

ForestCalc Manual, Part 2.

PARAMETERS AND TABLES

Timber analysis
Timber volume
Timber volume (several trees)
Sample plot

This manual describes the database tables of ForestCalc software. Please notice that some of the database fields may not be in use because they are reserved for the future versions of this software. These cases are mentioned in this paper.

English language of this manual has not been revised.

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1. PROGRAM PARAMETERS

NOTICE. The program parameter files may still include fields reserved to Forest Inventory module. However, from version 4.0, the forest inventory module was shifted to a new unique application, **ForestCalc Inventory**.

1.1. Parameter files and the default settings

There are two essential MS Access database files containing program parameters and models: **Treepara.mdb** and **Forestpara.mdb**. The first file includes information about local tree species and their models (functions), the second file includes codes and definitions for collected data: local administrative data (provinces, districts), plot variables and some tree variables. User can edit these tables, if needed, in order to localize of this software.

IMPORTANT TO NOTICE!

Do **NOT** change database structure and data types of the fields.

Tree species codes: see **Treepara.mdb**, table TreeSpecies. The default species list is according to the Finnish SOLMU-system.

Tree Class codes are fixed in the program, as follows:

Code	Name
0	Waste tree (no log and pulp)
1	Log tree (stem can include both log and pulp wood)
2	Pulp tree (stem can not include log)
3	Marked log tree (to be removed)
4	Marked pulp tree (to be removed)
5	Dead tree
6	Stump

Tree class 1 is the default value, if tree class codes are not used.

1.2. Equations in database

The volume and height curve functions can be read from the database. The equations are solved by using an equation parser. The following rules should be observed:

- Check parentheses
- Operators are the common ones (+ - * / ^)
- Computing of raise to a power, use ALWAYS parenthesis. E.g. the software computes $2*2^3=4^3=48$ (wrong), but $2*(2^3)=2*8=16$ (right)
- Pi (3.1415..) is a constant, written as **PI**
- The variable names are as follows: **d** = diameter (in cm), **h** = height (in m)
- The logical equations can be entered to field **Rules**. For example, if the volume model requires that diameter exceeds five centimeters, write '(d>5)'. Operands AND, OR or NOT can also be used. The computing is allowed, if the result of a logical equation is *True*. See the following examples:

h<10
 AND(d>0,h>1.3)
 OR(d>20,h>10,h<=40)
 NOT(d=0)

The logical rules are not obligatory.

VolumeModel2: Taulukko		
Code	Equation	ModelSource
2	$0.022927 * (d ^ 1.91505) * (0.99146 ^ d) * (h ^ 2.82541) * ((h - 1.3) ^ (-1.53547))$	Laasasenaho 1982
3	$0.011197 * (d ^ 2.10253) * (0.986 ^ d) * (h ^ 3.98519) * ((h - 1.3) ^ (-2.659))$	Laasasenaho 1982
1	$0.036089 * (d ^ 2.01395) * (0.99676 ^ d) * (h ^ 2.07025) * ((h - 1.3) ^ (-1.07209))$	Laasasenaho 1982

Figure 1. Example of volume equations in the database table.

The equation parser can solve the following mathematical functions:

Ln(Value)	- natural logarithm
Log(Value,Base)	- logarithm, Base>0
Log10(Value)	- 10-base logarithm
Exp(Value)	- e ^{Value}
Sqrt(Value)	- square root

Volume models have the following units:

- Diameter centimeters (cm)
- Height meters (m)
- Volume dm³ = 0.001 m³

Hence, the volume equation must yield the results in dm³. If your model yields m³, divide the equation by 1000. The models can be written into the database **ForestPara** by using a database management software (e.g. MS Access). New models can be tested in program module **Timber volume**, see Manual Part I and **user-defined volume models**.

1.3. Equation lists and the rules in timber volume computing

For a species there can be more than one volume equation in the equation table (table **TreeSpecies**, fields *VolumeModel_d* etc).

