

**A Short Guide to Using Graph Master**  
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## ***A Short Guide to Using Graph Master***

### **Background**

Orchard monitoring is an increasingly important activity in the production of high quality fruit. Graph Master facilitates the use of orchard monitoring data in the wide range of decisions which orchard managers address. Use Graph Master to compare seasonal monitoring information collected from multiple locations over a number of growing seasons. Graph Master works with any type of data collected over a number of periods each season such as fruit size monitoring data or pheromone trapping results. Use HortVision's Link Master programme to enter data into the databases used by Graph Master.

Graph Master is based on the concept of "comparisons", eg compare the fruit sizing data for a variety in one block with similar data from another block either within the same season or between seasons. Comparisons can include showing information for individual blocks as well as averaging information between years and/or between locations.

### **Limitation of Liability**

HortVision Ltd has endeavored to ensure that this product is technically sound. While all reasonable efforts have been made to ensure that this product is error free and functions correctly, HortVision Ltd and its employees accept no direct nor contingent liability for any errors or malfunctions which might occur. Decision Support software is complex, you need to exercise caution in using outputs.

### **Installing Graph Master Onto Your Computer**

Graph Master will install itself onto your hard drive by following these instructions. Graph Master requires up to 1.5Mb of free hard disk space to install; however, if you have previously installed other Orchard Master software from HortVision then the core system will already be installed and you will need much less than 1.5Mb of free hard disk space.

To install Graph Master:

1. Insert disk one of Graph Master into your drive “A”. (Note, if your floppy drive is referenced by a letter other than “A”, substitute that letter for “A” in these instructions.)
2. Make sure the computer is ready, with the Windows desktop visible on the screen.
3. From the Windows Program Manager menu bar, pull down the File menu and click on the command **Run**.
4. In the Run dialog box that appears, type the following for the command line...  
A:\SETUP  
click on OK, and follow any further instructions that may be displayed on screen.

That’s all there is to it. Graph Master will install itself onto your hard disk.

### **Need Help?**

Everything doesn’t always go according to plan... and that’s why HortVision can be contacted for technical support at any time on Free Phone/Fax 0800 226 555 or you can write to HortVision Ltd, PO Box 634, Cambridge, New Zealand.

### **Using Graph Master**

Run Graph Master by double clicking the Graph Master icon found in the Orchard Master group in Program Manager. You will see a title screen displayed while Graph Master loads.

Once Graph Master has loaded you will see a window labeled “Comparison 1”. It is within this comparison window that you will define the information to show in your comparison, and in which you can view the resulting graph and/or raw data.

Each comparison window contains a “notebook” with three pages. These pages, or tabs, are labeled:

