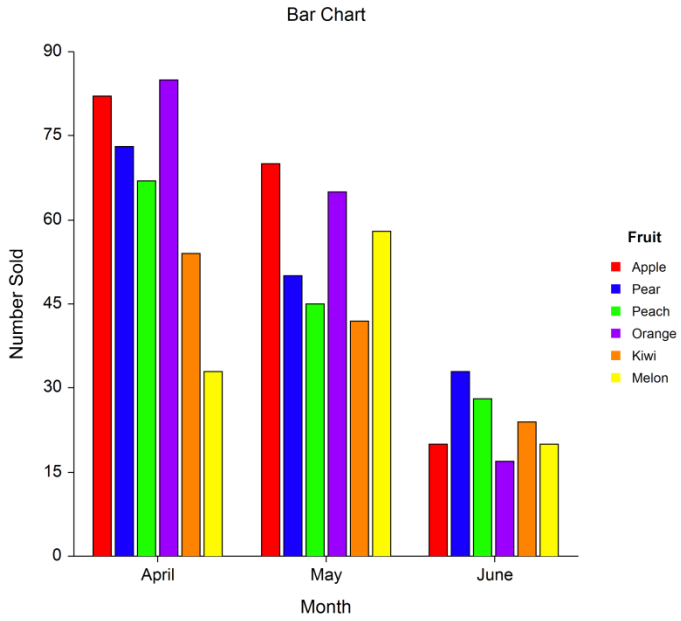
# Chapter 141

# Bar Charts

## Introduction

Bar charts are used to visually compare values to each other. This chapter gives a brief overview and examples of simple bar charts and two-factor bar charts. The orientation of a bar chart may be vertical or horizontal. Below is an example of a vertical bar chart with two factors (fruit and month).




## Data Structure

Data for a bar chart are entered in columns. Each numeric data value becomes a bar. The simple bar chart procedure gives a bar chart for each column of data. The two-factor bar chart combines columns of data into a single chart. Below is an example of data ready to be charted. These data are stored in the Fruit dataset.

**Fruit dataset**

| Fruit | April | May | June | Total |
|---|---|---|---|---|
| Apple | 82 | 70 | 20 | 172 |
| Pear | 73 | 50 | 33 | 156 |
| Peach | 67 | 45 | 28 | 140 |
| Orange | 85 | 65 | 17 | 167 |
| Kiwi | 54 | 42 | 24 | 120 |
| Melon | 33 | 58 | 20 | 111 |

# Procedure Options (Bar Charts and Two-Factor Bar Charts)

This section describes the options available in the two bar chart procedures.

## Variables Tab – Bar Charts

Specify the variables (columns) used to make a simple bar chart.

### Variables

#### Data Variables

These are columns of data with numeric values. The length of the bars is given by these numeric values.

#### Label Variable

Specify an optional variable containing the labels for each bar.

#### Data Orientation

The orientation controls whether values for the bars go down a column (Vertical) or across a row (Horizontal).

### Variable Names

#### Variable Names

This option specifies whether the column names or column labels are used on the chart.

## Variables Tab – Two-Factor Bar Charts

Specify the variables (columns) used to make a two-factor bar chart.

### Variables

#### Data Variables

These are columns of data with numeric values. The length of the bars is given by these numeric values. If the Data Orientation is Vertical, each column specified here will produce a sub-grouping of bars on the chart. If the Data Orientation is Horizontal, each row specified here will produce a sub-grouping of bars on the chart.

#### Label Variable

Specify an optional variable containing the legend labels for each bar.

#### Data Orientation

The orientation controls whether sub-groupings for the bars go down a column (Vertical) or across a row (Horizontal).

### Variable Names

#### Variable Names

This option specifies whether the column names or column labels are used on the chart.

## Bar Chart Format

### Format

Click the format button to change the plot settings (see Bar Chart Window Options below).

### Edit During Run

Checking this option will cause the bar chart format window to appear when the procedure is run. This allows you to modify the format of the graph with the actual data.