An example. Volume of Larix sibirica with help of diameter and tree height

*We want to add a volume model of small (height<10 m) Larix trees, but we want to use different function for the trees height equal or more than 10 meters. In this case, we write to the database TREEPARA.MDB, table **TreeSpecies** for Larix sibirica the list of codes (all applicable models). The timber volume of trees with height less than 10 meters can be computed by function number 4, and for the bigger trees by model number 2. Hence, the model list is **4,2** (separator comma). We must also fill in a logical rule into table **VolumeModel2** to model number (=Code) 4, field **Rules**, as follows: **h<10**. The rules are checked for each species by starting from the first model in the list, until logical rule gives TRUE or until the field **Rules** is empty. In the case that all results are FALSE (eg. an extraordinary big tree) the volume is computed by using the last function in the list.*

The logical checks are in use in every module of **ForestCalc**, with an exception: in module '**Timber volume**', if the user has edited function on the screen, checks are not done.

Notice 1! Field **Rules** can also be left empty.

Notice 2! This method includes a risk that there may be a sharp distinction in level of results when changing from a volume model to another. Hence, it is the user's duty and risk to apply the lists.

1.4. Program parameter tables in *Treepara.mdb*

Format: MS Access2000

<u>Table name</u>	<u>Table includes</u>
• <i>ProgramParameters</i>	- working directory, language setting, currency units etc.
• <i>ProgramForestparaFileDefinition</i>	- name of a local file to substitute ForestPara.mdb
• <i>TreeSpecies</i>	- species codes and names, model numbers and biomass factor
• <i>VolumeModel1</i>	- volume models, $v=F(\text{DBH})$
• <i>VolumeModel2</i>	- volume models, $v=F(\text{DBH}, \text{height})$
• <i>VolumeModel3</i>	- volume models, $v=F(\text{DBH}, \text{height}, d6)$
• <i>HeightModel</i>	- height models for regression, $h=F(\text{DBH})$
• <i>TimberTable</i>	- timber assortment dimensions and prices

Table **ProgramParameters** includes general default values and it has the following fields:

ProgramParameters			
FIELD	FORMAT	EXPLANATION	MORE INFO
DefaultPath	Text	Data folder	
DefaultLanguage	Integer	Default language	1=Finnish 2=English 3=German
DefaultRelativeAnalysisPoint	Text (list)	Relative stem height points in the Timber analysis (%).	Separator is comma (,)
DefaultCurrencyUnit	Text		Max 5 characters! E.g., \$, EURO, yuan
2ndCurrencyUnit	Text	2nd currency unit (optional)	Max 5 characters. Can be left empty.
DefaultCurrencyConv	Value	Conversion factor	Def.curr.unit * X =2nd curr.unit
2ndCurrencyVisible	True/False	2nd currency unit results visible?	
DefaultTimberTable	Integer	Default timber dimension group in TimberTable, used with Laasasenaho taper curves (=Bucking)	Default: 1 (so-called General)
DefaultIncPeriod	Integer	Increment period (past)	Default: 5 years
DefaultMinRegressionObs	Integer	Minimum number of observation in regression model computation in module Sample plot	Default: 3
DefaultVolCalcMethod	Integer	Volume computing method	1= volume equations 2=stem curves (Finland)
DefaultSpeciesNames	Integer		1=local names, 2=botanical names
DefaultIncCorrection	Value	Correction factor for increment in compartment calculation	<i>In Finnish version only</i>
DefaultSettingsVisible	Boolean	Setting visible when program starts (yes/no)	

Table **ProgramForestParaFileDefinition** includes the name of locally used parameter file to replace **ForestPara.mdb**. This file definition is valid only in Finnish version of the program, and this table will be removed in the coming version of the program (v. 5.x)

ProgramForestParaFileDefinition			
FIELD	FORMAT	EXPLANATION	MORE INFO
Number	Integer	Selection number in the program's selection box	<i>No double values!</i>
TitleInProgram	Text	Text to be seen in ForestCalc	
ForestParaFileName	Text	File name	
WorkingDirectory	Text		<i>Not in use</i>
Information	Text	Additional information	<i>No use in ForestCalc</i>

Table **TreeSpecies** includes information of tree species, volume models and conversion factors.

