

WinApt ***Manual***

ESE Technique

WinApt02GB

WinApt

Contents

1	AwinApt	5	2	KwinApt	65
1.A	Summary	5	2.A	Summary	65
1.A.1	Matrices	5	2.B	Description	66
1.A.2	Identity	6	2.C	Proceed as follows	67
1.A.3	Common variables	6	2.C.1	Set baud rate and serial port	67
1.A.4	Quick guide, creating new bucking instructions	7	2.C.2	Connect external unit	68
1.B	Description	8	2.C.3	Copy files from the bucking computer to external drive	69
1.B.1	Program menus	8	2.C.4	Copy files from external drive to the bucking computer	70
1.B.2	Matrix overview	13	2.C.5	Delete files	71
1.B.3	Bucking overview	14	3	PwinApt	73
1.B.4	Analysis of price list	15	3.A	Overview	73
1.B.5	Identity	16	3.A.1	Production files .prd and .pri	74
1.B.6	Tree species	17	3.B	Description	75
1.B.7	Bark function	18	3.B.1	Program menus	75
1.B.8	Demand	19	3.B.2	Settings, General	78
1.B.9	Grade	20	3.B.3	Settings, Matrix overview	79
1.B.10	Product groups	21	3.B.4	Add production files	80
1.B.11	Trunk types	22	3.B.5	Identity	81
1.B.12	Breast height (DBH)	23	3.B.6	Administration	82
1.B.13	Machine, basic setting	24	3.B.7	Calibration	83
1.B.14	Matrices, common part	25	3.B.8	Tree species	84
1.B.15	Others settings	26	3.B.9	Matrices	85
1.B.16	Price matrix	27	3.B.10	Product group	86
1.B.17	Color matrix	28	3.B.11	Log type	87
1.B.18	Demand matrix	29	3.B.12	Matrix overview	88
1.B.19	Limit matrix	30	3.B.13	Log bill	89
1.B.20	Pole matrix	31	3.B.14	Graphics	90
1.B.21	Line price	32	3.B.15	Matrix graphics	91
1.B.22	Length and diameter classes	33	3.B.16	Unspecified	92
1.C	Proceed as follows	34	3.B.17	Breast height	93
1.C.1	Opening bucking instructions	34	3.B.18	Printout, settings	94
1.C.2	Saving bucking instructions	36	3.B.19	Printout, preview on screen	95
1.C.3	Tree species	37	3.B.20	Examples of printouts	96
1.C.4	Bark function	38	3.C	Proceed as follows	101
1.C.5	Demand	39	3.C.1	Opening production file	101
1.C.6	Grade	40	3.C.2	Tree species	101
1.C.7	Product groups	41	3.C.3	Matrix	101
1.C.8	Stem type	42	3.C.4	Product group	102
1.C.9	Breast height (DBH)	43	3.C.5	Log type	102
1.C.10	Machine settings	44	3.C.6	Matrix summary	103
1.C.11	Create new and delete matrices	45	3.C.7	Adding production files	104
1.C.12	New matrix with earlier one as basis	46	3.C.8	Log bill	105
1.C.13	Diameter classes	47	3.C.9	Graphics	106
1.C.14	Length classes	48	3.C.10	Matrix graphics	107
1.C.15	Enter prices	50	3.C.11	Unspecified	108
1.C.16	Line price-list	52	3.C.12	Breast height	109
1.C.17	Matrix variables	54	3.C.13	Printout	110
1.C.18	Color matrix	56	4	DWinApt	113
1.C.19	Demand matrix	58	4.A	Overview	113
1.C.20	Limit matrix	61	4.B.1	Program menus	114
1.C.21	Pole matrix	62	4.B	Description	114
1.C.22	Bucking overview	63	4.B.2	Identity, Administration, Calibration	115
1.C.23	Analysis of price list	64	4.B.3	Time information, Production	116
			4.B.4	Example of printout	117
			4.C	Proceed as follows	118
			4.C.1	Open an operations follow-up file	118
			4.C.2	Check contents of the file	119
			4.C.3	Print out	120

1 AwinApt

NOTE

The program AwinApt, described in the following pages, may appear differently depending on which machine type is selected. Not all functions are included in all machine types.

1.A Summary

The bucking instructions are used to enable bucking of each trunk to give maximum yield, either in relation to maximum price or a particular assortment range. For each bucking the diameter of the trunk and taper are compared with the permitted available options and the computer then chooses the currently most advantageous option.

There are several different bucking methods:

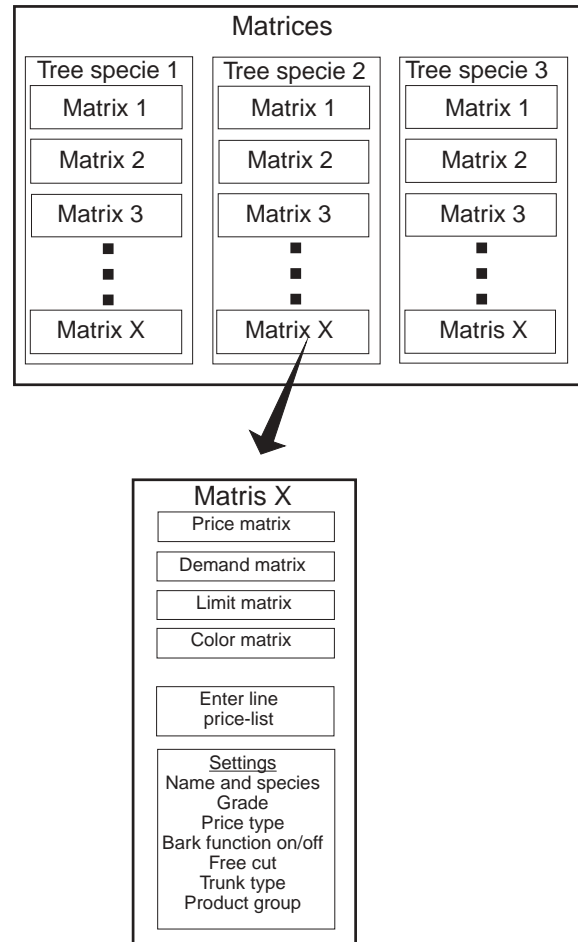
- **Profit-based bucking** where a large number of price matrices can be compared with one another to enable the computer to select the assortment range and length that gives the most favourable yield value. In choosing the log length the computer also takes into consideration the value of the next log (“remaining piece” evaluation).
- **Demand bucking** working together with profit-based bucking as an instrument to choose just the lengths and diameters that are in demand. Selection is made by programming the desired demand among different lengths in a diameter class or in an entire price matrix. It is also possible to set limits for a maximum number of logs in each class of logs.

1.A.1 Matrices

The most important part of the bucking instructions is the matrices; one matrix for each assortment range in each species.

Each matrix consists of four different sub-matrices and one variable part:

- The **Price matrix**; a price list entered for all length/diameter classes.
- The **Demand matrix**; an aid in demand bucking to select just the assortment range that is in demand.
- The **Limit matrix**; enabling limitation of the number of logs in different diameter classes.
- The **Color matrix**; where you decide which length/diameter classes are to be color-marked.
- **Variables for each matrix**; eg, price type, free cut, choice of product group or type of trunk.

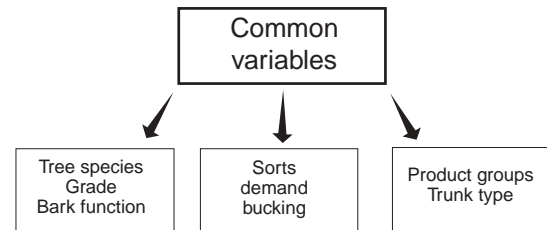
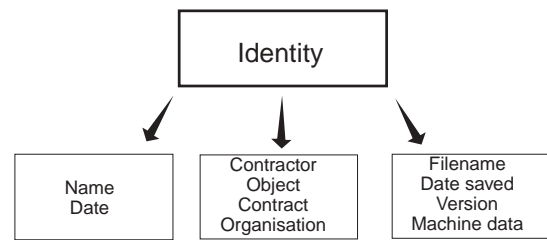


1.A.2 Identity

Each bucking instruction has an identity part that is used to identify the bucking instructions, eg, title of the instructions and data about the contractor, object, contract and organisation.

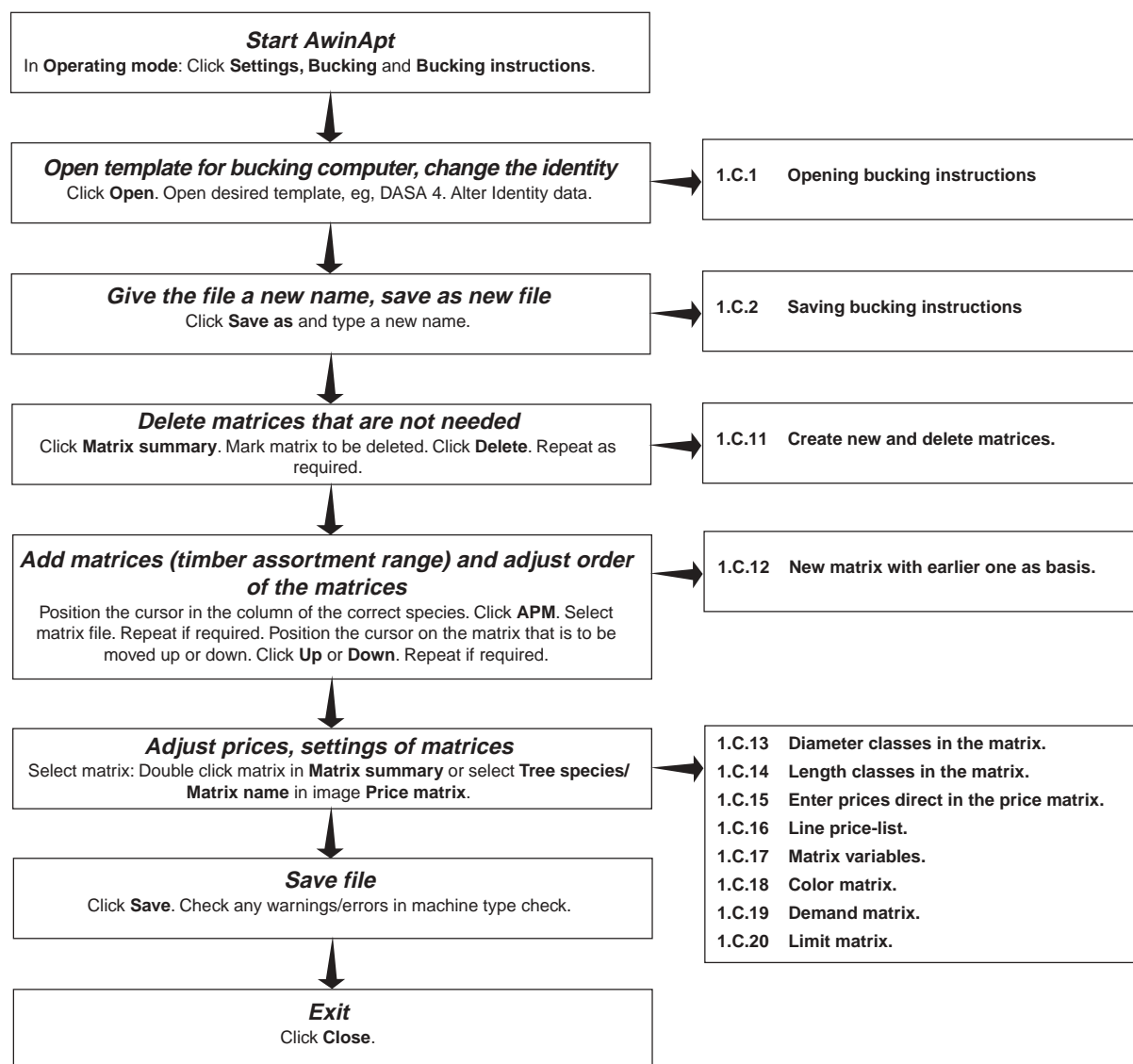
1.A.3 Common variables

These apply for all matrices in the bucking instructions. Examples of such variables are number and name of species, grade, product groups and trunk type.



1.A.4 Quick guide, creating new bucking instructions

Create new bucking instructions by copying and modifying an earlier version

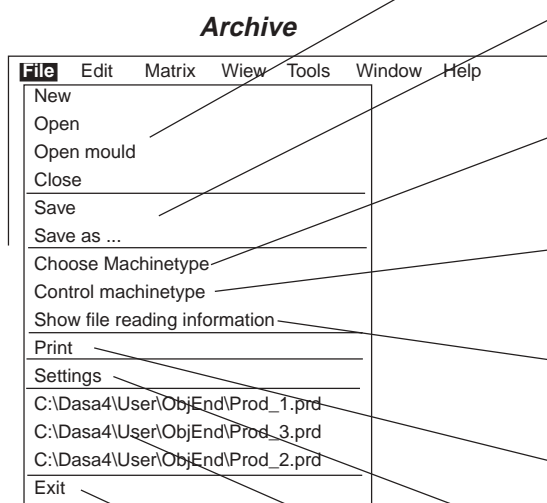


1.B Description

NOTE

Program AwinApt, described in the following pages, may appear differently depending on which machine type is selected. Not all functions are included in all machine types.

1.B.1 Program menus



New, Open, Open mould, Close

Here you can create new (empty) or open existing bucking instructions. You can also open a mould as the basis for the new bucking instructions.

Save, Save as

Here you save the current bucking instructions with their existing name. If you choose "Save as ..." you can save the bucking instructions in a different name and in a different folder or unit.

Choose machine type

Here you can choose between different machine types. On choosing a particular machine type the bucking instructions are adapted accordingly to suit it.

Control machine type

Here you can check whether there are any variables in the bucking instructions that are outside the limitations that apply for the machine type you have chosen.

Show reading information

The bucking file is checked on being opened. Possible errors and deviations are visible here.

Printout

Settings

See description on next page

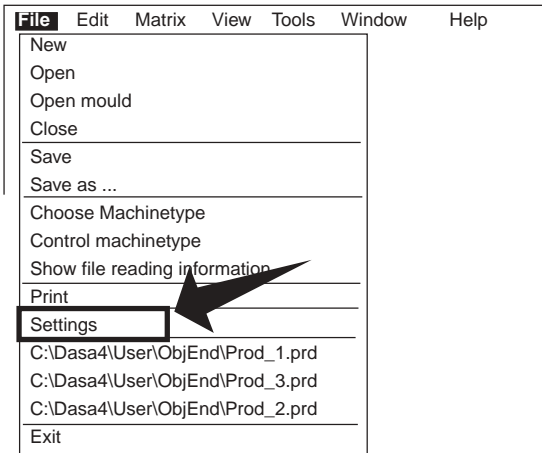
Latest used bucking instructions

Click the file if you wish to open it again.

Exit

Exit program module **Bucking instructions** and return to the setting menu.

Archive/Settings



Current directory

The actual search paths for four different types of files are seen here (bucking files, machine files, bucking templates and APM-files) that are used in the bucking instructions. It is here the bucking program searches when you wish to open a file.

Click on Browse if you wish to alter search paths for the file types.

Maximum 8 characters in a filename

Certain programs accept only 8 characters in a file name. If the bucking files are to be exported and used in such programs you can cross this box. You will then be given a warning if the name consists of more than 8 characters.

Save line price

If you cross the box the line price information will be saved in the bucking file. You can then make alterations direct in the line price list.

Show warnings and errors direct on the screen

Warnings and errors are shown direct on the screen as they occur. If the box is not activated an error will be shown first when the system makes a check (see the box below "Make check on saving").

Make check on saving the file

Cross the box if you wish the program to make a check of the bucking file when it is being saved. An error list will be displayed on screen if any fault is detected.

Control of price difference

A function to avoid mistakes when entering values in the price matrix.

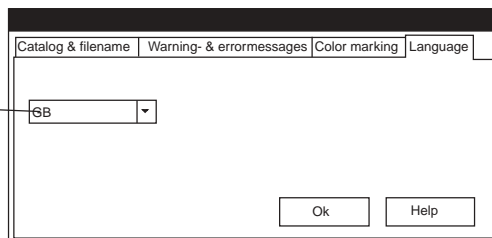
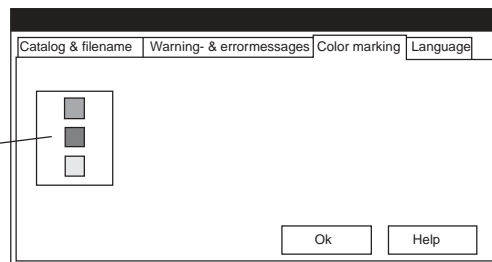
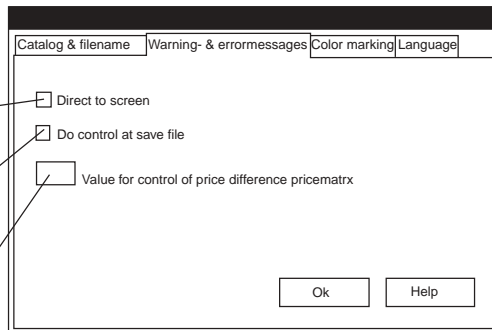
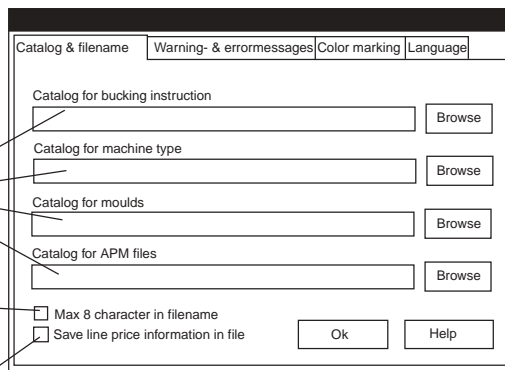
If the difference between values in adjacent matrix boxes is greater than that you have written into the box you will receive a warning.

Colors for dye marking

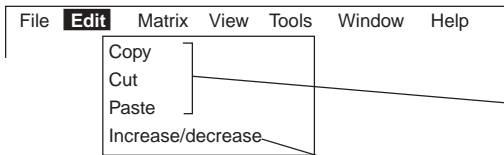
Colors used for marking which length/diameter classes that are to be dye-marked. Click on another color box to select a different color.

Choose language

Select which language menus and printouts that the bucking program is to have.



Edit



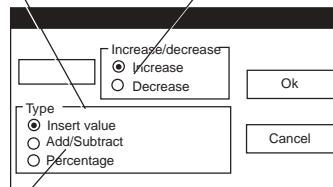
Cut, Copy, Paste

Copy marked area to Clipboard. You can now paste the data in another matrix or another program, eg, Excel, to enable further processing of data from the bucking instructions.

Increase/decrease

This function is used to increase or decrease the value of all variables in the area in a price, distribution, limit or stop matrix that you have marked. Increasing or decreasing can be made in absolute figures or as a percentage.

Type the value or percentage with which you wish to increase or decrease. Choose whether to increase or reduce current values.

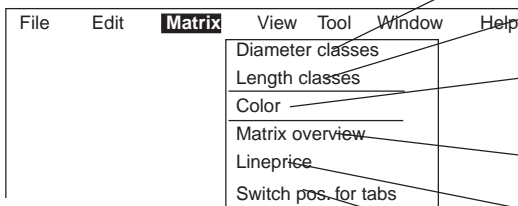


Select an option:

- **Insert value** – values in the matrix are replaced by the typed value.
- **Add/subtract** – current values of the matrix are increased/reduced by the typed value.
- **Percentage** – current values of the matrix are increased/reduced in percentage by the typed value.

Active only when you have selected a matrix

Matrix



Diameter classes

Go to the setting menu for diameter classes where you can add, alter or remove diameter classes from the price matrix.

Length classes

Go to the setting menu for length classes where you can add, alter or remove length classes from the price matrix.

Color choice

Only active when you have selected **Color matrix**. Mark one or more length/diameter classes in the dye matrix. Select the color with which to dye the marked classes.

Matrix overview

Go to menu **Matrix overview**.

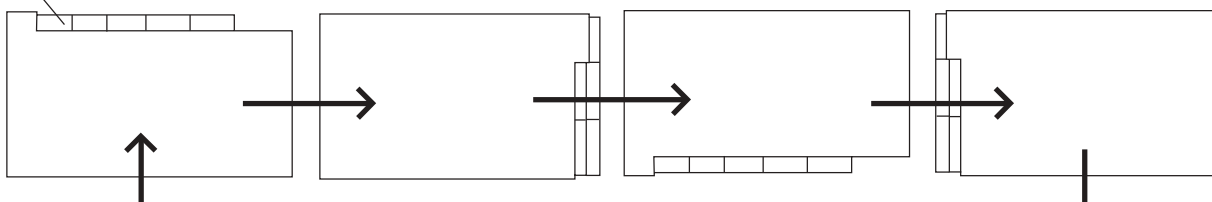
Line price

Go to menu **Line price**.

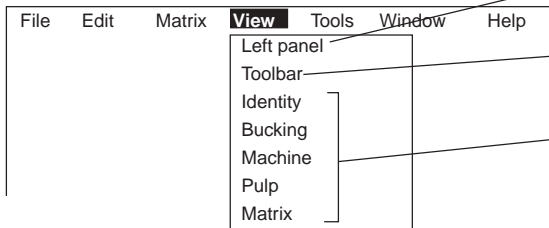
Change position of tabs

When a price matrix is selected you choose between price, dye, distribution and limit matrices with the help of tabs. Change the position of the tabs as follows by repeatedly selecting this function.

Tabs



View



Show left panel

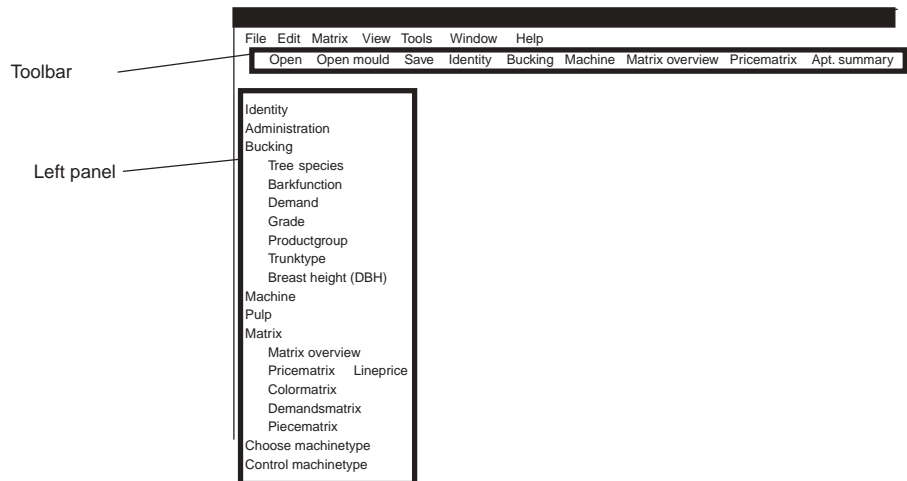
Click the box if you wish the various sub-sections of the program to be displayed at the left edge of the screen (see below).

Show toolbar

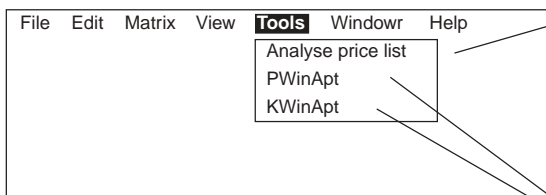
Click the box if you wish the various sub-sections of the program to be displayed at the upper edge of the screen (see below).

Select window

Choose one of the program windows by clicking the desired line. The window that is currently selected is grey marked and with a "tick" at the left edge.



Tools



Analysis of price list

A detailed description of the function is given in **section 1.B.4 Analysis of the pricelist**.

The function enables an overall comparison of prices between two different price matrices in the same species.

The function is especially useful for comparing matrices of different price types, eg, pulpwood (m3s) and timber (m3 top measure). The timber matrix prices are converted to m3s. These m3s prices are dependent on actual taper of the log. By varying the taper value it can be discerned at what taper a particular matrix is strongest in the respective length/diameter class.

Start PWinApt / KWinApt

Click on PWinApt or KWinApt to start the respective program.

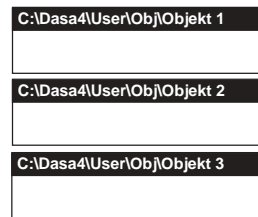
Arrange overlapping

If several production files are open simultaneously they overlap.



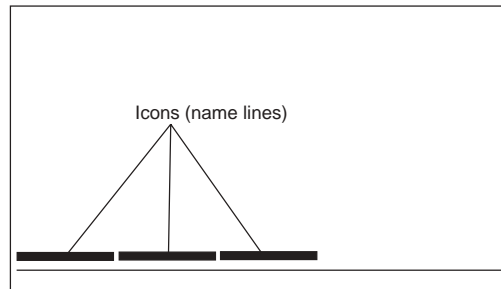
Arrange horizontally

If several production files are open their screen size is adjusted and the files are on top of one another.



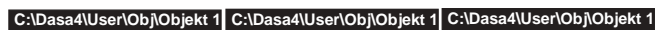
Arrange icons

If several bucking files are open and are minimised (see function **Minimise** below) the icons of the files (name lines) are arranged at the bottom of the screen.

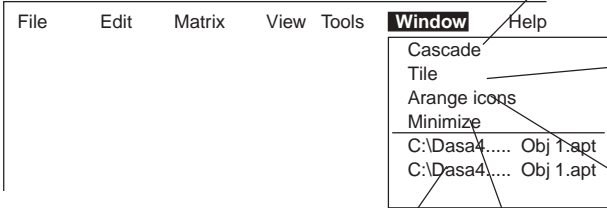


Minimise

If several production files are open their screen size is minimised to a name line only and they are placed side by side at the very bottom of the screen.



Windows



Select bucking instruction file

If several bucking instruction files are open; choose the one that is to be active.

1.B.2 Matrix overview

In the matrix overview you see which price matrices are included in the bucking instructions. You also get a summary of existing price matrices with their most important parameters.

Here you can:

- **Select** the matrix that you wish to program.
- **Delete** matrices.
- **Create new** matrices, either completely new or on the basis of a copy of another matrix.
- **Change** the matrix name.
- **Alter the place of the matrix** among the other matrices.

Create a new matrix
Click the right species and then click **New**.

Mark one or several matrices
Two options:

- Click and keep the button pressed. Drag with the mouse and release the button.
- Click on upper. Press Shift and click on lowest.

Select and open particular matrix
Two options:

- Double click on desired matrix.
- Click desired matrix, click right mouse button and select **Open matrix**.

Change matrix name
Two options:

- Click right mouse button on desired matrix. Select **Change name** in the displayed menu.
- Click left mouse button on desired matrix. Press key **F2**.

Delete one or several matrices
Mark one or more matrices within the same species and click on **Delete**.

Change order
Click the cursor on the desired matrix. Click **Move up** or **Move down** to change position of the matrix among matrices in the same species.

Make a new copy of a matrix
Click the cursor on the desired matrix and click **Copy**. Click the desired species and click **Paste**. You can copy matrices from other bucking instructions in the same way.

Apm – Standard matrices
There are a number of individual here (saved in the standard format Apm) here that can be copied and used as templates to facilitate programming.

Summary Basic settings
Here you get an overview of basic settings for the price matrices for a particular species. The various parameters are explained in section 1.B.14 **Matrices, common part**.
To change species: Click a matrix in different species in the summary top left.

Copied
Here you see which matrix has just been copied with the function **Copy**.

Lowest value Highest value Max. value

Summary Price matrix

Lower Upper

Matrix name	Diameter classes	Min top diameter	Root diameter	Length classes	Over length	Cutting window
Pm1	(120) (440) < (999)	120	0	(120) (440) < (999)	2	(2) (2)
Pm2	(310) (550) < (580)	120	0	(120) (440) < (999)	2	(2) (2)
Pm3	(310) (550) < (580)	120	0	(120) (440) < (999)	2	(2) (2)
Pm4	(255) (255) < (275)	110	0	(110) (110) < (180)	2	(2) (2)
Pm5	(280) (300) < (330)	50	0	(50) (50) < (900)	2	(2) (2)

Here you get an overview of settings for the price matrices for a particular species. The various parameters are explained in section 1.B.16 **Price matrix**.
To change species: Click a matrix in different species in the summary top left.

Summary Other settings

top butt

Matrix name	Principle for registration	Distance from top	Tolerance grade
Pm1	Cut length in cm	0	(20) (20)
Pm2	Cut length in cm	0	(20) (20)
Pm3	Cut length in cm	0	(20) (20)
Pm4	Cut length in cm	0	(20) (20)
Pm5	Cut length in cm	0	(20) (20)

Here you get an overview of settings in the price-matrix tab "Other settings" for a particular species. The various parameters are explained in section 1.B.15 **Other settings**.
To change species: Click a matrix in different species in the summary top left.

1.B.3 Bucking overview

Here you get a detailed overview of the bucking instructions. The overview contains information concerning common data for the instructions and also details of all the price matrices included.

The overview can be saved as an Excel file and can then be used for example for further statistical processing.

Open a Bucking overview

Open a bucking overview that has been saved in the Winapt/AptOverView folder. Bucking overviews are saved in file format .vts.

Open the bucking overview as an Excel file

The relevant overview is opened in the Excel program and can then be used for statistical processing for example.

Printout format

Here you have the possibility, for example, of determining text in the header and footer of the page, size and appearance of the page/pages and their interrelation.

Save as Excel file

The bucking overview can be saved as an Excel file in an optional folder.

Apt.overview AWinApt												
Identification				Filename			Machine type		Save date			
Site number		Marking for cutting		Compartment number		Lot number		Date of cut				
Organization			Region			District		Working team		Wood pile		
Subcontractor			Code		Name		Address		Comment			
Buyer		Vendor			Contract number		Contract number (L)					
Tree species	Code	Bark-function	Start grade	Demand	Max-deviation	Breast Height						
Species 1												
Matrix name	Code	Stem type	Product-group	Grade	Bucking condition	Priority	Volume type	Price type	Diameter-classes			
Species 2												
Matrix name	Code	Stem type	Product-group	Grade	Bucking condition	Priority	Volume type	Price type	Diameter-classes			

Note. You must close the Bucking overview and then open it again to enable changes in the settings menu to be shown in the table.

Standard modular spacing

The length classes usually have a modular spacing of 30 cm. If you type 30 in the box, only the first and last length value of each price matrix will be shown:

Length classes
340 - 550
340 - 550
340 - 550
340 - 550

If you type 20, for example, the length classes will be shown with deviating modular spacing:

Length classes
340, 370, 400, 43
340, 370, 400, 43
340, 370, 400, 43
340, 370, 400, 43

Show cm in dm

Spacing in the length classes can be shown as dm values instead of cm.

Show mm in cm

Spacing in the length classes can be shown as cm values instead of mm.

Default module range for length classes (cm)

Show cm in dm

Show mm in cm

Translate variable headings

Directory for Save as...

Translate variable headings

- A standard set of variable headings that are adapted to suit the table will be used if the box is not crossed.
- By crossing the box, the headings found in the bucking instructions will be used. It may be necessary to adjust the division of words to ensure that headings fit the table boxes.

1.B.4 Analysis of price list

The function enables an overall comparison of prices between two different price matrices in the same species. After choosing the price matrices that you wish to compare, a table appears that with the help of different colors indicates which price matrix has the highest price in the respective length/diameter class.

The function is especially useful in comparing matrices of different price types, eg, pulpwood (m3s) and timber (m3 top measure). The timber matrix prices are converted to m3s. These m3s prices are dependent on actual taper of the log. By varying the taper value it can be discerned at what taper it is profitable to produce pulpwood

instead of timber.

When two matrices of price type m3 top measure are compared there will be no conversion to m3s and consequently the taper value will not affect the result.

The table can be copied, eg, as an image for pasting in Word or as a value table for use in Excel.

The following applies for results in the table:

- The matrix that you select in box **Matrix A** determines which length and diameter classes will be shown in the table.
- The table values are the result of **Matrix A** minus **Matrix B**.
- If no value is shown in one or more length/diameter classes then such classes are not comparable between the matrices.

