Pallet	Pallet	Pulp	Pulp					
17	10	white pine	11	56	Pallet	Pallet	Pallet	Pallet	Pulp	Pulp	Pulp	Pulp				
17	11	white pine	18	64	Sawlog	Sawlog	Pallet	Pallet	Pallet	Pallet	Pallet	Pulp				
17	12	sugar maple	14	32	Sawlog	Sawlog	Pulp	Pulp								
18	1	sugar maple	10	15	Pulp	Pulp										
18	2	white pine	28	24	Pulp	Pulp	Pulp									
18	3	white pine	18	24	Pulp	Pulp	Pulp									
18	4	white pine	16	21	Pulp	Pulp	Pulp									
18	5	white pine	30	24	Pulp	Pulp	Pulp									
18	6	white pine	18	43	Pallet	Pallet	Pulp	Pulp	Pulp							
18	7	white pine	48	43	Pulp	Pulp	Pulp	Pulp	Pulp							
18	8	black cherry	6	15	Pulp	Pulp	Pulp									
19	1	white pine	18	24	Pulp	Pulp	Pulp									
19	2	white pine	28	32	Pulp	Pulp	Pulp	Pulp								
19	3	white pine	28	32	Pulp	Pulp	Pulp	Pulp								
19	4	white ash	18	24	Pulp	Pulp	Pulp									
19	5	sugar maple	8	15	Pulp	Pulp										
19	6	white pine	14	24	Pulp	Pulp	Pulp									
19	7	white ash	12	43	Sawlog	Sawlog	Pulp	Pulp	Pulp							
19	8	sugar maple	18	15	Pulp	Pulp	Pulp									
20	1	white pine	36	21	Pulp	Pulp	Pulp									
20	2	white ash	14	32	Sawlog	Pallet	Pulp	Pulp								

Department of Natural Resources
Division of Forestry
Your office address

Tree Data I- This report shows your tree tally, including plot number, tree number at the plot, and all fields that you recorded, including custom data options. In the example at left, tree measurement method D was used, so product calls for every 8’ are shown.



Job Address
Job Name

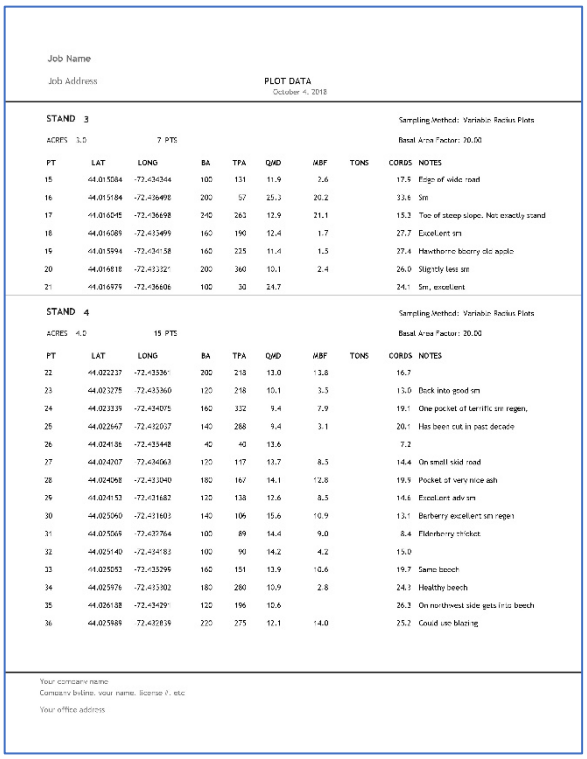
TREE INVENTORY & VOLUME

October 4, 2018

PT	#	SPECIES	DBH	HHT	PULP Cords	SAWLOG MBF	? Cords	PALLET MBF
20	3	white pine	18	16	0.07			
20	4	white ash	12	24	0.08			0.03
20	5	white pine	16	16	0.15			
20	6	white pine	16	16	0.15			
20	7	white pine	6	16	0.03			
20	8	black cherry	6	16	0.03			
20	9	Scots pine	12	16	0.10			
20	10	Scots pine	14	16	0.14			
21	1	white pine	24	32	0.76			
21	3	white pine	24	32	0.76			
21	4	white pine	26	40	0.98			
21	5	white pine	26	40	0.98			
21	6	white pine	24	32	0.76			
22	1	sugar maple	14	0				
22	2	sugar maple	28	40	0.47	0.07		
22	3	sugar maple	12	32	0.07	0.03	0.02	
22	4	sugar maple	18	40	0.14	0.08		
22	5	sugar maple	14	40	0.04	0.11		0.05
22	6	sugar maple	11	40	0.13	0.08		
22	7	sugar maple	8	0				
22	8	sugar maple	12	40	0.16	0.05		
22	9	sugar maple	14	32	0.04	0.08	0.03	
22	10	sugar maple	16	40	0.11	0.15		
23	1	sugar maple	22	24	0.27	0.13		
23	2	sugar maple	12	32	0.07	0.03	0.02	
23	3	sugar maple	6	16	0.01			0.01
23	4	sugar maple	18	32	0.26		0.09	
23	5	sugar maple	16	0				
23	6	sugar maple	8	24	0.02			0.05
24	1	sugar maple	12	32	0.13		0.02	
24	2	sugar maple	6	0				
24	3	white ash	16	48	0.26	0.09		
24	4	sugar maple	14	40	0.13	0.05	0.04	
24	5	sugar maple	12	40	0.08	0.03		0.08
24	6	sugar maple	6	16	0.03			
24	7	sugar maple	14	40	0.13	0.05	0.04	
24	8	sugar maple	12	32	0.03	0.08	0.02	
27	1	sugar maple	16	40	0.11	0.15		
27	2	sugar maple	8	32	0.01			0.06
27	3	sugar maple	12	32	0.07			0.10
27	4	sugar maple	6	16	0.03			
27	5	sugar maple	12	40	0.08	0.03		0.08
27	6	sugar maple	21	0				
27	7	sugar maple	8	24	0.04			0.03
26	1	hackberry	12	24	0.14			

Department of Natural Resources
Division of Forestry
Your office address

Tree Data II- This report shows your tree tally, including plot number, tree number at the plot, DBH and total Merchantable height, and the volume for each product. This report is often used for log scaling. Note in the header there is a "?" label. This indicates that the product name is too many characters to show properly.



Job Name
Job Address

PLOT DATA
October 4, 2018

STAND 3

Sampling Method: Variable Radius Plots

ACRES 3.0 7 PTS

Basal Area Factor: 20.00

PT	LAT	LONG	BA	TPA	QMD	MBF	TONS	CORDS	NOTES
15	44.015084	-72.434344	100	131	11.9	2.6		17.5	Edge of wide road
16	44.015184	-72.436498	200	57	25.3	20.2		33.6	Sm
17	44.016045	-72.436698	240	263	12.9	21.1		15.3	Toe of steep slope. Not exactly stand
18	44.016089	-72.435499	160	190	12.4	1.7		27.7	Excellent sm
19	44.015994	-72.434158	160	235	11.4	1.5		27.4	Hawthorne boorry ole apple
20	44.016818	-72.43322°	200	360	10.1	2.4		26.0	Slightly less sm
21	44.016979	-72.436606	100	30	24.7			24.1	Sm, excellent

STAND 4

Sampling Method: Variable Radius Plots

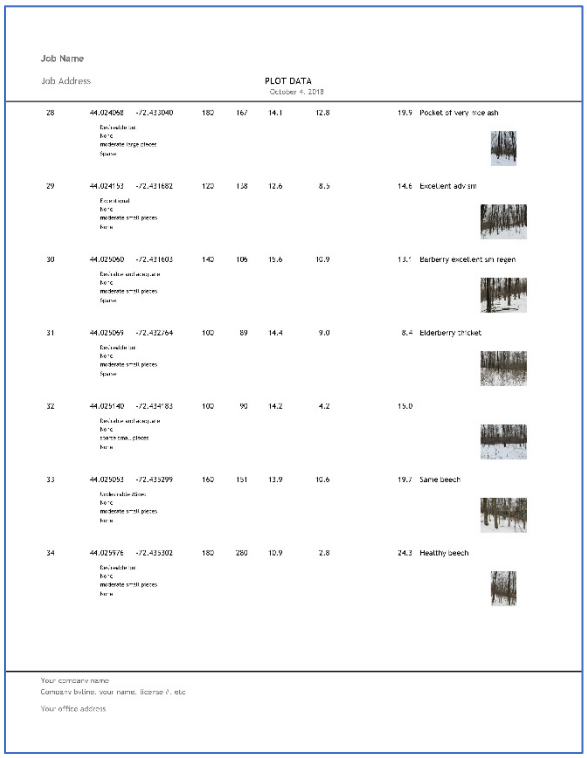
ACRES 4.0 15 PTS

Basal Area Factor: 20.00

PT	LAT	LONG	BA	TPA	QMD	MBF	TONS	CORDS	NOTES
22	44.022237	-72.43536°	200	218	13.0	13.8		16.7	
23	44.023275	72.435360	120	218	10.1	3.5		13.0	Back into good sm
24	44.023339	-72.434075	160	332	9.4	7.9		19.1	One pocket of terrific sm regen,
25	44.022647	-72.432037	140	268	9.4	3.1		20.1	Has been cut in past decade
26	44.024136	-72.435448	40	40	13.6			7.2	
27	44.024207	72.434063	120	117	13.7	8.5		14.4	On small skid road
28	44.024068	-72.433040	180	167	14.1	12.8		19.9	Pocket of very nice ash
29	44.024153	-72.431682	120	138	12.6	8.5		14.6	Excellent adv sm
30	44.025060	-72.431603	140	106	15.6	10.9		13.1	Barberry excellent sm regen
31	44.025068	-72.437764	100	89	14.4	9.0		8.4	Elderberry thicket
32	44.025140	-72.434183	100	90	14.2	4.2		15.0	
33	44.025053	-72.435296	160	151	13.9	10.6		19.7	Some beech
34	44.025976	-72.433302	180	280	10.9	2.8		24.3	Healthy beech
35	44.026188	-72.43429°	120	196	10.6			26.2	On northwest side gets little beech
36	44.025988	72.430839	220	275	12.1	14.0		25.2	Could use blazing

Your company name
Company tagline, your name, license #, etc
Your office address

Plot Data- This report shows basic metrics for each plot, such as BA, TPA, and volumes by unit, as well as the plot location and your notes, sorted by stand.



Job Name

Job Address

PLOT DATA

October 4, 2018

28 44.024068 -72.433040 180 167 14.1 12.8 19.9 Pocket of very nice ash

29 44.024153 -72.431682 120 118 12.6 8.5 14.6 excellent adv snr

30 44.025060 -72.431603 140 106 15.6 10.9 13.1 Barberry excellent snr regen

31 44.025069 -72.432764 100 89 14.4 9.0 8.4 Elderberry thicket

32 44.025140 -72.434783 100 90 14.2 4.2 15.0

33 44.025053 -72.433299 160 151 13.9 10.6 19.7 Some beech

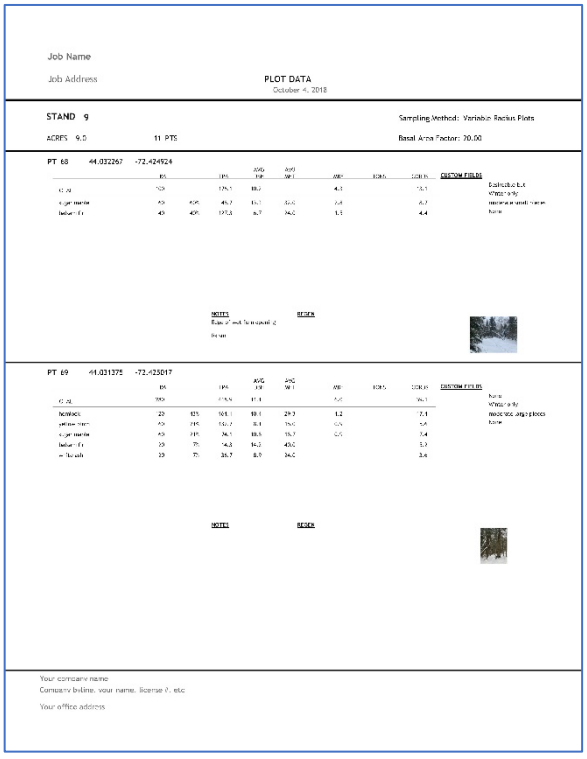
34 44.025976 -72.433302 180 280 10.9 2.8 24.3 Healthy beech

Your company name

Company byline, your name, license #, etc

Your office address

Plot Data I & II- These reports shows basic metrics for each plot, but also custom field entries and the first photo (I).



Job Name

Job Address

PLOT DATA

October 4, 2018

STAND 9

Sampling Method: Variable Radius Plots

ACRES 9.0

11 PTS

Basal Area Factor: 70.00

PT 68 44.022267 -72.424924

PT 69 44.021375 -72.425017

Your company name

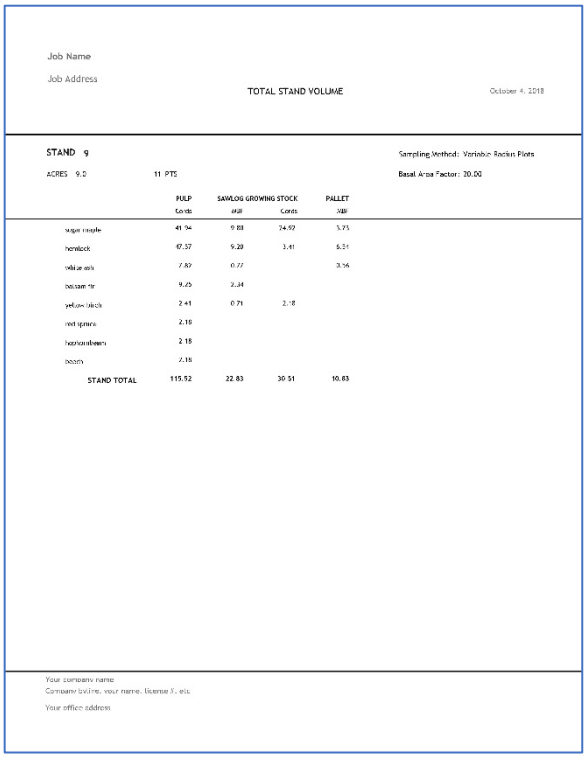
Company byline, your name, license #, etc

Your office address

Plot Data III- This report shows the complete timber analysis for each plot, as well as custom fields, the first tables and checklists, notes, and the first photo.

Volume

All Volume reports can be filtered to show only selected products and custom data options.