TreeSpecies			
FIELD	FORMAT	EXPLANATION	MORE INFO
SortOrder	Integer	Sorting order of species in program's dropdown lists	Can be used via MS Access
Code	Text (10)	Species code	<i>No double values!</i>
Name	Text	Species name	
LatinName	Text	Species Latin name	<i>Not in use</i>
GroupCode	Text	Group (conifer/broadleaf)	<i>Not in use, but can be used in CR reports</i>
CspeciesList	Text (list)	List of compensating species (sample trees)	Separator comma (,) Empty: all species
ModelVolume_d	Text	Volume model number	-> VolumeModel1
ModelVolume_d_h	Text	Volume model number	-> VolumeModel2
ModelVolume_d_d6_h	Text	Volume model number	-> VolumeModel3
TimberTableFileName	Text	File for timber log and pulp percentiles.	<i>Not obligatory, if no log and pulp timber</i>
ModelTreeHeightCurve	Integer		<i>Not in use</i>
DryWeight	Value	Dry biomass conversion factor	Kg/m ³
ConversionFactor1	Value	For instance charcoal conversion factor.	Not in use, but can be used with CR reports.
ConversionFactor2	Value		Not in use, yet.

Table **VolumeModel1** includes information about timber volume equations, where the independent value is diameter at 1.3 m above ground (**d**, in cm). For each species there is a link in table **TreeSpecies** (field *ModelVolume_d*) to field *Code* in this table.

Parameter values must be written into the equations. The table includes the following fields:

VolumeModel1			
FIELD	FORMAT	EXPLANATION	MORE INFO
Code	Integer	Equation number	
Equation	Text		
ModelSource	Text		<i>For instance reference data</i>
Rules	Text	Logical rule	<i>Not obligatory</i>

Table **VolumeModel2** includes information of timber volume equations where the independent values are diameter (**d**, in cm) and height (**h**, in m). For each species there is a link in table **TreeSpecies** (field *ModelVolume_d_h*) to field *Code* in this table.

Parameter values must be written into the equations. The table includes the following fields:

VolumeModel2 & VolumeModel3			
FIELD	FORMAT	EXPLANATION	MORE INFO
Code	Integer	Equation number	
Equation	Text		<i>See chapter 1.2</i>
ModelSource	Text		
Rules	Text	Logical rule	<i>Not obligatory</i>

Table **VolumeModel3** includes information of timber volume equations where the independent values are diameter (**d**, in cm), upper diameter (**d6**, in cm) and tree height (**h**, in m). For each species there is a link in table **TreeSpecies** (field *ModelVolume_d_d6_h*) to field *Code* in this table.

Parameter values must be written into the equations. The table structure is the same with tables **VolumeModel1** and **VolumeModel2**.

Table **HeightModel** includes the height functions. Maximum number of models is ten. Tree height is computed by using diameter (**d**) as an independent variable. The function has two parameters: A and B. The parameter values are not written into the formula, but they are written with letters **A** and **B**. Function must be written first in its linear form and it must be able to be solved by regression analysis. The form of the linear must be as follows:

$$Y_{\text{dependent}} = A + B \times d$$

The table includes the following fields:

HeightModel			
FIELD	FORMAT	EXPLANATION	MORE INFO
Code	Integer	Equation number	
Equation	Text	Original function formula	
Y_dependent	Text	Linearized model's independent variable	
ModelSource	Text		<i>Name must be here!</i>
Rules	Text	Logical rule	<i>Not in use, yet</i>

Timber dimensions and prices area in the table **TimberTable**. **The dimensions are only in use with Laasasenaho's taper curves (=Bucking). Timber prices are in use with all methods.** The information is ordered in groups (=TimberSource) which can be different companies or regions, for instance. Each group must be adjusted one after another. When you enter your data about a new group, first write all log and then all pulp wood (or pole wood) dimensions and prices, finally other use wood price (fuel wood).