# Bar Chart Window Options

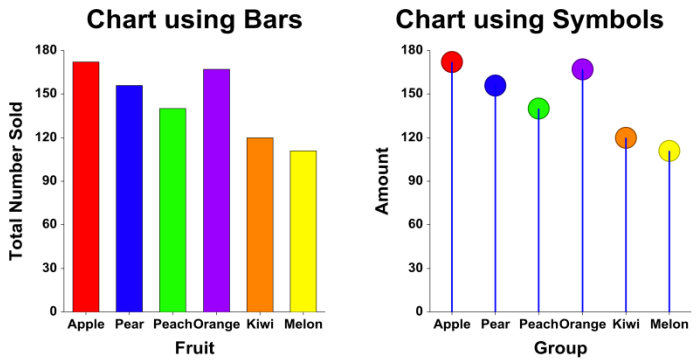
This section describes the specific options available on the Bar Chart window, which is displayed when the Bar Chart button is clicked. Common options, such as axes, labels, legends, and titles are documented in the Graphics Components chapter.

# Bar Chart Tab

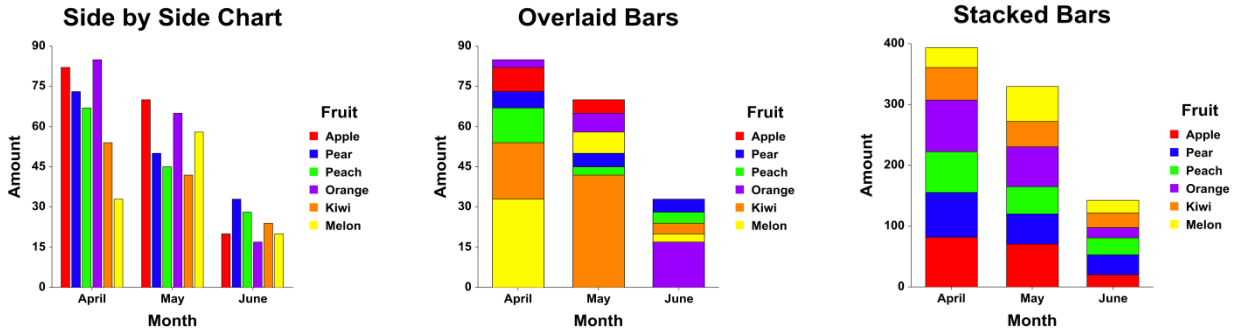
## Plot Type Section

You can create a chart that displays either bars or symbols using the options in this section.

### One Factor



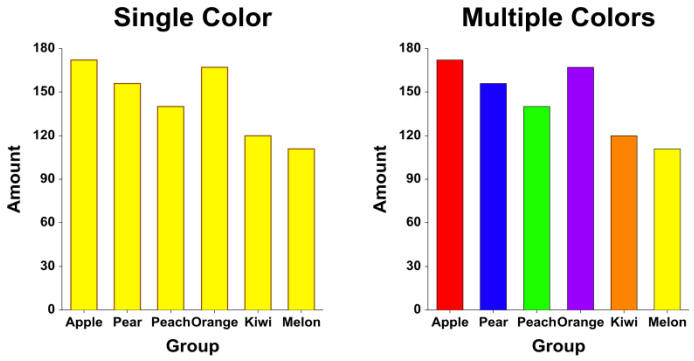

### Two Factors



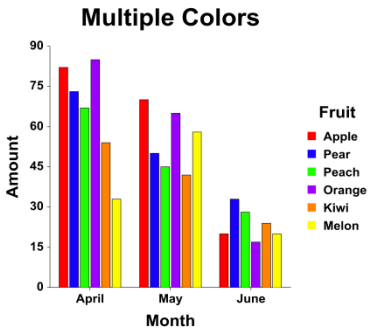
## Bars or Symbols Section

You can specify the format of either the bars or symbols using the options in this section.