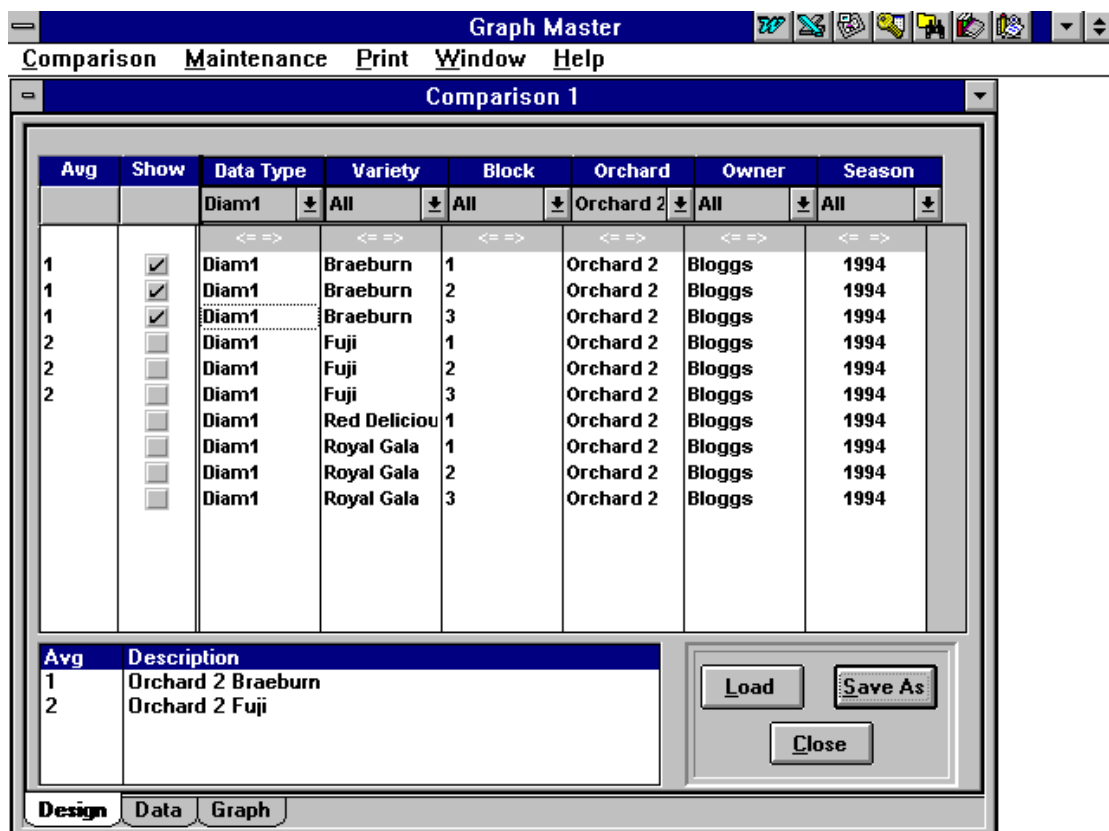
- Design
- Data
- Graph

You can change the tab you are viewing by clicking on the label for the tab at the bottom of the notebook.

### The Design Tab

The Design Tab is where you define the comparison: Which type of data to show, for which blocks, and which information to show as averages and which to show as individual lines on the graph.

The following illustrates the Design Tab:



### *The Data Selection Table*

The main section of the design tab is the Data Selection Table. This table has eight columns and a row for each location\*season that you have recorded data against.

The first two columns are used to mark the rows of data to be included in the comparison, and any averages that are to be calculated. Selecting lines of data to graph is accomplished using the check boxes in the “Show” column. For each row (location\*season) that you want to be plotted on your comparison graph, click on the check box and a tick will appear indicating the row is selected. To deselect a row just click on the check box again and the tick mark is toggled off. In the example shown, the data for the first three rows will be shown on the graph as the associated check boxes are ticked.

To graph the average of a set of lines use the “Avg” column. Enter the same symbol (eg a number or letter) in the “Avg” column for each of the rows to be averaged together. Every line with the same symbol in the “Avg” column will be pulled into the average. When you enter the first symbol for the average, a dialogue box will appear where you can provide a meaningful title for the average, which will be displayed in the Averages Table at the bottom of this tab, and will be used in the graph legend. You can define further average lines to be calculated by entering different symbols in the “Avg” column. If a particular row is to be of more than one average, separate the symbols by a comma. For example “1,2” entered in the Avg column puts that row in the average set with symbol “1” and also in the average set with symbol “2”. In the example above, the data for the three Braeburn blocks are averaged together, and the data for the three Fuji blocks form a second average.

To make it easier to find the rows you want to include in your comparison, use the remaining six columns in the table to subset the data so that rows to be displayed can be selected more easily. Each of the columns has a heading and a drop-down list of items for that heading. For example, the Variety drop-down holds a list of all varieties for which you have recorded data. Select the special type “All” to not subset the database based on that column. For example, clicking on the Variety list and selecting “Braeburn” will limit the rows to showing only locations\*seasons for which you have recorded information against Braeburn. Alternatively, clicking on “All” will show all varieties, not

just Braeburn. In the example above, the Orchard column has been subset so that only locations\*seasons are shown for Orchard 2 which was selected using the drop down list box.

The rows are ordered according to the information within each column left to right. Below the heading of each data column is a gray bar containing the symbol “<==>“. You can click on this symbol and hold the mouse button down while dragging to change the order of the columns, and therefore change the order or rows within the table.

Note that the subsetting and changing of order of columns only affects the way the data is displayed. The data in the database remain unchanged. Use Link Master if you need to change the data.

### ***The Average Table***

Below the Data Selection Table is a smaller table that contains two columns. This is used to name any averages you may have defined. The table contains a reference to the symbol representing the average set, and a description name for the average set. See the previous section for more information on defining averages of your data

.

### ***Load, Save As, and Close Buttons***

At the bottom right of the Design Tab are three buttons used to load and save comparisons, and to close the current Comparison window. The close button does not exit the program, it simply closes the current window, making another window current if there is another one open.

A comparison can be saved for viewing at a later date. The “Save As” button effectively takes a snapshot of the Design Tab and remembers the column subset choices, which lines are selected with a tick in the “Show” column, and the definitions of any averages specified.