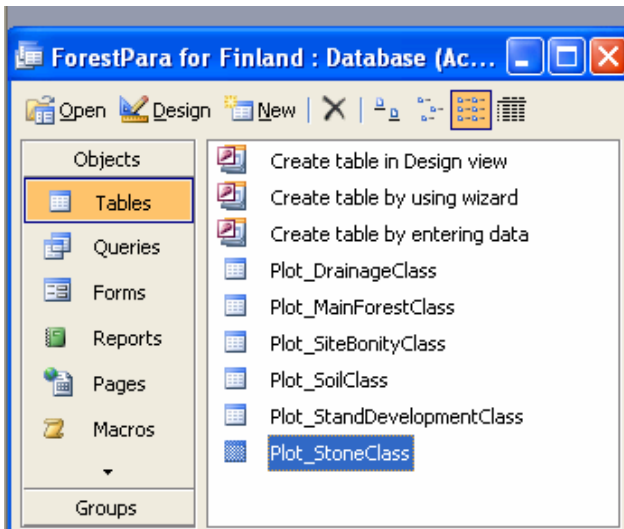
The table includes the following fields:

TimberTable			
FIELD	FORMAT	EXPLANATION	MORE INFO
TimberCode	Integer	Id number	<i>No double values!</i>
TimberSource	Text	Group / Source	Rows in same group must be one after another in list
TimberName	Text	Name	<i>No use in program</i>
TimberType	Integer	Timber code	0=other use timber 1=log timber 2=pulp timber
TimberQualityClass	Integer		<i>Not in use, yet</i>
Species	Text (list)	Species list	<i>Separator comma (,). All species asterix (*)</i>
MinUpperD	Value	Log's minimum diameter above bark (cm)	
MinLenght	Value	Log's minimum length (m)	

MaxLenght	Value	Log's maximum length (m)	
ConstantDivisionValue	Value	Log's dimension share	<i>In Finland usually 0.3 m for logs</i>
TimberValue	Value		<i>Currency units /m3</i>
TimberValuePerTree	Value		
Rules	Text	Logical rule (variable can be diameter, d)	

1.5. Program parameter tables in *Forestpara.mdb*

The program uses MS Access2000 format database *Forestpara.mdb* for storing of categorical information (with Compartment calculation module). Compartment calculation is only in use in the Finnish version of the program. The database includes the following tables (see next figure).



Tables of the type *Plot_name* includes the following fields:

FIELD	FORMAT	EXPLANATION	MORE INFO
Code	Integer	Code used in storing data	<i>No double values</i>
CodeText	Text (10)	Text code	<i>No in use</i>
Name	Text	Explanation	

1.6. Timber percentage files

Timber percentages for log and pulp wood collaborate with volume functions read from the database, not with Laasasenaho's taper curves (=called BUCKING in this program). Timber percentages are saved in ASCII files in the program folder. The file name for each species is entered in the table **TreeSpecies**, field **TimberTableFileName** (without the folder name). This information is not obligatory if there are no log and pulp wood percentages for some species.

Log and pulp wood percentages are entered for each diameter-height pair in a matrix form, as integer values. The file has the following structure:

A comment row begins with the exclamation mark (!). Comment can also be written at the end of any row. An example:

```
! Table 1, Taulukko 1: Manty / Scots pine
! This file contains log tree table, unit is %
```

The matrix limits are written as follows:

```
D Minimum Maximum Range - diameter (cm)
H Minimum Maximum Range - tree height (m)
```

For instance:

D 4 50 1 → Diameter runs from 4 centimeter up to 50, with 1 cm intervals. The separator is space.

Percentages are listed after word DATA .

Diameter runs in rows, height in columns. Row starts with letter **A** or **B**. **A** means log percentage, **B** means pulp wood. Sum of these two numbers may not exceed 100. An example:

```
A 0 0 0 0 10 10 93 93 93 93 93 93 93 93 98 97 96 96 95 94 98 97
B 95 96 98 98 91 91 6 6 6 6 6 6 6 6 1 2 3 3 4 5 1 2
```

If you make new files or edit the existing files, check that number of rows and columns is correct. A practical way to edit these files is to open them with a word processing software and change the page settings to *Landscape* and font type to *Courier*.