Copy the table as an image
The table is copied to clipboard as a bitmap image, ie, an exact color copy of the table. The image can subsequently be copied into a Word document for example.

Select species
Select the species within which you wish to compare price matrices. The comparison can only be made between matrices in the same species.

Select price matrices
Choose two price matrices in the species that you have selected.

Vary size of the table
Here you can alter the size of the table. This function allows you to view the whole table regardless of how big it is.

If you copy the table to use it in Word, for example, you can easily adjust the size of the table to suit the document.

Copy the table values
Values of the table are copied to clipboard and can subsequently be copied to Excel for example.

Note that only the table values will be copied. Color data in the table will not be included.

Shift length/diameter
Click in the box to shift the display, so that the lengths are shown as columns and the diameters as lines in the table.

Select colors in the table
Click in the boxes and choose the color that is to be shown for the respective table value.

Taper
When you compare matrices of different price types, eg, pulpwood (m3s) and timber (m3 top measure) the timber prices are converted to m3s. These m3s prices are dependent on actual taper of the log.

By varying the taper value it can be discerned at what taper it is profitable to produce pulpwood instead of timber.

Close Print Copy screen Copy value

Tree species:

Matrix A: Matrix B: Taper in mm/m:

Settings: Length in column
 A>B A=B A<B

Price comparison between matrix A and B (A - B)

Species 1	A:Matrix 1	- B Matrix 2	20 mm/m								
	142	162	182	202	222	242	262	282	302	322	342
310	-166	-109	-45	-25	-5	7	18	23	46	59	70
370	-166	-108	-43	-21	0	13	25	35	55	68	80
400	-166	-109	-42	-20	0	15	27	39	59	73	86
430	-165	-106	-38	-14	9	23	36	49	70	85	99
460	-164	-104	-34	-9	15	30	44	58	80	96	111
490	-166	-106	-37	-11	13	29	44	57	80	96	112
520	-168	-109	-41	-16	9	25	40	54	77	94	109
550	-170	-113	-45	-20	5	21	37	51	74	91	108

Matrix B > Matrix A
Minus values in the table indicate that Matrix B has a higher value than Matrix A

Matrix B = Matrix A
The matrices have the same value

Matrix B > Matrix A
Positive values in the table indicate that Matrix A has a higher value than Matrix B

1.B.5 Identity

Some data can be entered here for use in identifying the bucking instructions. Aptdate is here, for example, showing when the bucking instructions were created, in which type of program the bucking instructions are made, etc.

Only data in the upper white entry fields can be altered, such as Identification, Aptdate, Organisation.

Identification

Type in data (eg, special matrix mark) that facilitates identification.

Bucking date

Type the date showing when the price matrix was made or altered. To alter to today's date; click **Update date**.

Program data and machine data

These data describe types of program and machines and cannot be altered.

- **Date saved**
- **Version**
Version number of the WinApt program that created the bucking instructions.
- **Machine type**
- **Terminal**
- **Unit number**

Today's date

Click here to change the date of cut to today's date.

System setting

Certain bucking computers require this information about which language is used so that all system parameters can be set correctly.

Additional identification

Fill in the data that is required, eg, to link the price matrix to a particular organisation, etc.

1.B.6 Tree species

Settings for how many and which species that are to be included in the bucking instructions.

Different bucking computers have different rules and limitations for the number of species.

Add

Click here to add a new species. The new species will appear at the end of the list.

A warning will be displayed on the screen should the number of species exceeds the maximum permitted number.

Remove

Click on a species and then click here to remove the marked species.

	Name of species	Code
1		
2		
3		
4		

Enter new or alter name

To type a **new name** or type over an existing name: Click the name box and type the new name.

To **alter** an existing name: Double click the name box. Position the cursor in the right place and type.

Type the code

Here is a possibility to further define the species by typing a relevant code.

1.B.7 Bark function

The bark function consists of constants for calculating bark thickness of different species. The constants vary depending on where in the country felling is being carried out.

A standard list of constants for different parts of the country, ie, Timber Measurement Council, bark functions, is available, see FACTS box below.

Add

Click here to add a new bark function. The new species is placed last in the list of species.

Remove

Click on a bark function and then click here to remove the marked function.

Tree species	Bark function	Demand	Grade	Product group	Trunk type	Breast height (DBH)
	<input type="button" value="+ Add"/>					
	<input type="button" value="- Remove"/>					
	<input type="button" value="Bark"/>					
		Species 1	Species 2	Species 3	Species 4	
Y						
X						

Tree species

The species programmed into the function are seen here.

Write in or alter bark function

To write a new bark function or write over an old one: Click the box and type the new figure.

To alter an existing bark function: Double click the box. Position the cursor in the right place and type.

1.B.8 Demand

Here you make overall settings for demand bucking that apply for all demand matrices in the bucking instructions. Other settings and also programming of the demand matrix are made in the “**Demand matrix**” function (see section 1.B.18)

Demand bucking makes it possible to control felling towards desired lengths in each diameter class of the price matrix.

Controlling is made by programming in preferences in the form of percentage or per mil values, in each diameter class or in the entire price matrix, for the length/diameter classes that are to be given priority when felling.

Piece/mil for the entire matrix

You program distribution of the number of cut logs that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Volume/mil for the entire matrix

You program distribution of cut volume that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Piece/100% for the entire matrix

You program distribution of the number of cut logs that you want in percentage within each diameter class.

Volym/100% inom varje diameterklass

Du programmerar den fördelning av avverkad volym du vill ha i procent inom varje diameterklass.

Maximum deviation in value

Maximum deviation in percent

Distribution method

In the distribution matrix you choose the lengths/diameters that are most in demand. The computer gives priority to these lengths/diameters when bucking.

Select here the method used by the computer in this prioritization.

Near-optimum

This is the most frequently used of the two methods.

- The computer makes a normal profit-based bucking assessment for each log. A price matrix and a length are then selected that have the highest price according to the price list. In addition to this length, as a rule, there are a few optional lengths that lie within the maximum permitted price deviation for the distribution bucking.

- The computer now checks among the permitted lengths if there are any that have been selected for the distribution bucking. If several lengths are selected the computer will choose the length where the difference between desired number and the number processed so far is greatest.

If none of the permitted lengths are selected in the distribution bucking assessment a normal profit-based bucking will be made, ie, the length that has the highest value will be selected.

Adaptive

This method is based on prices in the price list being changed depending on how great the difference is between desired number and currently processed number. The greater this difference, the higher the price will be set in the price list.

1.B.9 Grade

Overall settings for grade. Here you decide which grade the respective species are to have and in what order the grades are to be positioned in each species.

The conception of grade can be dealt with in two different ways:

Random grades

A higher grade may be included in a lower when the bucking computer estimates the price of an individual log.

Explicit grades

Exclusively the grades stated in the price matrix are allowed to be included when the bucking computer estimates the price of an individual log.

Random grade

A higher grade may be included in a lower when the bucking computer estimates price of an individual log.

Explicit grade

Exclusively the grades stated in the price matrix are allowed to be included when the bucking computer estimates the price of an individual log.

Starting grade

Klick on the box that shall be starting grade when a new trunk is to be processed.

Number of Grades

The names of the Grades for the respective species are written here.

Add grade

Click here to add an additional line at the bottom of the grade list.

Remove grade

Click here to remove the bottom line of the grade list.

Tree species	Bark function	Demand	Grade	Product group	Trunk type	Breast height (DBH)
<input type="button" value="+Add"/> <input type="button" value="-Remove"/>						
Grade system						
<input type="radio"/> Random grade <input checked="" type="radio"/> Explicit grade						
No of grades S = Stargrade						
	S	Species 1	S	Species 2	S	Species 3
	<input checked="" type="checkbox"/>	Qu 1	<input type="checkbox"/>	Qu 1	<input type="checkbox"/>	Qu 1
	<input type="checkbox"/>	Qu 2	<input type="checkbox"/>	Qu 2	<input checked="" type="checkbox"/>	Qu 2
	<input type="checkbox"/>	Qu 3	<input checked="" type="checkbox"/>	Qu 3	<input type="checkbox"/>	Qu 3
	<input type="checkbox"/>	Qu 4	<input type="checkbox"/>	Qu 4	<input type="checkbox"/>	Qu 4
	<input type="checkbox"/>	Qu 5	<input type="checkbox"/>	Qu 5	<input type="checkbox"/>	Qu 5
	<input type="checkbox"/>	Qu 6	<input type="checkbox"/>	Qu 6	<input type="checkbox"/>	Qu 6
	<input type="checkbox"/>	Qu 7	<input type="checkbox"/>	Qu 7	<input type="checkbox"/>	Qu 7
	<input type="checkbox"/>	Qu 8	<input type="checkbox"/>	Qu 8	<input type="checkbox"/>	Qu 8

1.B.10 Product groups

Settings for how many and which product groups that are to be included in the bucking instructions. Product groups can for example be TIMBER, PULPWOOD or POLES.

When you subsequently program price matrices you can link each one to a certain product group.

This can later be used, for example, to structure production follow-up so that you can get volumes and number of logs also per product group.

Add product group

Click here to add an additional line at the bottom of the list of product groups.

Remove product group

Click here to remove an optional line from the list of product groups.

Number of product groups

Names of the product groups in each species are written here.

	Species 1	Species 2	Species 3	Species 4
1	Prodgr1	Prodgr1	Prodgr1	Prodgr1
2	Prodgr2	Prodgr2	Prodgr2	Prodgr2
3	Prodgr3	Prodgr3	Prodgr3	Prodgr3
4	Prodgr4	Prodgr4	Prodgr4	Prodgr4

1.B.11 Trunk types

Settings of how many and which trunk types are to be included in the bucking instructions.

When you subsequently program price matrices you can link each one to a particular trunk type.

This can later be used, for example, to structure production follow-up so that you can get volumes and number of logs also per trunk type.

Add trunk type

Click here to add an additional line at the bottom of the list of trunk types.

Remove trunk type

Click here to remove an optional line from the list of trunk types.

Number of trunk types

Names/codes of the trunk types in each species are written here.

	Tree species	Bark function	Demand	Grade	Product group	Trunk type	Breast height (DBH)
	+ Add		- Remove		Text	Code	
	Species 1	Species 2	Species 3	Species 4			
1	Trunk type 1	Trunk type 1	Trunk type 1	Trunk type 1			
2	Trunk type 2	Trunk type 2	Trunk type 2	Trunk type 2			
3	Trunk type 3	Trunk type 3	Trunk type 3	Trunk type 3			
4	Trunk type 4	Trunk type 4	Trunk type 4	Trunk type 4			
5	Trunk type 5	Trunk type 5	Trunk type 5	Trunk type 5			

Text

Use this mode when you type in optional names for the different sorts of trunks.

Code

When creating (pressing on "Add") trunk sorts a two-digit code will be given according to the standard for trunk sorts: First digit = species, second digit = trunk sort. The codes can also be altered manually.

1.B.12 Breast height (DBH)

Various data for grading of trunks are stored in the bucking instructions in relation to diameter of the trunk at breast height, ie, 120-130 cm from the butt. Data saved in the production file include the number of trunks and volume per breast height grade. These data are used, for example, in valuing the trunks.

In the bucking instructions you set the value for breast height and which diameter limits that are to apply for the breast height diameter (DBH).

Create intervals

Here you create a new set of diameter limits for all species. The smallest diameter limit is given in the field **From** and the highest diameter limit is given in field **To**. The distance between the limits in mm is given in field **Step**. The new limits are created in the table on pressing **Execute** and any earlier settings will be deleted.

Measuring point over stump

You note here a value at which the breast height diameter is to be measured on the trunk.

	Species1	Species 2	Species 3	Species 4
1	40	40	40	40
2	60	60	60	60
3	80	80	80	80
4	100	100	100	100
5	120	120	200	200
6	140	140	300	300
7	160	160	400	400
8	180	180	500	500
9	200	200		
10	220	220		
11	240	240		
12	260	260		

Lower diameter limits

The table shows diameter limits per species. If it is not desirable to have the same interval and number of intervals in all species it can be altered direct in the table. However, it is not permitted to enter falling values, ie, a higher line number is not allowed to have a lower diameter value than a lower line number.

Should the number of intervals for a species not fill out the entire table then the remaining boxes are to be left empty (the value 0 is not allowed).

1.B.13 Machine, basic setting

Overall settings for length and diameter values used for prognosis of trunk taper.

The prognoses are utilised to estimate the best log length in relation to the current price matrix.

Add lines in Number of prognosis parameters

Remove lines in Number of prognosis parameters

Calculation length
The prognosis length, or actual measured length, in cm within which the bucking computer selects log-lengths for bucking. Consideration is also taken to the value of a possible remaining piece.

Measured length before prognosis
The stretch in cm that is to be fed forward after felling a tree, before the bucking computer makes its first prognosis. The prognosis is based on the measured diameter values of this initial stretch.

Maximum deviation up – down
Maximum deviation up or down respectively is the number of millimetres that the measured diameters values may deviate from the prognosis without having to modify the prognosis. A new prognosis is made in the event of greater deviation.

+ Add
– Remove

Machine settings

Calculation length cm Max deviation up mm

Measured length before prognosis cm Max deviation down mm

No of prognose parameters

	Species 1	Species 2	Species 3	Species 4
1				
2				

Number of prognosis parameters
Certain bucking computers need to know the number of prognosis parameters to ensure satisfactory operation (however, not Dasa 4 from ESE-Technique).
Settings may vary depending on the bucking computer so please refer to the special instructions for the relevant bucking computer.

1.B.14 Matrices, common part

A matrix consists of four different sub-matrices, ie, price matrix, color matrix, demand matrix and piece matrix. The variables seen in the upper part of the matrix window are common and do not change when you shift between the sub-matrices.

The common part is explained below, once only. The lower part of the four different sub-matrices are described in the following pages.

Delivery location
A possibility to define location of delivery for logs bucked in this price matrix.

Description
A possibility to link explanatory text to the price matrix.

Code
Here you can type additional identity for the matrix.

Tree species
Select species for the matrix to be shown.

Matrix name
Select which matrix in the respective species is to be shown.

Grade
Mark a cross in the grade to which the matrix applies.

- If you use **falling** grades: A higher grade may be included in a lower when the bucking computer estimates the price of an individual log.
- If you use **specific** grades: Exclusively the grade or grades stated in the price matrix are allowed to be included in estimating the price of an individual log.

Product group
Indicate here if the matrix is to be linked to a product group.
Product groups can for example be TIMBER, PULPWOOD, POLES or MISCELLANEOUS.

Prerequisites for bucking
Choose under which conditions bucking is to be done:

- Always crosscut**
Standard setting, calculation for bucking is always done if the matrix is permitted in the selected grade.
- Never crosscut**
Used if you wish to temporarily "switch off" a matrix, or have a matrix that is used to register manually cut timber.
- Crosscut on butt log only, do not crosscut on butt log**
Calculation for bucking made for butt log only or all logs except butt log if the matrix is permitted in the selected grade.

Priority
This function can be set at **low, normal or high** and is used by some manufacturers to give or not to give priority to the price matrix when the computer chooses between different price matrices.

Bark
Indicate whether volumetric measurement is to be on or under bark.

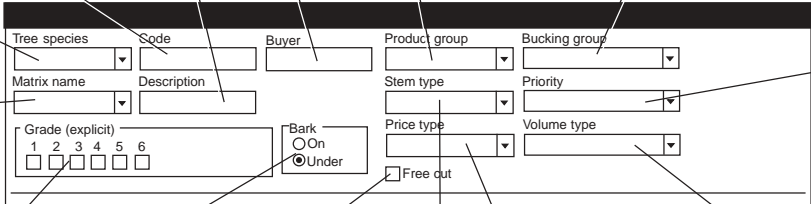
Free cut
Indicates to the bucking computer that free cutting may be made between minimum length and maximum length.

Price type
Examples of price types available:
m3to (top measure)
m3s (solid measure)
m3smm (solid mid measure)

Trunk type
Indicate here if the matrix is to be linked to a trunk type.

Volume type
The length that volumetric calculation is based on. The following options are available:

- Cut length**
The real cut length. Normally used for pulpwood.
- Intended length**
Length-class length plus possible extra length. Normally used for timber
- Cut length in falling dm**
The length is counted from the nearest lower even dm



FACTS

Examples of the connection between price matrices and grade for specific grades

Spruce	Qu1	Qu2	Qu3	Qu4	Qu5	Qu6
Matrix 1	1	0	0	0	0	0
Matrix 2	0	1	0	0	0	0
Matrix 3	1	1	1	0	0	0
Matrix 4	1	1	1	1	0	0
Matrix 5	1	1	1	0	0	0
Matrix 6	1	1	1	0	0	0
Matrix 7	1	1	1	1	1	0
Matrix 8	1	1	1	1	1	1

Pine	Qu1	Qu2	Qu3	Qu4	Qu5	Qu6
Matrix 1	1	0	0	0	0	0
Matrix 2	0	1	0	0	0	0
Matrix 3	1	0	1	0	0	0
Matrix 4	1	1	1	1	0	0
Matrix 5	1	1	1	1	1	0
Matrix 6	1	1	1	1	0	0
Matrix 7	1	1	1	1	0	0
Matrix 8	1	1	1	1	1	1

1.B.15 Others settings

In addition to the upper part of the matrix there are more settings, that apply to all matrices, under the tab “Other settings”.

Grade tolerance

Here you can allow a log to assume a grade other than that chosen a certain length in from the top or butt of the log.

Principle for registration

The length that the diameter registration is based on. The following options are available:

Cut length	The real cut length. Normally used for pulpwood.
Intended length	Length-class length. Normally used for timber
Cut length in falling dm	The length is counted from the nearest lower even dm

Distance from top

The diameter value is registered at this distance from the log's length value. How the length value is registered is determined by the principle of registration chosen (see explanation on the left).

1.B.16 Price matrix

The price matrix is a price list giving prices for each diameter/length class.

The price matrix is used in profit-based bucking, ie, a number of programmed price matrices are compared with one another to enable the computer to select the assortment range and length that gives the most favourable yield value. In choosing the log length the computer also takes into consideration the value of the next log (“remaining piece” evaluation).

As a basis for evaluation the computer makes a prognosis of the trunk taper with the aid of two diameter values measured at an optional distance from the previous point of cutting. Diameter values taken for example at 1.25 m and 2.25 m are used in making a prognosis of what the trunk looks like 7 metres ahead. The prognosis is continuously updated in relation to diameter values that are measured during the forward feed. A renewed prognosis will be made in the event that diameter values deviate too much from the prognosis.

The upper part of the price matrix is common for all matrices and is described in section “1.B.14 Matrices, common part”.

Maximum diameter value

The maximum permitted top diameter (10 cm from the cutting point) for a log to be classified in the price matrix. As a rule there is no upper limit in timber grades so the value can be set as 999. Observe that there should always be a tolerance between the highest diameter class in the matrix and the maximum value. A suitable value for blocks and low-grade timber is 10-20 mm.

Maximum length value

The maximum permitted length for a log to be classified in the price matrix. Observe that there should always be a tolerance between the highest length class in the matrix and the maximum value. Suitable values are 10-20 cm for blocks and low-grade timber and 20-30 cm for timber.

Length classification

Add, remove or alter values in length classes: Select **Matrix/Length classes** on the menu line at the top left, or double click in the column for length values of the price matrix (see section 1.B.22).

Color marking limiting matrix

In the limiting matrix (see section 1.B.19) there are three different limiting codes (-1, -2, -3) for individual length/diameter classes.

These codes are color coded and the colors are also visible in the price matrices. The codes are as follows:

- red -1 Prohibited to cut logs in this length/diameter class, either automatically or manually.
- yellow -2 Logs in this length/diameter class will be excluded if you have selected distribution bucking.
- turquoise -3 Logs in this length/diameter class can only be cut manually.

Minimum diameter

Smallest permitted top diameter for a log to be classified in the price matrix.

Maximum value butt diameter

The maximum permitted butt diameter that the log may have. Can be used for example to limit taper or to ensure that the sawmill will accept the log in production.

Diameter classification

Add, remove or alter values in diameter classes: Select **Matrix/Diameter classes** on the menu line at the top left, or double click in the column for diameter values of the price matrix (see section 1.B.22).

Over length

Over length is a value that is added to the nominal lengths in the respective matrix. The value is used as a length tolerance for cutting.

Cutting zone

The length zone within which cutting is permitted.

Lower

Lower limit for the cutting zone. The lower limit will be:

Length-class length + possible **over length** + value in the box **Lower** (the value can be negative).

Upper

Upper limit for the cutting zone. The upper limit will be:

Length-class length + possible **over length** + value in the box **Upper** (the value **cannot** be negative).

Price	Color	Demand	Limit	Pole	Other settings		Cutting window				
- Max values						Lower	Upper				
Length	Diameter	Root diameter	Min top diameter	Over length							
cm	mm	mm	mm	cm	cm	cm	cm	cm			
L/D	120	140	160	180	200	220	240	260	280	300	320
310	100	100	200	200	300	300	400	400	500	500	600
340	100	100	200	200	300	300	400	400	500	500	600
370	100	100	200	200	300	300	400	400	500	500	600
400	100	100	200	200	300	300	400	400	500	500	600
430	100	100	200	200	300	300	400	400	500	500	600
460	100	100	200	200	300	300	400	400	500	500	600
490	100	100	200	200	300	300	400	400	500	500	600
520	100	100	200	200	300	300	400	400	500	500	600
550	100	100	200	200	300	300	400	400	500	500	600

Price

Price in m³ for each diameter/length class in the price list.

- **Click on a box to mark it.** Type in the value and use the **Enter key** or **arrow keys** to go to the next box.
- **Mark several close length/diameter classes** as follows: Click, keep the button pressed and drag or click on the upper left box, keep the **Shift key** pressed and click the lower right box.
Select **price values** in the marked area by choosing **Increase/decrease** in menu **Edit** or by clicking the right mouse button and choose **Increase/decrease**.

1.B.17 Color matrix

In the color matrix you can mark which assortment range or parts of the range that are to be color marked. You can also choose to color mark in the entire price matrix or only the logs that are demand crosscut.

Color marking can be made in colors 1, 2 or 3. It is also possible to mark with more than one color simultaneously, eg, by crossing both 1 and 2.

The upper part of the color matrix is common for all matrices and is described in section "1.B.14 Matrices, common part".

Color-mark the entire matrix

Mark one or more colors if everything that is crosscut according to this matrix is to be color marked

Color-mark distribution crosscut

Mark one or more colors if everything that is distribution crosscut according to this matrix is to be color marked

Price	Color	Demand	Limit	Pole	Other settings						
Colormark all classes		Colormark demand pieces									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Color								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
L/D	122	142	162	182	202	222	242	262	282	302	322
310											
340											
370											
400											
430											
460											
490											
520											
550											

Choice of color

After marking one or more boxes in the matrix, click on **Color** and choose one or more colors.

1

 2

 3

Color-mark individual length/diameter class

Each length/diameter class can be dye marked using one, two or three colors.

- **Mark a color** by double-clicking the right box in the length/diameter class that is to be color marked.
- **Mark a column or a line** by clicking the head of the column/line. Mark several columns/lines by clicking, holding in and dragging the head of the column/line.
- **Mark the entire matrix** by clicking in the L/D box in the upper left corner of the table.
- **Mark several length/diameter classes with the same color/ colors** as follows: click, keep the button pressed and drag or click on the upper left box, keep the Shift key pressed and click the lower right box.

Select color or colors in the marked area by choosing **Color choice** in menu **Matrix** by clicking the box **Color**.

1.B.18 Demand matrix

The demand matrix is an aid in selecting just those lengths and diameters that are in demand. The selection is achieved by programming the desired demand between different lengths within a diameter class, or within an entire price matrix.

The principle of demand bucking is as follows:

- The computer makes a normal profit-based bucking evaluation, choosing a price matrix and a length that has the highest price according to the price list. In addition to this length there are as a rule optional lengths within the permitted maximum price deviation for demand bucking.

- The computer now checks among the permitted lengths to see if any of them have been selected in the demand bucking function. If there are several lengths the computer chooses the length where the difference between desired number and currently processed number is greatest.
- If none of the permitted lengths are found in the demand bucking mode then a normal profit-based bucking will be performed, ie, the length giving the highest price will be selected.

The upper part of the demand matrix is common for all matrices and is described in section "1.B.14 Matrices, common part".

Maximum permitted deviation

The loss of value accepted in demand bucking compared with the highest value in profit-based bucking. The maximum deviation can be expressed as Percentage or SEK, depending on the type of profit-based bucking being used.

SEK or Percentage is set in the function Demand (see section 1.B.8).

Sum/length class

The computer automatically calculates the sum/length class.

Sort demand bucking

Demand bucking can be given in **Piece/mil, Volume/mil** or **Piece/100%**, depending on the type of profit-based bucking being used.

The sort is set in the function Demand (see section 1.B.8).

Sum/diameter class

The computer automatically calculates the sum/diameter class.

Price	Color	Demand	Limit	Pole	Other settings							
Bucking to demand		Max allowed deviation										
Piece/100%		<input type="checkbox"/> Per cent										
L/D	120	140	160	180	200	220	240	260	280	300	320	Sum
310	0	0	20	0	0	0	0	20	0	0	0	40
340	0	0	0	0	30	0	0	0	0	0	0	30
370	0	0	0	0	0	0	0	10	0	0	0	10
400	0	0	20	0	40	0	0	0	0	0	0	60
430	0	0	30	0	0	0	0	10	0	0	0	40
460	0	0	10	0	0	0	0	30	0	0	0	40
490	0	0	10	0	10	0	0	0	0	0	0	20
520	0	0	10	0	10	0	0	30	0	0	0	50
550	0	0	0	0	10	0	0	0	0	0	0	10
Sum	0	0	100	0	100	0	0	100	0	0	0	300

Values, demand matrix

If demand is given in **Piece/100%** (see section 1.B.8):

Indicate desired result in % for optional lengths **within respective diameter class**. The sum should be 100 for each programmed diameter class.

If demand is given in **Piece per mil** or **Volume per mil** (see section 1.B.8):

Indicate desired result in % for optional lengths **within the entire matrix**. The sum should be 1000 for the entire matrix.

Mark and type in the values

- **Click on a box to mark it.** Type in the value and use the Enter key or arrow keys to go to the next box.
- **Mark a column or a line** by clicking the head of the column/line. Mark several columns/lines by clicking, holding in and dragging the head of the column/line.
- **Mark the entire matrix** by clicking in the **L/D** box in the upper left corner of the table.
- **Mark several close length/diameter classes** as follows: Click, keep the button pressed and drag or click on the upper left box, keep the **Shift key** pressed and click the lower right box.
Select values in the marked area by choosing **Increase/decrease** in menu **Edit** or by clicking the right mouse button and choose **Increase/decrease**.

1.B.19 Limit matrix

The limit matrix gives the possibility in distribution bucking to indicate a maximum volume or maximum number of logs for each diameter/length class. By setting “Type of limitation” and “Action when production target is fulfilled” the production can be

controlled to fulfil specific wishes concerning volume or number for individual length/diameter classes or for entire length, diameter or dimension classes.

The upper part of the limit matrix is common for all matrices and is described in section “1.B.14 Matrices, common part”.

Type of limitation per price matrix

Here you can state different types of production limitation:

- Total number or total volume for the entire price matrix.
- Number or volume within length, diameter or dimension classes.

Action when production target is fulfilled

Here you can indicate what is to happen when production targets of the limitation matrix are fulfilled:

- Production is stopped.
- Production is stopped and prices in the price matrix are reset.

Price	Color	Demand	Limit	Pole	Other settings					
Type of limitation per price matrix: No limitation										
Action when production goal is reached: No action										
L/D	120	140	160	180	200	220	240	260	280	300
310	0	0	0	0	0	0	0	0	0	0
340	0	0	0	0	0	0	0	0	0	0
370	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0
430	0	0	0	0	0	0	0	0	0	0
460	0	0	0	0	0	0	0	0	0	0
490	0	0	0	0	0	0	0	0	0	0
520	0	0	0	0	0	0	0	0	0	0
550	0	0	0	0	0	0	0	0	0	0

Values or limitation codes for individual length/diameter classes

Indicate a maximum volume or maximum number of logs for individual diameter/length classes.

You can also type in digit codes (with negative sign as prefix) to limit the felling in various ways for individual length/diameter classes. The codes are also marked in different colors. These colors are also visible in corresponding boxes of the price matrix.

The following codes/colors exist:

Code	Color	Function
-1	red	Prohibited to cut logs in this length/diameter class, either automatically or manually.
-2	yellow	Logs in this length/diameter class will be excluded if you have selected distribution bucking.
-3	turquoise	Logs in this length/diameter class can only be cut manually.

Mark and type in the values

- **Click on a box to mark it.** Type in the value and use the **Enter key** or **arrow keys** to go to the next box.
- **Mark several close length/diameter classes** as follows: click, keep the button pressed and drag or click on the upper left box, keep the **Shift key** pressed and click the lower right box.

Select values in the marked area by choosing **Increase/decrease** in menu **Edit** or by clicking the right mouse button and choose **Increase/decrease**.

1.B.20 Pole matrix

The pole matrix is used mainly for long log lengths. In the pole matrix you can determine how big the butt diameter may be for different pole lengths. With the aid of the value “Min. top diameter” (see section 1.B.14) you can set a limit for smallest top diameter of the logs.

Measuring point for butt diameter

Here you can indicate how long from the butt end of the log that the butt diameter is to be measured.

Limits for butt diameter

Type in lower and upper diameter limits for each length class. The log will only be approved if the butt diameter is between the two limit values.

Price	Color	Demand	Limit	Pole	Other settings
Measurepoint above stump					
<input type="text"/> cm					
Limit for rootdiameter (mm)					
Length	Upper	Lower			
310	0	0			
340	0	0			
370	0	0			
400	0	0			
430	0	0			
460	0	0			
490	0	0			
520	0	0			
550	0	0			

1.B.21 Line price

As an option to entering prices direct into the price matrix you can enter a line price-list. On the basis of the line price-list the computer then calculates and writes in all prices in the price matrix.

The line price-list consists of a basic price and amendments of the basic price for different length and diameter classes.

Correcting diameter classes

Type the corrections that apply for the various diameter classes.

Add/recalculate the matrix

If you select **Add to price matrix**:

The basic price and the correction values you enter will be added to the values that are in the price matrix.

If you select **Recalculate price matrix**:

The price matrix will be recalculated on the basis of the values you enter into the line price-list. No consideration will be taken to any previous values in the price matrix.

Basic price

This price is the basis in the price list resulting from the line price-list.

Select sort

If you select **Value**:

The amount is added to the basic price of each diameter or length class.
 Example: Basic price = 300. Correction = 100 gives 400 in the price matrix.

If you select **%**:

The amount in the matrix will be: Percentage value x Basic price/100.
 Example: Basic price = 300. Correction = 110%
 $300 \times 110/100 = 330$

If you select **%% (mil)**:

The amount in the matrix will be: Mil value x Basic price/1000.
 Example: Basic price = 300. Correction = 1200%
 $300 \times 1200/1000 = 360$

Correcting length classes

Type the corrections that apply for the various length classes.

Different length correction for different diameters

Here you decide whether the length correction shall apply to all diameter classes or whether there shall be several different length corrections.

Same length correction for all diameter classes:

Type the lowest diameter class in the box **From**. Type the correction values.

Length class cm

From	310	340	370	400	430	460	490	520	550
120	0	0	0	10	10	20	30	20	20

Different length correction depending on diameter class:

Type the lowest diameter class in the box **From**. Type the correction values.

Continue with new groups of correction values in the same way until all of the diameter classes are included in the correction.

Length class cm

From	310	340	370	400	430	460	490	520	550
120	10	10	10	0	0	20	30	20	20
180	0	0	0	10	10	10	20	20	0
260	0	0	0	0	0	10	10	10	10

1.B.22 Length and diameter classes

The length and diameter classes of each matrix can be set with the aid of the setting boxes below. In a simple way you can add, remove or alter values in the different length and diameter classes.