Job Name

Job Address

TOTAL STAND VOLUME

October 4, 2018

STAND 9

Sampling Method: Variable Radius Plots

ACRES 9.0

11 PTS

Basal Area Factor: 20.00

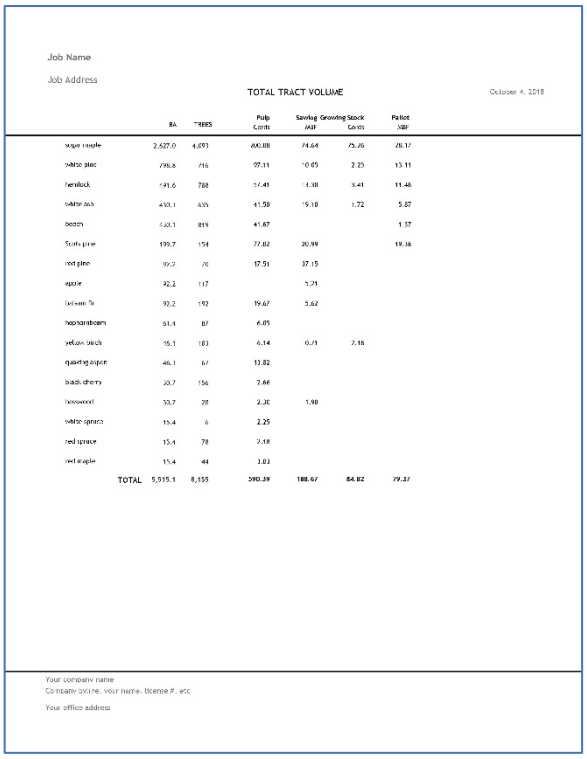
	PULP Cords	SAWLOG GROWING STOCK MBF	SAWLOG GROWING STOCK Cords	PALLET MBF
sugar maple	41.94	9.88	24.92	5.75
hemlock	67.37	9.29	3.41	6.21
white ash	7.87	0.77		3.56
balsam fir	9.25	2.34		
yellow birch	2.41	0.71	2.18	
red spruce	2.18			
hophornbeam	2.18			
beech	2.18			
STAND TOTAL	115.92	22.83	30.51	16.83

Your company name

Company online, your name, license #, etc

Your office address

Standard I- This report the total volume or volume per acre, by product, by species.



Job Name

Job Address

TOTAL TRACT VOLUME

October 4, 2018

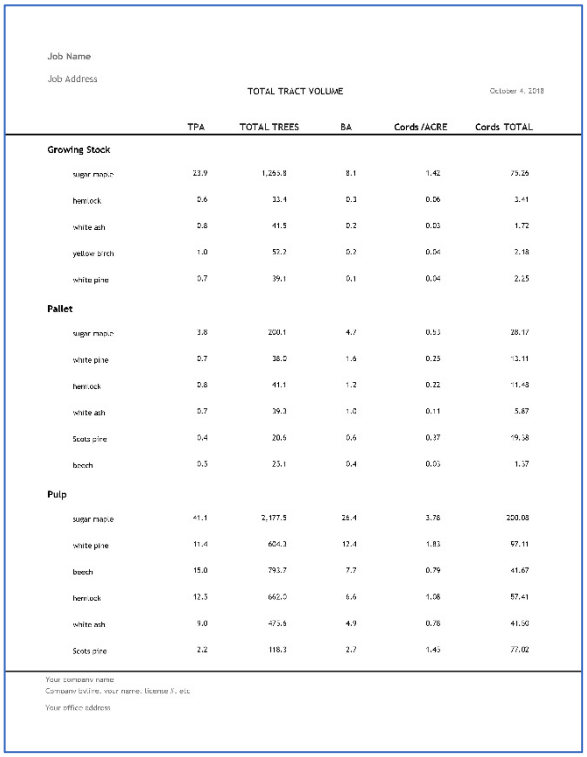
	BA	TREES	Pulp Cords	Sawlog Growing Stock MBF	Sawlog Growing Stock Cords	Pallet MBF
sugar maple	2,627.0	4,093	600.88	74.64	75.26	28.17
white pine	798.6	716	97.11	10.05	2.25	13.11
hemlock	491.6	788	57.41	4.38	3.41	11.46
white ash	430.1	635	41.58	15.18	1.72	5.87
beech	440.1	819	41.67			1.37
Scots pine	199.7	154	27.82	20.99		19.16
red pine	99.2	78	17.51	37.15		
apple	92.2	117		5.71		
balsam fir	92.2	192	19.67	5.62		
hophornbeam	51.4	87	6.85			
yellow birch	55.1	103	6.14	0.71	2.18	
quaking aspen	46.1	67	13.82			
black cherry	50.7	156	7.66			
basswood	50.7	28	2.30	1.99		
white spruce	15.4	6	2.25			
red spruce	15.4	78	2.18			
red maple	15.4	44	3.03			
TOTAL	5,515.1	8,155	980.39	188.67	84.82	79.37

Your company name

Company online, your name, license #, etc

Your office address

Plus BA & # Trees – This report adds BA and # Trees to the Standard I report. Note that the BA and # Trees will be per acre or stand/tract total, as indicated in your report settings.



Job Name

Job Address

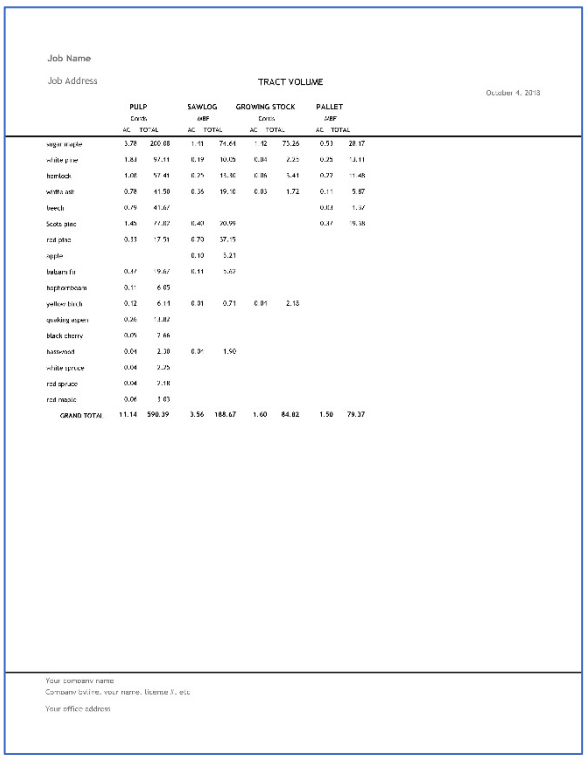
TOTAL TRACT VOLUME

October 4, 2018

	TPA	TOTAL TREES	BA	Cords /ACRE	Cords TOTAL
Growing Stock					
sugar maple	23.9	1,256.8	8.1	1.42	75.26
hemlock	0.6	33.4	0.3	0.06	3.41
white ash	0.8	41.5	0.2	0.03	1.72
yellow birch	1.0	57.2	0.2	0.04	2.18
white pine	0.7	39.1	0.1	0.04	2.25
Pallet					
sugar maple	3.8	200.1	4.7	0.53	28.17
white pine	0.7	38.0	1.6	0.23	13.11
hemlock	0.8	41.1	1.2	0.22	11.48
white ash	0.7	39.3	1.0	0.11	5.87
Scots pine	0.4	20.5	0.6	0.37	19.38
beech	0.3	23.1	0.4	0.03	1.37
Pulp					
sugar maple	41.1	2,177.5	28.4	3.78	200.08
white pine	11.4	604.3	12.4	1.83	97.11
beech	15.0	793.7	7.7	0.79	41.67
hemlock	12.5	662.0	6.6	1.08	57.41
white ash	9.0	475.6	4.9	0.78	41.50
Scots pine	2.2	118.3	2.7	1.45	77.02

Your company name
Company bvline, your name, license #, etc.
Your office address

Standard II- This report shows the trees per acre, total number of trees, basal area per acre, and volumes both by acre and total stand/tract, sorted by product, by species.



Job Name

Job Address

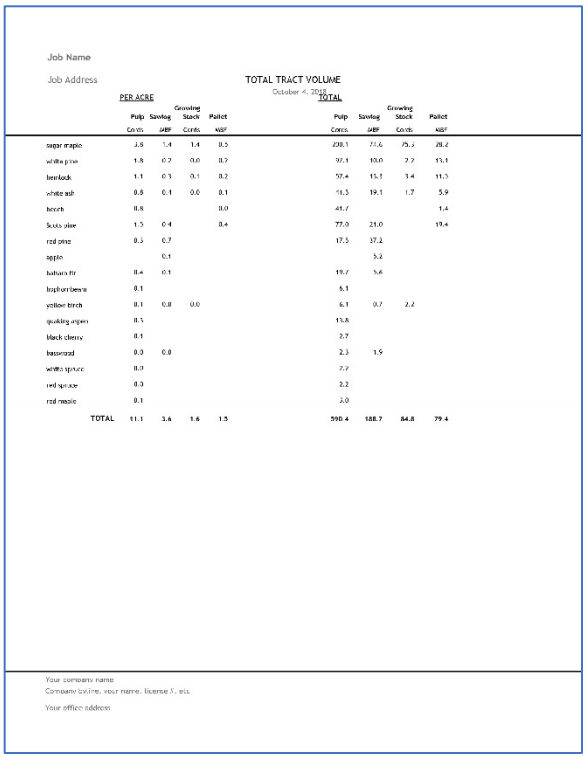
TRACT VOLUME

October 4, 2018

	PULP Cords AC	PULP Cords TOTAL	SAWLOG MBF AC	SAWLOG MBF TOTAL	GROWING STOCK Cords AC	GROWING STOCK Cords TOTAL	PALLET MBF AC	PALLET MBF TOTAL
sugar maple	3.78	200.08	1.11	74.64	1.42	75.26	0.53	28.17
white pine	1.83	97.11	0.19	10.05	0.04	2.25	0.25	13.11
hemlock	1.08	57.41	0.25	13.80	0.06	3.41	0.22	11.48
white ash	0.78	41.50	0.36	19.10	0.03	1.72	0.11	5.87
beech	0.79	41.67					0.03	1.37
Scots pine	1.45	77.02	0.40	20.99			0.37	19.38
red pine	0.33	17.51	0.70	37.15				
apple			0.10	5.21				
balsam fir	0.47	19.67	0.11	5.62				
hophornbeam	0.11	6.05						
yellow birch	0.12	6.11	0.01	0.71	0.04	2.18		
quaking aspen	0.26	13.82						
black cherry	0.05	2.66						
basswood	0.04	2.30	0.04	1.90				
white spruce	0.04	2.25						
red spruce	0.04	2.18						
red maple	0.06	3.03						
GRAND TOTAL	11.14	598.39	3.56	188.67	1.60	84.82	1.50	79.37

Your company name
Company bvline, your name, license #, etc.
Your office address

Columns I – This report contains the same information as Standard I, only it shows columns with both per acre and total stand/tract for each product.



Job Name

Job Address

TOTAL TRACT VOLUME

October 4, 2018

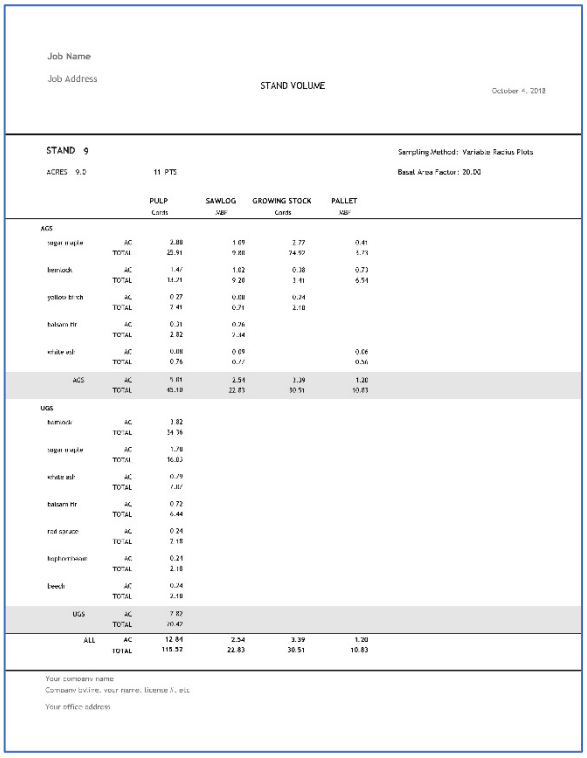
	PER ACRE				TOTAL			
	Pulp Cords	Sawlog MBF	Growing Stock Cords	Pallet MBF	Pulp Cords	Sawlog MBF	Growing Stock Cords	Pallet MBF
sugar maple	3.8	1.4	1.4	0.5	208.1	77.6	75.5	28.2
white pine	1.8	0.7	0.6	0.2	97.1	38.0	7.7	13.1
hemlock	1.1	0.3	0.1	0.2	57.4	15.1	3.4	11.5
white ash	0.8	0.1	0.0	0.1	41.5	19.1	1.7	5.9
beech	0.8			0.0	41.7			1.4
Scots pine	1.5	0.4		0.4	77.0	21.0		19.4
red pine	0.3	0.7			17.5	37.2		
apple		0.1				5.2		
balsam fir	0.4	0.1			19.7	5.6		
hophornbeam	0.1				6.1			
yellow birch	0.1	0.0	0.0		6.1	0.7	2.2	
quaking aspen	0.5				13.8			
black cherry	0.1				2.7			
basswood	0.0	0.0			2.3	1.9		
white spruce	0.0				2.7			
red spruce	0.0				2.2			
red maple	0.1				3.0			
TOTAL	11.1	3.6	1.6	1.5	590.4	188.7	84.8	79.4

Your company name

Company tyline, your name, license #, etc

Your office address

Columns II – This report contains the same information as Columns I, only the per acre and total stand/tract numbers are shown in two sections, not combined for each product.



Job Name

Job Address

STAND VOLUME

October 4, 2018

STAND 9

Sampling Method: Variable Radius Plots

ACRES 9.0

11 PTS

Basal Area Factor: 20.00

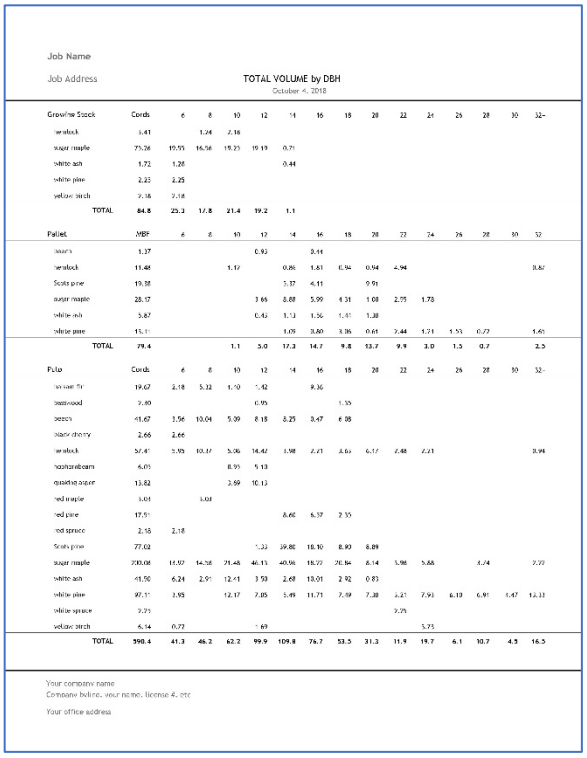
		PULP Cords	SAWLOG MBF	GROWING STOCK Cords	PALLET MBF
ACS					
sugar maple	AC	2.88	1.09	2.77	0.41
	TOTAL	25.91	9.88	24.92	3.73
hemlock	AC	1.47	1.02	0.38	0.73
	TOTAL	13.21	9.20	3.41	6.54
yellow birch	AC	0.27	0.08	0.24	
	TOTAL	2.41	0.71	2.18	
balsam fir	AC	0.31	0.26		
	TOTAL	2.82	2.34		
white ash	AC	0.08	0.09		0.06
	TOTAL	0.76	0.77		0.56
ACS	AC	5.01	2.54	3.39	1.20
	TOTAL	45.10	22.83	30.51	10.83
UGS					
hemlock	AC	3.82			
	TOTAL	34.36			
sugar maple	AC	1.78			
	TOTAL	16.03			
white ash	AC	0.79			
	TOTAL	7.07			
balsam fir	AC	0.72			
	TOTAL	6.44			
red spruce	AC	0.24			
	TOTAL	2.18			
hophornbeam	AC	0.24			
	TOTAL	2.18			
beech	AC	0.24			
	TOTAL	2.18			
UGS	AC	7.82			
	TOTAL	70.47			
ALL	AC	12.84	2.54	3.39	1.20
	TOTAL	115.57	22.83	30.51	10.83

Your company name

Company tyline, your name, license #, etc

Your office address

Rows– This report contains the same information as Columns I, only the per acre and total stand/tract numbers are shown in rows.