2. Timber analysis

Timber analysis input data and results can be saved in file *AnalysisTrees.mdb*, which includes the following two tables:

- AnalysisTreeData - input data
- AnalysisTreeResult - results

Table *AnalysisTreeData* includes the following fields:

AnalysisTreeData			
FIELD	FORMAT	EXPLANATION	MORE INFO
TreeNumber	Integer		
Species	Text		
H	Value	Tree height (m)	
HeightData	Text (list)	Measuring heights above ground (m)	Separator semicolon (;)
DiameterData	Text (list)	Diameters (cm)	-"-
BarkData	Text (list)	Bark thickness (total of two sides) (mm)	-"-
YearRingData	Text (list)		-"-, <i>not in use</i>
LogMinD	Value	Log's minimum top diameter	(cm)
PulpMinD	Value	Pulp timber's minimum top diameter	(cm)
StumpLength	Value	Stumpage height	(cm)
DryWeightFactor	Value	Dry density (kg/m ³)	

Table *AnalysisTreeResult* includes the following fields:

AnalysisTreeResult			
FIELD	FORMAT	EXPLANATION	MORE INFO
TreeNumber	Integer		
Species	Text		
D	Value	D1.3 (cm)	
H	Value	Tree height (m)	
F	Value	Form factor	
VolumeCalculationType	Integer		<i>Not in use</i>
Volume_OB	Luku	Volume (dm ³), over bark	
Volume_UB	Luku	Volume (dm ³), under bark	
Volume_OB_1st_meas	Luku	Volume starting up from the first measurement point (dm ³), over bark	
Volume_UB_1st_meas	Luku	Volume starting up from the first measurement point (dm ³), under bark	
Bark	Value	Bark volume (dm ³)	
VolLogTree	Value	Log volume (dm ³)	
VolPulpTree	Value	Pulp timber volume (dm ³)	
VolWasteTree	Value	Other timber volume (dm ³)	
LogTreeLength	Value	Log timber length (m)	
PulpTreeLength	Value	Pulp timber length (m)	
DryWeight	Value	Weight of stem	(kg)

3. Timber volume (several trees)

3.1. Input and result files

Input data and results are saved in the same file. The file format is Access2000 and the database has the following tables:

- DataVariables - measured variables
- DataGeneral - general data
- DataTrees - measurements
- ResultPlot - information about parameters
- ResultTrees - results

The structure is a copy of file **MoD_TreeGroup.mdb**. **Do not edit or delete this file!**

The region file name is of the form **T00000x.mdb** where **x** is the region number. Length of the file name is 8 letters.

Table **DataVariables** includes information about variables, as follows:

DataVariables			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Tree group number	
VariableList	Text	Variable list	1=measured 0=not measured

Table **DataGeneral** includes the general data by groups.

DataGeneral			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Tree group number	
PlotName	Text	Name of the group	
Mday	Integer	Day	
MMonth	Integer	Month	
MYear	Integer	Year	
Measurer	Text		
Information	Text	Additional information	<i>not in use</i>
GPS_X	Value		<i>not in use</i>
GPS_Y	Value		<i>not in use</i>
GPS_Z	Value		<i>not in use</i>
ImageFileName	Text		<i>not in use</i>

Table **DataTrees** includes the input data.

DataTrees			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Group number	
TreeNumber	Integer		
Species	Text		
TreeClass	Integer		
D	Value	Diameter at 1.3 m	in cm
H	Value	Height	in m
Hc	Value	Bole height (m)	
D6	Value	Upper diameter (cm)	
Stump_height	Value		in meters
GPS_X	Value		<i>not in use</i>
GPS_Y	Value		<i>not in use</i>

GPS_Z	Value		<i>not in use</i>
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Table **ResultPlot** includes information about the computing..

ResultPlot			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Tree group number	
VolumeCalcMethod	Integer	Method for computing volumes.	1=volume equation, 2=taper curve
TimberSource	Text	Name of the timber source.	
CalculationDate	Text		<i>ddmmyyyy</i>

Table **ResultTrees** includes the results.