The procedure is the same for both length and diameter settings and therefore only the settings for length are shown below.

Three ways of selecting the menus Diameter classes or Length classes.

1. Double click one of the length or diameter values in the price matrix.

2. Choose in the **Matrix** menu.

3. Click with the right mouse button. Click the left mouse button to choose.

	122	142	162	182	202	222	242	262	282	302	322
310	100	100	200	200	300	300	400	400	500	500	600
340	100	100	200	200	300	300	400	400	500	500	600
370	100	100	200	200	300	300	400	400	500	500	600
400	100	100	200	200	300	300	400	400	500	500	600
430	100	100	200	200	300	300	400	400	500	500	600
460	100	100	200	200	300	300	400	400	500	500	600
490	100	100	200	200	300	300	400	400	500	500	600
520	100	100	200	200	300	300	400	400	500	500	600
550	100	100	200	200	300	300	400	400	500	500	600

Interval

If the length classes consist of values with the same distance between all of the values (eg, 30 cm) then all of them can be entered with the aid of the interval box.

Type the lowest length class in the box **From**.
Type the distance between length classes in the box **Step**. Press **Do**.

Overmeasurement length

Overmeasurement length is a value that is added to the nominal lengths in the respective matrix. The value is used as a length tolerance for cutting.

You can set the overmeasurement length value in two ways:

1. Individual values for different length classes

Type the values for the respective length class.

2. Same value for all length classes

Type a value here and press **Do**.

Observe that for length setting this is the same setting box as in the price matrix box **Overv. length**. A value that has been entered in the price matrix will be visible here. If you alter the value here it will also be seen in the price matrix.

Maximum length value

The maximum permitted length to allow classification in the price matrix. Observe that there should always be a tolerance between the highest length class in the matrix and the maximum value. Suitable values for blocks and low-grade timber is 10-20 cm and for timber 20-30 cm.

Observe that this is the same setting box as in the price matrix box **Max. values length**. A value that has been entered in the price matrix will be visible here. If you alter the value here it will also be seen in the price matrix.

Class	310	340	370	430	400	460	490	520	550
Overmeasur	0	0	0	0	0	0	0	0	0

Length classes

The length classes that you have already programmed are seen here. Click a box to alter or type a new value.

Inserting a length class

To insert a separate length class: Mark (click) one of the length classes and click **Insert**. A new length class will thus be inserted to the left of the box that you marked.

Removing a length class

Mark (click) one of the length classes and click **Remove**. The marked length class will thus be removed.

1.C Proceed as follows

1.C.1 Opening bucking instructions

You can open bucking instructions in several different ways depending on what you wish to do:

Existing instructions

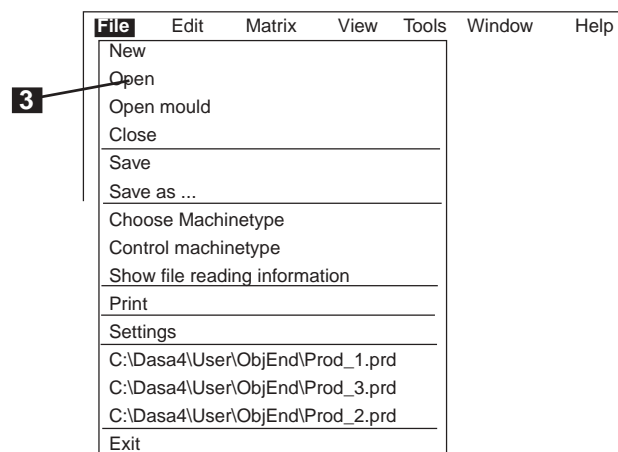
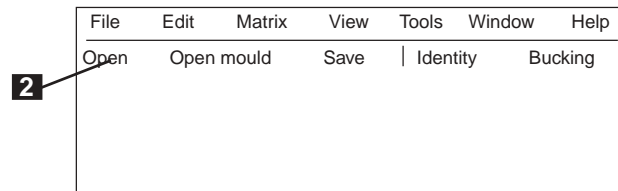
Use the **Open** command to open the file.

New bucking instructions

1. **Open entirely new bucking instructions** using the command **New**. You now have to fill in all of the values and matrices from the beginning.
2. **Open a template** with the command **Open template**. Here you can choose from a number of standard templates in which you modify the values and matrices to suit the new instructions.
3. **Open optional bucking instructions** with the command **Open**. Make necessary alterations and save as new bucking instructions using the command **Save as**.

Opening existing bucking instructions

- 1 Start program **AwinApt**.
- 2 Select **Open** from the list on the left or ...
- 3 ... **Open** in the **File** menu. In the normal Windows manner choose existing bucking instructions. (Bucking instructions have filenames with the suffix **.apt**).

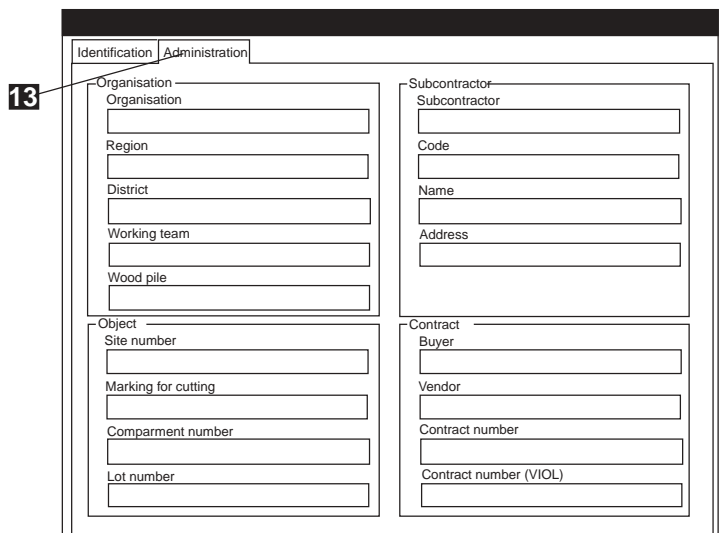
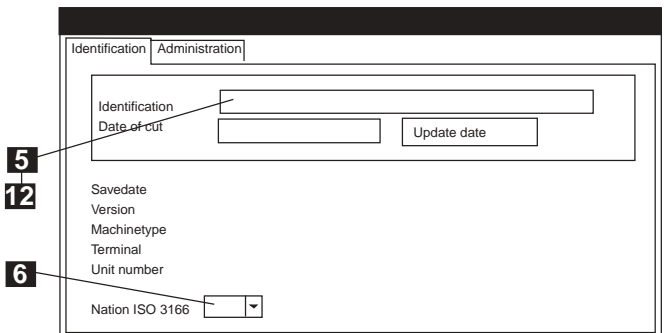
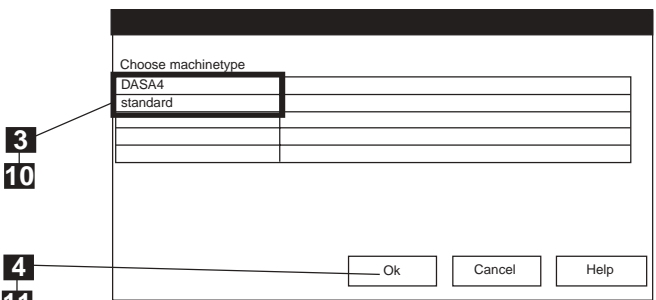
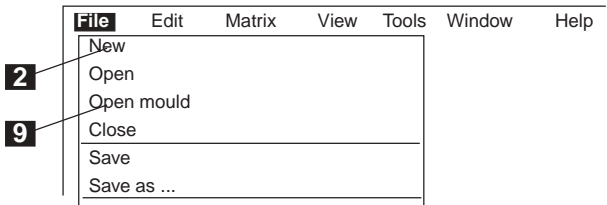
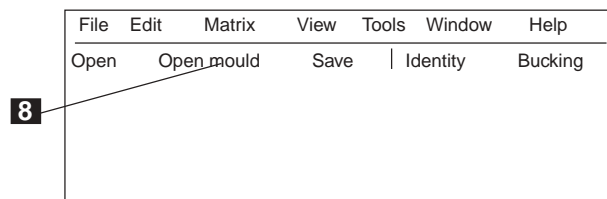


Opening new bucking instructions

- 1** Start program **AwinApt**.
- 2** Select **New** in the **File** menu.
- 3** Click the appropriate line to select **Machine type**.
- 4** Click **OK** or double click the appropriate line.
- 5** Fill in the identity data that applies for the current bucking instructions.
- 6** Select language. Certain bucking computers (however, not Dasa 4) need to know this to ensure satisfactory operation.

Open a template

- 7** Start program **AwinApt**.
- 8** Select **Open mould** in the list on the left or ...
- 9** ...**Open mould** in the **File** menu. In the normal Windows manner choose a template file. (Bucking instructions have filenames with the suffix **.apt**).
- 10** Click the appropriate line to select **Machine type**.
- 11** Click **OK** or double click the appropriate line.
- 12** Fill in the identity data that applies for the current bucking instructions.
- 13** Click on Administration to be able to enter further identification data.

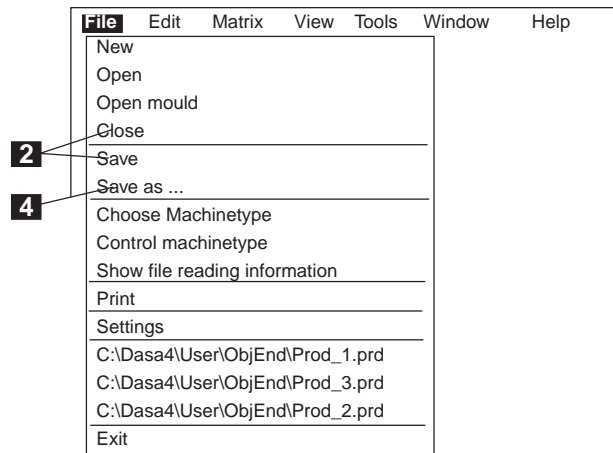
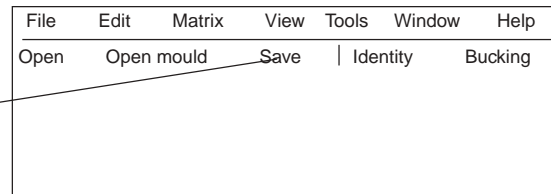


1.C.2 Saving bucking instructions

- 1 Click **Save** to save the bucking file ...
- 2 ... or if you wish to **Save** or **Close** in the **File** menu. If you choose **Close** you will be asked if you wish to save the file.
- 3 Before saving the file the computer checks whether there are any conflicting aspects between data of the bucking file and the machine type for which it is intended. Any faults are displayed as an error list. Check and remedy any errors shown before saving the file.

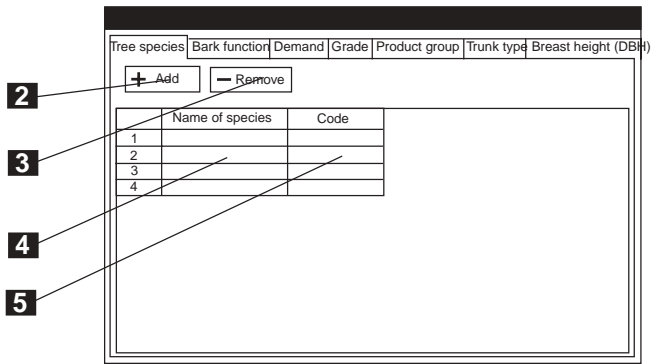
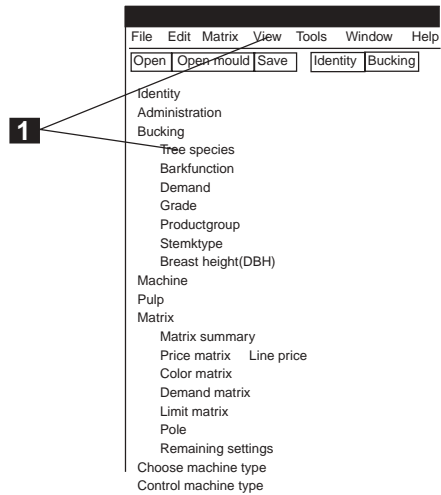
If the bucking instructions are to be saved as new bucking instructions:

- 4 Select **Save as** in the **File** menu.
- 5 Type a new name and save the file in the normal Windows manner.



1.C.3 Tree species

- 1** Select **Tree species** either from the list on the left or in the menu **View/Bucking**.
- 2** If required, add a species by clicking **Add**.
- 3** If required, remove a species by clicking **Remove**.
- 4** Click the **name box** of each species and type in the names.
- 5** Type the relevant code for each species.

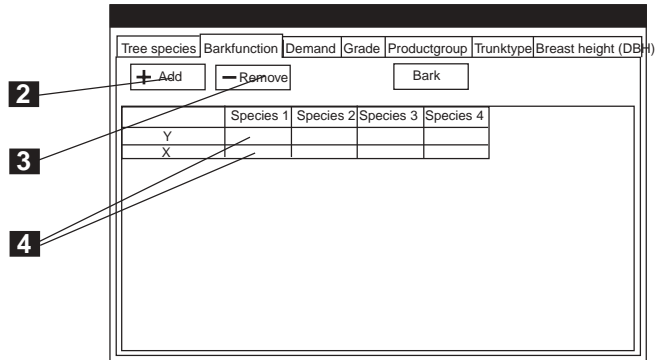
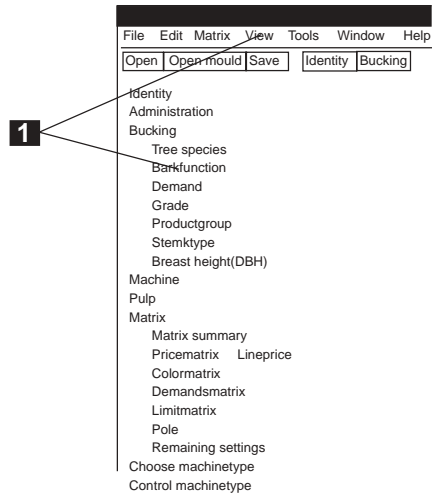


1.C.4 Bark function

- 1** Select **Bark function**, either in the list on the left or in the **View/Bucking** menu.
- 2** If required, click **Add** to add new lines to the bark function list.
- 3** If required, click **Remove** to delete lines from the bark function list.

Enter and alter values manually

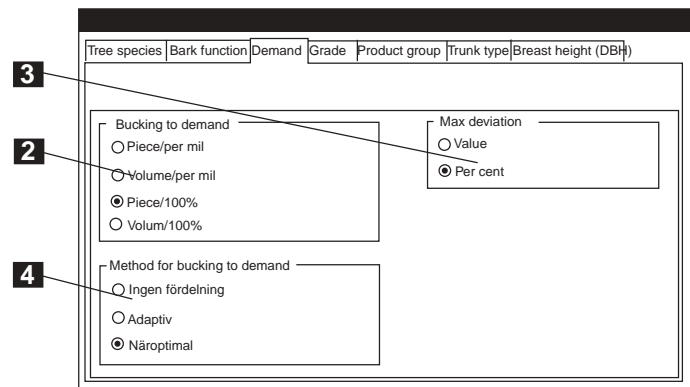
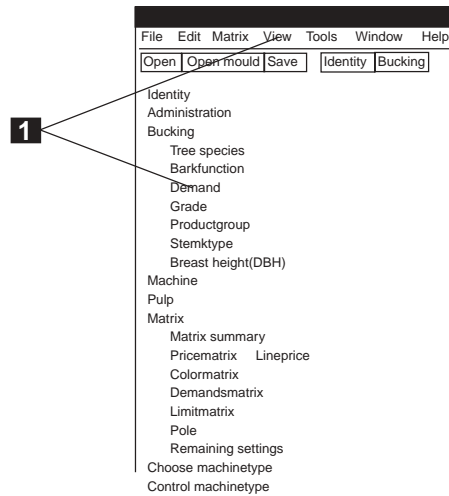
- 4** Click a box and type or alter the **Y or X values** of the various species in the normal way.



1.C.5 Demand

Here you only make overall settings for demand bucking that apply for all demand matrices in the bucking instructions. Other settings and also programming of the demand matrix are made in the function "Demand matrix" (see section 1.C.19).

- 1** Select **Demand**, either from the list on the left or from the menu **View/Bucking**.
- 2** Choose which sort the demand bucking is to have (see FACTS box below).
- 3** Choose which sort the value for maximum deviation between the highest profit-based bucking and approved demand bucking is to have.
- 4** **Note** that the following choice is an additional function and is not available at all manufacturers. Select the distribution method that you wish the computer to apply (see explanation in section 1.B.8).



FACTS

Piece/mil for the entire matrix

You program distribution of the number of cut logs that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Volume/mil for the entire matrix

You program distribution of the cut volume that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Piece/100% for the entire matrix

You program distribution of the number of cut logs that you want in percentage within each diameter class.

Volume/100% within each diameter class

You program distribution of the bucked volume that you want in percentage within each diameter class.

1.C.6 Grade

- 1** Select **Grade**, either in the list on the left or in the **View/Bucking** menu.
- 2** If required, click **Add** to add new lines to the grade list. The line is placed last in the table.
- 3** If required, remove the lowest line from the grade list by clicking **Remove**.
- 4** Type the **names of the grade** for the various species.
When you subsequently program the price matrices you can link each one to optional grades.
- 5** Choose whether it is to be **Falling** or **Specific grades** (see FACTS box).
- 6** For each species, select a **start grade**, by clicking the box in front of the grade.
The start grade is selected automatically as bucking of a trunk begins.

The screenshot shows the software's menu system and the 'Grade' configuration window. The 'View/Bucking' menu is open, with 'Grade' selected. The 'Grade' configuration window is shown below, with various options and a table of grades for four species.

Grade system options:

- Random grade
- Explicit grade

Table of grades:

No of grades		S = Stargrade					
S	Species 1	S	Species 2	S	Species 3	S	Species 4
<input checked="" type="checkbox"/>	Qu 1	<input type="checkbox"/>	Qu 1	<input type="checkbox"/>	Qu 1	<input type="checkbox"/>	Qu 1
<input type="checkbox"/>	Qu 2	<input type="checkbox"/>	Qu 2	<input checked="" type="checkbox"/>	Qu 2	<input checked="" type="checkbox"/>	Qu 2
<input type="checkbox"/>	Qu 3	<input checked="" type="checkbox"/>	Qu 3	<input type="checkbox"/>	Qu 3	<input type="checkbox"/>	Qu 3
<input type="checkbox"/>	Qu 4	<input type="checkbox"/>	Qu 4	<input type="checkbox"/>	Qu 4	<input type="checkbox"/>	Qu 4
<input type="checkbox"/>	Qu 5	<input type="checkbox"/>	Qu 5	<input type="checkbox"/>	Qu 5	<input type="checkbox"/>	Qu 5
<input type="checkbox"/>	Qu 6	<input type="checkbox"/>	Qu 6	<input type="checkbox"/>	Qu 6	<input type="checkbox"/>	Qu 6
<input type="checkbox"/>	Qu 7	<input type="checkbox"/>	Qu 7	<input type="checkbox"/>	Qu 7	<input type="checkbox"/>	Qu 7
<input type="checkbox"/>	Qu 8	<input type="checkbox"/>	Qu 8	<input type="checkbox"/>	Qu 8	<input type="checkbox"/>	Qu 8

FACTS

The conception of grades can be dealt with in two different ways:

Random grades

higher grade may be included in a lower when the bucking computer estimates the price of an individual log.

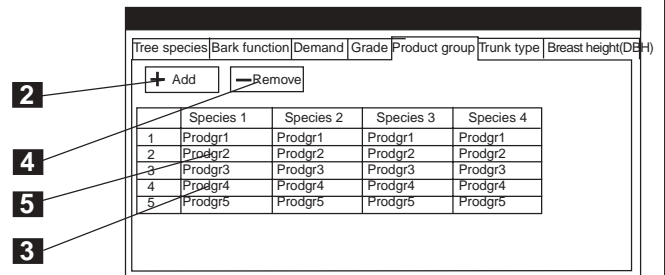
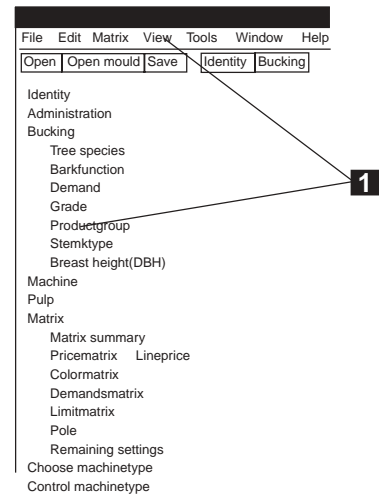
Explicit grades

Exclusively the grades stated in the price matrix are allowed to be included when the bucking computer estimates the price of an individual log.

1.C.7 Product groups

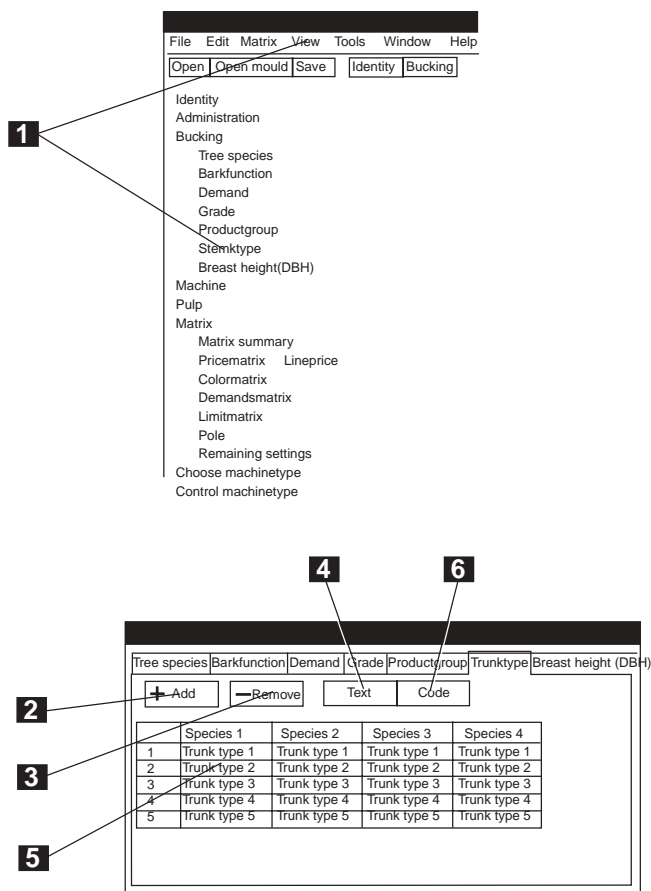
- 1** Select **Product group**, either in the list on the left or in the **View/Bucking** menu.
- 2** If required, click **Add** to add new lines to the product group list.
- 3** If required, remove lines from the product group list by clicking an optional name on the line to be removed ...
- 4** ... then click **Remove**.
- 5** Type the **Product groups** for the various species.

When you subsequently program the price matrices you can link each one to an optional product group.



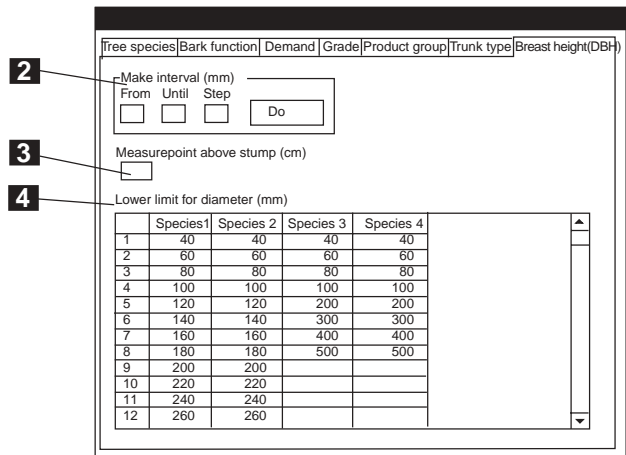
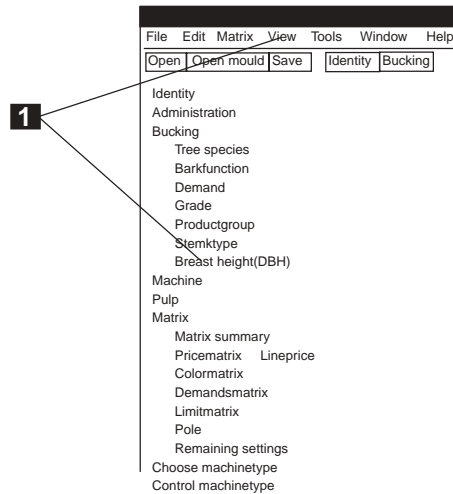
1.C.8 Stem type

- 1** Select **Stem type** either from the list on the left or in the menu **View/Bucking**.
- 2** If required, click **Add** to add new lines to the trunk type list.
- 3** If required, click **Remove** to delete lines from the trunk type list.
- 4** Ensure that **Text** is marked.
- 5** Type the **names** of the various trunk types. When you subsequently program the price matrices you can link each one to optional trunk types.
- 6** Click on **Code** to go to the code mode. When adding new sorts of trunks a two-digit code is entered according to the standard: First digit = species, second digit = line number. The codes can also be altered manually.



1.C.9 Breast height (DBH)

- 1** Select **Breast height** either from the list on the left or in the menu **View/Bucking**.
- 2** Type the values for **Make interval** and click **Do**. (See FACTS box).
- 3** Type a value for **Measurepoint above stump**.
- 4** If it is not desirable to have the same interval for diameter limits in all species it is possible to alter it in the table **Lower limit for diameter**. (See FACTS box).



FACTS

Create intervals

Here you create a new set of diameter limits for all species. The smallest diameter limit is given in the field **From** and the highest diameter limit is given in field **To**. The distance between the limits in mm is given in field **Step**. The new limits are created in the table on pressing **Execute** and any earlier settings will be deleted.

Measuring point over stump

You note here a value at which the breast height diameter is to be measured on the trunk.

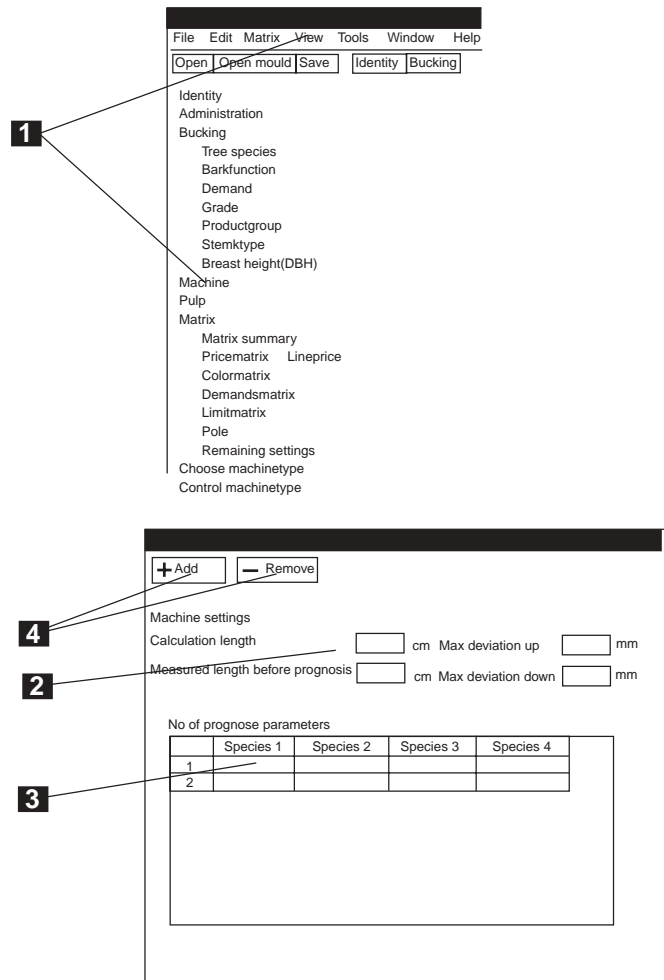
Lower diameter limits

The table shows diameter limits per species. If it is not desirable to have the same interval and number of intervals in all species it can be altered direct in the table. However, it is not permitted to enter falling values, ie, a higher line number is not allowed to have a lower diameter value than a lower line number.

Should the number of intervals for a species not fill out the entire table then the remaining boxes are to be left empty (the value 0 is not allowed).

1.C.10 Machine settings

- 1** Select **Machine** in the list on the left or **Machine** in the menu **View**.
- 2** Type the values for **Calculation length**, **Measured length before prognosis**, **Max deviation up** and **Max deviation down**. (See FACTS box).
- 3** Certain bucking computers need to know the number of prognosis parameters to ensure satisfactory operation (however, not Dasa 4 from ESE-Technique). Because the settings may vary depending on the bucking computer, please refer to instructions for the relevant bucking computer.
- 4** The boxes **Add** and **Remove** are used for the function **Number of prognosis parameters**.



FACTS

Calculation length

The prognosis length, or actual measured length, in cm, within which the bucking computer selects log-lengths for bucking. Consideration is also taken to the value of a possible remaining piece.

Measured length before prognosis

The stretch in cm that is to be fed forward after felling a tree, before the bucking computer makes its first prognosis. The prognosis is based on the measured diameter values of this initial stretch.

Maximum deviation up – down

Maximum deviation up or down respectively is the number of millimetres that the measured diameters values may deviate from the prognosis without the prognosis being modified. A new prognosis is made in the event of greater deviation.

1.C.11 Create new and delete matrices

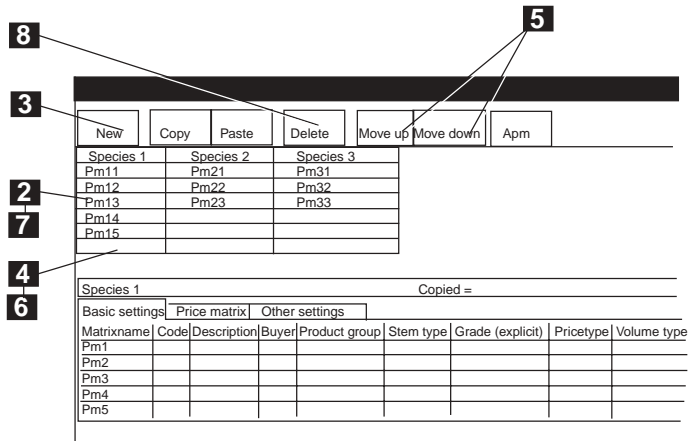
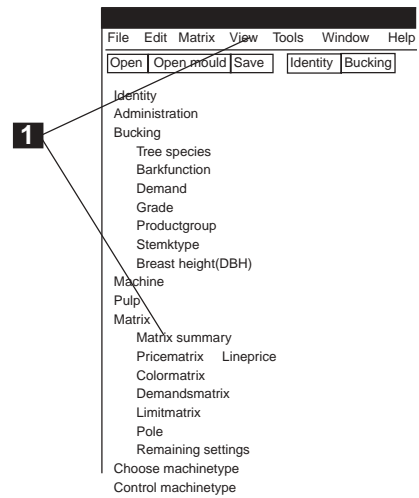
1 Select **Matrix summary** from the list on the left or in the menu **View/Matrix**.

Create a new matrix

- 2** Click in one of the boxes for the species where you wish the new matrix to be.
- 3** Click **New**.
- 4** Type the name of the new matrix.
- 5** If required, press **Move up** or **Move down** to change the place of the matrix in relation to other matrices.
- 6** Double click the new matrix if you wish to get to it.

Delete a matrix

- 7** Mark one or several matrices that you wish to delete. You can mark several matrices within the same species by clicking, keeping the button pressed and dragging the mouse and then releasing the button.
- 8** Click **Delete**. Note that you cannot undo a deletion.



1.C.12 New matrix with earlier one as basis

1 Select **Matrix summary** from the list on the left or in the menu **View/Matrix**.

Copy matrices in the matrix summary

2 Mark one or several matrices that you wish to copy. You can mark several matrices within the same species by clicking, keeping the button pressed and dragging the mouse and then releasing the button.