Job Name

Job Address

TOTAL VOLUME by DBH

October 4, 2018

Growing Stock	Cords	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
hemlock	5.41			1.24	2.16										
sugar maple	75.26	19.55	16.56	19.25	19.19	0.71									
white ash	1.72	1.28				0.44									
white pine	2.25	2.25													
yellow birch	7.18	7.18													
TOTAL	84.8	25.3	17.8	21.4	19.2	1.1									

Pallet	MBF	6	8	10	12	14	16	18	20	22	24	26	28	30	32
beech	1.37				0.93		0.44								
hemlock	11.48			1.17		0.86	1.61	0.94	0.94	4.94					0.82
Scots pine	19.38					5.37	4.11		9.91						
sugar maple	28.17				3.66	8.88	5.99	4.31	1.08	2.05	1.78				
white ash	5.87				0.43	1.13	1.56	1.41	1.38						
white pine	15.31					1.09	3.60	3.36	0.61	2.44	1.71	1.53	0.77		1.01
TOTAL	79.4			1.1	5.0	17.3	14.7	9.8	13.7	9.9	3.0	1.5	0.7		2.5

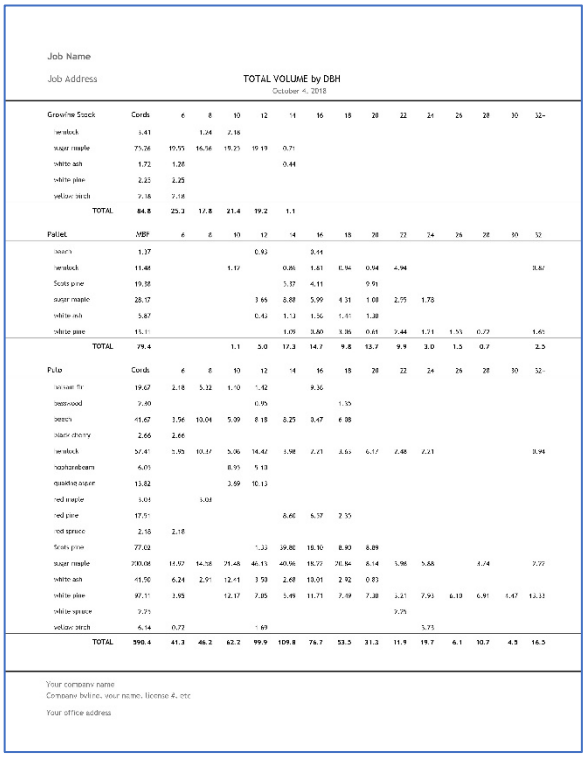
Pulp	Cords	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
balsam fir	19.67	2.18	5.32	1.10	1.42		9.36								
basswood	2.80				0.95			1.35							
beech	41.67	3.56	10.04	5.39	8.18	8.25	3.47	0.88							
black cherry	2.66	2.66													
hemlock	57.41	5.93	10.17	5.06	14.42	1.98	2.21	3.66	6.17	2.48	2.21				0.94
hophornbeam	6.03			0.93	5.10										
quaking aspen	13.82			3.69	10.13										
red maple	3.01		3.01												
red pine	17.51					8.66	6.37	2.35							
red spruce	2.18	2.18													
Scots pine	77.02				1.33	39.88	18.10	8.80	8.89						
sugar maple	200.08	14.97	14.58	21.48	46.13	40.96	18.72	20.84	8.14	5.98	5.68		1.74		2.22
white ash	41.50	6.24	2.91	12.41	3.53	2.68	13.01	2.92	0.83						
white pine	97.31	3.93		12.17	7.05	5.49	11.71	7.69	7.38	2.21	7.93	6.13	6.91	1.47	12.33
white spruce	9.75									9.75					
yellow birch	6.14	0.72			1.69						3.73				
TOTAL	590.4	41.3	46.2	62.2	99.9	109.8	76.7	53.5	31.3	11.9	19.7	6.1	10.7	4.5	16.5

Your company name

Company byline, your name, license #, etc

Your office address

By DBH 6-32” This report shows volumes by diameter classes 6-32”, by species, sorted by product.



Job Name

Job Address

TOTAL VOLUME by DBH

October 4, 2018

Growing Stock	Cords	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
hemlock	5.41			1.24	2.16										
sugar maple	75.26	19.55	16.56	19.25	19.19	0.71									
white ash	1.72	1.28				0.44									
white pine	2.25	2.25													
yellow birch	7.18	7.18													
TOTAL	84.8	25.3	17.8	21.4	19.2	1.1									

Pallet	MBF	6	8	10	12	14	16	18	20	22	24	26	28	30	32
beech	1.37				0.93		0.44								
hemlock	11.48			1.17		0.86	1.61	0.94	0.94	4.94					0.82
Scots pine	19.38					5.37	4.11		9.91						
sugar maple	28.17				3.66	8.88	5.99	4.31	1.08	2.05	1.78				
white ash	5.87				0.43	1.13	1.56	1.41	1.38						
white pine	15.31					1.09	3.60	3.36	0.61	2.44	1.71	1.53	0.77		1.01
TOTAL	79.4			1.1	5.0	17.3	14.7	9.8	13.7	9.9	3.0	1.5	0.7		2.5

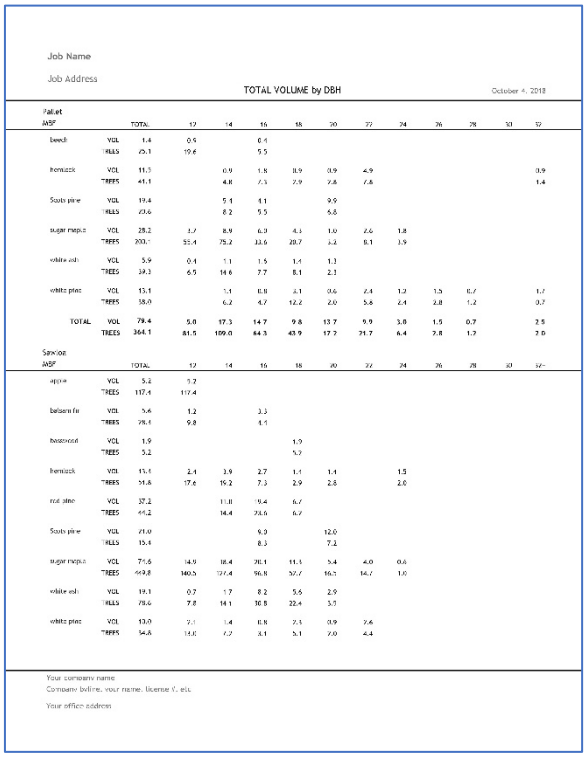
Pulp	Cords	6	8	10	12	14	16	18	20	22	24	26	28	30	32+
balsam fir	19.67	2.18	5.32	1.10	1.42		9.36								
basswood	2.80				0.95			1.35							
beech	41.67	3.56	10.04	5.39	8.18	8.25	3.47	0.88							
black cherry	2.66	2.66													
hemlock	57.41	5.93	10.17	5.06	14.42	1.98	2.21	3.66	6.17	2.48	2.21				0.94
hophornbeam	6.03			0.93	5.10										
quaking aspen	13.82			3.69	10.13										
red maple	3.01		3.01												
red pine	17.51					8.66	6.37	2.35							
red spruce	2.18	2.18													
Scots pine	77.02				1.33	39.88	18.10	8.80	8.89						
sugar maple	200.08	14.97	14.58	21.48	46.13	40.96	18.72	20.84	8.14	5.98	5.68		1.74		2.22
white ash	41.50	6.24	2.91	12.41	3.53	2.68	13.01	2.92	0.83						
white pine	97.31	3.93		12.17	7.05	5.49	11.71	7.69	7.38	2.21	7.93	6.13	6.91	1.47	12.33
white spruce	9.75									9.75					
yellow birch	6.14	0.72			1.69						3.73				
TOTAL	590.4	41.3	46.2	62.2	99.9	109.8	76.7	53.5	31.3	11.9	19.7	6.1	10.7	4.5	16.5

Your company name

Company byline, your name, license #, etc

Your office address

By DBH 6-32” This report shows volumes AND number of trees by diameter classes 6-32”, by species, sorted by product.



Job Name

Job Address

TOTAL VOLUME by DBH

October 4, 2018

Pallet

MBF		TOTAL	12	14	16	18	20	22	24	26	28	30	32
beech	VOL	1.4	0.9		0.4								
	TREES	25.1	19.6		5.5								
hemlock	VOL	11.3		0.9	1.8	0.9	0.9	4.9					0.9
	TREES	41.1		4.8	7.3	2.9	2.8	7.8					1.4
Scots pine	VOL	19.4		5.1	4.1		9.9						
	TREES	29.6		8.2	5.5		6.8						
sugar maple	VOL	28.2	1.7	8.9	6.3	4.3	1.0	2.6	1.8				
	TREES	203.1	55.4	75.2	33.6	20.7	3.2	8.1	3.9				
white ash	VOL	5.9	0.4	1.1	1.5	1.4	1.3						
	TREES	39.3	6.5	14.6	7.7	8.1	2.1						
white pine	VOL	13.1		1.1	0.8	2.1	0.6	2.4	1.2	1.3	0.7		1.7
	TREES	58.0		6.2	4.7	12.2	2.0	5.8	2.4	2.8	1.2		0.7
TOTAL	VOL	79.4	5.0	17.3	14.7	9.8	13.7	9.9	3.0	1.5	0.7		2.5
	TREES	364.1	81.5	109.0	64.3	43.9	17.2	21.7	6.4	2.8	1.2		2.0

Spruce

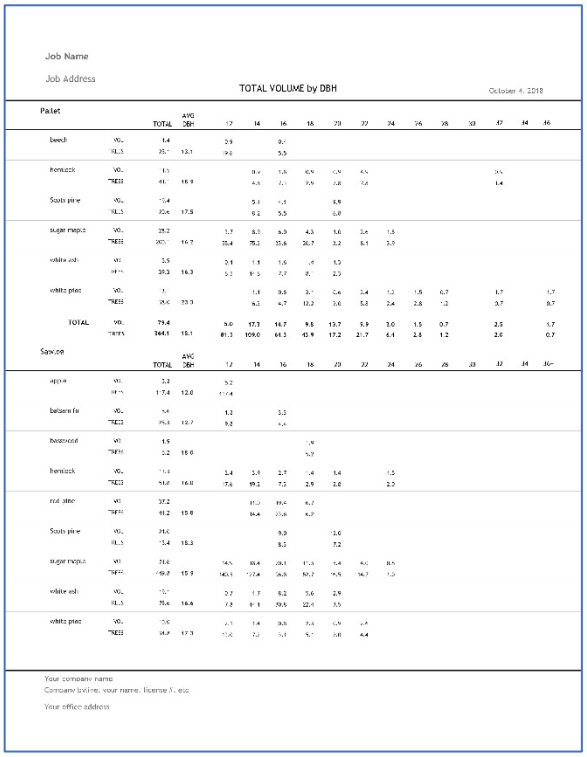
MBF		TOTAL	12	14	16	18	20	22	24	26	28	30	32
alpine	VOL	5.2	5.2										
	TREES	117.4	117.4										
balsam fir	VOL	5.4	1.2		3.3								
	TREES	28.1	9.8		8.3								
basswood	VOL	1.9				1.9							
	TREES	5.2				5.2							
hemlock	VOL	11.1	2.4	3.9	2.7	1.1	1.1		1.5				
	TREES	51.6	17.6	19.2	7.3	2.9	2.8		2.0				
red pine	VOL	37.2		11.8	19.4	6.7							
	TREES	44.2		14.4	24.6	6.7							
Scots pine	VOL	21.0			9.0		12.0						
	TREES	15.4			8.3		7.2						
sugar maple	VOL	71.6	14.0	18.4	20.1	11.1	5.4	4.0	0.6				
	TREES	449.8	140.5	127.4	96.8	52.7	16.5	14.7	1.0				
white ash	VOL	19.1	0.7	1.7	8.2	5.5	2.9						
	TREES	78.6	7.8	14.1	30.8	22.4	3.5						
white pine	VOL	13.0	2.1	1.4	0.8	2.1	0.9	2.6					
	TREES	54.6	14.0	7.2	3.1	5.1	2.0	4.4					

Your company name

Company byline, your name, license #, etc.

Your office address

By DBH, 12-32”, with # trees– This report shows volumes AND number of trees, by diameter classes 12-32”, by species, sorted by product.



Job Name

Job Address

TOTAL VOLUME by DBH

October 4, 2018

Pallet

		TOTAL	AVG DBH	12	14	16	18	20	22	24	26	28	30	32	34	36
beech	VOL	1.4		0.9		0.4										
	TREES	25.1	13.1	19.6		5.5										
hemlock	VOL	11.3			0.9	1.8	0.9	0.9	4.9					0.9		
	TREES	41.1	18.9		4.8	7.3	2.9	2.8	7.8					1.4		
Scots pine	VOL	19.4			5.1	4.1		9.9								
	TREES	29.6	17.8		8.2	5.5		6.8								
sugar maple	VOL	28.2		1.7	8.9	6.3	4.3	1.0	2.6	1.8						
	TREES	203.1	10.7	55.4	75.2	33.6	20.7	3.2	8.1	3.9						
white ash	VOL	5.9		0.4	1.1	1.5	1.4	1.3								
	TREES	39.3	16.3	6.5	14.6	7.7	8.1	2.1								
white pine	VOL	13.1			1.1	0.8	2.1	0.6	2.4	1.2	1.3	0.7		1.7		1.7
	TREES	58.0	23.3		6.2	4.7	12.2	2.0	5.8	2.4	2.8	1.2		0.7		0.7
TOTAL	VOL	79.4		5.0	17.3	14.7	9.8	13.7	9.9	3.0	1.5	0.7		2.5		1.7
	TREES	364.1	15.1	81.5	109.0	64.3	43.9	17.2	21.7	6.4	2.8	1.2		2.0		0.7

Spruce

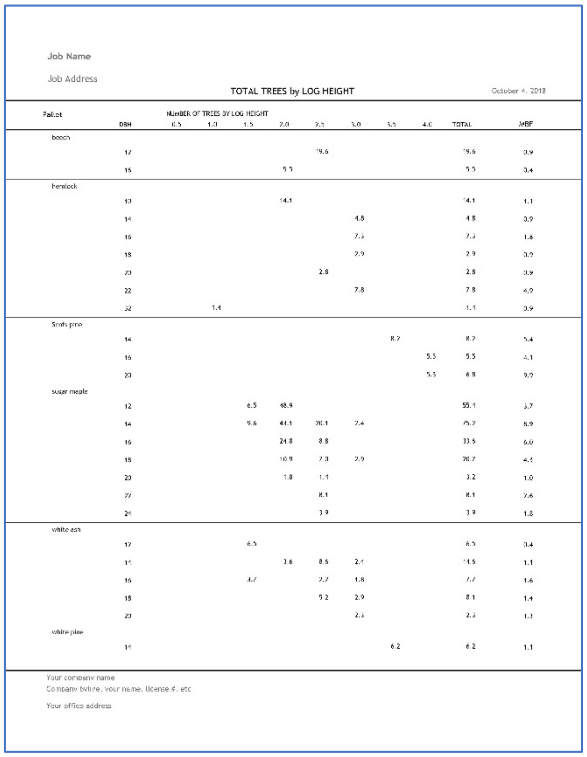
		TOTAL	AVG DBH	12	14	16	18	20	22	24	26	28	30	32	34	36
alpine	VOL	5.2		5.2												
	TREES	117.4	12.0	117.4												
balsam fir	VOL	5.4		1.2		3.3										
	TREES	28.1	12.7	9.8		8.3										
basswood	VOL	1.9					1.9									
	TREES	5.2	18.0				5.2									
hemlock	VOL	11.1		2.4	3.9	2.7	1.1	1.1		1.5						
	TREES	51.6	16.8	17.6	19.2	7.3	2.9	2.8		2.0						
red pine	VOL	37.2			11.8	19.4	6.7									
	TREES	44.2	15.8		14.4	24.6	6.7									
Scots pine	VOL	21.0				9.0		12.0								
	TREES	15.4	18.3			8.3		7.2								
sugar maple	VOL	71.6		14.0	18.4	20.1	11.1	5.4	4.0	0.6						
	TREES	449.8	15.9	140.5	127.4	96.8	52.7	16.5	14.7	1.0						
white ash	VOL	19.1		0.7	1.7	8.2	5.5	2.9								
	TREES	78.6	16.6	7.8	14.1	30.8	22.4	3.5								
white pine	VOL	13.0		2.1	1.4	0.8	2.1	0.9	2.6							
	TREES	54.6	17.3	14.0	7.2	3.1	5.1	2.0	4.4							

Your company name

Company byline, your name, license #, etc.