NumTreeResult			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Tree group number	
TreeNumber	Integer		
VolTree	Value	Stem volume (m ³)	
VolLog	Value	Log volume (m ³)	
VolPulp	Value	Pulp wood volume (m ³)	
VolWaste	Value	Hukkapuutilavuus (m ³)	
ValueTree	Value	Value of the stem	
ValueLog	Value		
ValuePulp	Value		
ValueWaste	Value		

4. Sample plot

4.1. Input data

Data file includes input data of the plots. Data file format is MS Access2000 and it has the following tables:

- Variables - plot type and measured variables
- GeneralData
- TallyTrees
- SampleTrees

The structure is a copy of file **MoD_Plot.mdb**. **Do not edit or delete this file!**

The region file name is of the form **D000000x.mdb** where **x** is the region number. Length of the file name is 8 letters.

Table **Variables** includes information plot and variables, as follows:

Variables			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
PlotType	Text		1=rectangular 2=circular 3=concentric 4=relascope
VariableList	Text (list)	Variable list	1=measured 0=not measured
TreesInGroups	True/False (Boolean)	Trees in diameter classes?	
LocationMethod	Value	Tree locations (coordinates)	0=not measured 1= X,Y 2=direction and distance

Table **GeneralData** includes general plot information. It includes the following fields:

GeneralData			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
Plot_w	Value	Plot width or radius or relascope factor	
Plot_l	Value	Plot length (main side)	<i>(rectangular)</i>
MultiPlot	Text (list)	Concentric plot	Separator semicolon (;)
Mday	Integer		
Mmonth	Integer		
Myear	Integer		
Measurer	Text		
SiteClass	Text		
YearsFromCutting	Integer		
Information	Text		
GPS_X	Value	Plot's X-coordinate	
GPS_Y	Value	Plot's Y-coordinate	
GPS_Z	Value	Plot's altitude	<i>Not in use, yet</i>
PlotDirection	Value	Plot's azimuth (main side), only when rectangular plot	<i>In North sector (degrees),</i>
ImageFileName	Text (100)	Photo of sample plot	<i>Not in use</i>

Table **TallyTrees** includes tallied trees. Table includes the following fields:

TallyTrees			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
TreeNumber	Value		
Species	Text		
TreeClass	Value		0=other use tree (no log and pulp) 1=log, staying 2=pulp, staying 3=log, to be removed 4=pulp, to be removed 5=dead 6=stumpage
D	Value	Diameter at 1.3m (cm)	
NumberOfTrees	Integer	Number of trees in diameter class	
X	Value	Tree's X-coordinate on the plot (m) OR azimuth angle (degrees)	
Y	Value	Tree's Y-coordinate on the plot (m) OR distance to plot's origo (m)	

Table **SampleTrees** includes information about sample trees.

SampleTrees			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
TreeNumber	Integer		
Species	Text		
D13	Value	d1.3 (cm)	
H	Value	Tree height (m)	
Bark	Value	Bark thickness (mm)	Sum of two sides (1.3 m)
D0	Value	Diameter at ground level or at stumpage height (cm)	
D6	Value	Diameter at 6 meter (cm)	
Hc	Value	Crown height (m) or Bole height (m)	
Age	Value	(years)	
Ir	Value	Radius increment (mm)	*)
Ih	Value	Height increment (dm)	*)

*) Increment period in years is in the database *Treepara.mdb*: table **ProgramParameters**, field *DefaultIncPeriod* (default value is 5 years)

4.2. Result data

Result file includes computed results of the plots. Data file format is MS Access2000 and it has the following tables:

- SpeciesModel - model parameters
- NumTreeResult - tally tree dimensions
- NumTreeResultPast - tally tree dimensions at beginning of growing period
- SpeciesResult - results for species and tree classes
- PlotResult - plot results

Structure is a copy of file **MoR_Plot.mdb**. **Do not edit or delete this file!**

The region file name is of the form **R000000x.mdb** where **x** is region number. Name length is 8 letters.

Table **SpeciesModel** includes models' parameters and the meaning of each field can be read from its name.