3 Click **Copy**.

4 The copied matrix is shown in the box bottom left.

5 Click a suitable matrix. The new matrix/matrices will immediately appear **above** the one that you marked.

6 Click **Paste**.

7 Type the name of the new matrix.

8 If necessary, you can alter the position of a matrix in relation to other matrices of the same species by first clicking on the matrix and then on **Move up** or **Move down**.

9 To open a matrix: Double click on the matrix, or right-click on the matrix, and select **Go to matrix**.

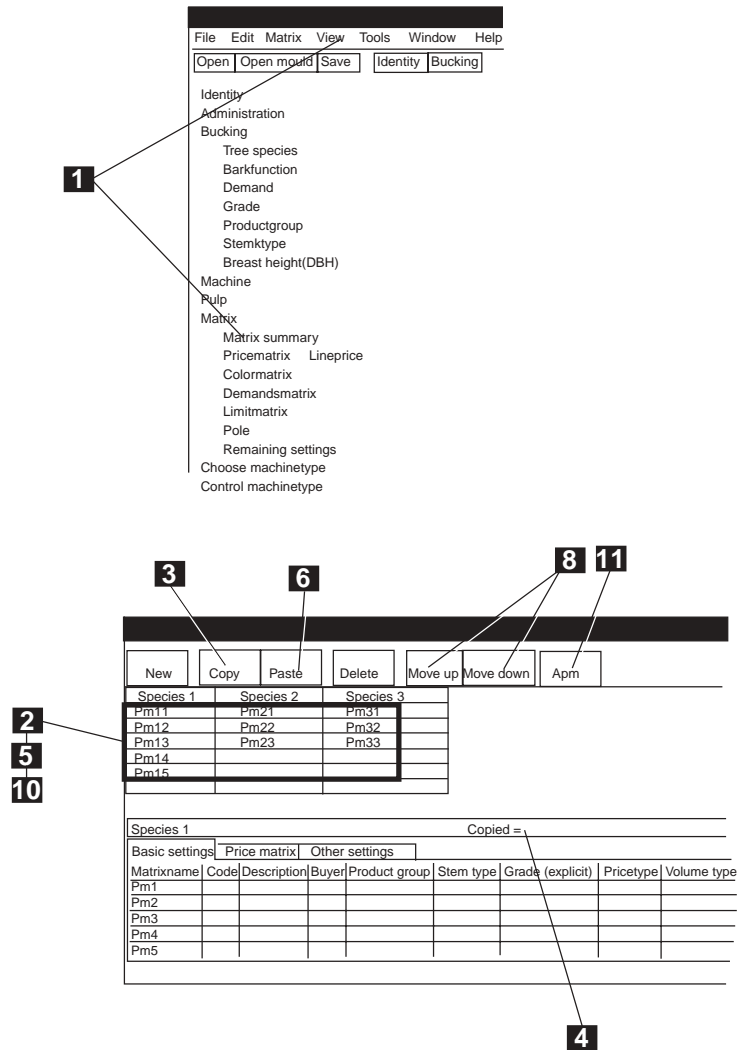
Copy individual matrices from the folder Apm

10 Click a suitable matrix. The new matrix/matrices will immediately appear **above** the one that you marked.

11 Click **Apm**.

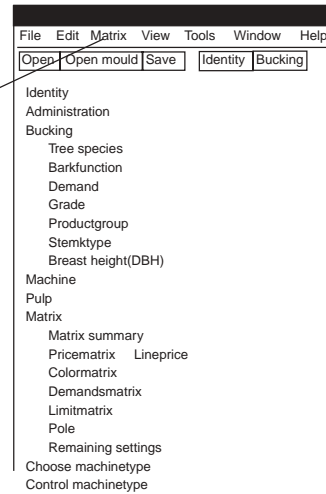
12 Select a matrix file and click **Open**.

13 If required, alter names of the files and adjust positions according to items 7 - 8 above.



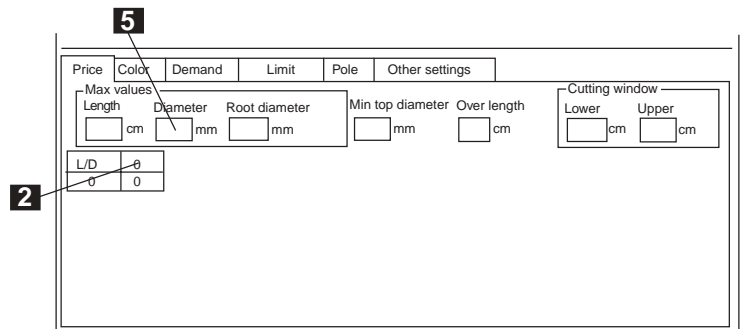
1.C.13 Diameter classes

- 1 You have three options to get to the function: Select **Diameter classes** in menu **Matrix** or ...
- 2 ... double click the **diameter line** in the price matrix or ...
- 3 ... right click the mouse and select **Diameter classes** from the menu.
- 4 If required, alter the **Max value**. Observe that it is the same value as ...
- 5 ... **Max values, Diameter** in the price matrix. If you alter the value in one place the value will also change in the other.



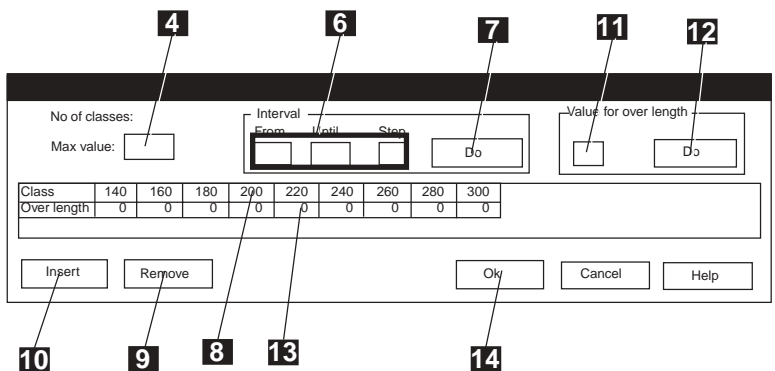
Add, alter or remove diameter classes

- 6 Fill in lowest (**From**) and greatest (**Until**) diameter values and how big the distance is to be between the values (**Step**).
- 7 Click **Do**.
- 8 If you wish to alter a value: Mark the value and type the new one.
- 9 If you wish to remove a diameter class: Mark the value and click **Remove**.
- 10 If you wish to Add a diameter class: Mark an existing diameter class and click **Insert**. The new diameter class will be placed **before** the marked one. Type the new value.



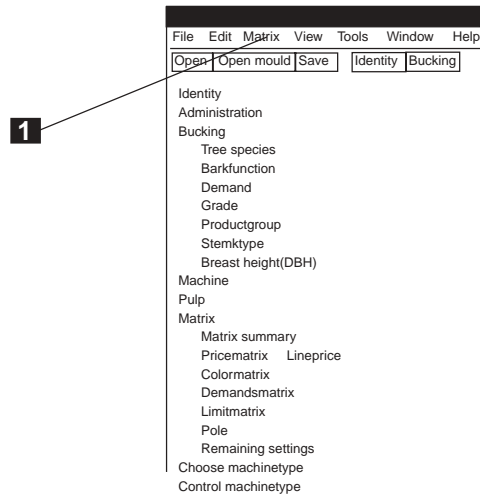
Values for over length

- 11 Fill in the over length value.
- 12 Click **Do**.
- 13 If you wish to alter a value: Mark the value and type the new one.
- 14 Click **OK** when ready.



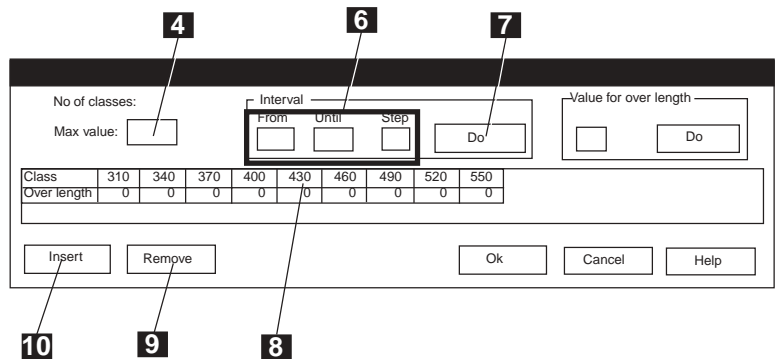
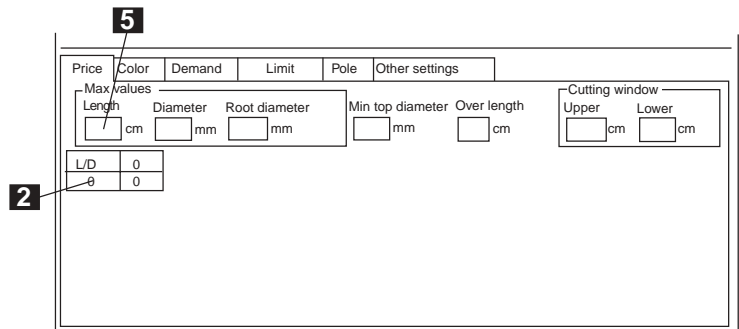
1.C.14 Length classes

- 1 You have three options to get to the function: Select **Length classes** in menu **Matrix** or ...
- 2 ... double click the **length line** in the price matrix or ...
- 3 ... right click the mouse and select **Length classes** from the menu.
- 4 If required, alter the **Max value**. Observe that it is the same value as ...
- 5 ... **Maximum values, Length** in the price matrix. If you alter the value in one place the value will also change in the other.



Add, alter or remove length classes

- 6 Fill in lowest (**From**) and greatest (**Until**) length values and how big the distance is to be between the values (**Step**).
- 7 Click **Do**.
- 8 If you wish to alter a value: Mark the value and type the new one.
- 9 If you wish to remove a length class: Mark the value and click **Remove**.
- 10 If you wish to Add a length class: Mark an existing length class and click **Insert**. The new length class will be placed **before** the marked one. Type the new value.



Values for over length

- 1** Fill in the over length value.
- 2** Click **Do**. Observe that it is the same value as ...
- 3** ... **Over length** in the price matrix. If you alter the value in one place the value will also change in the other.
- 4** If you wish to alter a value: Mark the value and type the new one.
- 5** Click **OK** when ready.

No of classes: Interval: From Until Step Do

Max value: Value for over length: Do

Class	310	340	370	400	430	460	490	520	550
Over length	0	0	0	0	0	0	0	0	0

Insert Remove Ok Cancel Help

Price | Color | Demand | Limit | Pole | Other settings

Max values

Length cm Diameter mm Root diam. mm Min top diam. mm Over length cm

Cutting window: Lower cm Upper cm

L/D	0
0	0

1.C.15 Enter prices

Enter prices direct in the matrix

- 1 Click a box in the matrix.
- 2 Enter a price. Press **Enter**. You will thus come to the next box in the diameter class and can continue to enter data. You also have the option of using the **arrow keys** of the computer to choose an adjacent box.

Alter several prices at the same time

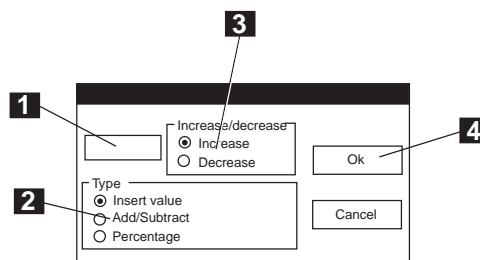
- 3 You can alter several adjacent prices at the same time. You can increase or reduce all marked prices by the same figure or by the same percentage value.
- 4 You can mark adjacent prices in many ways:
 - 5 1. Click the uppermost price on the far left. Keep the button pressed and ...
 - 6 ... drag the mouse diagonally to the lowermost price at the far right. Release the button.
 - 7 2. Click the uppermost price on the far left...
 - 8 ... keep the **Shift button** pressed and click the lowermost price at the far right.
 - 9 3. Mark a **whole line/column** by clicking the head of the line/column. Mark several lines/columns by clicking the head, holding the button in and dragging the head with the mouse.
 - 10 4. Mark the **entire matrix** by clicking in the **L/D** box.
- 11 After marking the values open the function **Increase/decrease** as follows:
- 12 Select **Increase/decrease** in menu **Edit** or...
- 13 ... right click and select **Increase/Decrease**.

Price	Color	Demand	Limit	Pole	Other settings						
Max values											
Length	Diameter	Root diameter	Min top diameter	Over length	Cutting window						
<input type="text"/> cm	<input type="text"/> mm	<input type="text"/> mm	<input type="text"/> mm	<input type="text"/> cm	Lower <input type="text"/> cm Upper <input type="text"/> cm						
L/D	120	140	160	180	200	220	240	260	280	300	320
310	100	100	200	200	300	300	400	400	500	500	600
340	100	100	200	200	300	300	400	400	500	500	600
370	100	100	200	200	300	300	400	400	500	500	600
400	100	100	200	200	300	300	400	400	500	500	600
430	100	100	200	200	300	300	400	400	500	500	600
460	100	100	200	200	300	300	400	400	500	500	600
490	100	100	200	200	300	300	400	400	500	500	600
520	100	100	200	200	300	300	400	400	500	500	600
550	100	100	200	200	300	300	400	400	500	500	600

L/D	120	140	160	180	200
310	100	100	200	200	300
340	100	100	200	200	300
370	100	100	200	200	300
400	100	100	200	200	300
430	100	100	200	200	300
460	100	100	200	200	300
490	100	100	200	200	300
520	100	100	200	200	300
550	100	100	200	200	300

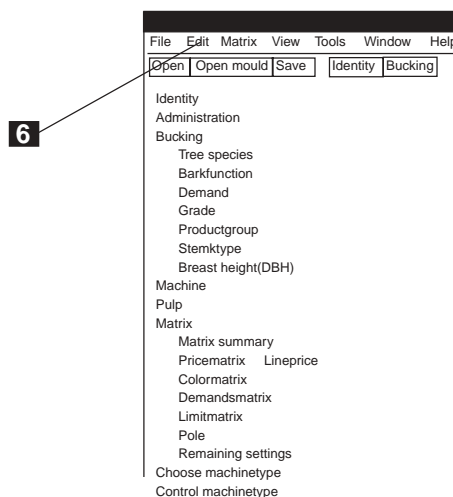
L/D	120	140	160	180	200
310	100	100	200	200	300
340	100	100	200	200	300
370	100	100	200	200	300
400	100	100	200	200	300
430	100	100	200	200	300
460	100	100	200	200	300
490	100	100	200	200	300
520	100	100	200	200	300
550	100	100	200	200	300

- 1 Enter the value to be inserted in the matrix or to increase/reduce existing values in the matrix.
- 2 Select an option:
 - **Insert value** – values in the matrix are replaced by the typed value.
 - **Add/subtract** – current values of the matrix are increased/reduced by the typed value.
 - **Percentage** – current values of the matrix are increased/reduced in percentage by the typed value.
- 3 Choose whether to increase or reduce current values.
- 4 Click **OK** when ready.



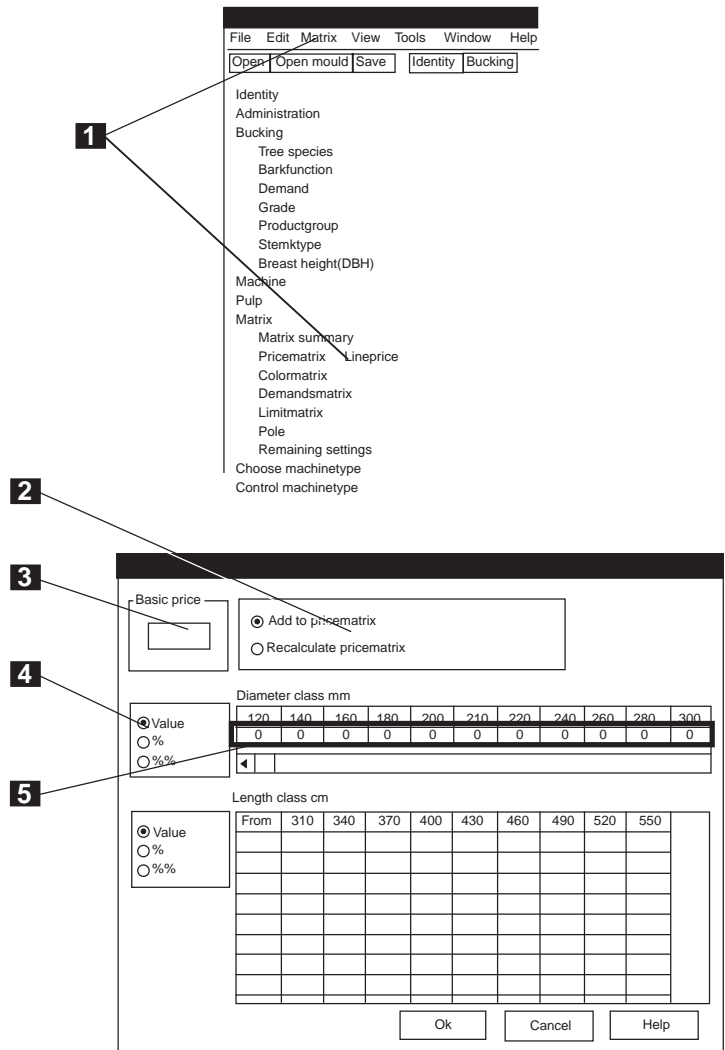
Copy and move prices

- 5 To utilise already entered prices for other similar price matrices you can copy whole or parts of the price matrix. Mark the part you wish to copy in the way described in the previous section.
- 6 Select Copy in the **Edit** menu or right click and select **Copy**.
- 7 Change to the price matrix where the prices are to be pasted and click on the box in the matrix where the uppermost left value is to be pasted.
- 8 Select Paste in the Edit menu or right click and select Paste.



1.C.16 Line price-list

- 1** Select **Line price** from the list on the left or **Line price** in the menu **Matrix** or right click the mouse and select **Line price**.
- 2** Choose whether the item being entered is to be **added** to the current price matrix or whether the price matrix is to be fully **recalculated**.
- 3** Type in the **basic price** of the line price-list.
- 4** Select **sort** for correction values of the diameter classes (See FACTS box).
- 5** Type in the **correction values** for the various diameter classes.



FACTS

Select sort

If you select Value:

The amount is added for each diameter or length class.
 Example: Basic price = 300. Correction = 100 gives 400 in the price matrix.

If you select %:

The amount in the matrix will be:
 Percentage value x Basic price/100.
 Example: Basic price = 300. Correction = 110%
 300 x 110/100 = 330

If you select %% (mil):

The amount in the matrix will be:
 Mil value x Basic price/1000.
 Example: Basic price = 300. Correction = 1200%
 300 x 1200/1000 = 360

FACTS

Examples of length correction

Same corrections for all diameter classes

Length class cm

From	310	340	370	400	430	460	490	520	550
120	0	0	0	10	10	20	30	20	20

Different corrections depending on diameter class

Length class cm

From	310	340	370	400	430	460	490	520	550
120	10	10	10	0	0	20	30	20	20
180	0	0	0	10	10	10	20	20	0
260	0	0	0	0	0	10	10	10	10

1 Select **sort** for the length-class correction values (See FACTS box).

2 Type the lowest diameter class (**From**) in the price matrix.

3 Type the **correction values** for the various length classes.

Choose **1** or **2**
(See FACTS box on this and the previous page)

1. Same correction values for all diameter classes: Continue from item 7.

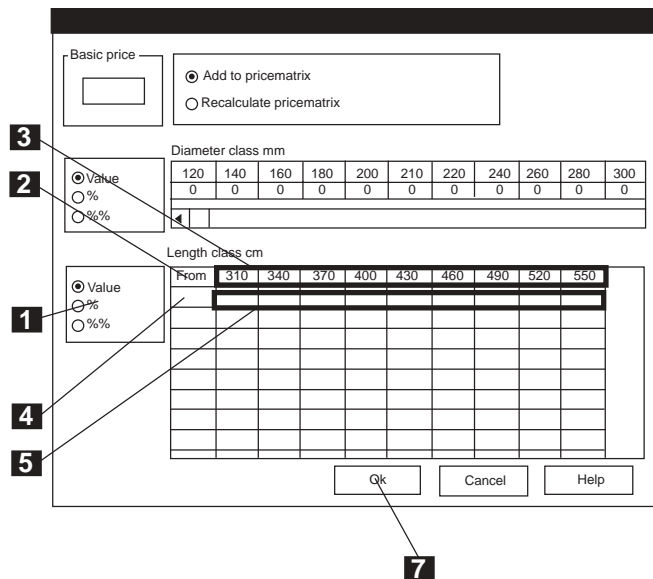
2. Different correction values for different diameter classes: Continue from item 4.

4 Type the lowest diameter class (**From**) for the next group of correction values.

5 Type the **correction values** for the group.

6 If there are further groups of correction values, repeat item **4** and **5** for such values.

7 When ready, click **OK**. The values that you have entered will thus be recalculated and shown in the price matrix.

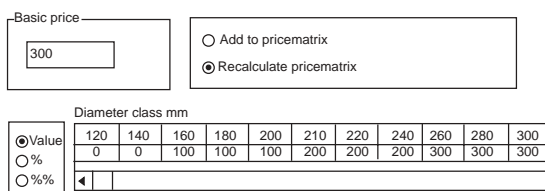


FACTS

Principles for programming the line price-list

A programming example:

Type the **basic price 300**, **select sort Value** and **type the correction values** for the Diameter classes.



Only correction of the diameter values should have resulted in the price matrix below, where the correction values are added to the basic price for the various diameter classes. (These price matrix values are not shown but are included in this example to illustrate the principles of programming).

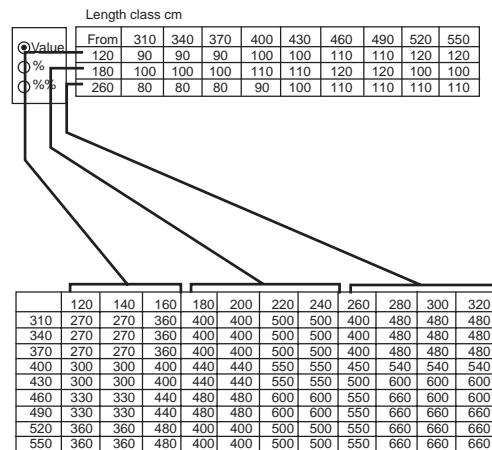
	120	140	160	180	200	220	240	260	280	300	320
310	300	300	400	400	400	500	500	500	600	600	600
340	300	300	400	400	400	500	500	500	600	600	600
370	300	300	400	400	400	500	500	500	600	600	600
400	300	300	400	400	400	500	500	500	600	600	600
430	300	300	400	400	400	500	500	500	600	600	600
460	300	300	400	400	400	500	500	500	600	600	600
490	300	300	400	400	400	500	500	500	600	600	600
520	300	300	400	400	400	500	500	500	600	600	600
550	300	300	400	400	400	500	500	500	600	600	600

Select sort for length mm correction – in the following example we choose %.

Type the **lowest diameter class (From)** from which the length correction is to apply. **Type the correction values** for length correction. If the length correction is the same for all diameter classes there will be one line in the table.

If, for example, there are three different length corrections for different diameter classes there will be three lines as in the example below.

For percentage correction the result will be: The value after diameter correction multiplied by the percentage value in the length correction.



1.C.17 Matrix variables

- 1 Select or enter the matrix variables (see FACTS boxes on this and next page).
- 2 For the following variables you can enter numerical values:

Code

Description

Buyer

Max. values

Min top diameter

Over length

Cutting zone, upper and lower

Diameter type, distance from top

Tolerance grade, top and butt

Tree species	Code	Buyer	Product group	Bucking group	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Matrix name	Description	Stem type	Priority		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Grade (explicit)	Bark	Price type	Volume type		
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	<input type="radio"/> On <input checked="" type="radio"/> Under	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Free cut	
Price	Color	Demand	Limit	Pole	Other settings
Max values					Cutting window
Length	Diameter	Root diam.	Min top diam.	Over length	Lower Upper
<input type="text"/> cm	<input type="text"/> mm	<input type="text"/> mm	<input type="text"/> mm	<input type="text"/> cm	<input type="text"/> cm <input type="text"/> cm
Price	Color	Demand	Limit	Pole	Other settings
Diameter type					Tolerance grade
Principle for registration			Distance from top		Top Root
<input type="text"/> cm			<input type="text"/> cm		<input type="text"/> <input type="text"/> cm

For other variables you may only choose among certain options.

FACTS

Grade

Mark a cross in the grades to which the matrix applies.

- If you use **falling** grades: A higher grade may be included in a lower when the bucking computer estimates the price of an individual log.
- If you use **specific** grades: Exclusively the grade or grades stated in the price matrix are allowed to be included in estimating the price of an individual log.

Tree species

Select species.

Matrix name

Select matrix in the species selected.

Code

Here you can type additional identity for the matrix.

Description

A possibility to link explanatory text to the price matrix.

Buyer

A possibility to define the buyer of logs bucked in this price matrix.

Trunk type

Indicate here if the matrix is to be linked to a trunk type.

Product group

Indicate here if the matrix is to be linked to a product group. Product groups can for example be TIMBER, PULPWOOD, POLES or MISCELLANEOUS.

Price type

Examples of price types available:

- m3to (top measure)
- m3s (solid measure)
- m3smm (solid mid measure)

Bark

Indicate whether volumetric measurement is to be on or under bark.

Free cut

Indicates to the bucking computer that free cutting may be made between minimum length and maximum length.

Continued on next page

FACTS

Prerequisites for bucking

Choose under which conditions bucking is to be done:

- **Always crosscut**
Standard setting, calculation for bucking is always done if the matrix is permitted in the selected grade.
- **Never crosscut**
Used if you wish to temporarily "switch off" a matrix, or have a matrix that is used to register manually cut timber.
- **Crosscut on butt log only, do not crosscut on butt log**
Calculation for bucking made for butt log only or for all logs except butt log if the matrix is permitted in the selected grade.

Priority

This function can be set at **low**, **normal** or **high** and is used by some manufacturers to give or not to give priority to the price matrix when the computer chooses between different price matrices.

Volume type

The length that volumetric calculation is based on. The following options are available:

Cut length in cm	The real cut length. Normally used for pulpwood.
Aimed length	Length-class length. Normally for timber.
Cut length in dm	The length is counted from the nearest lower even dm.

Maximum values, Length

The maximum permitted length for classification in the price matrix. Observe that there should always be a tolerance between the highest length class in the matrix and the maximum value. Suitable values are 10-20 cm for blocks and low-grade timber and 20-30 cm for timber.

Maximum values, Diameter

The maximum permitted top diameter (10 cm from the cutting point) for a log to be classified in the price matrix. As a rule there is no upper limit in timber grades so the value can be set as 999. Observe that there should always be a tolerance between the highest diameter class in the matrix and the maximum value. A suitable value for blocks and low-grade timber is 1-2 cm.

Maximum value butt diameter

The maximum permitted butt diameter for classification of the log in the price matrix. Can be used to prevent coarse butt logs with severe taper from being classified in the matrix.

Minimum value top diameter

The smallest permitted top diameter (10 cm from the cutting point) for classification of a log in the price matrix. Can be used to "switch off" the lowest diameter classes or to prevent low-grade timber that has severe taper from being classified in the matrix when a price type with mid-point measured value is used.

Over length

Over length is a value that is added to the nominal lengths in the respective matrix. This value is used as length tolerance when cutting.

Cutting zone

The length zone within which cutting is permitted.

Lower

Lower limit for the cutting zone.

The lower limit will be:

Length-class length + possible over length + value in the box
Lower (the value can be negative).

Upper

Upper limit for the cutting zone.

The upper limit will be:

Length-class length + possible over length + value in the box
Upper (the value cannot be negative).

An example:

Length class:	430 cm
Over length:	3 cm
Lower:	-1 cm
Upper:	2 cm
Lower limit for the cutting zone	$430 + 3 - 1 = 432$ cm
Upper limit for the cutting zone	$430 + 3 + 2 = 435$ cm

Diameter type registration

Setting for where on the log that diameter registration is to be made.

The setting is made in two steps: first the **Principle of registration** is determined, ie, in what manner the length of the log is to be registered (see "Volume type"). Then you decide **Distance from top**, ie, how far from registered length that the diameter is to be read.

Tolerance grade

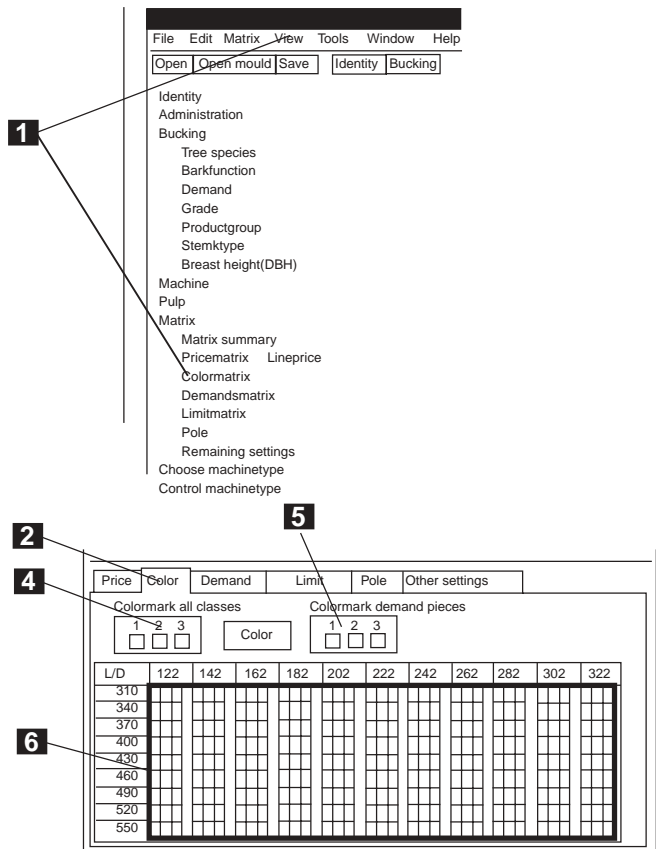
Here you can allow a log to have a different grade at a certain distance from the top or butt of the log than that selected initially.

1.C.18 Color matrix

- 1** Select **Color matrix** from the list on the left or in the menu **View/Matrix**.
- 2** You can also select **Color matrix** by clicking the flap under the matrix.
- 3** The marking colors for the color matrix can be set in Menu **File/Settings**, see section **1.B.1**.
- 4** If the **entire color matrix** is to be color marked: Click on the color box/boxes that are to be used.
Note that several colors can be used simultaneously.
- 5** If the part of the assortment that is **distribution crosscut** (see section 1.C.19 **Distribution matrix**) is to be color marked: Click on the color box/boxes that are to be used.
Note that several colors can be used simultaneously.

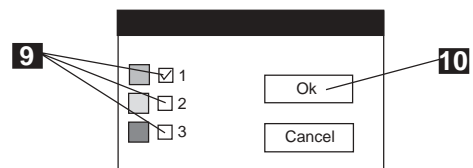
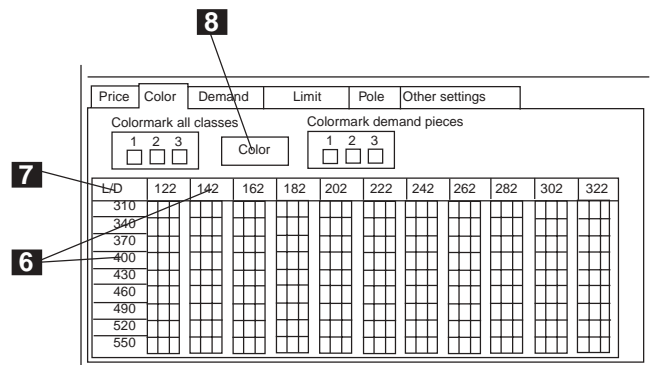
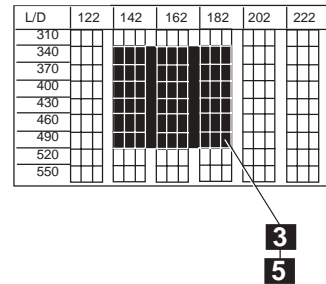
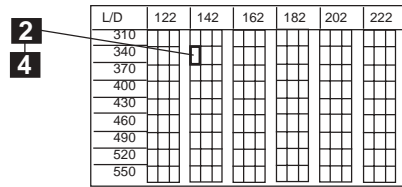
Enter individual colors

- 6** Double-click on the color box/boxes for each diameter/length class that is to be marked.
Note that several colors can be used simultaneously in the same diameter/length class.



