

CRUISE INSTRUCTIONS Siekmann Inventory

Each cruiser will be responsible for delivering data on a daily basis to the project manager electronically. If a cruiser collects data on paper (tally sheet can be provided), the data will need to be entered into TCruise and submitted in that format. A designated AFM crew leader or field project manager will back up electronic data files on a daily basis. Cruisers will make sure that cruise files are backed up on the storage card (SD) of their handhelds.

Maps

- Points are located on a 10 chain grid with pre-assigned point numbers by tract.
- Lat/Long coordinates are in decimal degrees, UTM NAD-83
- Magnetic Declination for the area is 5 degrees west of True North.

Plot Size & Layout

The sampling type will be variable-radius points, BAF 20.

Plots will be located on tract maps by AFM staff prior to starting fieldwork. All plots should be visited and tally recorded. Plot coordinates (shape files) will be provided for GPS navigation. Using GPS units to locate plots will be required.

Marking and Moving Sample Plots

The center of each plot will be marked by pushing flagging into the ground at plot center. Additional flagging will be tied at eye level near each plot center to aid in relocating plots during check cruising. The plot number and cruiser initials will be marked on the flag at plot center. The first tally tree from North will be ribboned and trees tallied clockwise from there.

A plot that falls in a feature, not currently mapped as a polygon (i.e., does not have acres assigned), like a major road or ROW will be moved within the forested stand. If a plot falls near or straddles a property or stand line, move the plot at least ½ chain from the line in a cardinal direction most suitable. Document all plot moves on flagging and on the map. Report a change in timber type and/or strata to the crew leader. If a stand has been recently cutover, do not take any plots in the stand.

Merchantable Tree Data/Measurements

All trees 6.0 -inches DBH and larger will be tallied using a BAF20 prism or angle gauge. The following characteristics will be recorded for each tree in the data recorder or on a tally sheet if necessary:

Species Codes

RO	Red Oak	ASH	Ash	BU	Buckeye	MSC	Misc Harwoods
BO	Black Oak	SM	Sugar Maple	LO	Black Locust	HL	Hemlock
Co	Chestnut Oak	RM	Red Maple	HI	Hickory	WP	White Pine
SO	Scarlet Oak	BW	Black Walnut	PU	Paulownia	VP	Virginia Pine
POP	Yellow Poplar	BC	Black Cherry	BG	Blackgum	YP	Yellow Pine
CU	Cucumbertree	SY	Sycamore	BI	Birch		
BA	Basswood	BE	Beech	SG	Sweetgum		

Tree Product Specifications

Product	Code	Min. DBH class (in)	Max. DBH class (in)	Min Upper DOB (in)	Min. Merch Height	Height measured (units)
Hardwood pulpwood	PW or AA	6	26	4	8 feet	Merch (feet)
Pine/softwood pulpwood	PW	6	26	4	15 feet	Merch (feet)
Pine Sawtimber	SAW	12	-	8	16 feet	Merch (feet)
Hardwood Sawtimber	SAW or AA	12	-	10	8 feet	Merch (feet)
Pallet Logs	PL	12	-	10	18 feet	Merch (feet)
Tie Logs	TIE	12	-	10	8 feet	Merch (feet)
Peelers	PEE	10	14	10	18 feet	Merch (feet)
Staves (WO Only)	STV	12	-	10	8 feet	-

Diameter (DBH)

- Trees will be measured in **two-inch** classes, where:

6"	6.0" – 7.9"
8"	8.0" – 9.9"
10"	10.0" – 11.9"
12"	12.0" – 13.9"
14"	14.0" – 15.9"
16"	16.0" – 17.9"
Etc	Etc...

- Minimum diameters for various products are as shown in the Products Specifications table above.
- Maximum DBH for pine and hardwood pulpwood is 26".

Height

- Tally merchantable height (**Ht**) for **all** trees in feet to the nearest 5 feet (using the minimum lengths defined in the Products Specifications table above).
- Minimum height requirements and upper DOB limits for the various products are indicated in the Products Specifications table above.
- Estimate top diameters and use a clinometer as needed for the height measurements.

Products

Detailed specifications for products are as follows:

Hardwood Sawtimber or Auto Assign

- Minimum 12" DBH class with a 10" or merchantable sawtimber top diameter. Trees tallied as AutoAssign with a DBH of 12" or larger will count towards Sawtimber and will need a Sawtimber height (HSaw).
- Sawtimber trees must have a **butt log grade three or better** (one clear face). Upper logs should be relatively straight, sound and not contain excessive knots. As long as the tree has a butt log qualifying for grade one or two the upper log(s) may be grade three. Do not call any upper logs, which would not qualify for grade three.
- Sawtimber trees should be relatively straight and not show signs of decay; minimum length of 8 feet.
- Sawtimber height must be recorded in the HSaw column.
- Tally low-grade trees, which are not likely to be merchandized into logs or tie logs into the pulpwood product category.