Table **NumTreeResult** includes tally tree dimension at the time of measurements. Table includes the following fields:

NumTreeResult			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
TreeNumber	Integer		
Species	Text		
TreeClass	Value		<i>See above..</i>
D13	Value	(cm)	<i>See above..</i>
H	Value	(m)	<i>See above..</i>
Bark	Value	(mm)	<i>See above..</i>
D0	Value	(cm)	<i>See above..</i>
D6	Value	(cm)	<i>See above..</i>
Hc	Value	(m)	<i>See above..</i>
Age	Value	(years)	<i>See above..</i>
Ir	Value	Diameter increment (mm)	In 1 year
Ih	Value	Height increment (dm)	In 1 year
BA	Value	Basal area	m ² /ha
Stocking	Value		Trees/ha
VolTree	Value	Stem volume (m ³ /ha)	
VolLog	Value	Log volume (m ³ /ha)	
VolPulp	Value	Pulp timber volume (m ³ /ha)	
VolWaste	Value	Other timber volume (m ³ /ha)	
ValueTree	Value		(UNITS /ha)
ValueLog	Value	Log value	(UNITS /ha)
ValuePulp	Value	Pulp timber value	(UNITS /ha)
ValueWaste	Value	Other timber value	(UNITS /ha)

Table **NumTreeResultPast** includes information of the trees *n* years ago from the measuring date (Default: 5 years). There are data in this table only if increments are measured. Name of the fields is about the same as in table *NumTreeResult*, with the additions listed below:

NumTreeResultPast			
FIELD	FORMAT	EXPLANATION	MORE INFO
(. see table NumTreeResult)			
VollIncTree	Value	Tree volume increment (m ³ /ha)	Annually
VollIncLog	Value	Log timber change (m ³ /ha)	Annually
VollIncPulp	Value	Pulp timber change (m ³ /ha)	Annually
VollIncWaste	Value	Other use timber change (m ³ /ha)	Annually
ValueIncTree	Value	Value increment (UNITS/ha)	Annually
ValueIncLog	Value	Log timber value change	Annually
ValueIncPulp	Value	Pulp timber value change	Annually
ValueIncWaste	Value	Other use timber value change	Annually

Table **SpeciesResult** includes summary information computed by species and tree classes. This table includes summary information of the whole plot too: if field *Species* is equal to '*' and *TreeClass* is equal to **100**, it means that this row includes information of all species (= '*') which are alive (=100). On the other hand, if field *Species* is equal to '*' and *TreeClass* is equal to **5**, this row has information of all dead trees on the plot.

Table includes the following fields:

SpeciesResult			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
Species	Text		* = all species
TreeClass	Value		100= live trees, see tree class codes
TallyTreeCases	Value	Number of tally trees on the plot	
SampleTreeCases	Value	Number of sample trees on the plot	
Stocking	Value		Trees/ha
D_min	Value	Minimum diameter (cm)	
D_max	Value	Maximum diameter (cm)	
D_med	Value	Median diameter (cm)	
D_weighted	Value	Weighted mean diameter (cm). Weight factor is tree basal area.	
D_std	Value		Standard deviation
H_min	Value	Height dimension..	
H_max	Value		
H_med	Value		
H_weighted	Value		
H_std	Value		
V_increment	Value	Volume increment	/ha (annually)
Age_min	Value	Age ..	
Age_max	Value		

Age_weighted	Value		
BasalArea	Value		/ha
TotalVolume	Value		/ha
TotalVolumeLog	Value		/ha
TotalVolumePulp	Value		/ha
TotalVolumeWaste	Value		/ha
TotalValue	Value		/ha
TotalValueLog	Value		/ha
TotalValuePulp	Value		/ha
TotalValueWaste	Value		/ha
Value_increment	Value		UNITS/ha (annually)
Volume_min	Value	Minimum stem	
Volume_max	Value	Maximum stem	
Volume_weighted	value	Weighted mean volume. Weight factor is tree basal area.	

Table **PlotResult** includes results for the plots.

PlotResult			
FIELD	FORMAT	EXPLANATION	MORE INFO
Plot	Text	Plot number	
PlotType	Text	Plot type	See data file, table <i>Variables</i>
Area	Value	Plot size (m ²)	Plot types 1 or 2
Ddom	Value	Aritmetic mean of dominant trees (cm)	
Hdom	Value	Dominant tree height (m)	
TimberSource	Text	Selected timber source in program menu	
CalculationDate	Text		<i>ddmmyyyy</i>

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