Mark several color boxes at the same time

- 1 You can mark several adjacent color boxes with the same colors in two ways:
- 2 1. Click the uppermost color box on the far left. Keep the button pressed and ...
- 3 ... drag the mouse diagonally to the lowermost color box at the far right. Release the button.
- 4 2. Click the uppermost color box on the far left.
- 5 Keep the **Shift** button pressed and click the lowermost color box at the far right.
- 6 3. Mark a **whole line/column** by clicking the head of the line/column. Mark several lines/columns by clicking the head, holding the button in and dragging the head with the mouse.
- 7 4. Mark the **entire matrix** by clicking in the **L/D** box.
- 8 Click on **Color choice**.
- 9 Click in one or more of the boxes (to tick them) for the colors boxes you wish to use.
- 10 Click on **Ok**.



1.C.19 Demand matrix

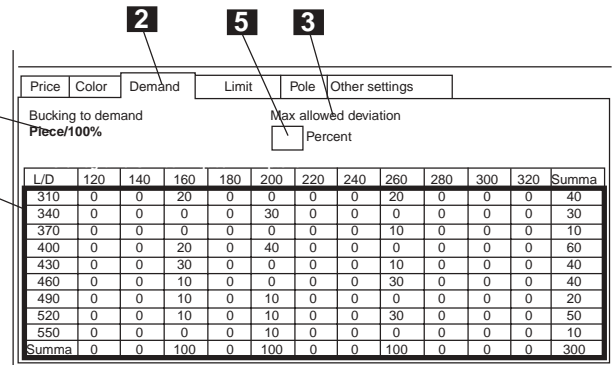
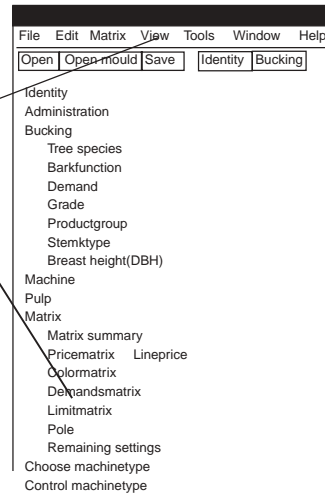
- 1 Select **Demand matrix** from the list on the left or in the menu **View/Matrix**.
- 2 You can also select **Demand matrix** by clicking the flap.

Check sorts, type the loss value

- 3 Ensure that you have the right sorts in **Bucking to demand** and **Max allowed deviation** (see FACTS box).
- 4 You can change the above sorts in program module **Demands** (see section 1.C.5).
- 5 Type in the acceptable value loss for demand bucking compared to the highest value for profit-based bucking.

Enter individual values

- 6 Click an optional matrix box and type the desired demands for the selected diameter/length class (see FACTS box). Press **Enter**. You will thus come to the next box in the matrix and can continue to enter data. You also have the option of using the **arrow keys** of the computer to choose an adjacent box.



FACTS

Piece/mil for the entire matrix

You program demand of the number of cut logs that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Volume/mil for the entire matrix

You program demand of cut volume that you want in thousandths over the entire price matrix. The sum over the entire matrix should be 1000.

Piece/100% for each diameter class

You program demand of the number of cut logs that you want in percentage within each diameter class. The sum for each diameter class should be 100.

Alter several prices at the same time

- 1 You can alter several adjacent values at the same time. You can increase or reduce all marked values by the same figure or by the same percentage value.
- 2 You can mark adjacent values in two ways:
 - 3 1. Click the uppermost value on the far left. Keep the button pressed and ...
 - 4 ... drag the mouse diagonally to the lowermost value at the far right. Release the button.
 - 5 2. Click the uppermost value on the far left.
 - 6 Keep the **Shift** button pressed and click the lowermost value at the far right.
 - 7 3. Mark a **whole line/column** by clicking the head of the line/column. Mark several lines/columns by clicking the head, holding the button in and dragging the head with the mouse.
 - 8 4. Mark the **entire matrix** by clicking in the **L/D** box.
- 9 After marking the values open the function **Increase/decrease** as follows:
- 10 Select **Increase/decrease** in menu **Edit** or...
- 11 ... right click and select **Increase/Decrease**.

L/D	120	140	160	180	200
310	100	100	200	200	300
340	100	100	200	200	300
370	100	100	200	200	300
400	100	100	200	200	300
430	100	100	200	200	300
460	100	100	200	200	300
490	100	100	200	200	300
520	100	100	200	200	300
550	100	100	200	200	300

3
5

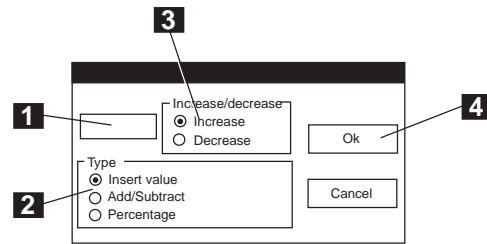
L/D	120	140	160	180	200
310	100	100	200	200	300
340	100	100	200	200	300
370	100	100	200	200	300
400	100	100	200	200	300
430	100	100	200	200	300
460	100	100	200	200	300
490	100	100	200	200	300
520	100	100	200	200	300
550	100	100	200	200	300

4
6

Price	Color	Demand	Limit	Pole	Other settings							
Bucking to demand		Max allowed deviation										
Piece/100%		<input type="checkbox"/> Percent										
L/D	120	140	160	180	200	220	240	260	280	300	320	Summa
310	0	0	20	0	0	0	0	20	0	0	0	40
340	0	0	0	0	30	0	0	0	0	0	0	30
370	0	0	0	0	0	0	0	10	0	0	0	10
400	0	0	20	0	40	0	0	0	0	0	0	60
430	0	0	30	0	0	0	0	10	0	0	0	40
460	0	0	10	0	0	0	0	30	0	0	0	40
490	0	0	10	0	10	0	0	0	0	0	0	20
520	0	0	10	0	10	0	0	30	0	0	0	50
550	0	0	0	0	10	0	0	0	0	0	0	10
Summa	0	0	100	0	100	0	0	100	0	0	0	300

8
7

- 1 Type the value that you wish to insert/change in the table.
- 2 Select an option:
 - **Insert value** – values in the matrix are replaced by the typed value.
 - **Add/subtract** – current values of the matrix are increased/reduced by the typed value.
 - **Percentage** - current values of the matrix are increased/reduced in percentage by the typed value.
- 3 Choose whether current values of the matrix are to be increased or reduced by the typed value.
- 4 Click on **OK**.



Alter, copy and paste several values at the same time

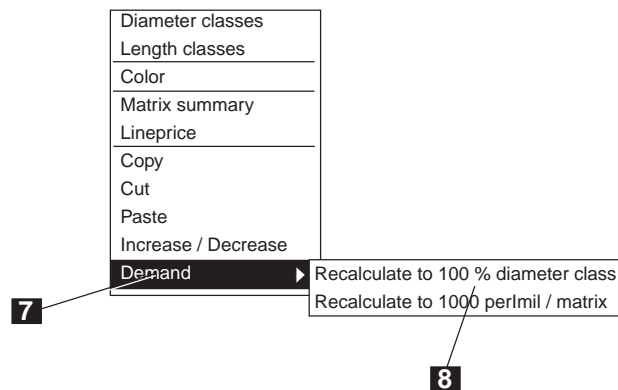
- 5 Values are copied and pasted in the same way as price matrices, see description in section 1.C.15.

Recalculate values in the distribution matrix

- 6 The values that you type in the distribution matrix should be 100 for each diameter class or 1000 for the whole matrix depending on which unit you have chosen for distribution bucking (see also section 1.B.6 and 1.B.16).

You can make an automatic recalculation of the matrix values so that the sum will be 100 for each diameter class or 1000 for the entire matrix. Proceed as follows.

- 7 Right click and point at **Demand**.
- 8 You can now choose between **Recalculate to 100% diameter class** or **Recalculate to 1000 per mil / matrix**.



1.C.20 Limit matrix

- 1 Select **Limit matrix** from the list on the left or in the menu **Show, Matrix**.
- 2 You can also select **Limit matrix** by clicking the flap under the matrix.
- 3 Select the type of limitation per price matrix that is to apply for the limit matrix.
- 4 Select action when production target is fulfilled.

Enter individual values

- 5 Click optional matrix box and type the maximum number of logs for the selected diameter/length class (see FACTS box). Press **Enter**. You will thus come to the next box in the matrix and can continue to enter data. You also have the option of using the **arrow keys** of the computer to choose an adjacent box.

Alter, copy and paste several values at the same time

- 6 Values can be altered by a certain figure or percentage, copied and pasted in the same way as price matrices, see description in section 1.C.15.

The screenshot shows the software interface for setting a limit matrix. At the top, a menu bar includes 'File', 'Edit', 'Matrix', 'View', 'Tools', 'Window', and 'Help'. Below it, a secondary menu bar contains 'Open', 'Open mould', 'Save', 'Identity', and 'Bucking'. A dropdown menu is open under 'Matrix', listing various options: Identity, Administration, Bucking, Tree species, Barkfunction, Demand, Grade, Productgroup, Stemtype, Breast height(DBH), Machine, Pulp, Matrix, Matrix summary, Pricematrix Lineprice, Colormatrix, Demandsmatrix, Limitmatrix, Pole, Remaining settings, Choose machinetype, and Control machinetype. Callout 1 points to 'Limitmatrix'.

The main window has several tabs: 'Price', 'Color', 'Demand', 'Limit', 'Pole', and 'Other settings'. Callout 2 points to the 'Limit' tab. Below the tabs, there are two dropdown menus: 'Type of limitation per price matrix' (set to 'No limitation') and 'Action when production goal is reach' (set to 'No action'). Callout 3 points to the first dropdown, and callout 4 points to the second. Below these is a table with columns for L/D (310, 340, 370, 400, 430, 460, 490, 520, 550) and rows for diameters (120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320). All cells in the table contain the value '0'. Callout 5 points to the table.

FACTS

When the number of logs in a class is reached

When the number is reached in a diameter/length class the bucking continues according to one of the following principles:

- The desired distribution is aborted and normal profit-based bucking takes over for the diameter/length class.
- The price for the diameter/length class is set at the price for pulpwood.

1.C.21 Pole matrix

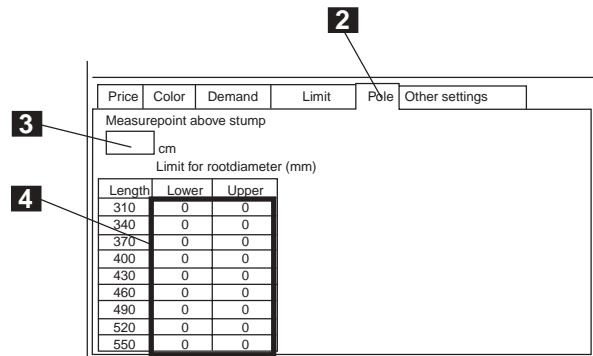
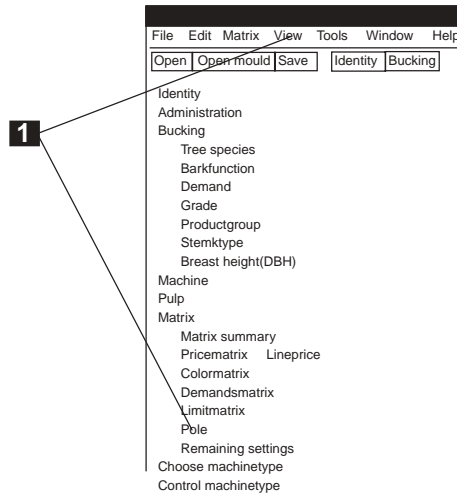
- 1 Select **Pole** in the list to the left or **Pole** in menu **Show, Matrix**.
- 2 You can also click on the tab to select **Pole**.
- 3 Select how high above the stump that the measuring point is to be.

Enter individual values

- 4 Click in optional matrix box and type in values for the selected length class. Press **Enter**.
 You now come to the next box in the matrix and can continue to enter.
 You can also use the computer **arrow keys** to choose an adjacent box.

Alter, copy and paste several values at the same time

- 5 Values can be altered by a certain figure or percentage, copied and pasted in the same way as price matrices, see description in section 1.C.15.



1.C.22 Bucking overview

1 Click on **Bucking overview**

Open the overview in Excel/save as Excel file

2 Click **Excel** to open the overview as an Excel file.

3 Save the overview as an Excel file by clicking on **Save as**.

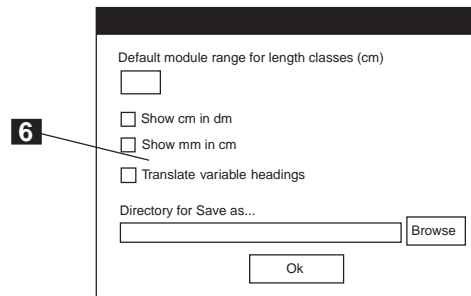
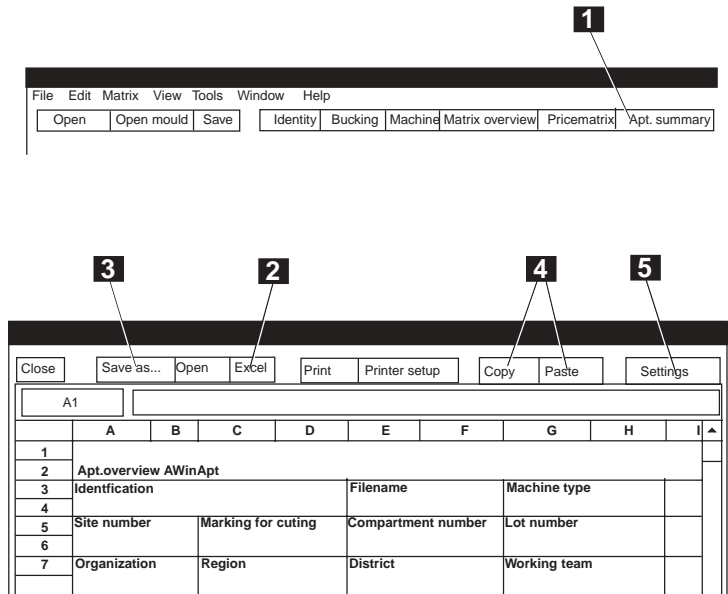
Copy /paste

4 Mark an optional number of boxes and use **Copy** and **Paste** to copy selected boxes to another location.

Settings

5 Click on **Settings**.

6 Alter settings (see FACTS box below). Click on **OK**.



FACTS

Standard modular spacing

The length classes usually have a modular spacing of 30 cm. If you type 30 in the box, only the first and last length value of each price matrix will be shown:

Length classes
340 - 550
340 - 550
340 - 550
340 - 550

If you type 20, for example, the length classes will be shown with deviating modular spacing:

Length classes
340, 370, 400, 43
340, 370, 400, 43
340, 370, 400, 43
340, 370, 400, 43

Show cm in dm

Spacing in the length classes can be shown as dm values instead of cm.

Show mm in cm

Spacing in the length classes can be shown as cm values instead of mm.

Translate variable headings

- A standard set of variable headings that are adapted to suit the table will be used if the box is not crossed.
- By crossing the box, the headings found in the bucking instructions will be used. It may be necessary to adjust the division of words to ensure that headings fit the table boxes.

Note. You must close the Bucking overview and then open it again to enable changes in the settings menu to be shown in the table.

1.C.23 Analysis of price list

- 1 Select **Analysis of price list** in the **Tools** menu.
- 2 Select the species where you wish to compare different price matrices. The comparison can only be made between two price matrices in the same species.
- 3 Select the first price matrix in the comparison (matrix A). From matrix A retrieve the length and diameter classes that are shown in the table.
- 4 Select the second matrix (matrix B).
- 5 If you compare price matrices of different price types (eg, m3s and m3 top measure) the m3 top measure prices will be converted to m3s prices. These m3s prices are dependent on actual taper of the logs. Set the taper in mm/m.
- 6 You can vary size of the table by moving the control.
- 7 Choose colors in the table by clicking the color boxes.
- 8 Click on **Copy screen** to copy the table as a color image. The image can subsequently be used in a Word document for example.
- 9 Click on **Copy value** to copy values of the table. The values can be pasted into an Excel document for example.

Price comparison between matrix A and B (A - B)

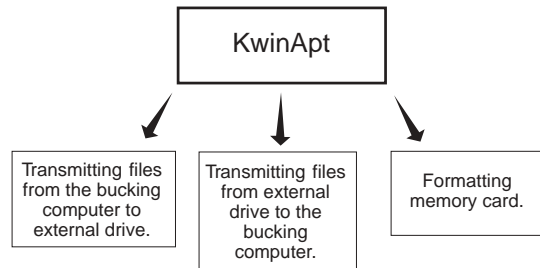
Species 1 A: Matrix 1 - B Matrix 2 20 mm/m	142	162	182	202	222	242	262	282	302	322	342
310	-166	-109	-45	-25	-5	7	18	23	46	59	70
370	-166	-108	-43	-21	0	13	25	35	55	68	80
400	-166	-109	-42	-20	0	15	27	39	59	73	86
430	-165	-106	-38	-14	9	23	36	49	70	85	99
460	-164	-104	-34	-9	15	30	44	58	80	96	111
490	-166	-106	-37	-11	13	29	44	57	80	96	112
520	-168	-109	-41	-16	9	25	40	54	77	94	109
550	-170	-113	-45	-20	5	21	37	51	74	91	108

2 KwinApt

2.A Summary

KWinApt is a standard procedure for transmitting data between the bucking computer and a personal computer or a memory card, for example.

An important field of use for KWinApt is the transmission of machine variables, or price lists, to the bucking computer.



2.B Description

Choose baud rate

Baud rate is the speed at which data is transmitted between the two computers. Both computers must be set at the same baud rate. The highest possible baud rate should be used to achieve short transmission times.

The following rates can be set:

- 1200
- 2400
- 4800
- 9600
- 19200
- 38400
- 57600

Rate change

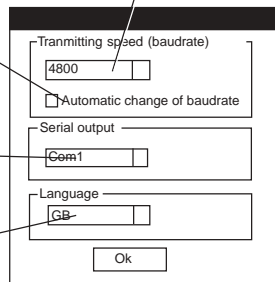
If the box is crossed an attempt will be made to choose the speed selected in the box **Transmission speed** when an external drive is connected. The standard rate 1200 baud will be chosen if the attempt is unsuccessful.

Select serial port

Select the serial port that is used for data transmission..

Choose language

Choose a language for the program menus.



Server mode

One of the drives must be set in server mode when transmission is to be made between an external drive (eg, personal computer) and the bucking computer.

If the bucking computer is to control the transmission the external drive must be set in server mode (card reader is always set in server mode).

If the external drive is to control the transmission then the bucking computer must be set in server mode by clicking on **Server**.

Click on **Abort** to return to normal mode.

Delete/format

Delete selected file or format memory card.

Transmit

Begin transmission of selected file/files to/from the bucking computer.

Connect

Click here to open communication with external drive.

Select file/files in the bucking computer

Select drive, folder, file type and file/files that are to be transmitted from the bucking computer to external drive.

Select file/files in connected drive

Select the file or files in the category of files that are to be transmitted to the bucking computer.

Activity list

Shows the activities that have occurred while connected and transmission from/to external drive.

Number of transmitted "packets"

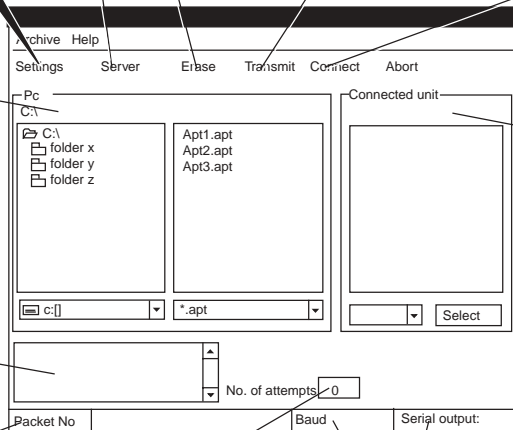
Transmission is split into a number of "packets". Here you see how many "packets" have been transmitted.

Number of attempts to connect

The bucking computer makes a new attempt to connect an external drive if the first attempt is unsuccessful. Here you see how many attempts have been made. The bucking computer makes a maximum of 10 attempts to connect.

Baud rate and serial port

Shows current setting of baud rate and serial port.



2.C Proceed as follows

2.C.1 Set baud rate and serial port

1 Open the program **KWinApt**.

2 Click **Settings**.

Manual setting of speed

3 Click in the box and select suitable baud rate.

Setting with automatic change of baud rate

4 Click in the box **Automatic change of baud rate** to activate the function (cross in the box).

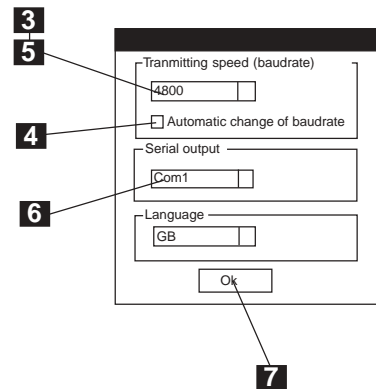
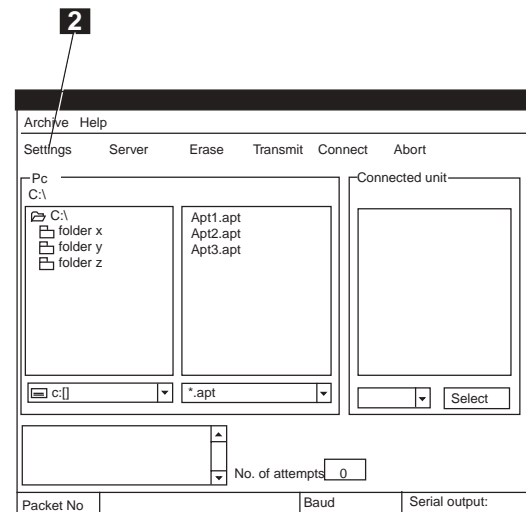
5 Select the new baud rate (see **FACTS** box below).

Select serial port

6 Click in the box and select the serial port that is used for transmission.

Exit settings

7 Click **OK** to confirm the new choices and close the settings box.



FACTS

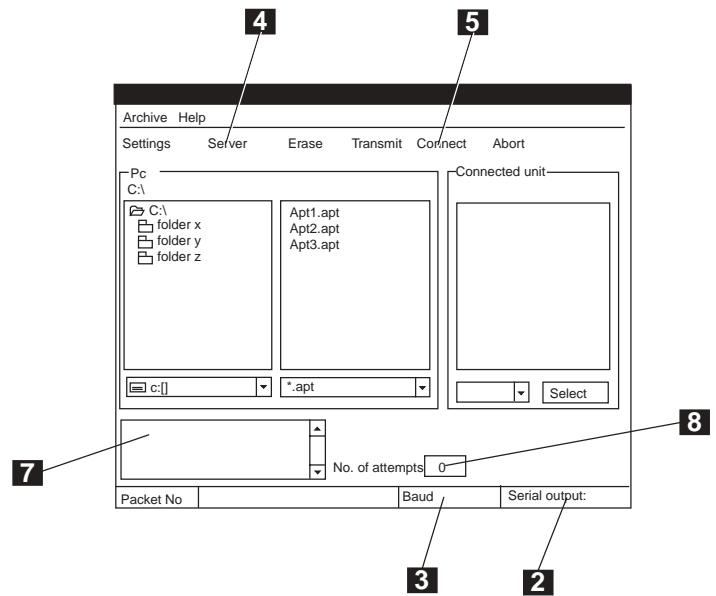
Automatic change of baud rate

The following occurs when the box **Automatic change of baud rate** in the **Settings** menu is crossed and the units are connected to each other:

- Calling is made at the rate of 1200 baud.
- The bucking computer asks whether the external unit can transmit at the rate shown in box **Transmitting speed**.
- If the answer is yes, the rate will be changed for both the bucking computer and the external unit.
- Transmission will otherwise continue at 1200 baud.

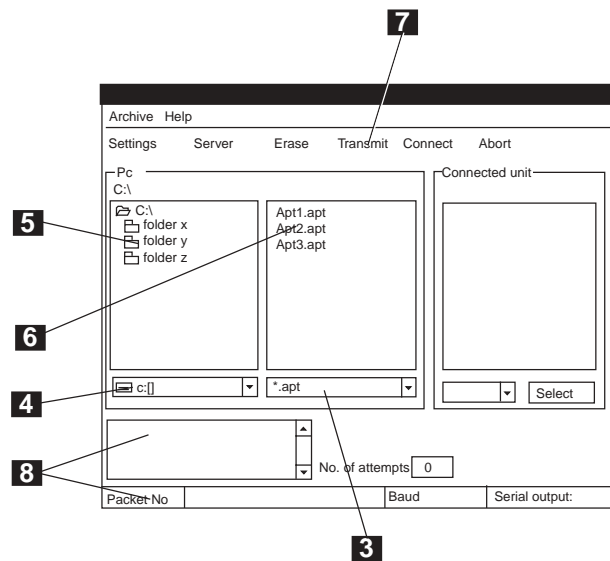
2.C.2 Connect external unit

- 1 Open the program **KWinApt**.
- 2 Connect the external unit with cable to the serial port that you have selected in the **Settings menu** (see section 2.C.1). The serial port used is shown in the box at the bottom of the window.
- 3 Check that the baud rate is correct (see section 2.C.1). The current baud rate is shown in the box at the bottom of the window. The standard rate for Kermit is 1200 baud but other rates may occur.
- 4 Either the bucking computer or the external unit must be in **server mode**.
If transmission to an external personal computer is controlled from the bucking computer the computer is to be set in server mode.
If transmission is controlled from an external personal computer then the bucking computer must be set in server mode by clicking on **Server**.
An external unit in the form of a card reader is always in server mode.
- 5 Click **Connect**.
- 6 The bucking computer now attempts to connect to the external unit.
- 7 You can see in the **Activity box** whether connection is made or not.
- 8 If the bucking computer needs to make more than one attempt it will be seen in the box **Number of attempts**.



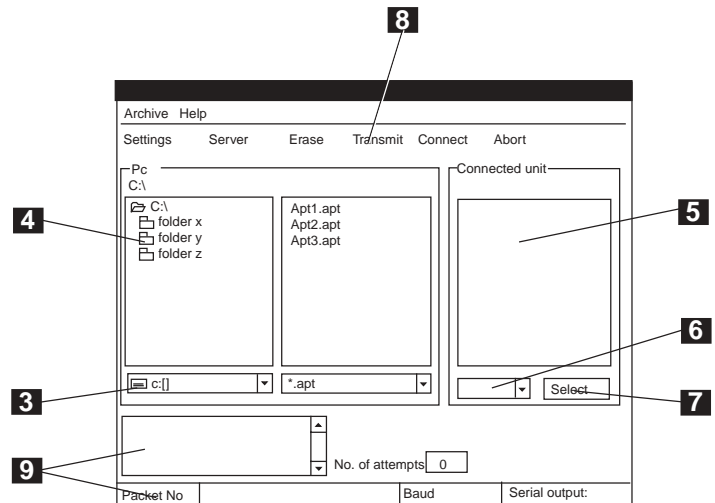
2.C.3 Copy files from the bucking computer to external drive

- 1 Open the program **KwinApt**.
- 2 Make any necessary settings and connect external drive according to **sections 2.C.1 and 2.C.2**.
- 3 Select the type of files you wish to transmit. The following types of file exist:
 - *.* = All files
 - *.apt = Bucking files
 - *.prd = Production files
 - *.stm = Trunk profile files
 - *.apt, *.prd, *.stm = all three of the above
- 4 Select **drive**.
- 5 Select **folder**.
Double click to open/select the folders. On double clicking a folder it is shown which folders (in the main folder level) are included in the folder. Files in the folder are shown in the box to the right.
- 6 Select file/files. Hold the **Ctrl** button pressed down on the computer keyboard and click on the files desired if you want more than one.
- 7 Click **Transmit**.
- 8 You can follow the transmission in the **Activity box** and in box **Packet No..**



2.C.4 Copy files from external drive to the bucking computer

- 1 Open the program **KwinApt**.
- 2 Make any necessary settings and connect external drive according to **sections 2.C.1 and 2.C.2**.
- 3 Select the drive and folder to which the transmitted files are to be saved in the bucking computer:
Select **drive** first.
- 4 Select **folder**.
Double click to open/select the folders. On double clicking a folder it is shown which folders (in the main folder level) are included in the folder.
- 5 Select the file/files that are to be transmitted by clicking on files in box **Connected drive**.
Hold the **Ctrl** button pressed down on the computer keyboard and click on the files desired if you want more than one.
- 6 You can also choose all files in a particular category.
The following types of file exist:
 - *.* = All files
 - *.apt = Bucking files
 - *.prd = Production files
 - *.stm = Trunk profile files
- 7 Click **Select**. All files in the selected category will now be selected.
- 8 Click **Transmit**.
- 9 You can follow the transmission in the **Activity box** and in box **Packet No.**.



2.C.5 Delete files

1 Open the program **KwinApt**.

Delete files in the bucking computer

2 Select file/files that are to be deleted (in box **Pc**) in the manner described in **section 2.C.3**.

3 Click **Erase**.

4 Click **Yes**.

Delete files in external drive

5 Make any necessary settings and connect external unit according to **sections 2.C.1 and 2.C.2**.

6 Select file/files that are to be deleted (in box **Connected drive**) in the manner described in **section 2.C.4**.

7 Click **Erase**.

8 Click **Yes**.

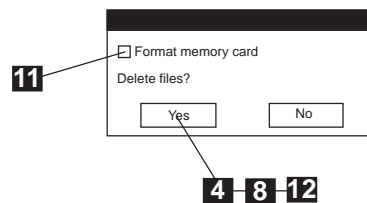
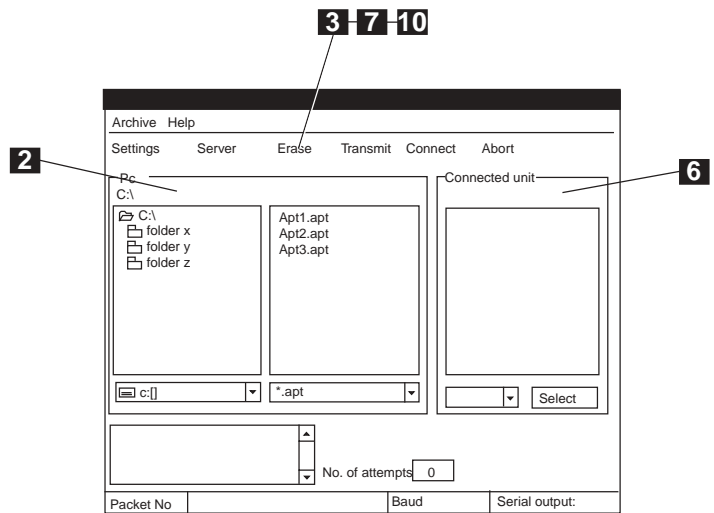
Formatting memory card

9 Make any necessary settings and connect the drive with memory card according to **sections 2.C.1 and 2.C.2**.

10 Click **Erase**.

11 Click in the box **Format memory card**. **Observe** that formatting erases **all earlier information** that has been saved on the memory card.