To save a comparison, click on the Save As button. A dialogue will appear asking for a name for the comparison, and listing existing comparisons. Enter a name for the comparison, and select OK. If you enter the name of an existing comparison, a message will appear requesting you to enter a new name. Old comparisons can be deleted or renamed using the “Manage Comparisons” item which can be accessed

from the menu at the top of the screen by selecting “Comparison”. Use the “Load” button to select a previously saved comparison description.

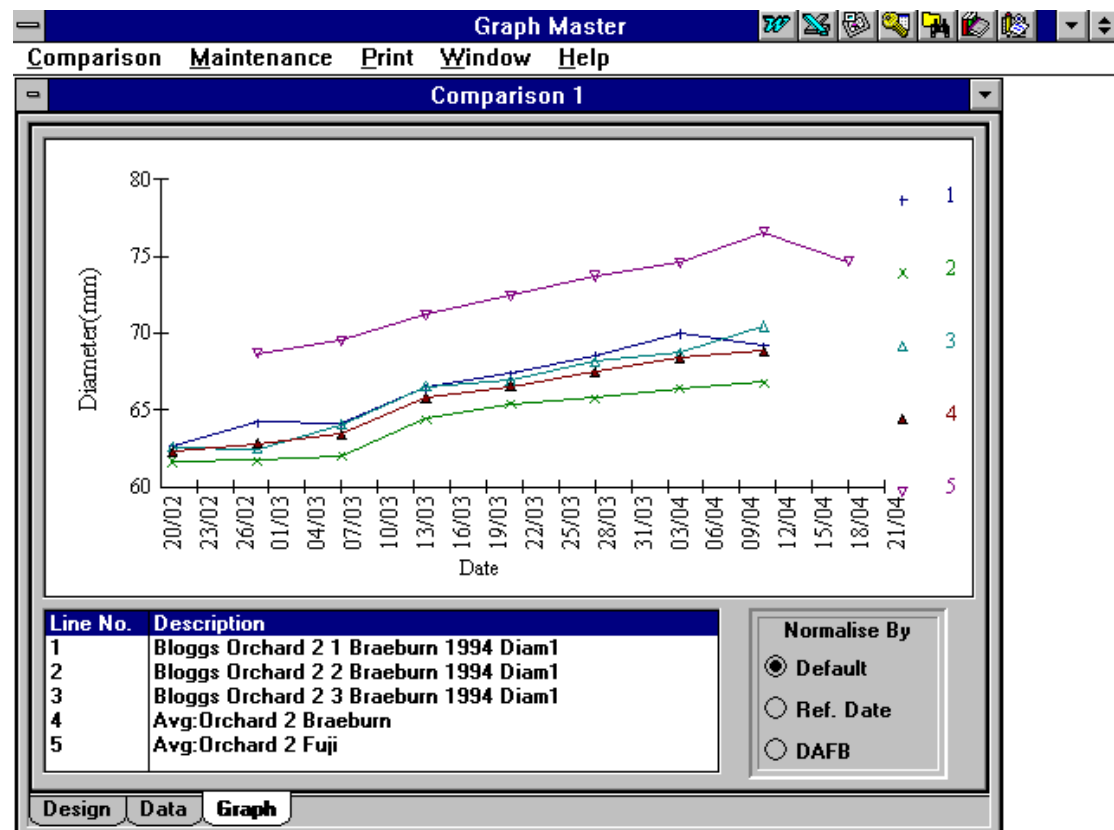
## The Data Tab

To change to the Data Tab, click on the tab marked ‘Data’ at the bottom of the Comparison window.

The Data Tab lists the data for each of the locations\*seasons selected in the Design Tab. The data is retrieved directly from the database, and is displayed in read-only format. This means that you cannot edit any data. If you need to edit the data use Link Master. At the top of the tab is a text area describing what data is being displayed. This information comes directly from the heading drop down list boxes on the Design Tab.

## The Graph Tab

To change to the Graph Tab, click on the tab marked ‘Graph’ at the bottom of the Comparison window. The graph tab - which is the object of this whole exercise! - is shown below:



The Graph Tab consists of three sections, the graph, the legend table, and the normalise box.

### ***The Graph***

The graph is where all selected data and average lines are displayed. The graph is a line graph and for each date measurements have been made the line is marked with a symbol. A list of symbols and their corresponding number is listed to the right of the graph.