Your office address

By DBH, 12-36”, with # trees, Plus– This report shows volumes AND number of trees, by diameter classes 12-36”, by species, sorted by product, as well as the average DBH.



Job Name

Job Address

TOTAL TREES by LOG HEIGHT

October 4, 2018

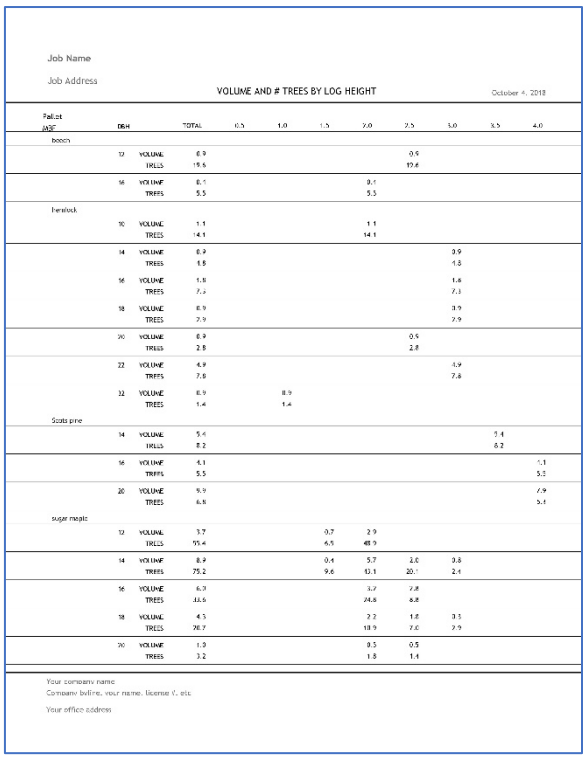
Pallet	DBH	NUMBER OF TREES BY LOG HEIGHT 0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	TOTAL	MBF
beech											
	12					19.6				19.6	0.9
	16				5.5					5.5	0.4
hemlock											
	10				14.1					14.1	1.1
	14						4.8			4.8	0.9
	16						7.3			7.3	1.8
	18						2.9			2.9	0.9
	20					2.8				2.8	0.9
	22						7.8			7.8	4.0
	22		1.4							1.4	0.9
Scots pine											
	14							8.2		8.2	1.4
	16								5.5	5.5	4.1
	20								6.8	6.8	9.9
sugar maple											
	12			6.5	48.9					55.4	3.7
	14			9.6	44.1	20.1	7.4			81.2	8.9
	16				24.8	8.8				33.5	6.0
	18				10.9	7.8	2.9			21.7	4.5
	20				1.8	1.4				3.2	1.0
	22					8.1				8.1	2.6
	24					3.9				3.9	1.8
white ash											
	12			6.5						6.5	0.4
	14				3.6	8.6	2.4			14.5	1.1
	16			3.7		7.7	1.8			13.2	1.6
	18					5.2	2.9			8.1	1.4
	20						2.5			2.5	1.1
white pine											
	14							6.2		6.2	1.1

Your company name

Company byline, your name, license #, etc

Your office address

By HT, with # trees by HT & DBH I– This report shows the number of trees and total volume of all DBH by merchantable height, by DBH, by species, sorted by product.



Job Name

Job Address

VOLUME AND # TREES BY LOG HEIGHT

October 4, 2018

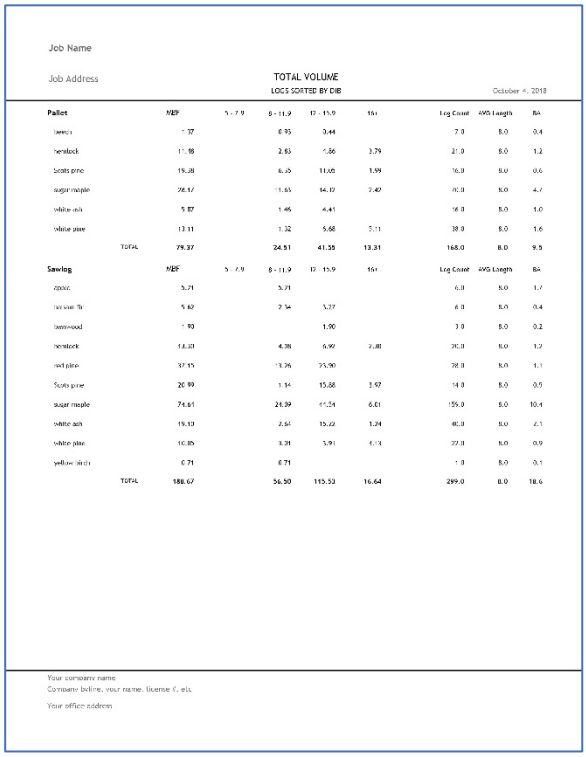
Pallet MBF	DBH		TOTAL	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
beech											
	12	VOLUME	0.9					0.9			
		TREES	19.6					19.6			
	16	VOLUME	0.4				0.4				
		TREES	5.5				5.5				
hemlock											
	10	VOLUME	1.1				1.1				
		TREES	14.1				14.1				
	14	VOLUME	0.9						0.9		
		TREES	4.8						4.8		
	16	VOLUME	1.8						1.8		
		TREES	7.3						7.3		
	18	VOLUME	0.9						0.9		
		TREES	2.9						2.9		
	20	VOLUME	0.9					0.9			
		TREES	2.8					2.8			
	22	VOLUME	0.9						0.9		
		TREES	7.8						7.8		
	22	VOLUME	0.9			0.9					
		TREES	1.4			1.4					
Scots pine											
	14	VOLUME	5.4							5.4	
		TREES	8.2							8.2	
	16	VOLUME	4.1								4.1
		TREES	5.5								5.5
	20	VOLUME	9.9								9.9
		TREES	6.8								6.8
sugar maple											
	12	VOLUME	3.7				0.7	2.9			
		TREES	55.4				6.5	48.9			
	14	VOLUME	8.9				0.4	5.7	2.0	0.8	
		TREES	75.2				9.6	53.1	20.1	2.4	
	16	VOLUME	6.0					3.2	2.8		
		TREES	33.5					24.8	8.8		
	18	VOLUME	4.5					2.2	1.8	0.5	
		TREES	21.7					13.9	7.0	2.9	
	20	VOLUME	1.9					0.5	0.5		
		TREES	3.2					1.8	1.4		

Your company name

Company byline, your name, license #, etc

Your office address

By HT, with # trees by HT & DBH II– This report shows the number of trees and total volume by merchantable height and DBH, by DBH, by species, sorted by product.



Job Name

Job Address

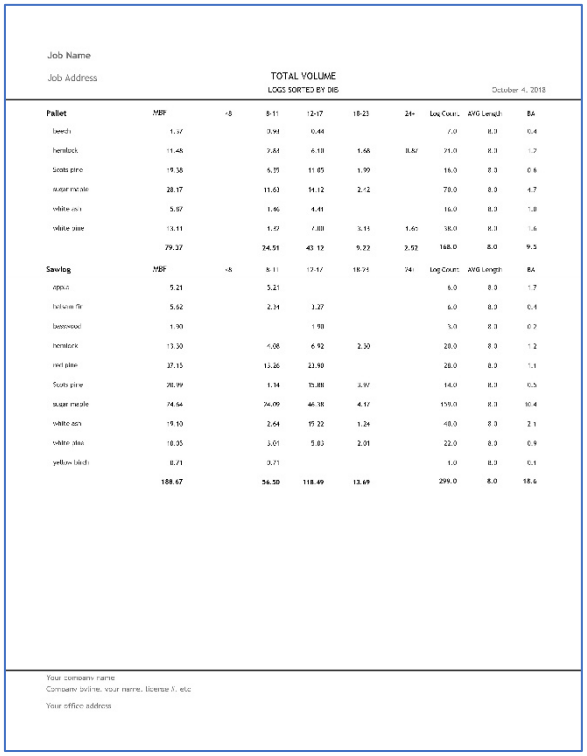
TOTAL VOLUME
LOGS SORTED BY DIB

October 4, 2018

Pallet		MBF	5 - 7.9	8 - 11.9	12 - 15.9	16+	Log Count	AVG Length	BA
beech		1.37		0.93	0.44		7.0	8.0	0.4
hemlock		11.48		2.63	4.86	3.79	21.0	8.0	1.2
Scots pine		19.38		6.25	11.65	1.99	16.0	8.0	0.6
sugar maple		28.17		11.65	14.12	2.42	70.0	8.0	4.7
white ash		5.87		1.46	4.41		16.0	8.0	1.0
white pine		13.11		1.32	5.68	5.11	38.0	8.0	1.6
	TOTAL	79.37		24.51	41.55	13.31	168.0	8.0	9.5
Sawlog		**MBF**	**5 - 7.9**	**8 - 11.9**	**12 - 15.9**	**16+**	**Log Count**	**AVG Length**	**BA**
aspen		5.21		5.21			6.0	8.0	0.7
balsam fir		5.62		2.34	3.27		6.0	8.0	0.4
basswood		1.90			1.90		3.0	8.0	0.2
hemlock		14.50		4.08	6.92	3.50	28.0	8.0	1.2
red pine		37.15		13.26	23.90		28.0	8.0	1.1
Scots pine		26.99		1.34	15.88	9.77	14.0	8.0	0.5
sugar maple		74.64		24.09	46.38	4.17	159.0	8.0	10.4
white ash		19.10		2.64	15.22	1.24	48.0	8.0	2.1
white pine		10.35		3.01	5.03	2.01	22.0	8.0	0.9
yellow birch		0.71		0.71			1.0	8.0	0.1
	TOTAL	188.67		56.50	115.53	16.64	299.0	8.0	18.6

Your company name
Company byline, your name, license #, etc.
Your office address

By DIB of Logs I– For MULTIPLE PRODUCT METHODS ONLY, this report shows total volume of each log diameter class, number of logs, and average length of cut logs.



Job Name

Job Address

TOTAL VOLUME
LOGS SORTED BY DIB

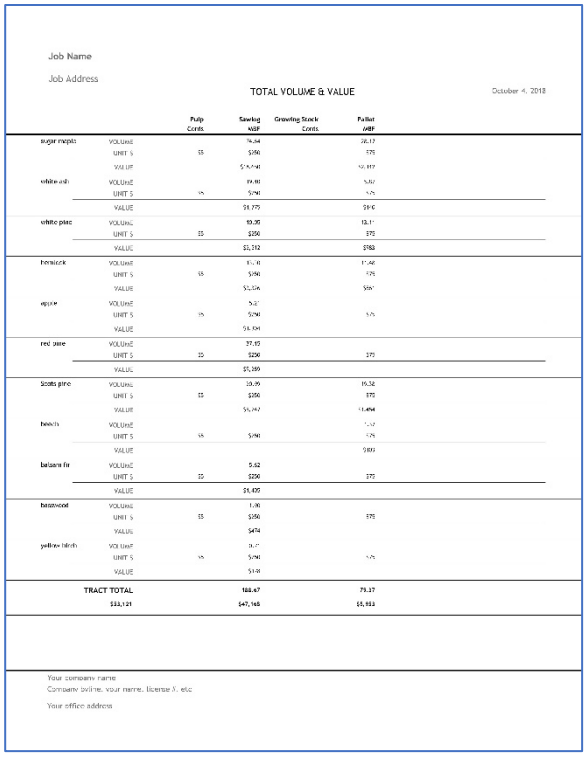
October 4, 2018

Pallet	MBF	<8	8-11	12-17	18-23	24+	Log Count	AVG Length	BA
beech	1.37		0.93	0.44			7.0	8.0	0.4
hemlock	11.48		2.63	6.18	1.66	0.87	21.0	8.0	1.2
Scots pine	19.38		6.25	11.65	1.99		16.0	8.0	0.6
sugar maple	28.17		11.65	14.12	2.42		70.0	8.0	4.7
white ash	5.87		1.46	4.41			16.0	8.0	1.0
white pine	13.11		1.32	7.88	3.15	1.65	38.0	8.0	1.6
	79.37		24.51	43.12	9.22	3.52	168.0	8.0	9.5
Sawlog	**MBF**	**<8**	**8-11**	**12-17**	**18-23**	**24+**	**Log Count**	**AVG Length**	**BA**
aspen	5.21		5.21				6.0	8.0	0.7
balsam fir	5.62		2.34	3.27			6.0	8.0	0.4
basswood	1.90			1.90			3.0	8.0	0.2
hemlock	13.50		4.08	6.92	2.50		28.0	8.0	1.2
red pine	37.15		13.26	23.90			28.0	8.0	1.1
Scots pine	26.99		1.34	15.88	9.77		14.0	8.0	0.5
sugar maple	74.64		24.09	46.38	4.17		159.0	8.0	10.4
white ash	19.10		2.64	15.22	1.24		48.0	8.0	2.1
white pine	10.35		3.01	5.03	2.01		22.0	8.0	0.9
yellow birch	0.71		0.71				1.0	8.0	0.1
	188.67		56.50	118.49	13.69		299.0	8.0	18.6

Your company name
Company byline, your name, license #, etc.
Your office address

By DIB of Logs II- Identical to above report, using different log diameter ranges.

Value


Job Name

Job Address

TOTAL VOLUME & VALUE

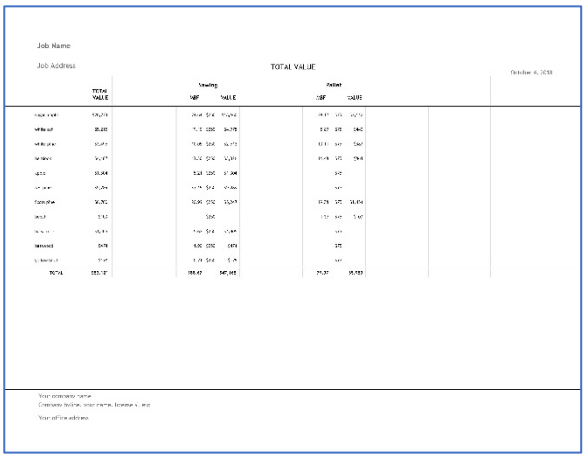
October 4, 2018

		Pulp Cords	Sawlog MBF	Growing Stock Cords	Pallet MBF
sugar maple	VOLUME		74.54		28.17
	UNIT $	$5	$250		$75
	VALUE		$18,660		$2,112
white ash	VOLUME		19.90		5.87
	UNIT $	$5	$790		$75
	VALUE		$4,775		$440
white pine	VOLUME		10.05		12.51
	UNIT $	$5	$250		$75
	VALUE		$2,512		$983
hemlock	VOLUME		13.31		11.42
	UNIT $	$5	$250		$75
	VALUE		$3,326		$861
apple	VOLUME		5.21		
	UNIT $	$5	$790		$75
	VALUE		$1,304		
red pine	VOLUME		37.15		
	UNIT $	$5	$250		$75
	VALUE		$9,289		
Scots pine	VOLUME		20.99		15.32
	UNIT $	$5	$250		$75
	VALUE		$5,247		$1,494
beech	VOLUME		1.32		
	UNIT $	$5	$790		$75
	VALUE		$1,043		$100
balsam fir	VOLUME		5.62		
	UNIT $	$5	$250		$75
	VALUE		$1,405		
basswood	VOLUME		1.90		
	UNIT $	$5	$250		$75
	VALUE		$474		
yellow birch	VOLUME		0.77		
	UNIT $	$5	$790		$75
	VALUE		$148		
TRACT TOTAL			188.47		79.17
			$47,168		$5,953

Your company name
Company tvi#me, your name, license #, etc
Your office address

Volume & Value by Product I- Report shows total volume and total value by product, by species. You can edit unit values on directly on the report. After making edits, touch the Refresh icon in the upper left.