Tie Logs

- Minimum 12” DBH class to a 10” or merchantable sawtimber top diameter with at least 8 feet.
- Tie logs must be relatively straight and sound.
- Pine species cannot be included as tie logs.

Pallet Wood

- Minimum 12” DBH class to a 10” top diameter with at least 1 log. **(18’)**
- Pallet logs must be relatively straight and sound.
- Pine species cannot be included as tie logs.

Peelers

- Poplar, Cucumber, and Basswood trees only.
- Restricted to trees 10 - 14” DBH with height recorded to a 10” top DOB with at least **18 feet**.
- Trees must be relatively straight and sound (“tie log” quality).

Pine/Softwood Sawtimber

- Minimum 12” DBH class to a 10” DOB top for white pine and hemlock; 8” top DOB for yellow pine.
- Must be relatively straight and without excessive knots with a minimum length of 16 feet.
- Do not tally Virginia pine as sawtimber.
- For Loblolly Pine tallied in natural stands, use the Yellow Pine species code (YP).

Hardwood/Pine Pulpwood and AutoAssign

- Minimum 6” DBH class
- Maximum 24” DBH class
- 16 feet minimum height (to 4” DOB top).
- Trees less than 12” in DBH will automatically be counted towards pulpwood class trees and need the height recorded in the **Ht** column.

Cull Trees

- Trees of merchantable size, with excessive defect, rot, etc., which cannot be utilized for pulpwood.
- Pulpwood quality trees over 26” DBH are also included in this class.
- Cull tree measurements, including DBH, may be ocularly estimated.

G-AutoAssign & AutoAssign

- G-AutoAssign will be designated for White Oak (WO) species only and will be utilized for multiproduct specifications.
- AutoAssign will be utilized for product designation with limitations based on DBH. Trees with a DBH of 12” or greater will qualify for the Sawtimber category. Trees less than 12”DBH will qualify for the pulpwood category.
- Total Merch Height will still need to be recorded in the Ht Colum regardless of product designation.

Critical distance/Borderline trees

All **borderline trees** should be measured to check whether they are “IN” or “OUT”. Use the appropriate BAF critical (limiting) distance table if slope is less than 15%. On the handheld use the “OPS” function and select borderline distance. Input the tree diameter to the nearest tenth (.01) and horizontal distance to the pith at 4.5’ above ground. Using this function will calculate “IN” or “OUT” distance.

The data recorder program (TCruise) will have a Limiting Distance (LD) function available to use as well as slope corrections. Please make sure the LD function is set to use “**Measure to the Pith of the tree.**” IF the limiting distance (corrected for slope) is greater than the measured (slope) distance, then the tree is “IN”. If the measured distance is greater than the limiting distance, then the tree is “OUT”.

DBH/Height Adjustments

Adjustments to diameter can be made due to fire scar, swelling, or catface at DBH. Measure DBH just above the end of the defect or as high as you can reach if the effect of the defect goes that high. If a “jump butt” is necessary, estimate DBH 4.5’ above the cull section. Determination of LD (if a tree is “IN” or “OUT”) will be based on the diameter **as measured at DBH**.

Sawtimber tree heights will be terminated at the target top DOB or to a “stopper” dictated by any of the conditions listed below and consistent with at least a tie log grade:

- Major fork – merchantable height will be terminated below the fork unless one fork contains at least 8’ of tie log grade material, then merchantable height will proceed beyond the fork. NOTE: a tree that forks above DBH is considered one tree and height will be determined on the primary stem; if a tree forks below DBH, then two trees will be tallied with DBH measured or estimated 3.5’ above the fork on each stem.
- Sweep — terminate merchantable height where sweep exceeds 50% of the scaling end diameter in any 16 feet (e.g., sweep > 5” in a section with a 10” scaling diameter). If this section with excessive sweep is part of the butt log, then the tree should be classified as “PW” or “cull”.
- Excessive lateral branches or a “brooming out” point.

Data Recorder (TCruise)

Note: Create a new Job file for each Tract and day you cruise. Use a file name of Tract + Cruiser Initials + Date (i.e., “Brissey_DCA_112517”). Method set and Spec File name is “OR_Master_20BAF_2inch”.

Plot Identification

Plots are pre-numbered on the cruise maps and are to be entered under ***Point Data -Point ID***. If plot numbers are changed, make notes on the field maps. However, there is no reason to change plot numbers and they will be retained after downloading as long as they remain numeric.

Point/Tree Fields

The following fields are to appear under the ***Point Data*** screen (preferably in this order): SPP, DBH, TreeProduct, HT, HSaw, BrTopDia, Age, and Comment. These fields can be turned “On” under ***Cruise Specifications – Tree Data Fields and Behavior*** option.

Field Project Manager (AFM)

Dillion Alley 423-582-0802