### ***The Legend Table***

The legend table is located below the graph. This table displays the number corresponding to a symbol on the graph, and a description of what that line is. The table can be scrolled using the scroll bar on the right to see further lines in the legend. Both average and individual line descriptions are shown in the table.

### ***The Normalise Box***

The Normalise Box allows the data to be displayed in three different ways. Click on the appropriate radio button to select the type of graph to display.

The “Default” option graphs the data against its day and month lining up calendar date irrespective of year. This allows data from different seasons to be overlaid and compared by calendar date.

The Reference Date option (Ref. Date) displays data as the number of days from a fixed reference date. When you select the “Ref. Date” radio button a dialogue box will appear in which you can fill in the date to use as Day 0. You can supply the reference date with or without year. For example, entering “1/10” for the reference date causes data to be plotted as Days After October 1, regardless of year. This allows different seasons data to be overlaid. Alternatively you could enter “1/10/93” which will cause the data to be plotted as days from 1st of October, 1993 which will space subsequent seasons data out along the bottom axis.

The third option, “Days After Full Bloom” (DAFB) allows data to be graphed against the number of days after Full Bloom Date. This differs from the previously described Reference Date graph as the date used as Day 0 in this case differs for each location\*season. Note that data from locations\*seasons for which you have not recorded Full Bloom Date cannot be plotted, but if selected for graphing are simply listed in a message box to inform you that they have not been plotted. See the Maintenance section for instructions on entering Full Bloom Dates.

## **The Menu**

Across the top of the screen is the menu system. Click on the main headings of the menu to open the submenus or to initiate an action.

### ***Comparison Menu Item***

Clicking on the Comparison menu item opens a submenu with the items “New”, “Open”, “Manage”, and “Exit”.

The “New” item opens a new comparison window. The number of comparison windows that you have open at one time is limited only by the amount of memory in your computer.

The “Open” item is equivalent to selecting “New” and then clicking the “Load” button in the comparison window. “Open” creates a new comparison window and then loads the selected previously saved comparison into it.

The “Manage” item allows you to manage the comparisons that you have previously saved. You can delete and rename comparisons by selecting this item. Use the select list to select the name of the comparison you wish to rename or delete, and then press either the delete or rename button.

The “Exit” item is the way to exit the programme. Select exit to quit out of Graph Master.

### ***Maintenance Menu Item***

Click on the “Maintenance” item to open a submenu for entering information about the types of measurements you are making, and to enter Full Bloom Dates for individual locations\*seasons.

The “Full Bloom Dates” item opens a dialogue that lists all seasons\*locations in a table for which you have recorded measurement data. The column at the right side of the table is used to record the Full Bloom Dates for individual seasons\*locations. Enter as dd/mm/yy, ie 12/10/95 for 12 October, 1995.

The “Measurement Types” item opens a dialogue in which you can define a new measurement. Provide a short label which will be used to identify the measurement type in the Design Tab, and a longer descriptive title which is used to label the graph. For each measurement type you will need to use the radio buttons to define if this is a measurement made more than once per year (such as fruit diameters measured at intervals across the growing season) or only once per year (such as total yield from a block). Note that this feature is for compatibility with planned extensions to the Orchard Master software, and that Graph Master is designed to work only with measurements made at a number of times during the growing season. Finally, you will need to define when the season begins and ends for the measurement being defined. For example the season for fruit sizing will begin/end some time in mid-late winter, while the season for an item such as chill unit accumulation will begin/end some time in mid-summer. This definition is needed to resolve certain conflicts which can arise when trying to overlay data between different seasons.

### ***Print Menu Item***

Clicking on the “Print” item brings up a submenu containing the items “Print Graph”, “Print Data”, and “Write Data to File”. Print Graph will print the graph for the current comparison window, while Print Data prints the data selected via the Design Tab for the current comparison window. Printed output is directed to the currently selected Windows printer. To change the printer or the setup of the printer, use the Windows Control Panel as per instructions in your Windows manual.

The Menu item Write Data to File enables you to create a file and save the data selected via the Design Tab for the current comparison window.

### ***Window Menu Item***

The “Window” menu item is a standard Windows™ item used for organising the comparison windows that you have opened. If you have opened multiple comparison windows, they can be tiled (arranged side-by-side) or cascaded (arranged in an overlapping fashion). The icons for any comparison windows that are minimised can be arranged neatly at the bottom of your screen using the “Arrange Icons” item in the “Window” menu.

### ***Help Menu Item***

Clicking on the “Help” menu item will open the Windows Help System and load the Graph Master help file. The Graph Master help file contains substantially the same information as this guide.