12 Click **Yes**.





3 PwinApt

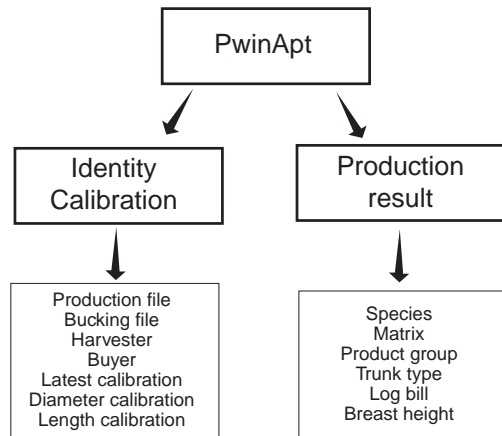
3.A Overview

In program **PwinApt** you can get a comprehensive presentation of an optional production file. The production results can be presented in a variety of ways to suit varying requirements.

The result can be divided per **species** or per **assortment range**. They can also be divided into **production groups** or **types of trunks** that you have defined in the felling instructions. In all of these cases the results can be shown jointly for all operators or individually for each operator.

The **log bill** shows the results for each **diameter/length class** either as number of logs or as volumes. These values can also be obtained as percentage distribution per length class. You also get volumes and number per length class and per diameter class, and percentage distribution between the diameter classes and between the length classes.

In **overview of breast heights** you get the number of trunks and volumes for different diameter classes based on diameter of the tree at breast height.



3. A. 1 Production files .prd and .pri

There are two different production files that are used for different purpose:

Prd file

Each logging contract generates one or more .prd-files automatically.

The prd-file is used by Dasa 4 to save production statistics. Data in screen images and for printouts come from this file. The file is exported to an external PC for further processing.

The file contains only accumulating registers that are determined by the structure of the current bucking instruction.

That the registers are accumulating implies that production data is added to the various registers step by step as the bucking proceeds. This means that the size of the file is not changed noticeably while bucking is in progress. The file is made up of three different sections as illustrated.

Pri-file

When creating a new logging contract you decide yourself whether to generate a new pri-file.

The pri-file saves production statistics at log level. A number of data for each log are saved. This enables greater possibilities to obtain different types of production statistics down to log level. But it also means that the pri-file grows in size all the time.

Production statistics from the pri-file cannot be shown in Dasa4. The file is only intended for export to an external PC for further processing of statistics.

The file is made up of three different sections as illustrated.

Contents of PRD-file

Identity and administration data	Structure from used Apt-file
Object no.	Number of species
Organisation number	matrices
etc.	etc.

Accumulating variables with data on production

Variable no.	Example of saved data
201	Log bill pieces per price matrix/species
202	Log bill volume per price matrix/species
222	Number of trunks per trunk sort/species
223	Number of trunks per operator and species
227	Number of trunks/metre class/species
232	Number of trunks/price matrix/species
236	Volume per price matrix in several different formats
241	Total volume in several different formats
500-504	Data for DBH Breast height diameter

Contents of PRI-file

Identity and administration data	Structure from used Apt-file
Object no.	Number of species
Organisation number	matrices
etc.	etc.

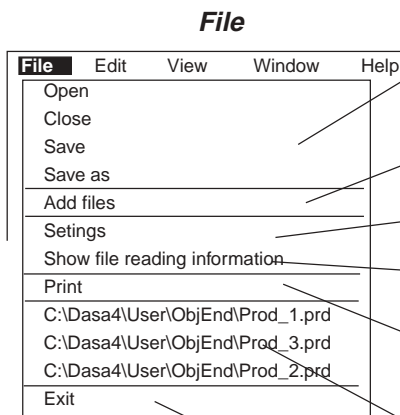
Data per log *

Code	Contents
1	Price matrix number
201	Top diameter in mm on bark
202	Top diameter in mm under bark
203	Middle diameter in mm on bark
204	Middle diameter in mm under bark
205	Butt diameter in mm on bark
206	Butt diameter in mm under bark
207	HKS middle diameter in mm on bark
208	HKS middle diameter in mm under bark
301	Length in cm
400	Volume acc. to price type, whole number
1400	Volume acc. to price type, decimal
401	Volume in m3s on bark, whole number
1401	Volume in m3s on bark, decimal
402	Volume in m3s under bark, whole number
1402	Volume in m3s under bark, decimal
500	Consecutive number of trunk.
501	Consecutive number of log in the trunk.

* The table shows maximal number of data that can be saved in the pri-file. To limit the size of the file a selection is chosen that adapts to the relevant country and the relevant company.

3.B Description

3.B.1 Program menus



Open, close and save

Opens and closes production files in normal Windows manner. Production files are located in the folders:

Ongoing production: C:\Dasa4\User\Obj\

Concluded production: C:\Dasa4\User\ObjEnd\

Add files

See section 3.B.4 Add production files and section 3.B.2 Settings, General

Settings

See section 3.B.2 Settings, General and section 3.B.3 Settings, matrix overview.

Show file reading information

Error messages, for example, are shown here (checksum errors, etc) or variables in the production file that are not handled by the program.

Print

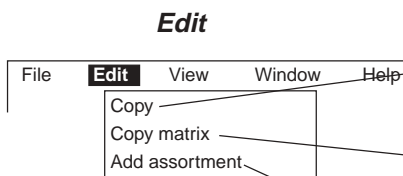
See section 3.B.18 Printout, settings and section 3.B.20 Examples of printouts.

Latest used production files

Click the file you wish to reopen it.

Exit

Ends the program module PWinApt and returns to the settings menu.



Copy

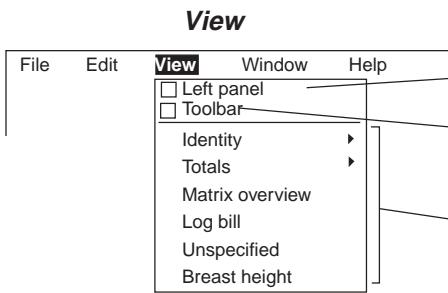
Copies the marked area to Clipboard. By opening a different program, eg, Excel, and using the Paste command you can process data from the production file in any manner you choose.

Copy entire matrix

Copies the entire matrix, including column and line headings, to Clipboard. It is not necessary to mark the matrix. By opening another program, eg, Excel, and using the Paste command it is possible to further process data from the production file in an optional manner.

Add assortment

This function is only active when Matrix overview is selected. The function is used to add two or more matrices in one and the same species and is described in section 3.B.4 Add production files.



Left panel

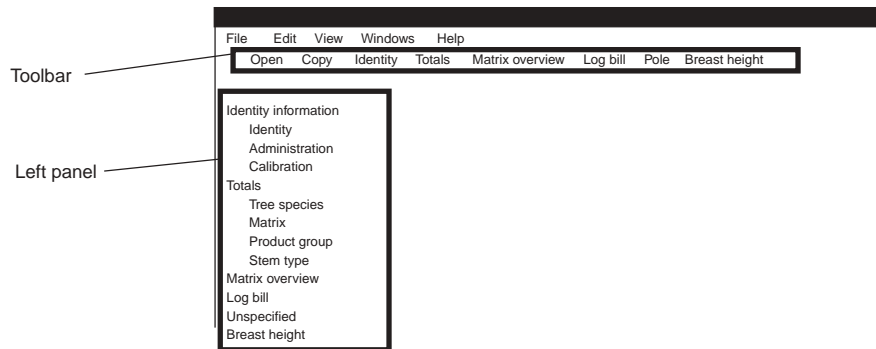
Click the box if you wish to see the various sub-sections of the program at the left side of the screen (see below).

Toolbar

Click the box if you wish to see the various sub-sections of the program at the top of the screen (see below).

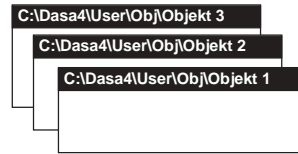
Select window

Choose one of the program windows by clicking the desired line. A ticked box on the left indicates the window currently selected.



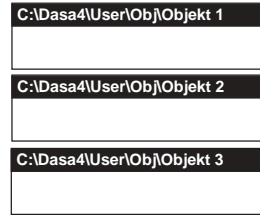
Cascade

If several production files are open simultaneously they are arranged with an overlap.



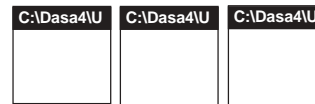
Tile horizontally

If several production files are open their screen size is adjusted and they are placed one above the other.



Tile vertically

If several production files are open their screen size is adjusted and they are placed side by side.

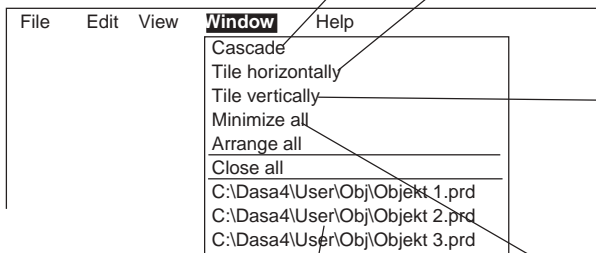


Minimise all

If several production files are open their screen size is minimised to the name line only and they are placed side by side at the bottom of the screen.



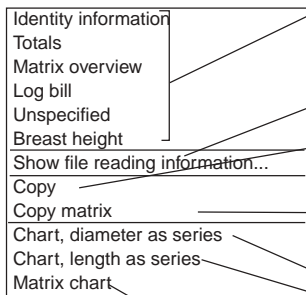
Window



Choose production file

If several production files are open choose the production file that is to be active.

Click the right mouse button



Select window

Choose one of the program windows by clicking the desired line. The window that is currently active is marked by a tick in the box to the left.

Show read-in information

Error messages are displayed here, for example, (checksum error, etc) or if there are variables found in the production file that are not dealt with by the program.

Copy

Copy the marked area to Clipboard. By opening another program, eg, Excel, and using the Paste command it is possible to enter data from the production file and process it as desired.

Copy whole matrix

Copy the entire matrix, including column and line headings, to Clipboard. It is not necessary to mark the matrix. By opening another program, eg, Excel, and using the Paste command it is possible to enter data from the production file and process it as desired.

Graphics

Gives an overall view of distribution of logs in the log bill with the aid of bar charts. The chart can either show distribution of diameter in each length class (diameter distribution as series) or distribution of length in each diameter class (length distribution).

The functions are explained in detail in section 3.B.14.

Matrix chart

Gives an overall view of the percentage distribution of trunks within each diameter class with the aid of different colors. The table can be copied as a colored image (eg, to Word) or as a table of values (eg, to Excel).

The functions are explained in detail in section 3.B.15.

3.B.2. Settings, General

Add with matrix code

Using the function **Add production files** (see section 3.B4) several different production files can be added into a common new production file.

When the box **Use assortment code is not marked:**

- The price matrices of the production files are added together depending on the position of the matrices in the matrix overview:
An example:
Two production files (fil1.prd and fil2.prd) are to be added together.
The price matrix at the top left in fil1.prd is added to the price matrix at the top left in fil2.prd.

Price matrix at top left in the matrix overview

Tree species 1	Tree species 2	Tree species 3
Pm1	Pm1	Pm1
Pm2	Pm2	Pm2
Pm3	Pm3	Pm3
Pm4	Pm4	
Pm5	Pm5	
Pm6	Pm6	
Pm7	Pm7	
Pm8	Pm8	
Pm9	Pm9	
Pm10		

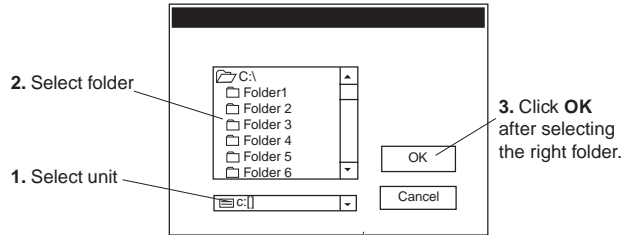
- Adding then continues in the same way with the remaining price matrices.

When the box **Use assortment code is marked:**

- When a price matrix is programmed there is a Code box in which an optional code can be entered.

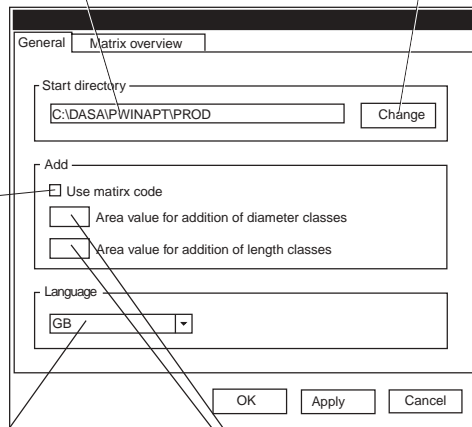
- The price matrices are now paired together so those matrices with the same code are added together. In this way one can be sure that the right matrices are paired together, regardless of location in the matrix overview.
- Matrices that cannot be paired together with any other matrix are included in the new production file without having been added together.

Alter start directory



Start directory

Here you can see the first folder that you come to in the computer when opening a production file.



Choose language

Choose the language for the program module PWinApt

Area value for addition of diameter/length classes

In the price matrices that are to be added the diameter classes are compared with one another. Diameter classes that have the same diameter value are added together into a single diameter class in the new summed production file. Length classes are compared in a similar way.

In some cases a certain tolerance is required to avoid creating too many new classes.

In the example below the value in the box **Area value for addition of diameter classes** is set at 2 mm.

Diameter classes production file 1:	120	140	160	180	200	220
	↓	↓	↓	↓	↓	↓
New summed production file:	120	140	160	180	200	220
	↑	↑	↑	↑	↑	↑
Diameter classes production file 2:	122	142	162	182	202	222

The computer searches first for the smallest diameter class (120 mm) and then checks to find any further diameter class in the interval 120 – 122 (120 + 2, where 2 = the value in box **Area value for addition of diameter classes**). If there is such a diameter class (in our example diameter class 122 in production file 2) then it will be included in the summing up. The new class gets the name 120. The same comparison is then made with the other diameter classes and length classes.

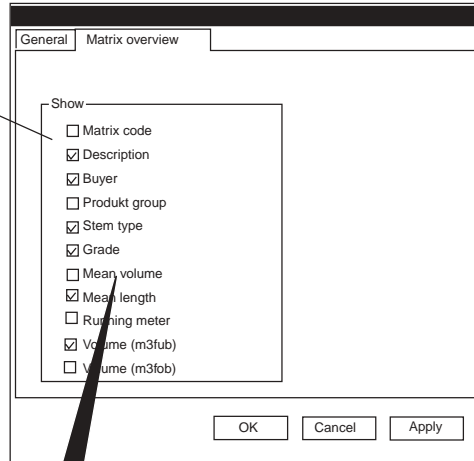
3.B.3 Settings, Matrix overview

In this setting window you determine how many parameters are to be visible in the **Matrix overview** window. See also section 3.B.12 Matrix overview.

Show parameters in matrix overview

A summary of the contents of the assortments is shown in the "Matrix overview" menu.

Certain parameters are always shown (see below). You can decide here which other parameters are to be shown.



Matrix overview, smallest number of parameters

The matrix overview will look like this if none of the boxes in the above setting window are "ticked".

Show matrix for tree species		Species 2	
Matrix	Number	Volume	Price type
Pm1	0	0,00	m3toub
Pm2	2	0,18	m3toub
Pm3	32	6,92	m3toub
Pm4	0	0,00	m3toub
Pm5	7	1,87	m3toub
Pm6	34	3,74	m3fub
Pm7	69	5,18	m3fub
Pm8	14	2,49	m3fub
Pm9	5	0,31	m3fub

Matrix overview, maximum number of parameters

The matrix overview will look like this if all of the boxes in the above setting window are "ticked".

Show matrix for tree species		Species 2												
Matrix	Code	Description	Buyer	Product group	Stem type	Grade	Number	Volume	Price type	Mean volume	Mean length	Running meter	Volume (m3fub)	Volume (m3fob)
Pm1														
Pm2														
Pm3														
Pm4														
Pm5														
Pm6														
Pm7														
Pm8														
Pm9														

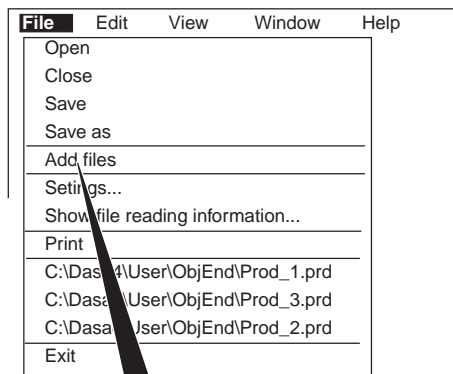
3.B.4 Add production files

Several different production files can be added together to form a single file on condition that the price matrices of the files are so alike that they can be added.

Price matrices that are to be added together must have the same price type and a fairly similar classification of diameters and lengths.

The adding means that equivalent price matrices in the production files are added individually so that the new production file will consist of a number of summed price matrices.

To facilitate adding together you can make certain settings that are described in section 3.B.2 Settings, general.



Select production files for adding

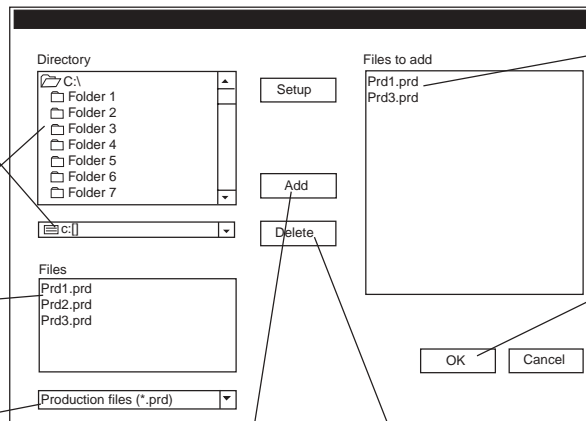
First choose the unit in the computer where the production files are located.

Then select the folder in the unit where the production files are located.

After selecting the folder its contents will be shown here. Select production file.

Select production files or added files

Even previously added files can be added together. Choose here whether to show production files (*.prd) or added files (*.psu) in the "Files" box.



Files to add

The files selected for adding are shown here.

Perform adding

Add together the files that you placed in the "Files to be added" box and open the summed file.

Add

Add the file that you marked in the "Files" box to the "Files to add" box.

Delete

Delete the file that you marked in the "Files to add" box.

3.B.5 Identity

Identity data for optional production file. Here you can find out the name, origin and data concerning the production file and about the bucking file that was used in processing.

Production file

Data about the production file.

Reset

Time when the production file was created.

Store

Time of the latest data saving in the production file.

Production times

Information about when production started and ended. Also times for any sub-stops. A sub-stop can be made for example when it is necessary to show part of the production before the entire production is completed.

Bucking file

Information about the latest used bucking file when data was saved to the production file. Here you can see the name and identity of the bucking file, when it was created and which version has been used.

Harvester identity

The machine number is programmed in program module System information, see section 62.

Modified description

Data, eg, whether it is an original file or one consisting of several files added together

3.B.6 Administration

Administration data into which you can enter a large number of different parameters to exactly define the production file.

Administration data

Enter the data needed to identify the production file.

Identitetsuppgifter	Administration	Calibration information
Organization <input type="text"/> Administration <input type="text"/> District <input type="text"/> Working team <input type="text"/> Wood pile <input type="text"/>	Subcontractor <input type="text"/> Code <input type="text"/> Name <input type="text"/> Address <input type="text"/>	Object <input type="text"/> Marking for cutting <input type="text"/> Compartment number <input type="text"/> Lot number <input type="text"/>
	Contract <input type="text"/> Buyer <input type="text"/> Vendor <input type="text"/> Contract number <input type="text"/> Contract number (VIOL) <input type="text"/>	

3.B.7 Calibration

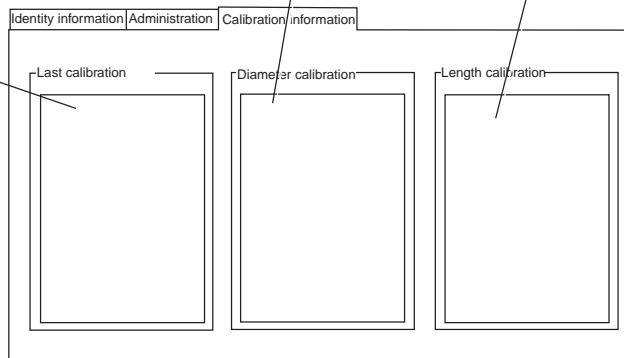
Information about when calibration of the length and diameter sensors was last done on the harvester head. If any particular reason for re-calibration has been entered the text will be shown here.

Latest calibration

Latest length or diameter calibration and reason, if any, for calibrating. Calibration of the system is made in program module **32 Calibration**.

Diameter calibration
Dates of previous diameter calibrations.

Length calibration
Dates of previous length calibrations.



3.B.8 Tree species

The **total production** divided into different types of trees is shown here. The volume is shown as:

- **total volume** as the price types m3s under bark and m3s over bark.
- **volume of average trunk** as the price types m3s under bark and m3s over bark.
- **unspecified volume** as the price types m3s under bark and m3s over bark.

You can choose to show production of:

- **optional** operator
- **all** operators

Selection of operator
 You can choose to show either the joint production of all operators or the production of an optional operator.

Production per tree species

Tree species	Matrix	Product group	Log type		
Show total bill for operator					
All					
	Species 1	Species 2	Species 3	Species 4	Sum
Number of logs	0	0	0	0	0
Total volume (m3sub)	0	0	0	0	0
Total volume (m3sob)	0	0	0	0	0
Mean log (m3sub)	0	0	0	0	0
Mean log (m3sob)	0	0	0	0	0
Unspec. volume (m3sub)	0	0	0	0	0
Unspec. volume (m3sob)	0	0	0	0	0

3.B.9 Matrices

The **production of all** price matrices for each species is shown here. **Price type** is defined individually for each assortment and therefore the price type for each assortment is also presented.

The **number of logs** and **mean length** of the logs is also presented.

You can choose to show the production of an **optional** operator or **all** operators combined.

Choice of tree species

Choose among the available types of trees. All assortment ranges for the selected types are shown.

Solid volume under/over bark

Volume converted to m3sub and m3sob.

Volume according to price type

The price type can vary for different assortment ranges. The price type is therefore shown separately for each assortment.

The volumes are shown in the price types that are relevant for the respective assortment.

Choice of operator

You can choose to show the production of **all** operators combined or that of an **optional** operator.

Matrices/ tree species

All matrices are shown for the selected tree species.

Tree species	Matrix	Product group	Log type
Tree species	Operator		
Spruce	All		

	Matrix1	Matrix 2	Matrix 3	Matrix 4	Sum
Number of logs	0	0	0	0	0
Volume (m3sub)	0	0	0	0	0
Volume (m3sob)	0	0	0	0	0
Volume acc. to price	0	0	0	0	0
Price type	m3toub	m3toub	m3sub	m3sub	0
Mean length	0	0	0	0	0

3.B.10 Product group

Each price matrix in a bucking instruction can be linked to a particular product group, eg, TIMBER, PULPWOOD or UNSPECIFIED. The **production and number of logs in all of the product groups** are shown here for each species.

Because the price matrices can have different **price types**, a product group can contain several different

price types. If this is the case, the word **“Different”** will be displayed on the **“Price type”** line for that product group. The volume is then shown converted to price type **m3s**.

You can choose to show the production of an **optional** operator or **all** operators combined.

Choice of tree species

Choose among the available types of trees. All assortment ranges for the selected type are shown.

Solid volume under/over bark

Volume converted to m3sub and m3sob.

Volume according to price type

The price type can vary for different assortment ranges. The price type is therefore shown separately for each product group.

The volumes are shown in the price types that are relevant for the respective product group.

Choice of operator

You can choose to show the production of **all** operators combined or that of an **optional** operator.

Product group / tree species

All product groups are shown for the selected type of trees.

	Prod. gr. 1	Prod. gr. 2	Prod. gr. 3	Prod. gr. 4	Sum
Number of logs	0	0	0	0	0
Volume (m3sub)	0	0	0	0	0
Volume (m3sob)	0	0	0	0	0
Volume acc. to price	0	0	0	0	0
Price type	m3toub	m3toub	m3sub	m3sub	0

3.B.11 Log type

Each price matrix in a bucking instruction can be linked to a particular type of log. The **production for each type of log** is shown here for each tree species. Because the **price matrices** can have different price types, an assortment of different types of trunks may contain several different price types. The volumes are shown here converted to the price type **m3s under bark** and **m3s over bark**.

The **total number of logs** and the **total volume** of each type of logs are also presented. Observe that production results for a log group cannot be shown individually for different operators, all the values shown are for all of the operators.

Price matrices / type of log
All price matrices are shown for the selected log type.

Total volume

Choice of species
Choose among the available species.

Choice of log type
Choose among the available log types for the selected tree species. All price matrices are shown for the selected log type.

Trunk type code
When you create the various trunk types in the bucking instructions (see section 67.B.11) a code is tied to each particular trunk type.

The standard code is:
 first digit = consecutive number of the species in the matrix.
 second digit = consecutive number of the trunk type in the selected species.
 Other code types may also be used.

	Pm 1	Pm 2	Pm 3	Pm 4	Sum
Number of logs	0	0	0	0	0
Running meter	0	0	0	0	0
Volume (m3sub)	0	0	0	0	0
Volume (m3sob)	0	0	0	0	0

3.B.12 Matrix overview

In the upper part of the matrix overview you can see which price matrices are included in the production file and in what order the matrices are arranged for the various tree species.

In the lower part you can see a summary of the production results for the various assortments. You can determine the number of variables to be shown in the menu **Settings, matrix overview**, see section 3.B.3.

The matrix overview is also used to add one or more production files, see section 3.B.4. **Add production files.**

Tree species in the production file

Click one of the matrices to change species in the lower part of the matrix overview.

Matrices in the production file

The price matrices included in the production file can be seen here. Double click a matrix to come direct to it.

Species 1	Species 2	Species 3
Pm 1	Pm 1	Pm 1
Pm 2	Pm 2	Pm 2
Pm 3	Pm 3	
Pm 4	Pm 4	
Pm 5	Pm 5	
Pm 6	Pm 6	
Pm 7	Pm 7	
Pm 8	Pm 8	
Pm 9	Pm 9	
Pm 10		

Upper part of matrix overview

Smallest number of variables

The number of variables shown can be programmed in the menu **Settings, matrix overview**, see section 3.B.3. Some of the variables however are always shown as below.

Show matrix for tree species		Species 2		
Matrix	Number	Volume	Price type	
Pm1	0	0,00	m3toub	
Pm2	2	0,18	m3toub	
Pm3	32	6,92	m3toub	
Pm4	0	0,00	m3toub	
Pm5	7	1,87	m3toub	
Pm6	34	3,74	m3fub	
Pm7	69	5,18	m3fub	
Pm8	14	2,49	m3fub	
Pm9	5	0,31	m3fub	

Maximum number of variables

If you program the maximum number of variables in the menu **Settings, matrix overview**, see section 3.B.3, the display will be as below.

Show matrix for tree species		Species 2												
Matrix	Code	Description	Buyer	Product group	Stem type	Grade	Number	Volume	Price type	Mean volume	Mean length	Running meter	Volume (m3fub)	Volume (m3tot)
Pm1														
Pm2														
Pm3														
Pm4														
Pm5														
Pm6														
Pm7														
Pm8														
Pm9														

3.B.13 Log bill

The **production for each price matrix** is shown here for each tree species. The information is very detailed and can be shown in four different ways for each length/diameter class:

- As **number of logs**.
- As **number of logs in percent** of all logs in the length class.
- As **volume**.
- As **volume in percent** of the total volume in the length class.

You also get information about **total volumes** of each length and diameter class and also the **proportional distribution** within the length classes and the diameter classes.

The **total number of logs, total volume** and **mean length** for the entire assortment are also shown.

Code, Buyer, Description

Data that is used to facilitate identification of the price matrix. The data are linked to the selected price matrix and were entered when the bucking instruction was programmed (see section 67.B.14).

Price matrix settings

Some of the settings made when the price matrix was programmed are shown here. The settings cannot be altered in this mode.

Total data

Production data for all felled logs in this price matrix.

Choice of tree species

Choose among the available types of tree species

Choice of price matrix

Choose among the available price matrix in the selected tree species.

Piece/volume

Choose between showing production data as number of logs or volume. The volume will be displayed in the unit shown in the price type.

Absolute/Percentage

Choose to show the production in absolute figures (either number of logs or volume) or show it (number or volume) as percentage of the entire number or volume of the diameter class.

Percent diameter classes

Percentage distribution between the different diameter classes.

Log bill for

Tree species	Code	Buyer	Setup	Total
Species 1			Grade	Number
Matrix	Description		Maxdiam	Mean length
Matrix 1			Price type	Volume
			m3toub	Running meter
			Max length	

Piece Absolute

Length/Diam	160	180	200	220	240	260	280	300	Sum	Percent	Volume
310	0	0	0	0	0	0	0	0	0	0,0	0,00
340	0	0	0	0	0	0	0	0	0	0,0	0,00
370	0	0	0	0	0	0	0	0	0	0,0	0,00
400	0	0	0	0	0	0	0	0	0	0,0	0,00
430	0	0	0	0	0	0	0	0	0	0,0	0,00
460	0	0	0	0	0	0	0	0	0	0,0	0,00
490	0	0	0	0	0	0	0	0	0	0,0	0,00
520	0	0	0	0	0	0	0	0	0	0,0	0,00
550	0	0	0	0	0	0	0	0	0	0,0	0,00
Sum	0	0	0	0	0	0	0	0	0	0	
Percent	0	0	0	0	0	0	0	0	0	-	0,0
Volume	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00			

Percent length classes

Percentage distribution between the different length classes.

Volume / length class

The aggregate volumes within each length class.

Volume / diameter class

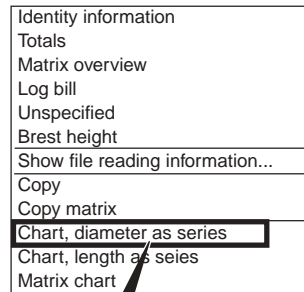
The aggregate volumes within each diameter class.

3.B.14 Graphics

This function shows distribution of logs in the log bill with the aid of four bar charts. Three of the charts show distribution by the number of logs. The fourth chart shows distribution in %. The function can show distribution in two different ways:

- Diameter distribution within each length class (diameter distribution)
- Length distribution within each diameter class (length distribution).

Click the right mouse button in Log bill mode



Select the diameter classes to be shown

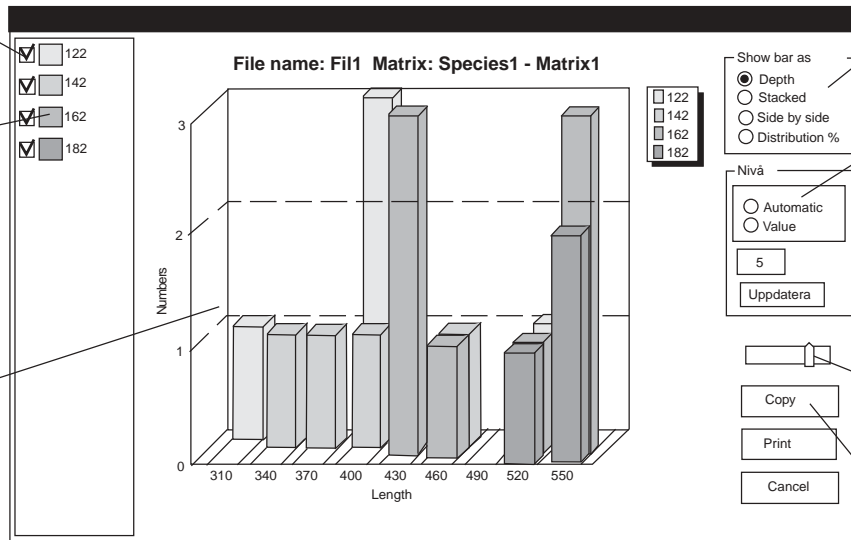
Click in the box to show/conceal the diameter class.

Colors for diameter class

Select the color by double-clicking the respective color box.