Volume & Value by Product II- Report shows total volume and total value by product, by species. You can edit unit values on directly on the report. After making edits, touch the Refresh icon in the upper left.


Job Name

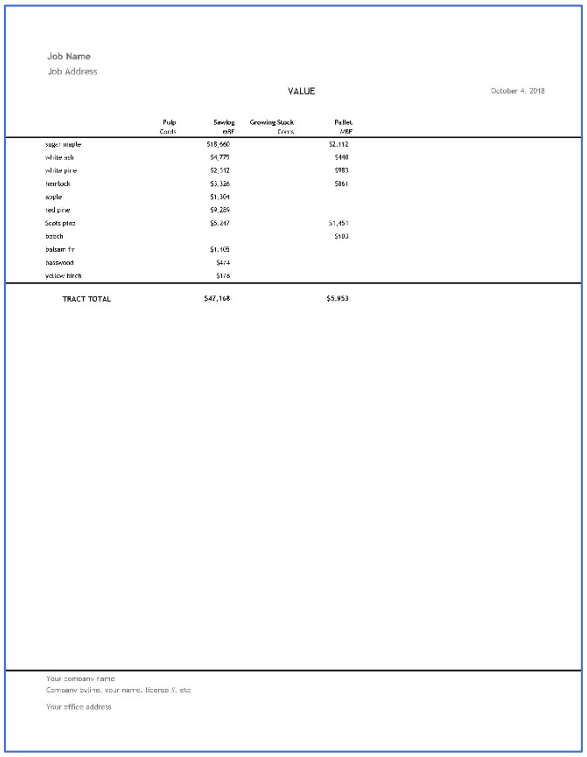
Job Address

TOTAL VALUE

October 4, 2018

	TOTAL VALUE	Sawlog		Pallet	
		MBF	VALUE	MBF	VALUE
sugar maple	$18,660	74.54	$18,660	28.17	$2,112
white ash	$5,215	19.90	$4,775	5.87	$440
white pine	$3,495	10.05	$2,512	12.51	$983
hemlock	$4,187	13.31	$3,326	11.42	$861
apple	$1,304	5.21	$1,304		
red pine	$9,289	37.15	$9,289		
Scots pine	$6,741	20.99	$5,247	15.32	$1,494
beech	$1,143	1.32	$1,043	1.00	$100
balsam fir	$1,405	5.62	$1,405		
basswood	$474	1.90	$474		
yellow birch	$1,223	5.77	$1,148	1.00	$75
TOTAL	$57,121	188.47	$47,168	79.17	$5,953

Your company name
Company tvi#me, your name, license #, etc
Your office address


Job Name

Job Address

VALUE

October 4, 2018

	Pulp Cords	Sawlog MBF	Growing Stock Cords	Pallet MBF
sugar maple		$18,660		$2,112
white ash		$4,775		$440
white pine		$2,512		$983
hemlock		$3,326		$861
apple		$1,304		
red pine		$9,289		
Scots pine		$5,247		$1,451
beech				$100
balsam fir		$1,405		
basswood		$474		
yellow birch		$148		
TRACT TOTAL		$47,168		$5,953

Your company name
Company tvi#me, your name, license #, etc
Your office address

Value by Product- A basic report showing the sum of volumes by product by species.

Appendix II: Microsoft Excel Desktop Report Engine (Pro PLUS)

Export your data from the iOS device

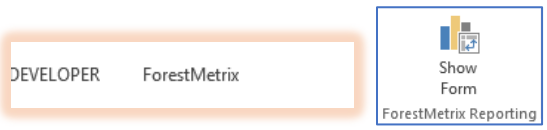
From the Home page, touch the Export icon in the bottom toolbar. You will see the Export to Excel Report Engine section. These are the data exports that you may wish to report. The TIMBER file is necessary. The REGEN file is only necessary if you wish to produce the Regeneration reports. The LOGS file is only necessary to produce the Log Sort report in Excel. Touch the TIMBER icon and a new email message will be created with the _timber.xlsx file attachment.

If you do not have the default iOS Mail app configured, you will not see an email message. Either way, the data file will be saved automatically to the Filemaker Go Launch Center on the Device. You can export the file to your desktop via Dropbox, iTunes, or other means.

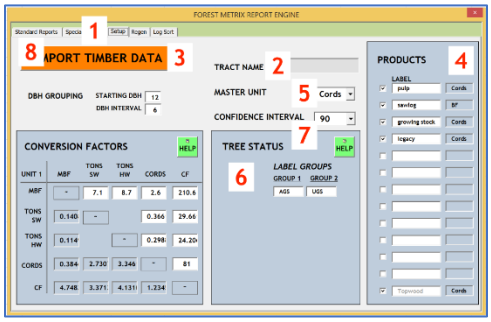
Import the data into the Forest Metrix Report spreadsheet in Microsoft Excel

If you subscribed to Pro PLUS, you will have access to the Excel Report Engine. This should be saved on your desktop. If you received it via email, you need to SAVE this to your computer, then open it from that location. You cannot simply open it from the email message- it must first be saved to your computer. The Report Engine is a macro-enabled workbook that will digest your timber data and create a series of tables and graphs. Every time that you import new timber data, the existing data and reports will be overwritten. As such, while you can maintain a "clean" master copy of the report engine, you can also simply open your last project report engine and save a new copy.

When you first open the workbook you may see show a message that "Macros can harm your computer", "Do you want to enable macros", etc. Yes, you do want to enable macros, which are the mini programs running in the background of Excel that make the import and analysis work. You will want to "Enable Content", or bypass any sort of security warning that Windows throws at you.



If you do not see a Menu window open in the middle of the screen, look at the top row of Excel commands and you'll see Forest Metrix. Press Forest Metrix to bring up an icon "Show Form", which refers to the Report Engine Form:



Touch the Setup tab (**1**) and Enter Tract Name (**2**).

Touch the Import Data button (**3**). Locate the data file that you exported/emailed from the iPad, highlight it and touch "Open"- this will place it in the FMOutput worksheet of the workbook. You can see what worksheets exist by looking at the bottom of the visible spreadsheet- each worksheet shows as a tab.

You will select the products that you used in your cruise, and change their label if desired (**4**). This happens automatically, but you might want to change a label. If you didn't tally any trees of a certain product, you can deselect these wood types (products) so they don't clutter your reports.

You will also **need** to assign Master Unit (**5**). For instance, you might want to see everything converted to cords even if you measured some things in board feet. If you are measuring products in certain units on the iPad and want them converted to a different unit for the Master Unit, you will want to enter conversion factors on the matrix. If you need more precise estimates of tonnage that are being converted from another unit, you should run your products in tons on the iPad, which will use species-specific weight conversions. You should have values filled in for all conversion factors that you are working with between your primary unit of measure and master unit designations.

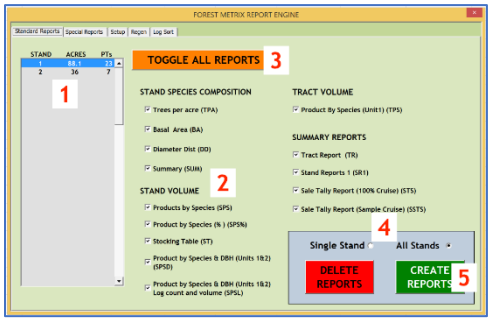
If you used the first custom tree data option as an attribute on your tally pages you can group your Tree Status codes into two groups (**6**). You can label the groups as desired, choose which Tree Status's you want to report, and determine which group to assign them. In the Report Engine you can use a maximum of 6 values on the Stand and Tract Summary reports. There is no limit to the number of values that can be used in the other reports.

You can enter a Confidence Interval (**7**) that will be used on your Tract and Stand reports. It does not have to be the same as what you used in the field.

***IMPORTANT- AFTER MAKING ANY OF THESE CHANGES, YOU WILL WANT TO REIMPORT YOUR DATA AGAIN AND CLOSE THIS REPORT FORM. THIS WILL SAVE THOSE SETTINGS FOR FUTURE PROJECTS.**

If you recorded and exported Regen data, use the third tab ('Regen") in the Report Engine window to import your regen data. You MUST import timber data before regen data. After you import your regen data, use the button to Create Regen Reports.

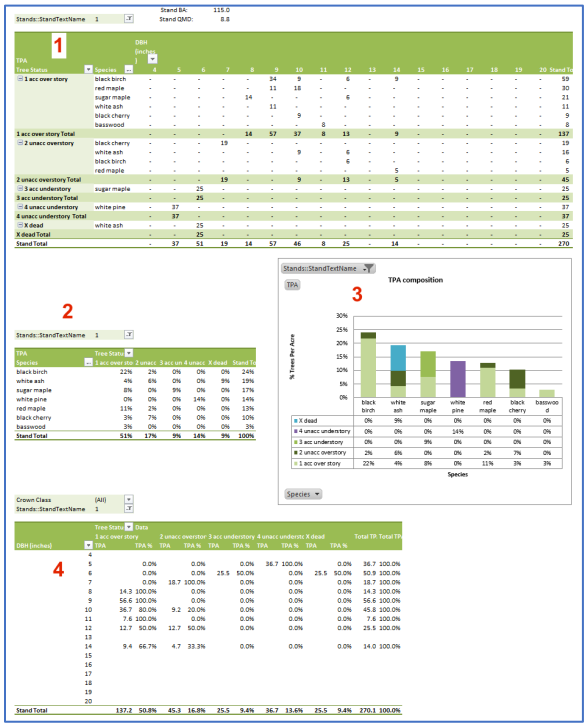
Touch the "STANDARD REPORTS" tab (**8**).



After importing your cruise data, your stand list will show up in the gray box (**1**). Select the reports that you want to run (**2**). You can select the reports that you want to create and determine if you want to see them for a single stand at a time or you want a separate worksheet produced for every stand. This can be cumbersome if you want 12 reports on 10 stands- you'll have 120 worksheets to look at. Most likely you will learn which couple reports you actually need and you will produce those selected reports for every stand, and possible a Tract or Stand Summary report.

The Toggle Reports button (**3**) will turn all reports on and off together. You can switch all reports to Single Stand or All Stands using the toggle switches (**4**). Once you have selected the reports/stands, click the Create Reports button (**5**). You will find these new reports as new worksheet tabs in the workbook, along the lower edge of the Excel window.

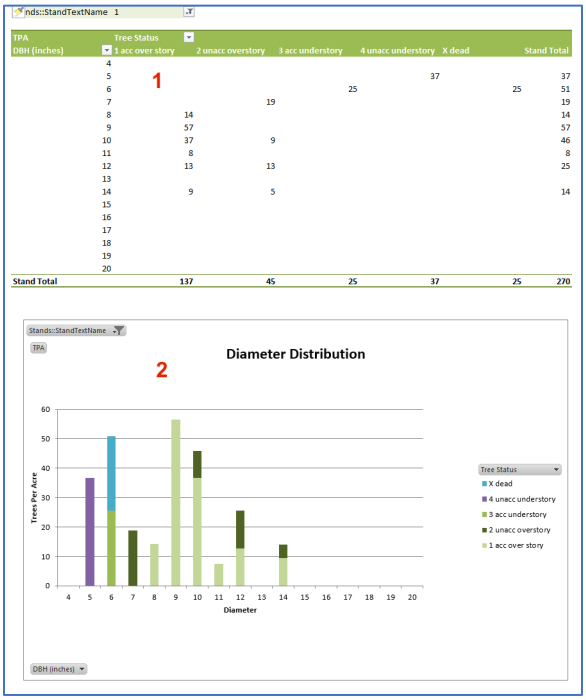
Trees Per Acre (TPA) & Basal Area (BA)



TPA - The top table shows TPA by DBH by Species by Status (**1**). The next table shows %TPA by Status by Species (**2**). There is also a column graph illustrating this data (**3**). The bottom table shows TPA and %TPA by Status by DBH (**4**).

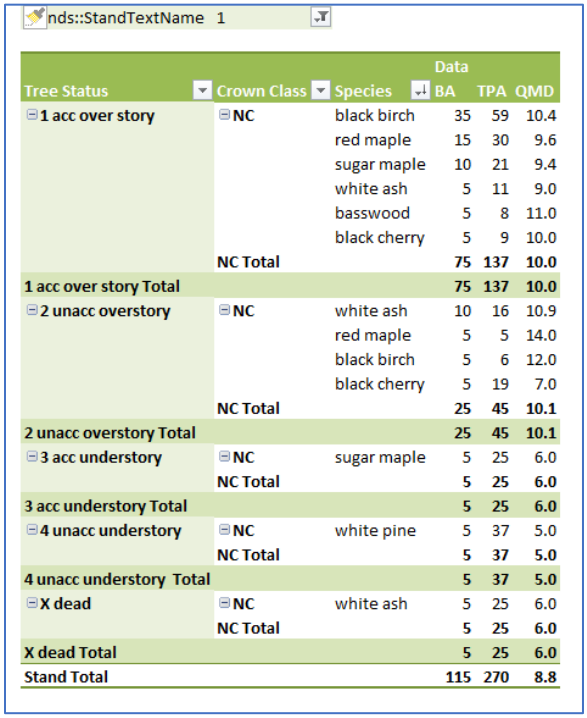
Basal Area (**BA**) **-**This worksheet is formatted exactly like the TPA sheet.

Diameter Distribution (DD)



DD - The top table shows TPA by Status (if recorded) by DBH (**1**). The bottom graph represents this same data (**2**).

Species Summary (SUM)

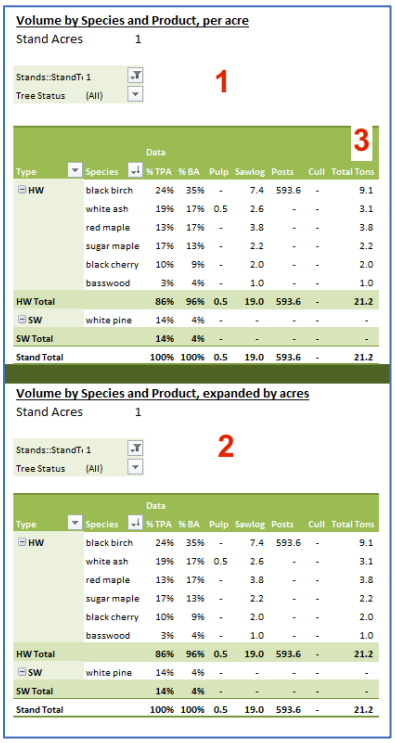


nds::StandTextName 1

Tree Status	Crown Class	Species	Data BA	TPA	QMD
1 acc over story	NC	black birch	35	59	10.4
		red maple	15	30	9.6
		sugar maple	10	21	9.4
		white ash	5	11	9.0
		basswood	5	8	11.0
		black cherry	5	9	10.0
	NC Total		75	137	10.0
1 acc over story Total			75	137	10.0
2 unacc overstory	NC	white ash	10	16	10.9
		red maple	5	5	14.0
		black birch	5	6	12.0
		black cherry	5	19	7.0
	NC Total		25	45	10.1
2 unacc overstory Total			25	45	10.1
3 acc understory	NC	sugar maple	5	25	6.0
	NC Total		5	25	6.0
3 acc understory Total			5	25	6.0
4 unacc understory	NC	white pine	5	37	5.0
	NC Total		5	37	5.0
4 unacc understory Total			5	37	5.0
X dead	NC	white ash	5	25	6.0
	NC Total		5	25	6.0
X dead Total			5	25	6.0
Stand Total			115	270	8.8

SUM - This table shows QMD (average DBH), TPA, and BA by Species, by Crown Class (if collected), by Status.