### One Factor



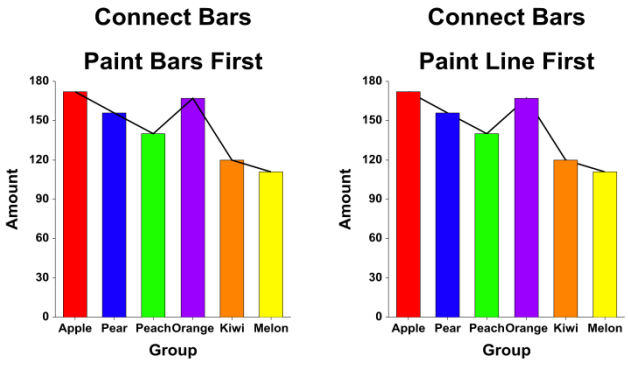

### Two Factors



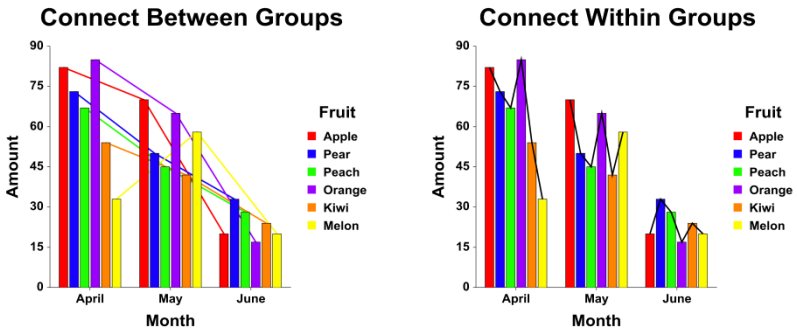

## Connecting Lines Section

You can add connecting lines either between or within groups using the options in this section.

### One Factor

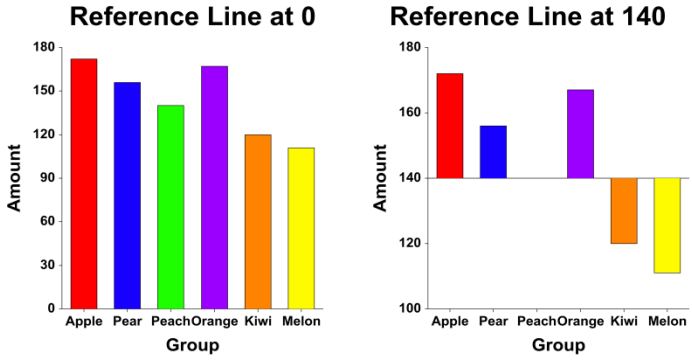


### Two Factors



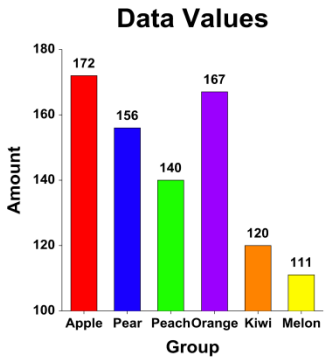

## Reference Line Section

The Reference Line is the line from which the bars are drawn. You can specify the value from which the bars originate using the options in this section.




## Data Values Section

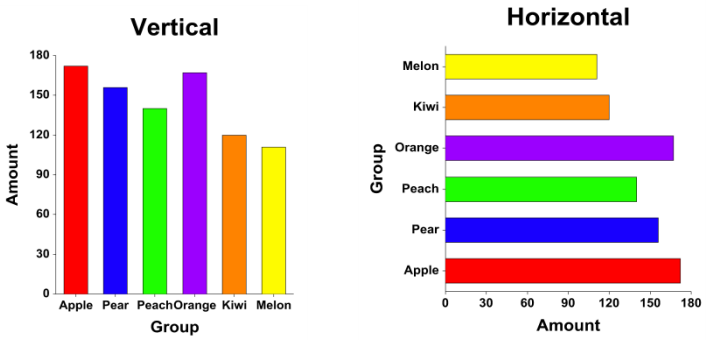
You can add data values above the bars using the options in this section.



# Layout Tab

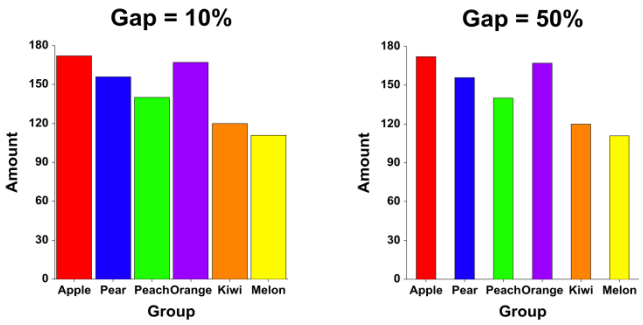
## Orientation Section

You can orient the chart vertically or horizontally.