Perspective mode

The chart is shown as a three-dimensional bar chart in which each diameter class has its own bar in each length class. The perspective can be altered by moving the control to the left of the chart.



Select chart

Choose between the four different display modes; see the images at bottom of the page.

Size of the chart

Automatic: The vertical axis of the chart (number or %) is numbered automatically so that the chart has sufficient space.

Fixed value: The vertical axis of the chart gets the maximum value that you type in the box.

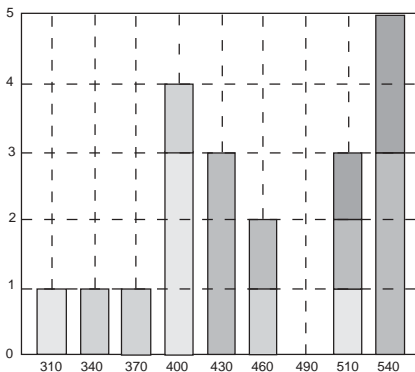
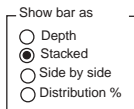
Perspective

When the chart is shown as "Depth" you can alter perspective of the chart here.

Copy

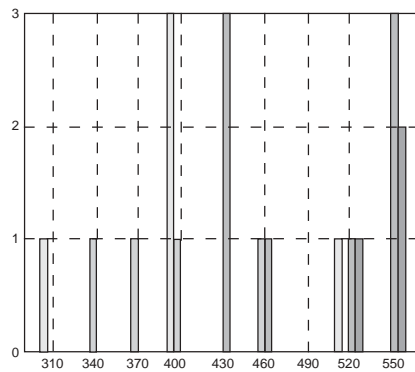
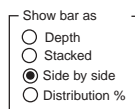
Copy the chart as a color image (bitmap) that can, for example, be pasted in Word.

Stacked mode



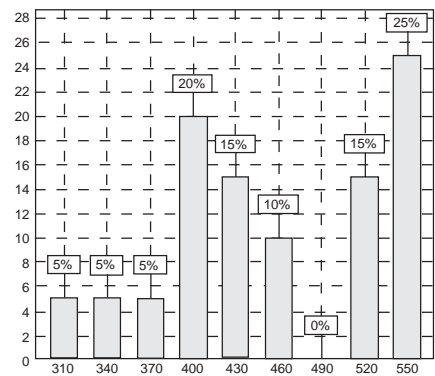
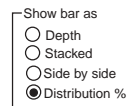
The different diameter classes within each length class are placed on top of one another in the same stack.

Side by side mode



The different diameter classes within each length class are placed beside one another in the respective stack.

% distribution mode



The percentage distribution of the number of logs between the different length classes.

3.B.15 Matrix graphics

In this function you get an overall view of the percentage distribution of logs within each diameter class in the log bill.

The distribution is shown as percentage figures, and also in different colors. You yourself choose the colors and the limit positions for the different colors in the Settings mode.

The table can be copied as:

- A color image (eg, can be used in a Word document).
- A table of values (eg, can be used in Excel).

Copy the table as an image

The table is copied to clipboard as a bitmap image, ie, an exact color copy of the table. The image can subsequently be copied into a Word document for example.

Copy the table values

Values of the table are copied to clipboard and can subsequently be copied to Excel for example.

Note that only the table values will be copied. Color data in the table will not be included.

Paste the values in

You can copy in the values from another table. To enable this, you must click in the box **Stop update of value** to interrupt the normal updating.

	122	142	162	182
310	20			
340		25		
370		25		
400	60	25		
430			38	
460		25	12	
490				
520	20		12	33
550			38	67

Vary size of the table

Here you can alter the size of the table. This function allows you to view the whole table regardless of how big it is.

If you copy the table to use it in Word, for example, you can easily adjust the size of the table to suit the document.

Percentage distribution

The table shows the log bill with percentage distribution of the trunks within the different diameter classes. Boxes in the table are colored according to the limit values and colors that you chose in **Settings**, see below.

Show lengths in columns

Click in the box to shift so that the length classes are shown as columns and the diameter classes as lines.

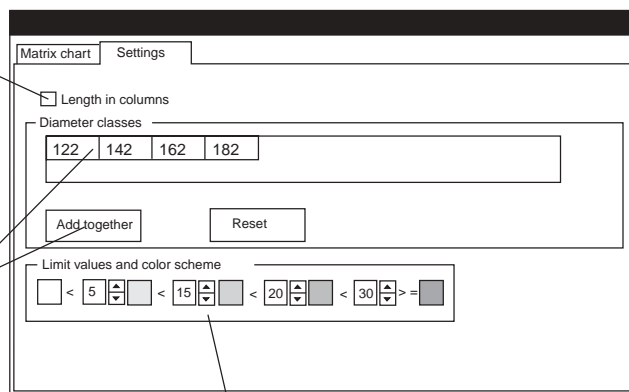
Add diameter classes together

Mark several diameter classes by clicking and holding the button down and drag over the classes that are to be added together.

Click on **Add together**.

The diameter classes are added, length by length, and the new percentage values are calculated from the combined classes.

Click on **Restore** to retrieve the original diameter classes.



Select limit values and colors in the table

Choose the limit values for the different colors in the table. Click in the color boxes and choose the color that is to be shown for the respective table value.

3.B.16 Unspecified

The **number of unspecified logs of different length classes** divided into different tree species is shown here.

Also the **total production** and the **total number of trunks** of different tree species are shown.

Solid volume under/over bark

The volume converted to m3sub and m3sob.

Total	Species 1	Species 2	Species 3	Sum
Number	1	5	0	5
Volume (m3sub)	0,00	0,26	0,00	0,26
Volume (m3sob)	0,00	0,29	0,00	0,29

Number of logs of different length classes/tree species

An example:

All poles from 10 to 10.99 m are placed in class 10.

Unspecified bill (meter class)

Tree species/Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Species 1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Species 2	0	3	0	0	0	0	0	0	0	0	0	0	1	1	0
Species 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3.B.17 Breast height

The production of different diameter classes based on diameter of the trunk at breast height for each tree species is shown here, both as number of trunks and as volumes.

Also the total production and the total number of trunks of the species are shown.

Choice of tree species

Choose among the available types of tree species.

Breast height

The height at which the diameter of the trunk is read for subsequent sorting in one of the diameter classes.

Diameter classes for different diameters at breast height

An example:

All trunks that have a diameter at breast height of 100 to 120 mm are placed in class 100.

Total number and volume

Total number of trunks and total volume of selected tree species.

Lower limit	Number	Volume(m3)
100	0	0
120	0	0
140	0	0
160	0	0
180	0	0
200	0	0
220	0	0
240	0	0
260	0	0
280	0	0

3.B.18 Printout, settings

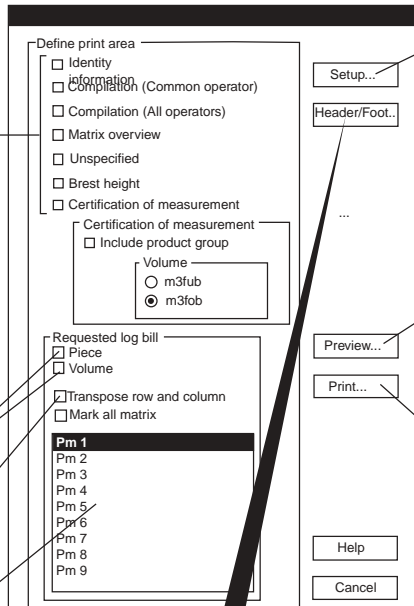
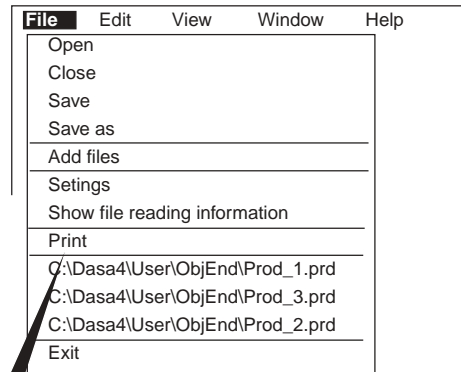
You decide here which parts of the production file that you wish to print out and how the printout is to be marked (page header, footer). You can also preview the contents on screen before printing out.

Scope of the printout

(See also section 3.B.20 Examples of printouts)

Here you can indicate which parts of the production file that you wish to print out:

- Identity**
 Information about production file, bucking file, harvester, felling, calibration dates.
- Summary (joint)**
 Total production divided into species and with following data: number of trunks, total volume and volume of mean trunk.
- Summary (operators)**
 Total production **per operator** divided into species and with following data: number of trunks, total volume and volume of mean trunk.
- Matrix overview**
 An overview of price matrices included in the production file. You decide the number of variables in the overview in the menu **Settings, matrix overview**, see section 3.B.3.
- Unspecified**
 Volume, total and per species and also logg bill with metre classes.
- Breast height**
 Production of different diameter classes based on diameter of the trunk at breast height.
- Log bill**
 Production of one or several price matrices in selected species.
Choose:
 whether the information is to be shown as **piece** (number of logs) or as **volume**
 whether the information is to be shown with **diameter values in vertical** and **length values in horizontal axis** (switch line and column). The information is normally shown with diameter values on horizontal axis and length values on vertical axis.
 which **price matrices** that are to be shown



Settings for current printer

Preview of printout
See section 3.B.19 Printout, preview on screen.

Screen image showing exactly same content as the printout. You can check here to ensure that you get the correct information before printing.

Print out the selected data

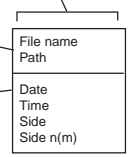
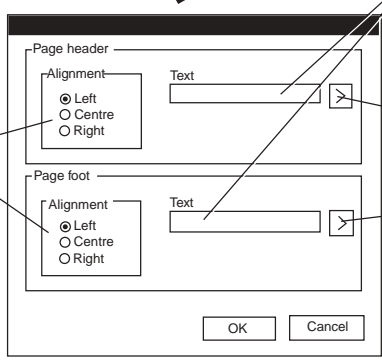
Text in page header and footer

Text at the top and bottom of all printed pages. The text can be of two kinds:

- Own text**, that you type in the text box.
- Text from current file**
 You can choose to show one or several of the variables by clicking on box > and then on the variable that you wish to show.

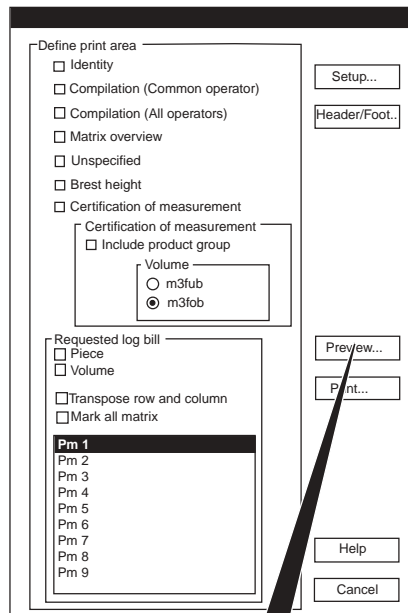
Positioning of page header/footer

Decide whether the text is to be positioned to the left, right or centred on the page.



3.B.19 Printout, preview on screen

Here you can preview the exact text before printing. Note that the on-screen preview is displayed page by page and you must therefore scroll through the pages to view all of the text.



Zoom, fixed values

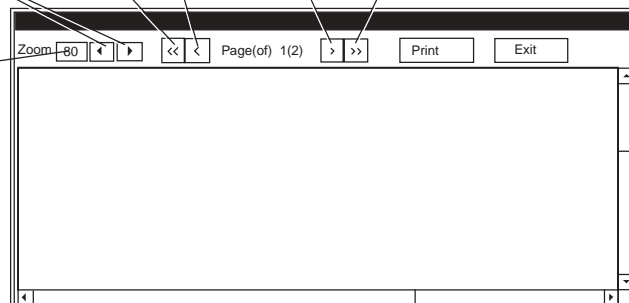
Click the arrows to enlarge/diminish the text in fixed steps, from 20 – 300%, in steps of 20%.

Change page

Go to: first page previous page next page last page

Optional zoom

Type a percentage value and press **Enter** to enlarge/diminish the text to an optional size between 20 – 300%.



3.B.20 Examples of printouts

Identity

Identity information		
Production		Bucking instruction
Filename:		Filename:
Reset date:		Identity information:
Save date:		Create date:
Start date:		Version:
Part end date:		
End date:		
Harvester:		
Machine number:		
Manufacture No:		
Machine type:		
Calibration date:		Control measurement date:
Organization:		Subcontractor:
Organization:		Subcontractor:
Region:		Code:
District:		Name:
Working team:		Address:
Wood pile:		
Object:		Contract:
Object number:		Buyer:
Marking for cutting:		Vendor:
Compartment number:		Contract number:
Lot number:		Contract number (VIOL):

Calibration information
Last calibration
Date:
Description:

Certification of measurement

Certification of measurement:		
Printout date:		
Harvester:		
Machine number:		
Manufacture No:		
Machine type:		
Calibration date:		Control measurement date:
Production		Bucking instruction
Filename:		Filename:
Start date:		Identity information:
End date:		Create date:
Organization:		Subcontractor:
Organization:		Subcontractor:
Print out date:		Code:
District:		Name:
Working team:		Address:
Wood pile:		
Object:		Contract:
Object number:		Buyer:
Marking for cutting:		Vendor:
Compartment number:		Contract number:
Lot number:		Contract number (VIOL):

Summary (All operators)

Total

Totals				
Totals	Operator:Common			
Tree species	Species 1	Species 2	Species 3	Sum
Number of logs	0	0	0	0
Total volume (m3sub)	0,00	0,00	0,00	0,00
Total volume (m3sob)	0,00	0,00	0,00	0,00
Mean log (m3sub)	0,00	0,00	0,00	0,00
Mean log (m3sob)	0,00	0,00	0,00	0,00
Unspec. volume(m3sub)	0,00	0,00	0,00	0,00
Unspec. volume(m3sob)	0,00	0,00	0,00	0,00

Matrices per tree species

Matrix for Species 3 Operator :Common						
Matrix for Species 2 Operator :Common						
Matrix for Species 1 Operator :Common						
Matrices	Pm 1	Pm 2	Pm 3	Pm 4	Pm 5	Sum
Number of logs	0	0	0	0	0	0
Volume (m3sub)	0,00	0,00	0,00	0,00	0,00	0,00
Volume (m3sob)	0,00	0,00	0,00	0,00	0,00	0,00
Volume acc. to price	0,00	0,00	0,00	0,00	0,00	0,00
Price type	0,00	0,00	0,00	0,00	0,00	0,00
Mean length	0	0	0	0	0	0

Product groups per tree species

Product groups for Species 3 Operator :Common			
Product groups for Species 2 Operator :Common			
Product groups for Species 1 Operator :Common			
Product groups	Prod. gr. 1	Prod. gr. 2	Sum
Number of logs	0	0	0
Volume (m3sub)	0,00	0,00	0,00
Volume (m3sob)	0,00	0,00	0,00
Volume acc. to price	0,00	0,00	0,00
Price type	0,00	0,00	0,00

Type of log per tree species

Log type for Species 3 Log type: LOG TYPE 1						
Log type for Species 2 Log type: LOG TYPE 1						
Log type for Species 1 Log type: LOG TYPE 1						
Log type	Pm 1	Pm 2	Pm 3	Pm 4	Pm 5	Sum
Number	0	0	0	0	0	0
Volume (m3fub)	0,00	0,00	0,00	0,00	0,00	0,00
Volume (m3fob)	0,00	0,00	0,00	0,00	0,00	0,00

Log type for Species 1 Log type: LOG TYPE 2			
Log type	Pm 1	Pm 2	Sum
Number	0	0	0
Volume (m3fub)	0,00	0,00	0,00
Volume (m3fob)	0,00	0,00	0,00

Summary (operator)

Total per operator

Totals					
Operator:John					
Tree species					
Number of logs					
Total volume (m3sub)					
Mean log (m3sub)					
Pole volume (m3sob)					
Number of timber					

Totals					
Operator:Eric					
Tree species					
Number of logs					
Total volume (m3sub)					
Mean log (m3sub)					
Pole volume (m3sob)					
Number of timber					

Totals					
Operator:David					
Tree species	Species 1	Species 2	Species 3	Sum	
Number of logs	0	0	0	0	
Total volume (m3sub)	0,00	0,00	0,00	0,00	
Total volume (m3sob)	0,00	0,00	0,00	0,00	
Mean log (m3sub)	0,00	0,00	0,00	0,00	
Mean log (m3sob)	0,00	0,00	0,00	0,00	
Pole volume (m3sub)	0,00	0,00	0,00	0,00	
Pole volume (m3sob)	0,00	0,00	0,00	0,00	
Number of timber	0	0	0	0	

Matrices per tree species and operator

Product groups per tree species and operator

Matrix for Species 1 Operator :John					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 1 Operator :Eric					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 1 Operator :David					
Matrix	Pm 1	Pm 2	Pm 3	Pm	
Number of logs	0	0	0		
Volume (m3sub)	0,00	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	0,00	
Mean length	0	0	0		

Product groups for Species 1 Operator :John				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 1 Operator :Eric				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 1 Operator :David				
Product groups	Prod. gr. 1	Prod. gr. 2	Sum	
Number of logs	0	0	0	
Volume (m3sub)	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	

Matrix for Species 2 Operator :John					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 2 Operator :Eric					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 2 Operator :David					
Matrix	Pm 1	Pm 2	Pm 3	Pm	
Number of logs	0	0	0		
Volume (m3sub)	0,00	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	0,00	
Mean length	0	0	0		

Product groups for Species 2 Operator :John				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 2 Operator :Eric				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 2 Operator :David				
Product groups	Prod. gr. 1	Prod. gr. 2	Sum	
Number of logs	0	0	0	
Volume (m3sub)	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	

Matrix for Species 3 Operator :John					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 3 Operator :Eric					
Matrix					
Number of logs					
Volume (m3sub)					
Volume (m3sob)					
Volume acc. to price					
Price type					
Mean length					

Matrix for Species 3 Operator :David					
Matrix	Pm 1	Pm 2	Pm 3	Pm	
Number of logs	0	0	0		
Volume (m3sub)	0,00	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	0,00	
Mean length	0	0	0		

Product groups for Species 3 Operator :John				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 3 Operator :Eric				
Product groups				
Number of logs				
Volume (m3sub)				
Volume (m3sob)				
Volume acc. to price				
Price type				

Product groups for Species 3 Operator :David				
Product groups	Prod. gr. 1	Prod. gr. 2	Sum	
Number of logs	0	0	0	
Volume (m3sub)	0,00	0,00	0,00	
Volume (m3sob)	0,00	0,00	0,00	
Volume acc. to price	0,00	0,00	0,00	
Price type	0,00	0,00	0,00	

Matrix overview

Matrix overview

Species 1	Species 2	Species 3
Pm1	Pm1	Pm 1
Pm2	Pm2	Pm 2
Pm3	Pm3	
Pm4	Pm4	
Pm5	Pm5	

Show matrix for tree species: **PINE**

Matrix	Code	Description	Buyer	Product group	Stem type	Grade	Number	Volume	Price type	Mean length	Volume (m3spb)
Pm 1	1234	11	Buyer 1	Prodgr 1	Stemt 1				m3toub		
Pm 2	3651	12	Buyer 2	Prodgr 2	Stemt 1				m3toub		
Pm 3	103	13	Buyer 3	Prodgr 3	Stemt 1				m3toub		
Pm 4	376	14	Buyer 4	Prodgr 4	Stemt 1				m3toub		

Log bill (volume)

Log bill **Volume** for **Species 1**

Matrix: **Pm 5** Matrix code: Description: Buyer:
 Max diameter: **900** Max length: **580** Price type: **m3toub** Grade: **11111000000**

Number: **24** Volume: **4,17** Mean length: **438,8** Running meter:

Lc/Dc	160	180	200	220	240	260	280	300	Sum	%	Vol.
310	0,06	.	.	.	0,30	.	.	.	0,36	8,7	0,36
340	0,08	.	.	.	.	.	.	.	0,08	2,0	0,08
370	.	0,11	.	.	.	.	.	.	0,11	2,6	0,11
400	0,08	0,10	.	.	0,18	.	0,25	0,28	0,90	21,6	0,90
430	0,20	0,11	.	0,19	.	.	.	.	0,50	12,0	0,50
460	0,09	.	.	.	.	.	.	0,36	0,45	10,7	0,45
490	.	.	0,16	.	.	.	.	.	0,16	3,9	0,16
520	.	.	0,17	.	0,27	0,32	.	.	0,76	18,2	0,76
550	.	0,15	0,21	0,22	0,26	.	.	.	0,84	20,1	0,84
Sum.	0,52	0,47	0,54	0,41	1,02	0,32	0,25	0,64	4,17		
%	12,4	11,3	12,9	9,9	24,5	7,6	6,0	15,4		100	
Vol.	0,52	0,47	0,54	0,41	1,02	0,32	0,25	0,64			4,17

Log bill (piece, transpose line and column)

Log bill **Piece** for **Species 1**

Matrix: **Pm 5** Matrix code: Description: Buyer:
 Max diameter: **900** Max length: **580** Price type: **m3toub** Grade: **11111000000**

Number: **24** Volume: **4,17** Mean length: **438,8** Running meter:

Dc/Lc	310	340	370	400	430	460	490	520	550	Sum	%	Vol.
160	1	1	.	1	2	1	.	.	.	6	12,4	0,52
180	.	.	1	1	1	.	.	.	1	4	11,3	0,47
200	.	.	.	.	.	.	1	1	1	3	12,9	0,54
220	.	.	.	.	1	.	.	.	1	2	9,9	0,41
240	2	.	.	1	.	.	.	1	1	5	24,5	1,02
260	.	.	.	.	.	.	.	1	.	1	7,6	0,32
280	.	.	.	1	.	.	.	.	.	1	6,0	0,25
300	.	.	.	1	.	1	.	.	.	2	15,4	0,64
Sum.	3	1	1	5	4	2	1	3	4	24		
%	8,7	2,0	2,6	21,6	12,0	10,7	3,9	18,2	20,1		100	
Vol.	0,36	0,08	0,11	0,90	0,50	0,45	0,16	0,76	0,84			4,17

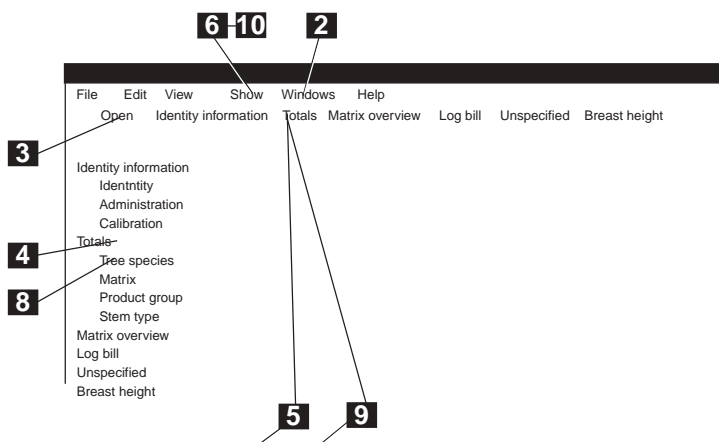
Summary
Matrix, Stem type, Product group, Total

Matrix	Code	Description	Buyer	Number of logs	Volume	Price type	Running meter	Mean length
SPECIES 1								
Pm 1	1234	11	Buyer 1	23	4,91	m3toub	85,4	371,3
Pm 2	3651	12	Plats 2	37	7,02	m3toub	121,9	329,4
Pm 3	103	13	Plats 3	12	2,10	m3toub	42,3	352,5
Pm 4	376	14	Plats 4	61	15,90	m3toub	231,9	380,1
SPECIES 2								
Pm 1	4402	21	Plats 1	19	3,75	m3toub	75,7	398,4
Pm 2	7245	22	Plats 2	50	12,94	m3toub	211,5	423,0
Pm 3	0223	23	Plats 3	18	4,12	m3toub	73,3	407,2
Pm 4	1432	24	Plats 4	54	14,58	m3toub	217,4	402,5
Sem type								
Code	Number of trunks	Number of logs	Running meter	Volume(m3)	Mean trunk			
SPECIES 1								
Stem type 1	11	7	23	85,4	4,91	0,701		
Stem type 2	12	9	37	121,9	7,02	0,780		
Stem type 3	13	4	12	42,3	2,10	0,525		
Stem type 4	14	21	61	231,9	15,90	0,757		
SPECIES 2								
Stem type 1	21	5	19	75,7	3,75	0,750		
Stem type 2	22	12	50	211,5	12,94	1,078		
Stem type 3	23	5	18	73,3	4,12	0,824		
Stem type 4	24	13	54	217,4	14,58	1,121		
Product group								
Number of logs	Volume /price type	Price type	Volume(m3)	Mean length				
SPECIES 1								
Product group 1	43	13,51	m3toub	20,63	371,3			
Product group 2	93	27,90	m3toub	42,63	329,4			
Product group 3	45	12,23	m3toub	18,68	352,5			
Product group 4	17	3,81	m3toub	5,82	380,1			
SPECIES 2								
Product group 1	29	6,81	m3toub	10,39	398,4			
Product group 2	59	15,11	m3toub	23,06	423,0			
Product group 3	11	2,41	m3toub	3,68	407,2			
Product group 4	52	12,98	m3toub	19,81	402,5			
Total								
Number of trunks	Number of logs	Running meter	Volume(m3)	Mean trunk				
SPECIES 1	41	198	481,5	29,93	0,710			
SPECIES 2	35	141	577,9	35,39	0,936			

3.C Proceed as follows

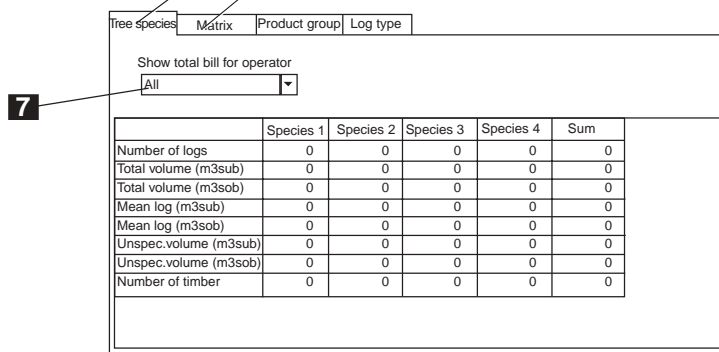
3.C.1 Opening production file

- 1 Open program **PwinApt**.
- 2 You can have several different production files open at the same time. In menu **Window** you can choose which file is to be active.
- 3 To open a production file: Click **Open**. Select and open optional production file in the normal Windows manner. Production files have the suffix **.prd**.



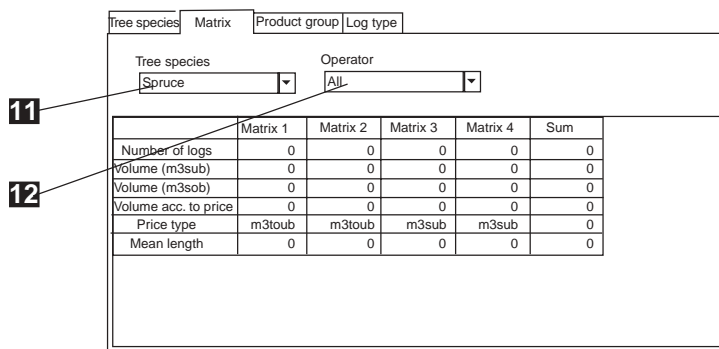
3.C.2 Tree species

- 4 Click **Tree species** in the list on the left or ...
- 5 ... click **Totals** at the top and then if necessary click the **Tree species** flap or ...
- 6 ... in the menu window **Show**: select **Totals** and then click **Tree species**.
- 7 Choose to show the production for **all** operators or for an **optional** operator.



3.C.3 Matrix

- 8 Click **Matrix** in the list on the left or ...
- 9 ... click **Totals** at the top and then if necessary click the **Matrix** flap or ...
- 10 ... in the menu window **Show**: select **Totals** and then click **Matrix**.
- 11 Choose among the available **Tree species**.
- 12 Choose to show the production for **all** operators or for an **optional** operator.



3.C.4 Product group

- 1 Click **Product group** in the list on the left or ...
- 2 ... click **Totals** at the top and then if necessary click the **Product group** flap or ...
- 3 ... in the menu window **Show:** select **Summary** and then click **Product group**.
- 4 Choose among the available **Tree species**.
- 5 Choose to show the production for **all** operators or for an **optional** operator.

The screenshot shows the software interface for selecting a product group. At the top, a menu window is open with 'Show' and 'Totals' highlighted. Below it, a list of options is visible, with 'Product group' selected. The main window shows 'Tree species' set to 'Spruce' and 'Operator' set to 'All'. A data table is displayed below these options.

	Prod. gr. 1	Prod. gr. 2	Prod. gr. 3	Prod. gr. 4	Sum
Number of logs	0	0	0	0	0
Volume (m3sub)	0	0	0	0	0
Volume (m3sob)	0	0	0	0	0
Volume acc. to price	0	0	0	0	0
Price type	m3toub	m3toub	m3sub	m3sub	0

3.C.5 Log type

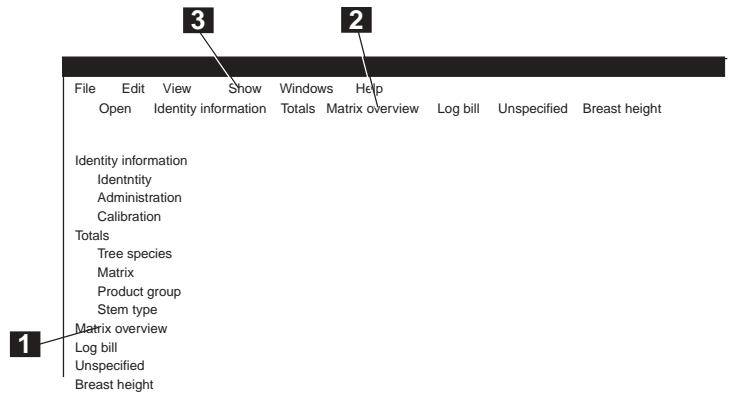
- 6 Click **Log type** in the list on the left or ...
- 7 ... click **Totals** at the top and then if necessary click the **Log type** flap or ...
- 8 ... in the menu window **Show:** select **Totals** and then click **Log type**.
- 9 Choose among the available **Tree species**.
- 10 Choose among the available **Log types** in the selected tree species.
- 11 In addition to production data concerning the various assortments for each type of trunk the **total data** is also shown in price type m3s for all felled trunks in the selected type of trunk.

The screenshot shows the software interface for selecting a log type. At the top, a menu window is open with 'Show' and 'Totals' highlighted. Below it, a list of options is visible, with 'Log type' selected. The main window shows 'Tree species' set to 'Spruce' and 'Log type' set to 'Log type 1'. A data table is displayed below these options.

	Pm 1	Pm 2	Pm 3	Pm 4	Sum
Number of logs	0	0	0	0	0
Running meter	0	0	0	0	0
Volume (m3sub)	0	0	0	0	0
Volume (m3sob)	0	0	0	0	0

3.C.6 Matrix summary

- 1** Click **Matrix summary** in the list on the left or ...
- 2** ... click **Matrix summary** on the upper line or ...
- 3** ... in the menu window **Show:** click **Matrix overview** .
- 4** Double click on the name of the matrix to go to the matrix.
- 5** Click an optional matrix in a particular species ...
- 6** ... so that matrices of the species can be seen in the lower window.
The number of parameters shown can vary, depending on what settings you have made in menu **File/Settings/Matrix overview** (see section 3.B.3).