Products by Species (SPS)



Volume by Species and Product, per acre

Stand Acres 1

Stands::StandTe 1

Tree Status (All)

1

3

Type	Species	Data % TPA	% BA	Pulp	Sawlog	Posts	Cull	Total Tons
HW	black birch	24%	35%	-	7.4	593.6	-	9.1
	white ash	19%	17%	0.5	2.6	-	-	3.1
	red maple	13%	17%	-	3.8	-	-	3.8
	sugar maple	17%	13%	-	2.2	-	-	2.2
	black cherry	10%	9%	-	2.0	-	-	2.0
	basswood	3%	4%	-	1.0	-	-	1.0
HW Total		86%	96%	0.5	19.0	593.6	-	21.2
SW	white pine	14%	4%	-	-	-	-	-
SW Total		14%	4%	-	-	-	-	-
Stand Total		100%	100%	0.5	19.0	593.6	-	21.2

Volume by Species and Product, expanded by acres

Stand Acres 1

Stands::StandTe 1

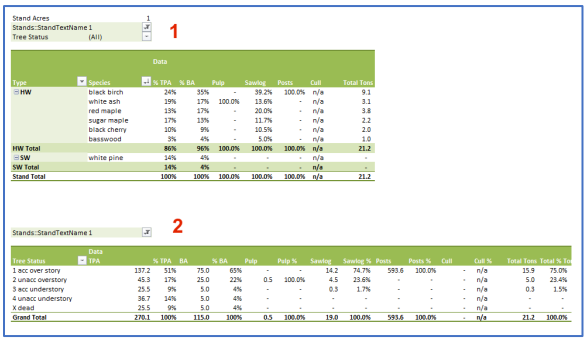
Tree Status (All)

2

Type	Species	Data % TPA	% BA	Pulp	Sawlog	Posts	Cull	Total Tons
HW	black birch	24%	35%	-	7.4	593.6	-	9.1
	white ash	19%	17%	0.5	2.6	-	-	3.1
	red maple	13%	17%	-	3.8	-	-	3.8
	sugar maple	17%	13%	-	2.2	-	-	2.2
	black cherry	10%	9%	-	2.0	-	-	2.0
	basswood	3%	4%	-	1.0	-	-	1.0
HW Total		86%	96%	0.5	19.0	593.6	-	21.2
SW	white pine	14%	4%	-	-	-	-	-
SW Total		14%	4%	-	-	-	-	-
Stand Total		100%	100%	0.5	19.0	593.6	-	21.2

SPS - The top table shows Volume by Product by Species by HW/SW. by Status by DBH on a per-acre basis (**1**). The bottom graph represents this same data but for the entire stand acreage (**2**). The right hand column (**3**) shows the total of each species converted to the Master Unit as indicated on the Setup page.

Product by Species (SPS%)



Stand Acres 1
Stands::StandTextName 1
Tree Status (All)

1

Data

Type	Species	% TPA	% BA	Pulp	Sawlog	Posts	Cull	Total Tons
HW	black birch	24%	35%	-	99.2%	100.0%	n/a	9.1
	white ash	19%	17%	100.0%	13.6%	-	n/a	3.1
	red maple	13%	17%	-	20.0%	-	n/a	3.8
	sugar maple	17%	13%	-	11.7%	-	n/a	2.2
	black cherry	10%	9%	-	10.5%	-	n/a	2.0
	basswood	3%	4%	-	5.0%	-	n/a	1.0
HW Total		86%	96%	100.0%	100.0%	100.0%	n/a	21.2
SW	white pine	14%	4%	-	-	-	n/a	-
SW Total		14%	4%	-	-	-	n/a	-
Stand Total		100%	100%	100.0%	100.0%	100.0%	n/a	21.2

Stands::StandTextName 1

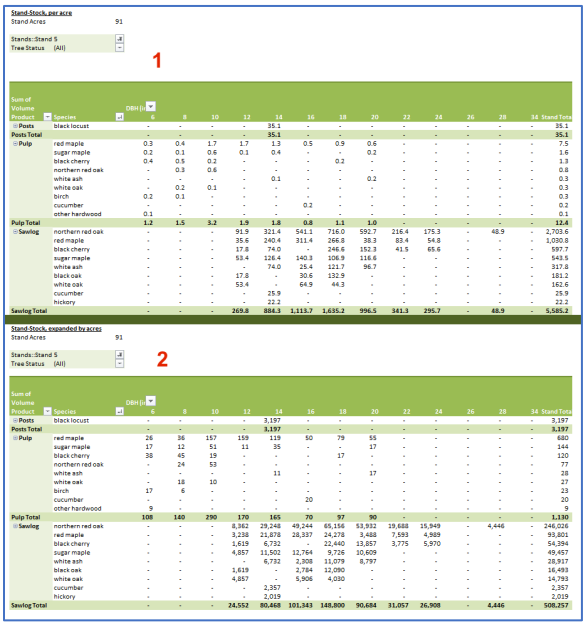
2

Data

Tree Status	TPA	% TPA	BA	% BA	Pulp	Pulp %	Sawlog	Sawlog %	Posts	Posts %	Cull	Cull %	Total Tons	Total % Tons
1 acc over story	137.2	51%	75.0	65%	-	-	14.2	74.7%	593.6	100.0%	-	n/a	15.9	75.0%
2 unacc overstory	45.3	17%	25.0	22%	0.5	100.0%	4.5	23.6%	-	-	-	n/a	5.0	23.4%
3 acc understory	25.5	9%	5.0	4%	-	-	0.3	1.7%	-	-	-	n/a	0.3	1.5%
4 unacc understory	36.7	14%	5.0	4%	-	-	-	-	-	-	-	n/a	-	-
X dead	25.5	9%	5.0	4%	-	-	-	-	-	-	-	n/a	-	-
Grand Total	270.1	100%	115.0	100%	0.5	100.0%	19.0	100.0%	593.6	100.0%	-	n/a	21.2	100.0%

SPS% - The top table shows Volume by Product by Species by HW/SW by % rather than absolute units (**1**). The bottom graph represents shows both absolute units and % (**2**).

Stocking Table (ST)



Stand-Stock, per acre
Stand Acres 91
Stands::Stand 5
Tree Status (All)

1

Sum of Volume	DBH (in)													
Product	Species	6	8	10	12	14	16	18	20	22	24	26	28	34 Stand Total
Posts	black locust	-	-	-	-	35.1	-	-	-	-	-	-	-	35.1
Posts Total		-	-	-	-	35.1	-	-	-	-	-	-	-	35.1
Pulp	red maple	0.3	0.4	1.7	1.7	1.3	0.5	0.9	0.6	-	-	-	-	7.5
	sugar maple	0.2	0.1	0.6	0.1	0.4	-	-	0.2	-	-	-	-	1.6
	black cherry	0.4	0.5	0.2	-	-	-	0.2	-	-	-	-	-	1.3
	northern red oak	-	0.3	0.6	-	-	-	-	-	-	-	-	-	0.8
	white ash	-	-	-	-	0.1	-	-	0.2	-	-	-	-	0.3
	white oak	-	0.2	0.1	-	-	-	-	-	-	-	-	-	0.3
	birch	0.2	0.1	-	-	-	-	-	-	-	-	-	-	0.3
	cucumber	-	-	-	-	-	0.2	-	-	-	-	-	-	0.2
	other hardwood	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1
Pulp Total		1.2	1.5	3.2	1.9	1.8	0.8	1.1	1.0	-	-	-	-	12.4
Sawlog	northern red oak	-	-	-	91.9	321.4	541.1	716.0	592.7	216.4	175.3	-	48.9	- 2,703.6
	red maple	-	-	-	35.6	240.4	311.4	266.8	38.3	83.4	54.8	-	-	- 1,030.8
	black cherry	-	-	-	17.8	74.0	-	246.6	152.3	41.5	65.6	-	-	- 597.7
	sugar maple	-	-	-	53.4	126.4	140.3	106.9	116.6	-	-	-	-	- 543.5
	white ash	-	-	-	-	74.0	25.4	121.7	96.7	-	-	-	-	- 317.8
	black oak	-	-	-	17.8	-	30.6	132.9	-	-	-	-	-	- 181.2
	white oak	-	-	-	53.4	-	64.9	44.3	-	-	-	-	-	- 162.6
	cucumber	-	-	-	-	25.9	-	-	-	-	-	-	-	- 25.9
	hickory	-	-	-	-	22.2	-	-	-	-	-	-	-	- 22.2
Sawlog Total		-	-	-	269.8	884.3	1,113.7	1,635.2	996.5	341.3	295.7	-	48.9	- 5,585.2

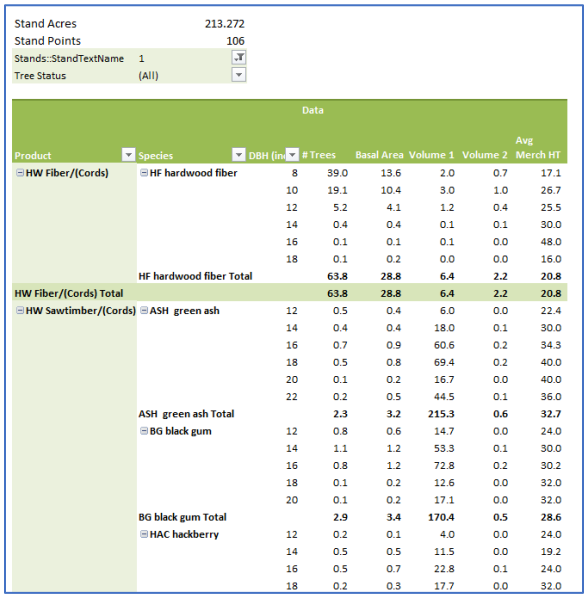
Stand-Stock, expanded by acres
Stand Acres 91
Stands::Stand 5
Tree Status (All)

2

Sum of Volume	DBH (in)													
Product	Species	6	8	10	12	14	16	18	20	22	24	26	28	34 Stand Total
Posts	black locust	-	-	-	-	3,197	-	-	-	-	-	-	-	3,197
Posts Total		-	-	-	-	3,197	-	-	-	-	-	-	-	3,197
Pulp	red maple	26	36	157	159	119	50	79	55	-	-	-	-	680
	sugar maple	17	12	51	11	35	-	-	17	-	-	-	-	144
	black cherry	38	45	19	-	-	-	17	-	-	-	-	-	120
	northern red oak	-	24	53	-	-	-	-	-	-	-	-	-	77
	white ash	-	-	-	-	11	-	-	17	-	-	-	-	28
	white oak	-	18	10	-	-	-	-	-	-	-	-	-	27
	birch	17	6	-	-	-	-	-	-	-	-	-	-	23
	cucumber	-	-	-	-	-	20	-	-	-	-	-	-	20
	other hardwood	9	-	-	-	-	-	-	-	-	-	-	-	9
Pulp Total		108	140	290	170	165	70	97	90	-	-	-	-	1,130
Sawlog	northern red oak	-	-	-	8,362	29,248	49,244	65,156	53,932	19,688	15,949	-	4,446	- 246,026
	red maple	-	-	-	3,238	21,878	28,337	24,276	3,488	7,593	4,989	-	-	- 93,801
	black cherry	-	-	-	1,619	6,732	-	22,440	13,857	3,775	5,970	-	-	- 54,394
	sugar maple	-	-	-	4,857	11,502	12,764	9,726	10,609	-	-	-	-	- 49,457
	white ash	-	-	-	-	6,732	2,308	11,079	8,797	-	-	-	-	- 28,917
	black oak	-	-	-	1,619	-	2,784	12,090	-	-	-	-	-	- 16,493
	white oak	-	-	-	4,857	-	5,506	4,030	-	-	-	-	-	- 14,793
	cucumber	-	-	-	-	2,357	-	-	-	-	-	-	-	- 2,357
	hickory	-	-	-	-	2,019	-	-	-	-	-	-	-	- 2,019
Sawlog Total		-	-	-	24,552	80,468	101,343	148,800	90,684	31,057	26,908	-	4,446	- 508,257

ST - This is a total stocking worksheet. The top table shows Volume by DBH by Species by Product by acre (**1**). The bottom graph represents the same data by total stand acreage (**2**).

Product by Species & DBH (SPSD)



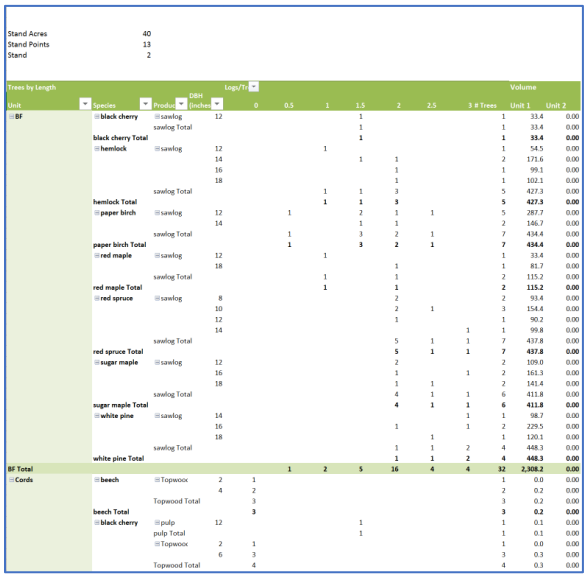
Stand Acres	213.272
Stand Points	106
Stands::StandTextName	1
Tree Status	(All)

Data

Product	Species	DBH (in	# Trees	Basal Area	Volume 1	Volume 2	Avg Merch HT
HW Fiber/(Cords)	HF hardwood fiber	8	39.0	13.6	2.0	0.7	17.1
		10	19.1	10.4	3.0	1.0	26.7
		12	5.2	4.1	1.2	0.4	25.5
		14	0.4	0.4	0.1	0.1	30.0
		16	0.1	0.1	0.1	0.0	48.0
		18	0.1	0.2	0.0	0.0	16.0
	HF hardwood fiber Total		**63.8**	**28.8**	**6.4**	**2.2**	**20.8**
HW Fiber/(Cords) Total			**63.8**	**28.8**	**6.4**	**2.2**	**20.8**
HW Sawtimber/(Cords)	ASH green ash	12	0.5	0.4	6.0	0.0	22.4
		14	0.4	0.4	18.0	0.1	30.0
		16	0.7	0.9	60.6	0.2	34.3
		18	0.5	0.8	69.4	0.2	40.0
		20	0.1	0.2	16.7	0.0	40.0
		22	0.2	0.5	44.5	0.1	36.0
	ASH green ash Total		**2.3**	**3.2**	**215.3**	**0.6**	**32.7**
	BG black gum	12	0.8	0.6	14.7	0.0	24.0
		14	1.1	1.2	53.3	0.1	30.0
		16	0.8	1.2	72.8	0.2	30.2
		18	0.1	0.2	12.6	0.0	32.0
		20	0.1	0.2	17.1	0.0	32.0
	BG black gum Total		**2.9**	**3.4**	**170.4**	**0.5**	**28.6**
	HAC hackberry	12	0.2	0.1	4.0	0.0	24.0
		14	0.5	0.5	11.5	0.0	19.2
		16	0.5	0.7	22.8	0.1	24.0
		18	0.2	0.3	17.7	0.0	32.0

SPSD - This table shows stats for each DBH by Species by Product. For each permutation of those attributes you will see TPA, BA, volume in your measured unit (volume 1), volume in your secondary /converted unit of measure (volume 2), and the average ht per tree.