## Object Spacing and Size Section

You can change the size of the gap between individual bars.




# Titles, Legend, Numeric Axis, Group Axis, Grid Lines, and Background Tabs

Details on setting the options in these tabs are given in the Graphics Components chapter.

# Example 1 – Creating a Simple Bar Chart

This section presents an example of how to create a bar chart of the data stored in the Fruit dataset.

You may follow along here by making the appropriate entries or load the completed template **Example 1** by clicking on Open Example Template from the File menu of the Bar Charts window.

**1 Open the Fruit dataset.**

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Fruit.NCSS**.
- Click **Open**.

**2 Open the Bar Charts window.**

- Using the Graphics menu or the Procedure Navigator, find and select the **Bar Charts** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

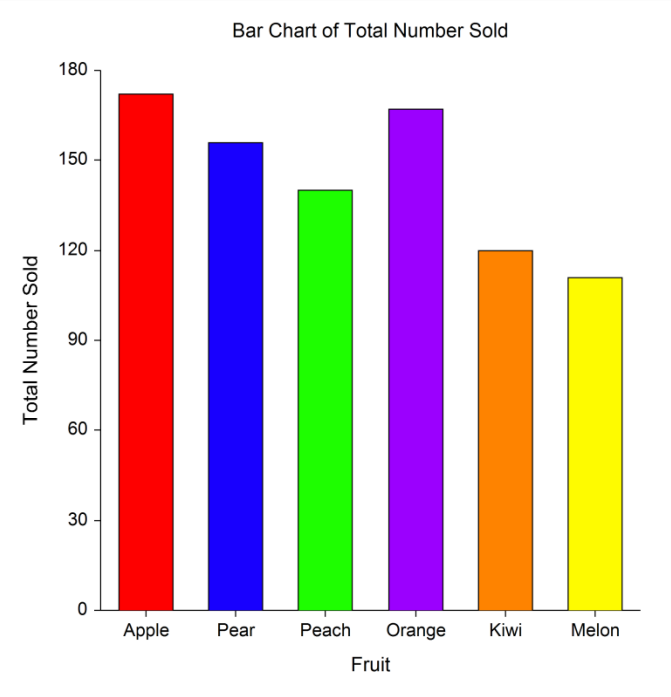
**3 Specify the variables.**

- On the Bar Charts window, select the **Variables tab**.
- Double-click in the Data Variables text box. This will bring up the variable selection window.
- Select **Total** from the list of variables and then click **Ok**. "Total" will appear in the Data Variables box.
- Double-click in the **Label Variable** text box. This will bring up the variable selection window.
- Select **Fruit** from the list of variables and then click **Ok**. "Fruit" will appear in the Label Variable box.
- Set **Variable Names** to **Labels**.

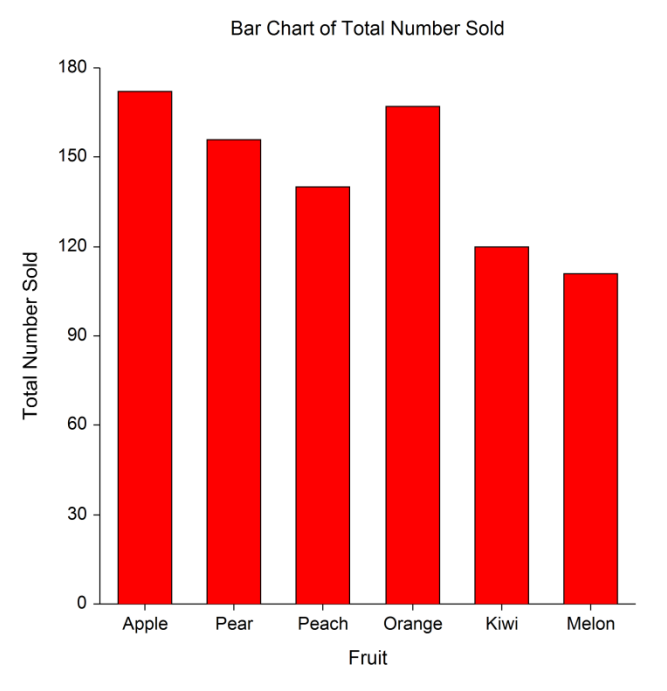
**4 Run the procedure.**

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

## Bar Chart Output




You could make all the bars the same color by clicking on the Bar Chart Format button. There you would click on the Bar Fill format button and change the Fill Mode from Multiple Fills to Single Fill. The result is shown below.