Species 1	Species 2	Species 3
Pm 1	Pm 1	Pm 1
Pm 2	Pm 2	Pm 2
Pm 3	Pm 3	
Pm 4	Pm 4	
Pm 5	Pm 5	
Pm 6	Pm 6	
Pm 7	Pm 7	
Pm 8	Pm 8	
Pm 9	Pm9	
Pm 10		

Show matrix for tree species		Species 2	
Matrix	Number	Volume	Price type
Pm 1	0	0,00	m3toub
Pm 2	2	0,18	m3toub
Pm 3	32	6,92	m3toub
Pm 4	0	0,00	m3toub
Pm 5	7	1,87	m3toub
Pm 6	34	3,74	m3fub
Pm 7	69	5,18	m3fub
Pm 8	14	2,49	m3fub
Pm 9	5	0,31	m3fub

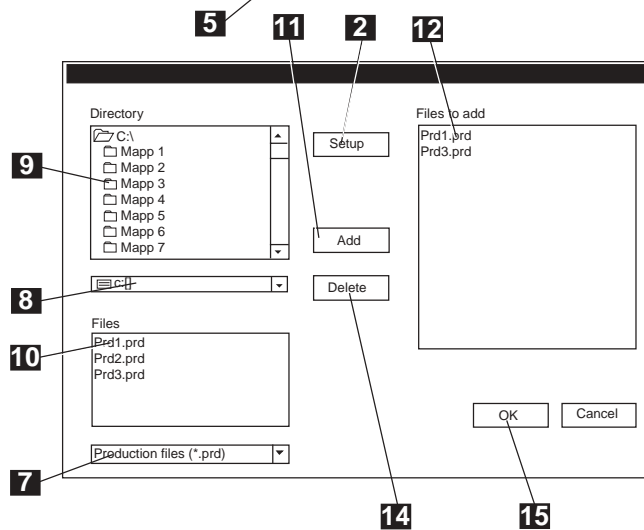
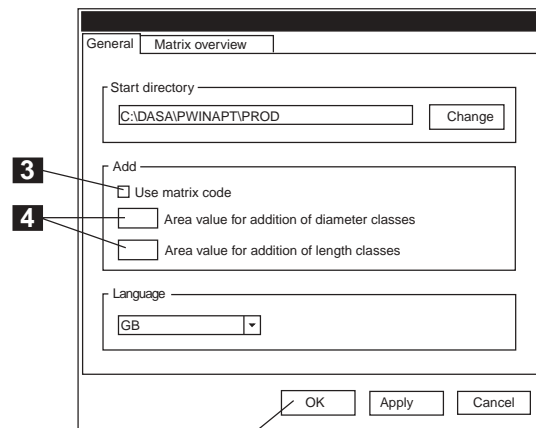
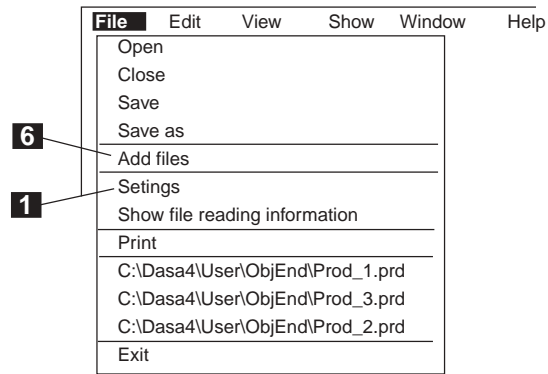
3.C.7 Adding production files

Alter/check settings

- 1 Click **Setup** in the **File** menu.
- 2 When you are in the **Add files** window you can also click **Setup**.
- 3 Choose whether to have the box **Use assortment code** active (Description: see section 3.B.2 Settings, general).
- 4 Check/alter values in both of the boxes **Area values ...** (Description: see section 3.B.2 Settings, general).
- 5 Click **OK**.

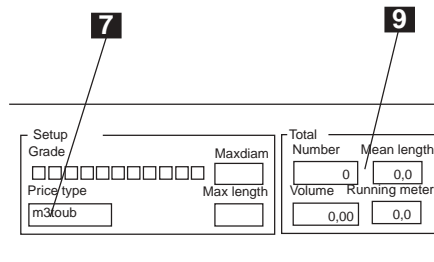
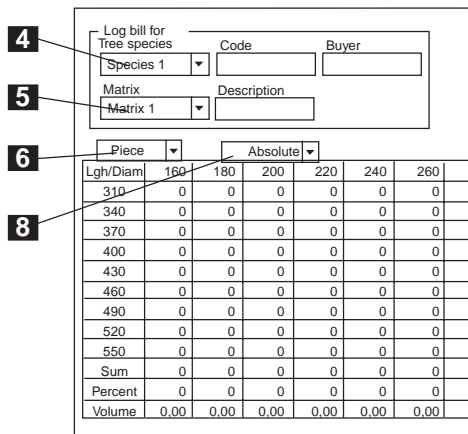
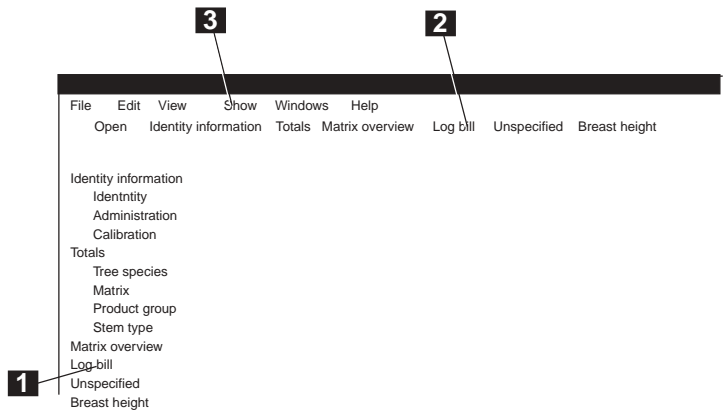
Add files

- 6 Click **Add files** in the **File** menu.
- 7 You can add production files (*.prd) and also previously added files (*.psu). Choose here whether the file is to be a production file or a previously added file.
- 8 Select unit.
- 9 Select folder.
- 10 Click the file of choice.
- 11 Click **Add**
- 12 The filename will now be seen in the box **Files to add**.
- 13 Repeat items 8 – 12 for remaining files that are to be added.
- 14 If you wish to remove a file from the **Add files** box: Mark the file and click **Delete**.
- 15 Click **OK** to add the files.



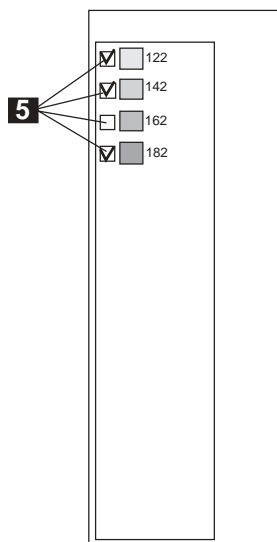
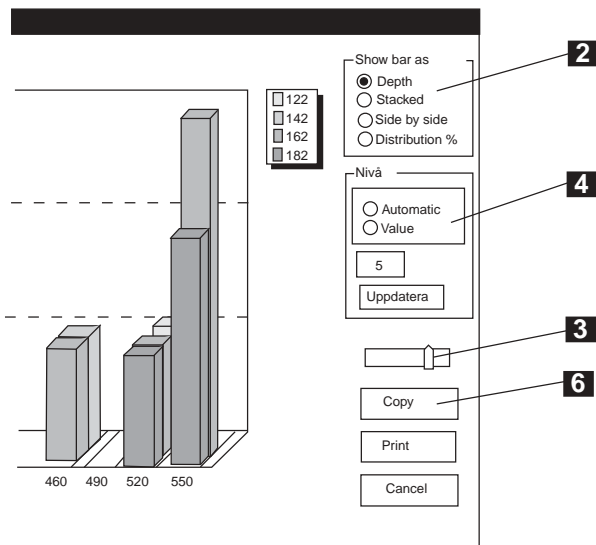
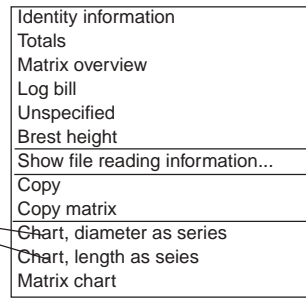
3.C.8 Log bill

- 1 Click **Log bill** in the list on the left or ...
- 2 ... click **Log bill** on the upper line or ...
- 3 ... in the menu window **Show**: click **Log bill**.
- 4 Choose among the available **Tree species**.
- 5 Choose among the available **matrices** for the selected species.
- 6 Choose whether to show production as **Piece** (number of trunks) or **Volume**.
- 7 The volume is in the unit shown in the box **Price type**.
- 8 Choose to show the production in **Absolute figures** (number of trunks or volume) or as **Percentage** (percentage of entire number or volume of the diameter class).
- 9 In addition to the log bill **Total data** is also shown in price type m3s for all felled trunks in this price matrix.



3.C.9 Graphics

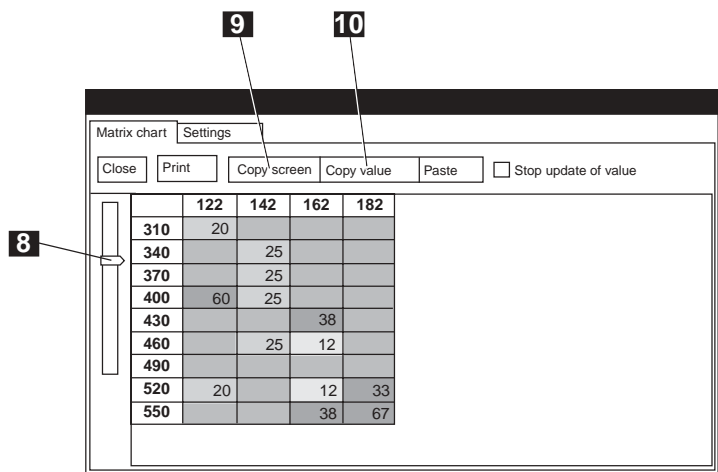
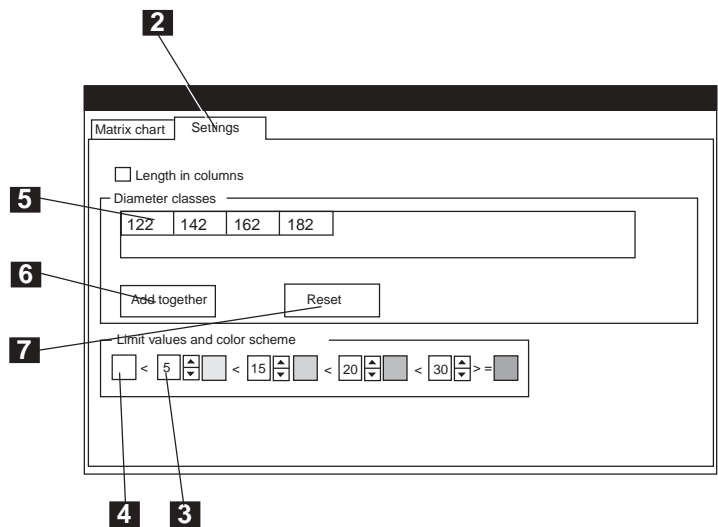
- 1** When you show the log bill, click the right mouse button and select **Graphics, diameter distribution** or **Graphics, length distribution**.
- 2** Choose which kind of chart you wish to show, **Depth, Stack, Side by side** or **Distribution %**.
- 3** If you have chosen Depth you can alter the perspective of the image using the control.
- 4** Choose whether you wish the vertical axis to be numbered **Automatically** or with a **Fixed value** that you type in the box.
- 5** Choose which diameter/length classes that are to be shown by clicking in the boxes.
- 6** If you select **Copy** you can paste a color image of the actual chart in another program.



3.C.10 Matrix graphics

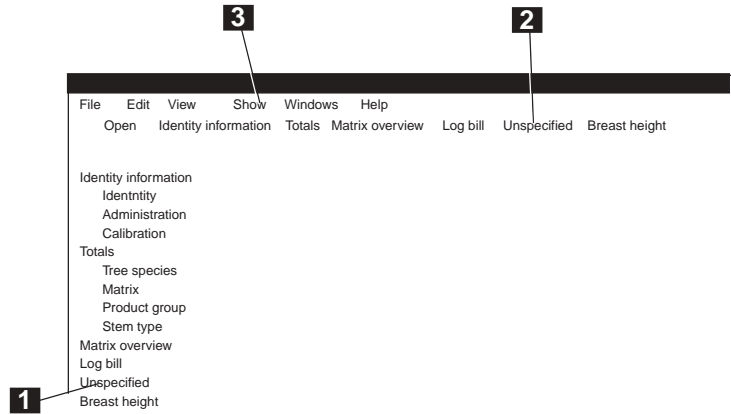
- 1** When you show the log bill, click the right mouse button and select **Matrix chart**.
- 2** Click the flap **Settings** to set the limit values and colors and to add together the diameter classes.
- 3** Choose the limit values for the different colors in the table by clicking the arrow boxes at the respective figure value.
- 4** Click in the color boxes and choose the color that is to be shown for the respective table value.
- 5** To add together the diameter classes: Mark several diameter classes by clicking and holding the button down and drag over the classes that are to be added together.
- 6** Click on **Add together**.
- 7** Click on **Restore** to retrieve the original diameter classes.
- 8** You can alter the size of the table using the control.
- 9** Copy the table to clipboard as a color image by clicking **Copy screen**.
- 10** Click **Copy value** to copy the figure values of the table to clipboard. Color data in the table will not be included in this copy.

- Identity information
- Totals
- Matrix overview
- Log bill
- Unspecified
- Brest height
- Show file reading information...
- Copy
- Copy matrix
- Chart, diameter as series
- Chart, length as seies
- Matrix chart



3.C.11 Unspecified

- 1** Click **Unspecified** in the list on the left or ...
- 2** ... click **Unspecified** on the upper line or ...
- 3** ... in the menu window **Show:** click **Unspecified**.
- 4** In addition to the pole bill **Total data** is also shown



4

Total	Species 1	Species 2	Species 3	Sum
Number	1	5	0	5
Volume (m3sub)	0,00	0,26	0,00	0,26
Volume (m3scb)	0,00	0,29	0,00	0,29

Unspecified bill (meter class)

Tree species/Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Species 1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Species 2	0	3	0	0	0	0	0	0	0	0	0	0	1	1	0
Species 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3.C.12 Breast height

- 1** Click **Breast height** in the list on the left or ...
- 2** ... click **Breast height** on the upper line or ...
- 3** ... in the menu window **Show:** click **Breast height**.
- 4** Choose among the available **Tree species**.
- 5** In addition to production data concerning the various diameter classes at Breast height **Total data** is also shown in m3s for all felled trunks in the selected species.

The screenshot shows the 'Show' menu with 'Breast height' selected. Below the menu is a data entry form for 'Breast height' with a 'Tree species' dropdown set to 'Species 1' and a 'Breast height (cm)' input field set to '130'. A 'Total' box shows 'Number' as 0 and 'Volume (m3)' as 0,0. Below this is a table with columns 'Lower limit', 'Number', and 'Volume(m3)'. The table contains rows for diameter classes from 100 to 280 cm, all with 0 values.

Lower limit	Number	Volume(m3)
100	0	0
120	0	0
140	0	0
160	0	0
180	0	0
200	0	0
220	0	0
240	0	0
260	0	0
280	0	0

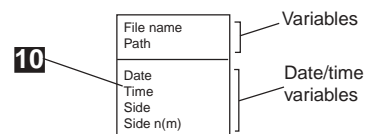
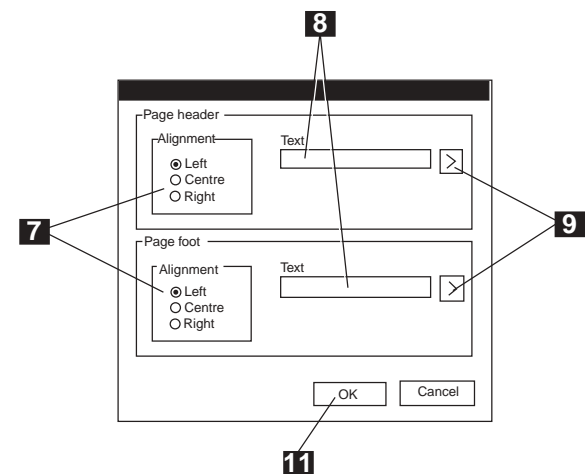
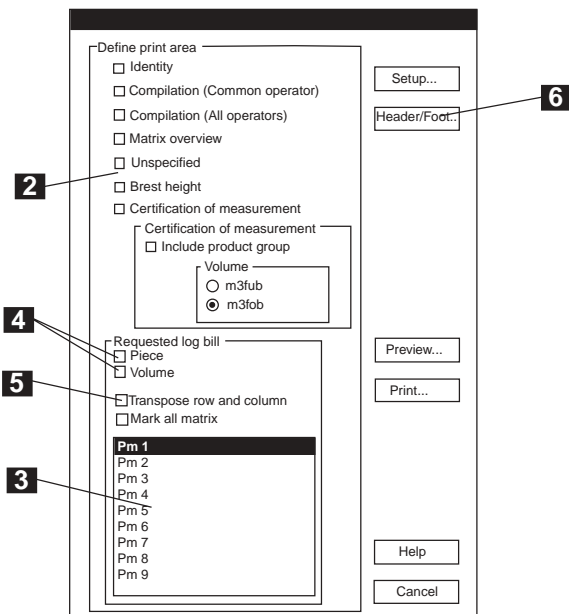
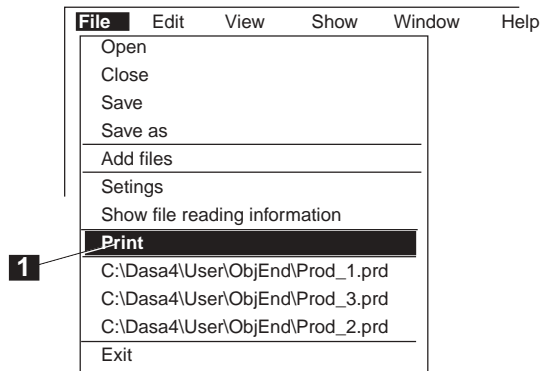
3.C.13 Printout

Choose scope of the printout

- 1 Click **Print** in the **File** menu.
- 2 Choose which parts of the production file that you wish to print out by clicking one or more boxes. Examples of how the printouts look are found in section 3.B.18 **Examples of printouts**.
- 3 Click the **log bill(s)** you wish to print out. If you wish to mark several log bills, keep the **Ctrl** key pressed in while clicking the additional bills.
- 4 Choose whether you wish the log bill to be printed out as **pieces** (number of logs) or as **volumes**.
- 5 The log bill is normally printed with diameters on the horizontal axis and lengths on the vertical axis. Click the box if you wish to changeover so that lengths are printed on the horizontal axis and diameters on the vertical axis.

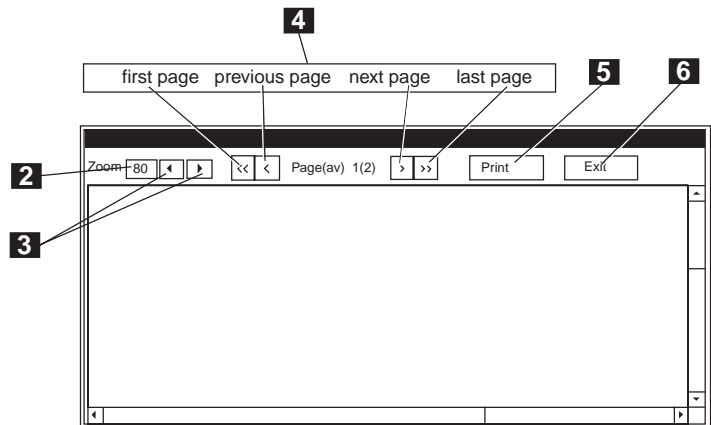
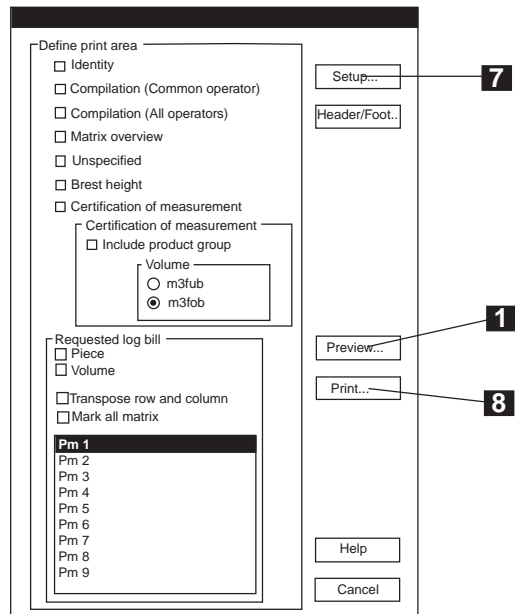
Page header/footer

- 6 If you wish to have special text in the **header** or **footer**: Click Header/Footer.
- 7 Choose whether the text in the header/footer is to be on the left, right or centred.
- 8 Type desired own text in the box.
- 9 You can also include a number of variables retrieved direct from the production file. Click the > box.
- 10 By clicking any of the **variable** or **date/time variables**, the information will be presented in the page header or footer.
- 11 Click **OK** when ready.



Preview and print out

- 1** Click **Preview** if you wish to check on screen before printing out.
- 2** To enlarge/diminish the text to an optional size between 20 – 300%:
Type an optional value and press **Enter** on the keyboard.
- 3** To enlarge/diminish the text in fixed steps from 20 – 300% in steps of 20%:
Click the arrow keys.
- 4** To change page, click one of the arrow keys.
Note that the on-screen preview is displayed page by page and you must change the pages to view all of the text.
- 5** Click **Print** to print out direct from the Preview menu.
- 6** Click **Exit** to return to the Print menu.
- 7** Click **Setup** if you wish to check or alter the printer settings.
- 8** Click **Print** to print out.



4 DWinApt

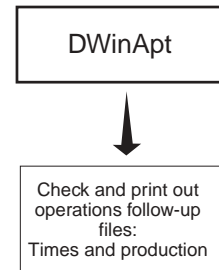
4.A Overview

The program **DWinApt** is an excellent aid in documenting the various activities of each logging contract.

The operator records the following data:

- How much of the total machine time is productive running time, and how much consists of interruptions, repairs, maintenance and moving time within each object.
- Total number of trunks and total volumes for various species and also machine running time for:
 - optional object
 - optional operator within the object

These data can be checked and printed out using DWinApt. The data cannot be altered.



4.B Description

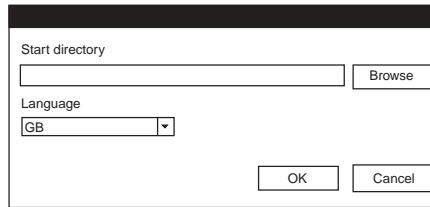
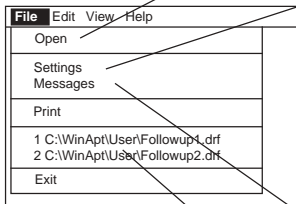
4.B.1 Program menus

Open optional file

You can open operations follow-up file (. drf) here. The start directory (search path) that the computer chooses when you select **Open** is decided by you in the Settings function (see below).

Settings

In the Start directory you select the search path that the computer will use when you decide to open an operations follow-up file. Click on **Browse** if you wish to alter the Start directory . You can also choose which language to use.



Messages

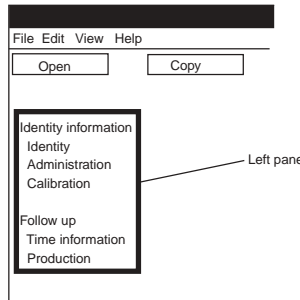
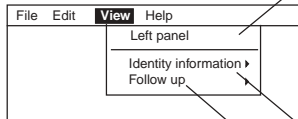
Any relevant error messages will be shown here if faults occur when opening an operations follow-up file.

Latest used operations follow-up files

Click on the file if you wish to open it again.

Show left panel

Choose here if you wish the various menu options to be displayed to the left in the screen.



Identity information

Select to display program window **Identity**, **Administration** or **Calibration**.

Operation data

Select to display program window **Time information** or **Production**.

4.B.2 Identity, Administration, Calibration

Data showing during which time the drf-file has recorded operations follow-up.

Identity information concerning the harvester that has been retrieved from the relevant logging contract.

Note that the number of data may vary depending on the harvester system and whether more than one logging contract has been used.

Data about the bucking file that has been used.

Note that the number of data may vary depending on the harvester system and whether more than one bucking file has been used.

Identity information retrieved from the relevant logging contract.

Note that the number of data may vary depending on the harvester system and whether more than one logging contract has been used.

Data concerning latest calibration.

4.B.3 Time information, Production

All times are counted in hours and minutes

Used time

G15 time + G15B time + all interruption times except "Not working".

Technical usage (%)

G15 time + G15B time / Used time.

G15 time

Productive time that includes interruptions that are shorter than the set Stop time G15 (Normal value of the stop time: 15 minutes). The operator must document an interruption that exceeds the stop time before continued production is enabled.

G0 time

Productive time including stops shorter than the short stop time (Normal value for short stop time: 1-5 min).

G15B time

Moving time for the machine within the object.

Select all operators or an individual operator

Time Information Production

Operator Common

<p>Compilation</p> <p>Total time (hh:mm) <input style="width: 100%;" type="text"/></p> <p>Used time (hh:mm) <input style="width: 100%;" type="text"/></p> <p>Technical usage (%)</p> <p>(G15+G15B) / Used Time = <input style="width: 100%;" type="text"/></p> <p>Basic Time (hh:mm)</p> <p>G15 Time <input style="width: 100%;" type="text"/></p> <p>(G0 Time) <input style="width: 100%;" type="text"/></p> <p>G15B Time <input style="width: 100%;" type="text"/></p>	<p>Delay Time (hh:mm)</p> <p>Operating disturbance</p> <p>Repair <input style="width: 100%;" type="text"/></p> <p>Repair Wait <input style="width: 100%;" type="text"/></p> <p>Maintenance <input style="width: 100%;" type="text"/></p> <p>Repair Harvester Head <input style="width: 100%;" type="text"/></p> <p>Harvester Head Maintenance <input style="width: 100%;" type="text"/></p> <p>Disturbance <input style="width: 100%;" type="text"/></p> <p>Move Time <input style="width: 100%;" type="text"/></p> <p>Not Work Time <input style="width: 100%;" type="text"/></p> <p>Sum Delay Time <input style="width: 100%;" type="text"/></p>
--	--

Select all operators or an individual operator

Mean volume per trunk

Number of trunks processed per hour (G15 time)

Volume per hour (G15 time)

Time information Production

Operator All

	Species 1	Species 2	Species 3	Sum
Number of Trunks				
Total Volume m3fub				
Total Volume m3fob				
Mean Volume m3fub				
Mean Volume m3fob				
Number/G15				
Volume /G15 m3fub				
Volume /G15 m3fob				

4.B.4 Example of printout

DWinApt							
Identity							
Save Date	2002-09-26 15:27:53	Object Number	Obj1				
Start	2002-09-26 12:56:58	Marking	12345				
Machine Number	123	Area Number	5467				
Version	X.X.X	Parcel Number	147				
Apt-identity	Sawmill						
Apt File	Aptfile1.apr						
Apt Date	2001-05-12 14:35:30						
Operator		David					
Drf-File name 2002-09-26.drf							
Time information							
Compilation				Delay Time			
Total Time	2:24			Operating disturbance			
Used Time (hh:mm)				Repair	0:24		
Total Time - Not work time =	2:24			Repair Wait	0:12		
Technical usage (%)				Maintenance	0:00		
(G15+G15B) / Used time =	66,7			Repair Harvester Head	0:00		
Basic Time				Harvester Head Maintenance	0:00		
G15 Time	1:36			Disturbance	0:12		
(G0 Time)	1:36			Move Time	0:00		
G15B Time	0:00			Not Work Time	0:00		
				Sum delay Time	0:48		
Production							
	Spec.1	Spec. 2	Spec.3	Spec. 4	Spec. 5	Spec. 6	Sum
Number of Trunks	0	134	0	1	0	0	135
Total Volume m3fub	0	79,26	0	0,79	0	0	80,05
Total Volume m3fob	0	88,66	0	0,87	0	0	89,53
Mean Volume m3fub	0	0,59	0	0,79	0	0	0,59
Mean Volume m3fob	0	0,66	0	0,87	0	0	0,66
Number / G15							84
Volume / G15 m3fub							50,03
Volume / G15 m3fob							55,95

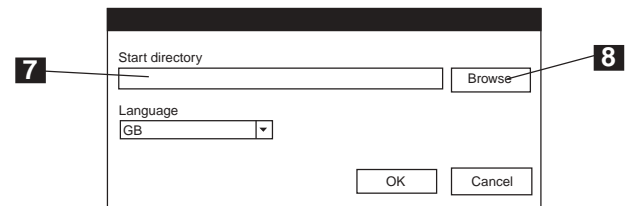
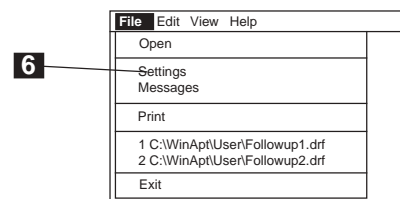
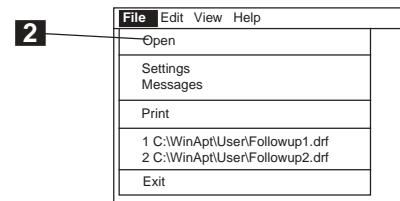
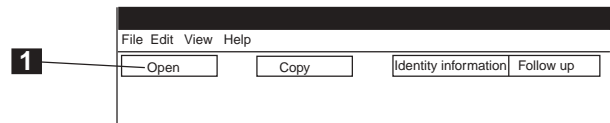
4.C Proceed as follows

4.C.1 Open an operations follow-up file

- 1 Click on the box **Open** or ...
- 2 ... select **Open** in menu **File**.
- 3 Select the operations follow-up file that you wish to open in the normal manner. Click on **OK**.

Set the Start directory

- 4 Setting the Start directory need only be done once and only if standard setting of the computer needs to be altered.
- 5 The operations follow-up files are normally concentrated in a special folder in the computer. In menu **File/Settings** it is possible to select the folder that the computer is to open when you click on **Open**.
- 6 Select **File/Settings**.
- 7 The search path to the folder that opens when you click on **Open** is shown in the **Start directory**.
- 8 Click on **Browse**.
- 9 Select the folder containing the operations follow-up files in the normal manner. Click on **OK**.



4.C.2 Check contents of the file

1 In this program you cannot alter existing data or enter new data. You can only check and print out data in the file.

The program is built up as two blocks with the following contents:

Identity information with three sub-groups:

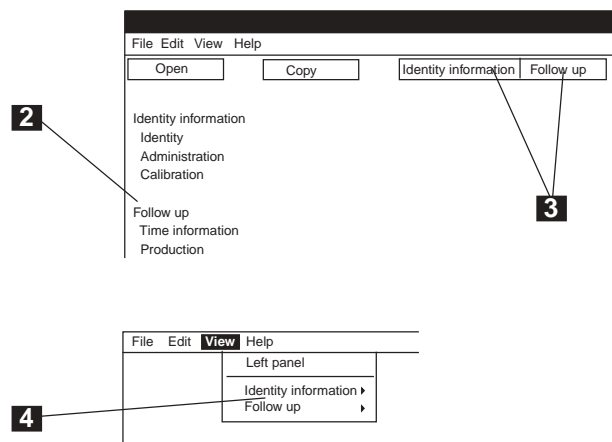
- **Identity**
- **Administration**
- **Calibration**

Follow up with two sub-groups:

- **Time information**
- **Production**

Shift between these groups in three different ways:

- 2 Click on the name of the group in the left text panel or ...
- 3 ... click on the two boxes at the top of the window and then on the flaps or...
- 4 ... select the menus View/Identity information and View/Follow up respectively.



4.C.3 Print out

- 1** Select to view one of the windows **Time information** or **Production**.
- 2** Select **Common** to retrieve data on all operators or select an individual operator.
- 3** Select menu **File/Print**. To facilitate identification of the printout you can enter data to be included in the page header and footer.
- 4** Click on **Settings** to make printer settings.
- 5** Click on **Print** to start the print out.

The appearance of the printout is described in section 4.B.4.