Product by Species & DBH, Log Count and volume (SPSL)



Stand Acres	40
Stand Points	13
Stand	2

Trees by Length			Logs/Tr								Volume	
Unit	Species	Product	DBH (inches)	0	0.5	1	1.5	2	2.5	3 # Trees	Unit 1	Unit 2
BF	black cherry	sawlog	12				1			1	33.4	0.00
		sawlog Total					1			1	33.4	0.00
	black cherry Total						**1**			**1**	**33.4**	**0.00**
	hemlock	sawlog	12			1				1	84.5	0.00
			14				1	1		2	171.6	0.00
			16					1		1	99.1	0.00
			18					1		1	102.1	0.00
		sawlog Total				1	1	3		5	427.3	0.00
	hemlock Total					**1**	**1**	**3**		**5**	**427.3**	**0.00**
	paper birch	sawlog	12		1		2	1	1	5	287.7	0.00
			14				1	1		2	146.7	0.00
		sawlog Total			1		3	2	1	7	434.4	0.00
	paper birch Total				**1**		**3**	**2**	**1**	**7**	**434.4**	**0.00**
	red maple	sawlog	12			1				1	33.4	0.00
			18					1		1	81.7	0.00
		sawlog Total				1		1		2	115.2	0.00
	red maple Total					**1**		**1**		**2**	**115.2**	**0.00**
	red spruce	sawlog	8					2		2	93.4	0.00
			10					2	1	3	154.4	0.00
			12					1		1	90.2	0.00
			14						1	1	99.8	0.00
		sawlog Total						5	1	7	437.8	0.00
	red spruce Total							**5**	**1**	**7**	**437.8**	**0.00**
	sugar maple	sawlog	12					2		2	109.0	0.00
			16					1	1	2	161.3	0.00
			18					1	1	2	141.4	0.00
		sawlog Total						4	1	6	411.8	0.00
	sugar maple Total							**4**	**1**	**6**	**411.8**	**0.00**
	white pine	sawlog	14						1	1	98.7	0.00
			16					1	1	2	229.5	0.00
			18						1	1	120.1	0.00
		sawlog Total						1	2	4	448.3	0.00
	white pine Total							**1**	**2**	**4**	**448.3**	**0.00**
BF Total					**1**	**2**	**5**	**16**	**4**	**32**	**2,308.2**	**0.00**
Cords	beech	Topwood	2	1						1	0.0	0.00
			4	2						2	0.2	0.00
		Topwood Total		3						3	0.2	0.00
	beech Total			**3**						**3**	**0.2**	**0.00**
	black cherry	pulp	12				1			1	0.1	0.00
		pulp Total					1			1	0.1	0.00
		Topwood	2	1						1	0.0	0.00
			6	3						3	0.3	0.00
		Topwood Total		4						4	0.3	0.00

SPSL - This table shows the number of trees by logs/tree, DBH, product, and species, sorted by unit of measure. For each permutation of those attributes you will see TPA, BA, volume in your measured unit (volume 1), volume in your secondary /converted unit of measure (volume 2.

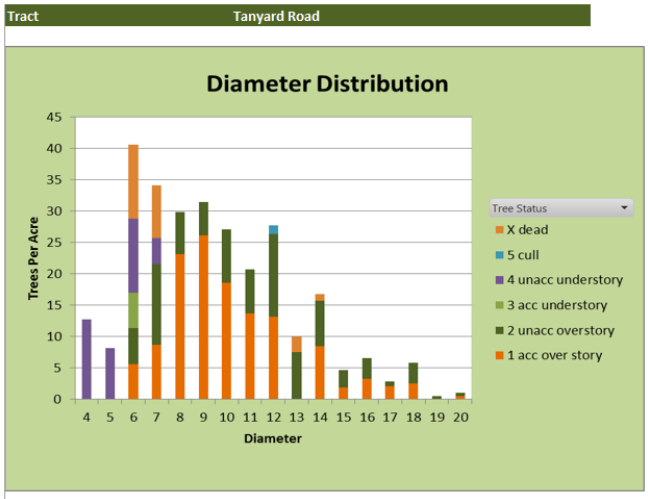
Tract Volume – Product by Species (TPS)

TPS - this is the identical worksheet as Volume by Species and Product above, but the sum of all stands in the tract.

Summary Tract Report (TR)

TR - This is a summary report, formatted to fit on 2 pages (you may have to adjust your bottom margin to .9”). It includes sampling statistics, species composition, diameter distribution, and a volume summary.

Tract 1	Tanyard Road						
Tract Acres:	4	# Points	9				
Sampling Statistics							
Conf. Level: 95%	**All Saw (BF)**		**All Tons products**		**All volume Tons**		**BA**
Mean	16,155.0		0.0		172.7		603.3
Standard Error	3,922.9		0.0		7.8		19.0
CI Lower	7,108.8		0.0		154.8		559.5
CI Upper	25,201.2		0.0		190.6		647.2
% Sampling Error	56.0%		0.0%		10.4%		7.3%
Species Composition							
	Basal Area			TPA			QMD
	Total	AGS	UGS	Total	AGS	UGS	
white pine	40	10.4%	16.3%	78	6.0%	22.7%	9.7
red maple	22	8.1%	6.7%	52	11.5%	7.7%	8.8
white ash	20	5.2%	8.1%	38	4.7%	9.2%	9.8
hemlock	19	6.7%	5.9%	20	3.7%	3.8%	13.0
black birch	13	7.4%	1.5%	24	7.8%	1.1%	10.0
sugar maple	10	4.4%	2.2%	19	5.5%	1.7%	9.7
black cherry	8	3.0%	2.2%	15	2.7%	2.9%	9.7
aspen	6	-	3.7%	5	-	1.9%	14.1
red pine	4	3.0%	-	10	3.8%	-	8.8
red oak	4	2.2%	0.7%	5	1.4%	0.3%	13.4
Scots pine	1	-	0.7%	1	-	0.5%	12.0
yellow birch	1	-	0.7%	2	-	0.6%	11.0
basswood	1	0.7%	-	2	0.6%	-	11.0
Tract Total	**150**	**51.1%**	**48.9%**	**273**	**47.6%**	**52.4%**	**10.0**

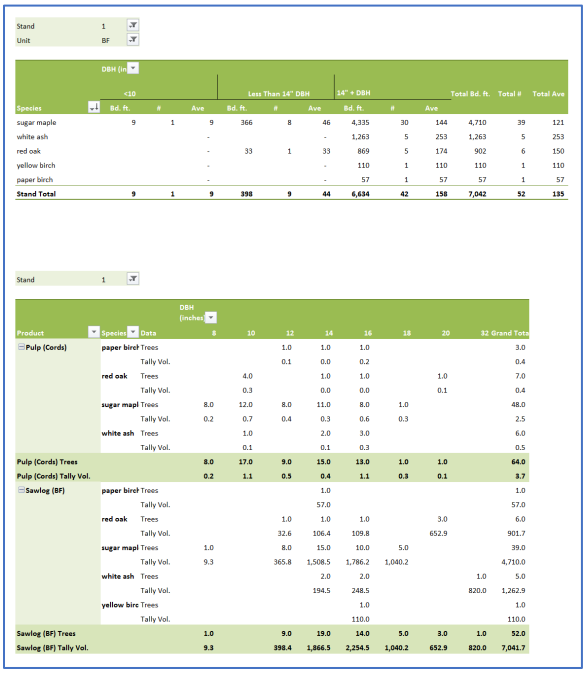


Volume Summary	All Saw (BF)		All Tons products		All volume Tons	
	Acre	Stand	Acre	Stand	Acre	Stand
aspen	168	673	-	-	1.2	4.8
basswood	-	-	-	-	0.2	1.0
black birch	148	594	-	-	3.5	13.9
black cherry	60	240	-	-	2.2	8.9
hemlock	1,885	7,541	-	-	8.1	32.5
red maple	-	-	-	-	3.4	13.5
red oak	241	962	-	-	1.7	6.9
red pine	-	-	-	-	1.2	4.8
Scots pine	-	-	-	-	0.3	1.0
sugar maple	130	520	-	-	2.0	7.9
white ash	235	941	-	-	3.9	15.6
white pine	1,171	4,686	-	-	15.2	60.7
yellow birch	-	-	-	-	0.3	1.0
Tract Total	**4,039**	**16,155**	-	-	**43.2**	**172.7**

Summary Stand Reports

SR1 - This is identical to the Tract Report, with two pages for each stand.

Sale Tally Report (100% Cruise)



Stand 1
Unit BF

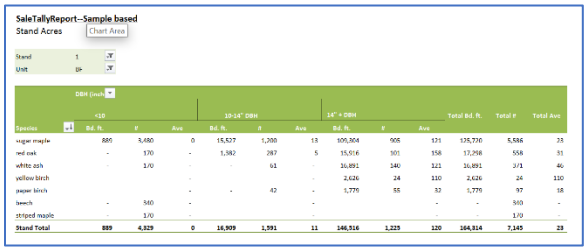
Species	<10 Bd. Ft.	<10 #	<10 Ave	Less Than 14" DBH Bd. Ft.	Less Than 14" DBH #	Less Than 14" DBH Ave	14" + DBH Bd. Ft.	14" + DBH #	14" + DBH Ave	Total Bd. Ft.	Total #	Total Ave
sugar maple	9	1	9	366	8	46	4,335	30	144	4,710	39	121
white ash							1,263	5	253	1,263	5	253
red oak				33	1	33	869	5	174	902	6	150
yellow birch							110	1	110	110	1	110
paper birch							57	1	57	57	1	57
Stand Total	**9**	**1**	**9**	**398**	**9**	**44**	**6,634**	**42**	**158**	**7,042**	**52**	**135**

Stand 1

Product	Species	Data	8	10	12	14	16	18	20	32	Grand Total
Pulp (Cords)	paper birch	Trees			1.0	1.0	1.0				3.0
		Tally Vol.			0.1	0.0	0.2				0.4
	red oak	Trees		4.0		1.0	1.0		1.0		7.0
		Tally Vol.		0.3		0.0	0.0		0.1		0.4
	sugar maple	Trees	8.0	12.0	8.0	11.0	8.0	1.0			48.0
		Tally Vol.	0.2	0.7	0.4	0.3	0.6	0.3			2.5
	white ash	Trees		1.0		2.0	3.0				6.0
		Tally Vol.		0.1		0.1	0.3				0.5
Pulp (Cords) Trees			**8.0**	**17.0**	**9.0**	**15.0**	**13.0**	**1.0**	**1.0**		**64.0**
Pulp (Cords) Tally Vol.			**0.2**	**1.1**	**0.5**	**0.4**	**1.1**	**0.3**	**0.1**		**3.7**
Sawlog (BF)	paper birch	Trees				1.0					1.0
		Tally Vol.				57.0					57.0
	red oak	Trees			1.0	1.0	1.0		3.0		6.0
		Tally Vol.			32.6	106.4	109.8		652.9		901.7
	sugar maple	Trees	1.0		8.0	15.0	10.0	5.0			39.0
		Tally Vol.	9.3		365.8	1,508.5	1,786.2	1,040.2			4,710.0
	white ash	Trees				2.0	2.0			1.0	5.0
		Tally Vol.				194.5	248.5			820.0	1,262.9
	yellow birch	Trees					1.0				1.0
		Tally Vol.					110.0				110.0
Sawlog (BF) Trees			**1.0**		**9.0**	**19.0**	**14.0**	**5.0**	**3.0**	**1.0**	**52.0**
Sawlog (BF) Tally Vol.			**9.3**		**398.4**	**1,866.5**	**2,254.5**	**1,040.2**	**652.9**	**820.0**	**7,041.7**

This table shows total number of trees and total volume by DBH by Species by Product. If you are evaluating trees with multiple products, the total number of trees will be the total number of trees *that the product appears in*, thereby overstating your actual number of trees tallied.

Sale Tally Report (Sample Cruise)



SaleTallyReport--Sample based
Stand Acres
Chart Area

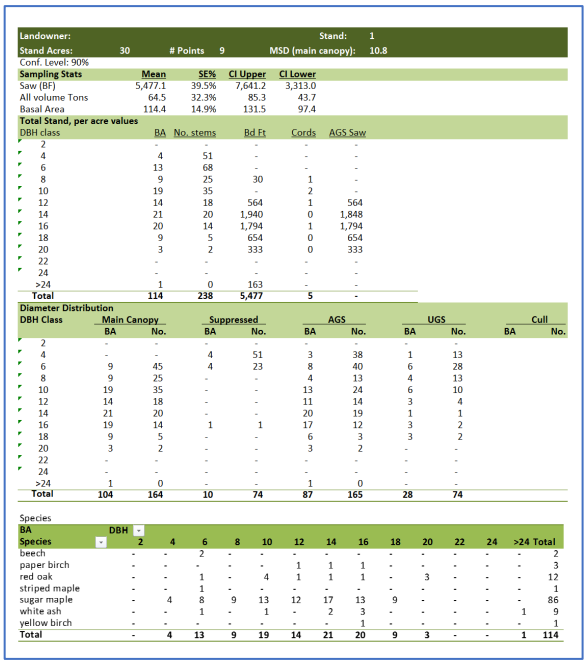
Stand 1
Unit

Species	<10 Bd. Ft.	<10 #	<10 Ave	10-14" DBH Bd. Ft.	10-14" DBH #	10-14" DBH Ave	14" + DBH Bd. Ft.	14" + DBH #	14" + DBH Ave	Total Bd. Ft.	Total #	Total Ave
sugar maple	889	3,480	0	15,527	1,300	13	109,804	905	121	126,720	5,686	23
red oak	-	170	-	1,382	287	5	15,916	301	158	17,298	558	31
white ash		170			61		16,891	140	121	16,891	371	46
yellow birch							2,626	24	110	2,626	24	110
paper birch					42		1,776	55	32	1,776	97	18
beech	-	560	-								560	
striped maple		170									170	
Stand Total	**889**	**4,329**	**0**	**16,909**	**1,591**	**11**	**146,516**	**1,225**	**120**	**164,314**	**7,145**	**23**

Special Reports

The second tab of the Report Engine contains special reports, all of which either require **specific data attributes, or have caveats about their use**, as follows. As such, these reports will likely give you errors if the conditions are not applied.

SR2 – This report is designed to accommodate both Status measured in AGS, UGS, and Cull (used as Option 1). It also requires crown position (Dominant (1) or Suppressed (2))to be captured in Option 2.