# Example 2 – Creating a Two-Factor Bar Chart

This section presents an example of how to create a two-factor bar chart of the data stored in the Fruit dataset.

You may follow along here by making the appropriate entries or load the completed template **Example 2** by clicking on Open Example Template from the File menu of the Bar Charts (2 Factors) window.

**1 Open the Fruit dataset.**

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Fruit.NCSS**.
- Click **Open**.

**2 Open the Bar Charts (2 Factors) window.**

- Using the Graphics menu or the Procedure Navigator, find and select the **Bar Charts (2 Factors)** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

**3 Specify the variables.**

- On the Bar Charts window, select the **Variables tab**.
- Double-click in the Data Variables text box. This will bring up the variable selection window.
- Select **April, May, and June** from the list of variables and then click **Ok**. "April-June" will appear in the Data Variables box.
- Double-click in the **Label Variable** text box. This will bring up the variable selection window.
- Select **Fruit** from the list of variables and then click **Ok**. "Fruit" will appear in the Label Variable box.

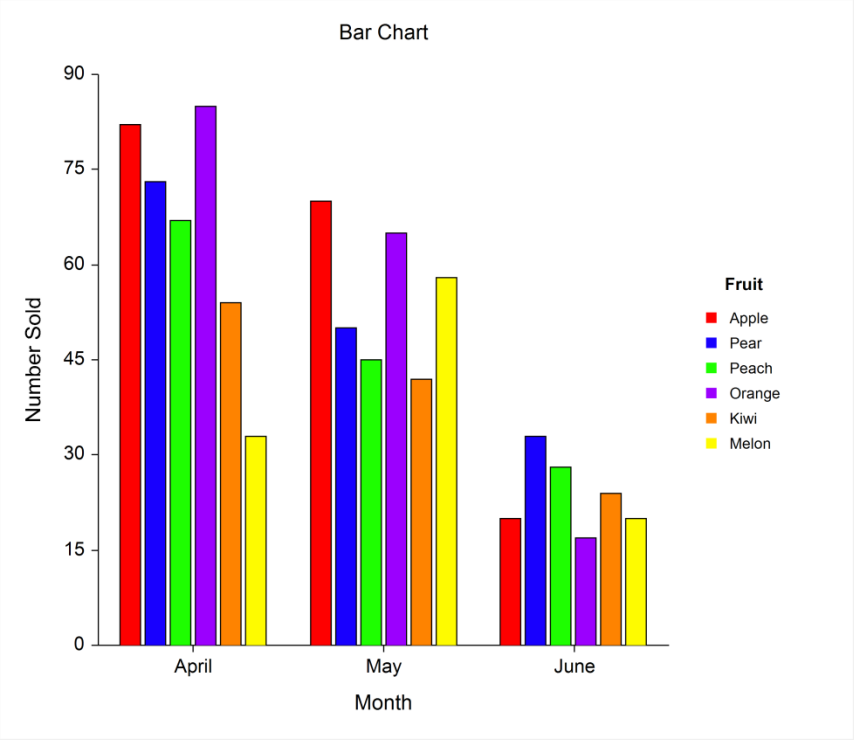
**4 Specify the Axis Labels.**

- On the Bar Charts window, click on the **Bar Chart Format** button.
- On the **Numeric Axis** tab, change the Lower Axis Label to **Number Sold**.
- On the **Group Axis** tab, change the Lower Axis Label to **Month**.
- Click **OK**.

**5 Run the procedure.**

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

## Bar Chart Output




You can switch the factors by changing the Data Orientation to Vertical, changing the Group Axis Label to Fruit, and changing the Legend Title to Month. The result is shown below.