Landowner: Stand: 1
Stand Acres: 30 # Points 9 MSD (main canopy): 10.8
Conf. Level: 90%

Sampling Stats	Mean	SE%	CI Upper	CI Lower
Saw (BF)	5,477.1	39.5%	7,641.2	3,313.0
All volume Tons	64.5	32.3%	85.3	43.7
Basal Area	114.4	14.9%	131.5	97.4

Total Stand, per acre values

DBH class	BA	No. stems	Bd Ft	Cords	AGS Saw
2	-	-	-	-	-
4	4	51	-	-	-
6	13	68	-	-	-
8	9	25	30	1	-
10	19	35	-	2	-
12	14	18	564	1	564
14	21	20	1,940	0	1,848
16	20	14	1,794	1	1,794
18	9	5	654	0	654
20	3	2	333	0	333
22	-	-	-	-	-
24	-	-	-	-	-
>24	1	0	163	-	-
Total	**114**	**238**	**5,477**	**5**	**-**

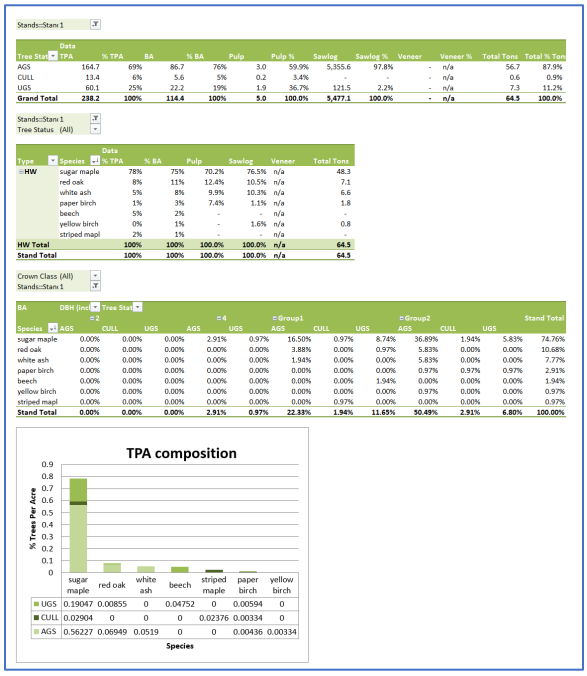
Diameter Distribution

DBH Class	Main Canopy BA	Main Canopy No.	Suppressed BA	Suppressed No.	AGS BA	AGS No.	UGS BA	UGS No.	Cull BA	Cull No.
2	-	-	-	-	-	-	-	-		
4	-	-	4	51	3	38	1	13		
6	9	45	4	23	8	40	6	28		
8	9	25	-	-	4	13	4	13		
10	19	35	-	-	13	24	6	10		
12	14	18	-	-	11	14	3	4		
14	21	20	-	-	20	19	1	1		
16	19	14	1	1	17	12	3	2		
18	9	5	-	-	6	3	3	2		
20	3	2	-	-	3	2	-	-		
22	-	-	-	-	-	-	-	-		
24	-	-	-	-	-	-	-	-		
>24	1	0	-	-	1	0	-	-		
Total	**104**	**164**	**10**	**74**	**87**	**165**	**28**	**74**		

Species

BA Species	DBH 2	4	6	8	10	12	14	16	18	20	22	24	>24	Total
beech	-	-	2	-	-	-	-	-	-	-	-	-	-	2
paper birch	-	-	-	-	-	1	1	1	-	-	-	-	-	3
red oak	-	-	1	-	4	1	1	1	-	3	-	-	-	12
striped maple	-	-	1	-	-	-	-	-	-	-	-	-	-	1
sugar maple	-	4	8	9	13	12	17	13	9	-	-	-	-	86
white ash	-	-	1	-	1	-	2	3	-	-	-	-	1	9
yellow birch	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Total	**-**	**4**	**13**	**9**	**19**	**14**	**21**	**20**	**9**	**3**	**-**	**-**	**1**	**114**

SR3 – This report is designed to accommodate both **Status measured in AGS, UGS, and Cull (used as Option 1).**



SR4 – This report is designed to accommodate **Status measured in AGS, UGS, and Cull (used as Option 1). Additionally, the report captures Regen data, which MUST be imported before this report is produced.**

SR5 – This report requires no specific data collection requirements.

Stand: 2; 28 acres

Chart Area

Species	Basal Area	Trees/ Acre	QMD	Tons/ Acre	Total Tons	Bd Ft/ Acre	Total MBF
red oak	68	72	13	47.8	1,338	4,678.3	130.99
sugar maple	25	156	5	7.3	203	409.3	11.46
hop-hornbeam	18	141	5	0.5	15	-	-
white ash	13	16	12	7.5	210	523.2	14.65
black cherry	3	3	13	1.9	54	158.2	4.43
yellow birch	2	5	8	0.3	9	37.2	1.04
paper birch	2	42	3	-	-	-	-
beech	2	3	11	0.3	8	-	-
white pine	1	0	18	1.1	32	161.8	4.53
striped maple	1	38	2	-	-	-	-
American elm	1	1	16	0.6	16	65.6	1.84
Stand Total	**133**	**478**	**7**	**67.3**	**1,885**	**6,033.5**	**168.94**

Product Group by Species and Unit (SSpVU)

SSpVU – This report shows volumes grouped by unit. **Any pulp that uses cords or tons is converted to the other unit, sawtimber is shown in BF and converted to tons, and topwood is shown in both tons and cords.** These tables also contain all 4 optional tree data fields as filters, so they can be used to sort/filter volumes by those attributes.

Tract Volume – TPA and Volume by DBH for Sawtimber

TTVDS – This report shows TPA for all products in the top table and volume by species by DBH for only products that are measured in BF, only for DBH >= 10".

Value by Species and Product

VSP- This report is formatted identically to the Tract Volume- Product by Species but will show dollar values rather than volumes. **If dollar values were not used on the iPad then this report will not run.**

TSpVU – This report is identical to SSpVU, but is reporting for the tract, not stand.

Working with Pivot Tables

Pivot tables are a very powerful mechanism for evaluating your data and producing multiple graphics and tables for report production. Pivot tables are simply a dynamic interface for selecting which components of your data you wish to analyze. For instance, if you want to see the volumes of products by species on a certain stand, or if you want to see the species composition by trees per acre on a given stand or the entire tract, this set of worksheets enable that.

Using Pivot Tables

Each pivot table works the same, so we will use the "Product Volume" worksheet for our example. This table shows your TPA by DBH by Species, potentially by Stand. On certain cells (Labels) near the upper left part of the worksheet, you see small upside-down triangle buttons- this indicates that there is a drop down menu that you can select.

For instance, lets say that you wanted to create a table that shows only tree of a chosen status for all species of DBH 12" or less. You may have evaluated trees by canopy position, acceptable/unacceptable growing stock, etc. You touch the drop down button next to "DBH", and select the diameter classes you wish to evaluate- say 6, 8, 10 and 12" classes. The other sizes will not be selected. Touch the drop down menu next to the "Tree Status" label and select only the status codes that you want to evaluate. You will now see a table showing your TPA for all trees of a given status at 12" DBH or less. You can select individual or multiple stands by selecting them next to "Stands::StandName X" at the top left corner of the worksheet.

Another way you can manipulate the tables is by adding or removing fields by which you want to sort your data.

1) Touch on the pivot table
2) Touch "Analyze" under Pivot Table Tools on the top toolbar
3) Touch "Field List" on the upper right row of icons
4) In the list of PivotTable fields, you can select additional attributes that you want to put into your table (or chart). Do this by checking the box next to the attribute. This will make them appear in the lists on the bottom half of that screen
5) You can then touch and drag them between columns, rows, filters, and values to sort your data in different ways. The options here are unlimited so it is best to just take a few minutes and play around.

Making your own tables

These tables can be copied and pasted into additional worksheets. For instance, if you want to have several different tables visible at once (i.e. not continually replace the table each time you create a new one, you can copy an entire pivot

table- it doesn't matter which "filters" have been applied, create a new worksheet in this workbook, and paste the table into the new worksheet. Lather, rinse, repeat, and you can show as many variations of the tables as you want. This can be helpful when you are preparing tables and graphics for import into your report.

Editing charts
Lastly, it is helpful to know how to edit the tables that appear on most of the worksheets. Tables are good for detailed analysis, but oftentimes visual charts can more effectively communicate big-picture ideas or they can simplify complex concepts for the landowner. Using the TPA_Stand worksheet as an example, this chart shows your AGS and UGS for all species recorded in one or more stands. Again, you use the drop down menu in the upper left corner *of the chart area- not the entire worksheet* and selected the Stand(s) you wish to show. Again, if you want to have multiple charts available for viewing simultaneously, simply copy and paste the entire chart to a new location, either elsewhere on this worksheet or on a new worksheet with your report graphics.

Send feedback
It is critical that we hear what features are working for users and which features aren't so smooth. It is also helpful for us to hear what features should be added in current versions. If there is a particular manner in which you normally evaluate data, or certain attributes that you need to view, PLEASE drop us a line so we can consider putting it in the development queue.

Request customization
If you have a particular format of report that you need to display, contact us and we will can provide an estimate to build this format as your default.

Appendix III: Setting up an iPad from scratch or resetting an existing iPad to "new" specifications

While Forest Metrix can be used as a stand-alone product on the iPad, in order to manage the iPad (software updates), you must have a computer with an internet connection, a USB port, and iTunes software from Apple (free). In order to maximize the reporting capabilities of Forest Metrix data you need Microsoft Excel 2007 or later running on Windows (not free).

When an iPad is distributed by Forest Metrix as a demo/trial, it is configured to our specifications so we can provide a consistent experience for new users. This means that the iPads are "synced" with our computers, appropriate navigation and database Apps are installed, and the unit is set up with an email account so we can email files directly to the device. An iPad can only be configured and synced to a single computer, so when you take ownership of the device you must reset the iPad to factory-new condition. This enables you to set it up from scratch as though you just brought it home from the Apple store and opened the original packaging. This also blitzes any photos, cruise files, or any other data you may have put on the device during your trial process.

As such, any important files need to be copied/moved off the iPad before resetting. It is easiest to simply email your cruise files to yourself. If you aren't able to do this and/or you don't have anything important to save (maybe you've only cruised a couple sample stands and haven't completed any jobs) we will email you fresh copies of your database after you reset.

You will then go through a few steps to make it your own, including setting language, typing in your email credentials, your Wifi network password, etc. It only takes a couple of minutes, and it is an absolutely necessary step.

You will plug it in to your computer. Most likely iTunes will start automatically. If not, start iTunes. Your computer should recognize the iPad and you will be able to manage the device (mostly file sharing, performing backups, and software updates) through this connection.

If you are unable to locate your device, your computer doesn't seem to recognize it, or you have any other problems related to either iPad hardware use or software configuration, your best bet is to call Applecare at 800-275-2273. The representative will ask your hardware serial number which is the method by which Applecare policies are tracked. You have 90 days of free live technical phone support through this program.

Appendix IV: Sync your iPad to your computer

Go to www.apple.com and download the appropriate version of iTunes software. This is a free program that is necessary to sync your device (and files) to your computer. Once this is installed, plug your iPad into a USB port on your computer with the white "Lightning" cord. Your iOS device icon will show up in iTunes on the leftmost column or along the top of the window, touch it. If iTunes does not open automatically when you plug in your device, open it manually from your desktop. If your device isn't visible anywhere, plug it in again. On the top menu bar (or possibly elsewhere depending on your operating system and version of iTunes), select "Apps" or "File Sharing". Scroll down to "File Sharing" and select FileMaker Go. This will show all of your Forest Metrix files. Select the appropriate file and "Save to" the appropriate location on your computer. This is also the method to upload files **from** your computer **to** the iPad- simply press the "Add…" button at the bottom of the file sharing window and select the file from your computer that you want to upload.

Appendix V: Set up your existing email account(s) on iOS

Touch "Settings". Scroll down to "Mail, Notes, Calendars". At the top of the right hand column, all email accounts that are currently linked with the device are listed. At the bottom of that box touch "Add Account…" If you see your email provider, touch the appropriate button and enter your account information. If yours is not listed, touch "Other", then "Add Mail Account". Touch "Next" when complete. Allow each item to be "On", then touch "Save". After a couple minutes your existing emails will be synchronized to the device, meaning that you will be able to see and access your email from this device as well as your other computer.

Accessing email on the iPad

Now, when you open Mail on the device, you will see emails from each of your email accounts. When you go to "Inboxes", you will see that you can select to see all your emails together, or you can select to see only one account inbox at a time.

Appendix VI: Using Google drive to share files

Open your internet browser (Safari, Internet Explorer, Firefox, Chrome, etc). Navigate to www.google.com. Sign in as forestmetrix1@gmail.com. Password is "guestfm1", but is often changed due to Google's security requirements, so

check with us if you have trouble. Touch “Drive” at top tool bar, or look for the icon that looks like a tic-tac-toe board. Touch the upward red arrow icon to upload your file. Browse to where your file lives on your computer and select it. Let us know so we can go in and grab it. We will use this drive to send it back to you.

Appendix VII: Using DropBox to share files

Dropbox Account setup

On your desktop computer, go to www.dropbox.com to set up an account. Install the Dropbox app on your iPad or iPhone. Go to the App Store (blue icon with the letter A on the iPad home page), search for “Dropbox”, touch “Get” and/or “Install”

Open the Dropbox app on the iPad and login to your account. Close the Dropbox app. Your iPad is now ready to share files.

Share file- upload to Dropbox account

1) On the iPad from which you want to share a file, open up FileMaker and go to the Home where you can see the list of files on the device.
2) Touch “Device” on the left hand side.
3) On the upper right touch the icon that looks like a page with a check mark.
4) Select the file you want to upload
5) On the upper left, touch the icon that looks like a rectangle with an upwards arrow.
6) You’ll see an option that allows you to save the file to Dropbox. When you do that, it’ll allow you to select the folder you want to save it to. Touch “Save” in the upper right.

Open file on iPad- download from Dropbox

1) On your iPad, open the Dropbox app.
2) In the lower right you’ll see an icon for “Files”.
3) Locate the cruise template and touch it. This will download it for local use.
4) Once downloaded, touch the icon in the upper right that looks like a rectangle with an upwards arrow.
5) Near the bottom of that box, you’ll see “Open In…”
6) Select FileMaker Go. If you have multiple versions of Filemaker Go available, select the teal icon for v.17

Appendix VIII: Energy Management on iOS Devices

iOS- The Basics

There are a few basic things that every iOS user should know about how to manage battery life. In a perfect world you can get 8-10 hours of battery life on a single charge, but several factors come into play.

Screen Brightness. In most circumstances you will want to use the screen at its highest brightness setting, but if you can get away with a less-bright screen, you can save your battery.

1) Tap the iOS Settings
2) Tap Wallpapers & Brightness in the left-hand column. Move the brightness indicator on the sliding scale.

If you do not need to use your **cellular data connection** for email/internet/etc, you should set your device to "Airplane Mode" which disables the Cellular chip, Bluetooth, and Wifi.

1) Tap the iOS Settings
2) At the top of the left column you will see Airplane Mode, touch the slider button and it'll change to green if Airplane Mode is turned on. The GPS function (on Cellular-enabled devices) WILL WORK independent of the Cellular data.

iOS- Apps

iPads can have several Apps open at the same time. When the iPad is not asleep, all of the Apps will be running. These Apps will always be active in the background until you turn your iPad off, but you can manually shut them down/ Double click the home button on the iPad. This will zoom out and show your current app in a smaller window. Using one finger you can scroll right and left to sweep across the different apps that are active. You can close these down individually by swiping one finger from the bottom to the top of the window that shows the app.

It is wise when you are cruising to sweep through these and close all of the Apps that you aren't using for cruising. The GPS apps in particular use a lot of energy.

iOS- Running Analysis

Running analytics on your data can take a few minutes depending on how many trees you have tallied. By default, iPads usually go to sleep after 2 minutes of no activity on the touch screen. When the device is asleep, processing ceases. Then you wake it up and wonder why the analytics are still running. Here is what to do:

- Go to the iPad Settings
- Touch "General" in the left column
- Touch "Auto-Lock" and select 10-15 minutes or Never.
- After you run Analytics, you might want to change it back to save battery.