

**USER MANUAL FOR THE MACRO**

***OPTIMAL ALLOCATION MACRO.XLS***

## How to use the Macro

### Entering Data

On opening the workbook the following window will be displayed (Figure 1). To run the macro click the 'Enter Data' button.

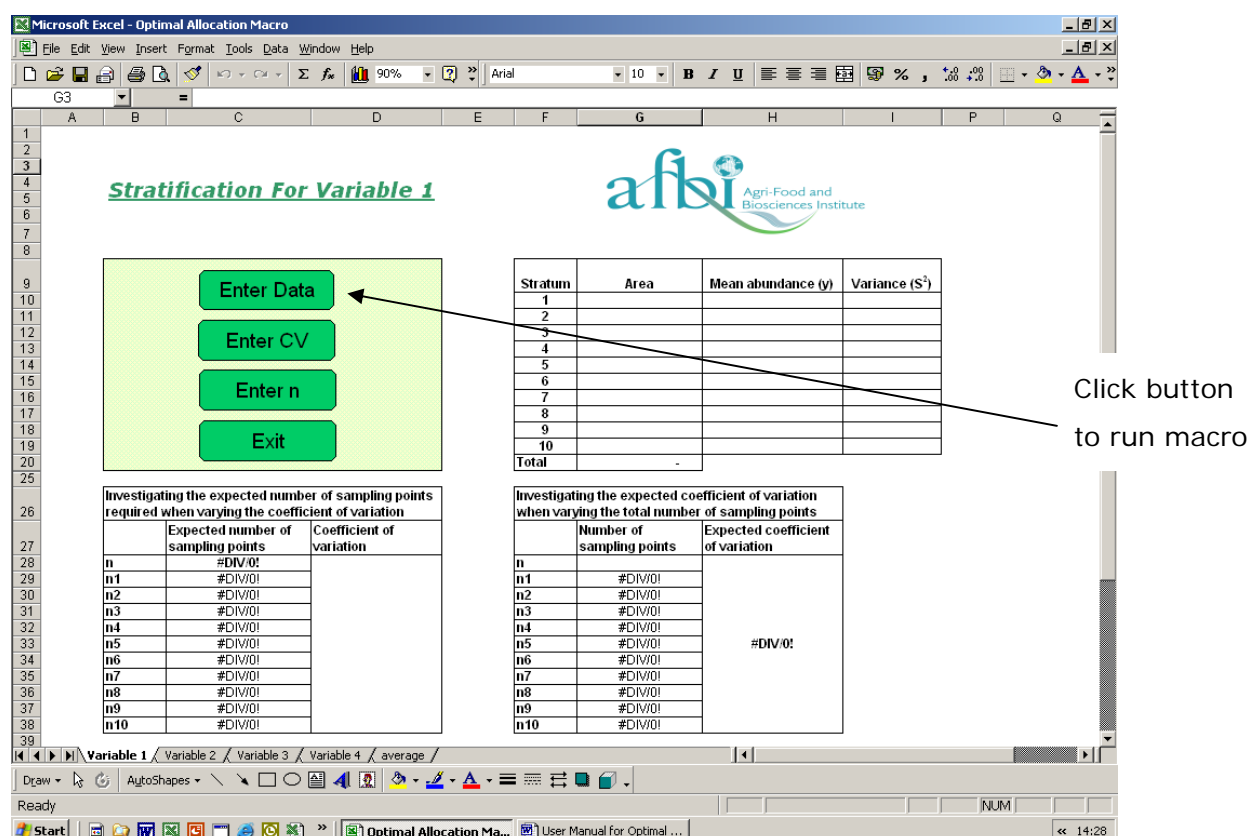


Figure 1: Window on opening *Optimal Allocation Macro.xls*

Once the 'Enter Data' button has been pressed, a message box will appear asking the user to enter the number of strata. The macro will only allow the user to enter data for a maximum of ten strata. If the message box is left empty a message will appear asking whether the user knows the number of strata. If the user clicks 'no' the macro will stop. If the user clicks 'yes' then the message box will re-appear asking the user to enter the number of strata.

When the number of strata has been entered the user is asked to enter the area value of each stratum, followed by the mean value of each stratum and finally the variance of each stratum. If at any point in the process the user leaves the value '*blank*', then a message box will appear warning the user that no value has been entered. The user is then asked if the value is known. If the user selects '*yes*' then the message box will reappear asking for the value to be entered, if the user selects '*no*', then the macro will stop.

### **Entering the Coefficient of Variation/Number of Samples**

Once the data have been entered into the table, the user can choose whether to vary the coefficient of variation or the total number of sampling points.

By clicking the '*Enter CV*' button the user can enter a coefficient of variation of their choice. A message box will appear asking the user what coefficient of variation they want. On entering a percentage and clicking '*OK*', a message box will appear with the total number of samples required for the related coefficient of variation. The breakdown of the number of samples for each stratum will appear in the table on the left-hand side.

By clicking the '*Enter n*' button the user can enter the total number of sample points of their choice. A message box will appear asking the user how many samples they want to take. On entering the number of samples and clicking '*OK*', a message box will appear with the coefficient of variation related to the requested total number of samples. The breakdown of the number of samples for each stratum will appear in the table on the right-hand side.

## Entering Data for More than One Variable

The macro will only work for a maximum of four variables. The following window will be displayed on the Worksheets 'Variable 2, 3 and 4' (Figure 2).

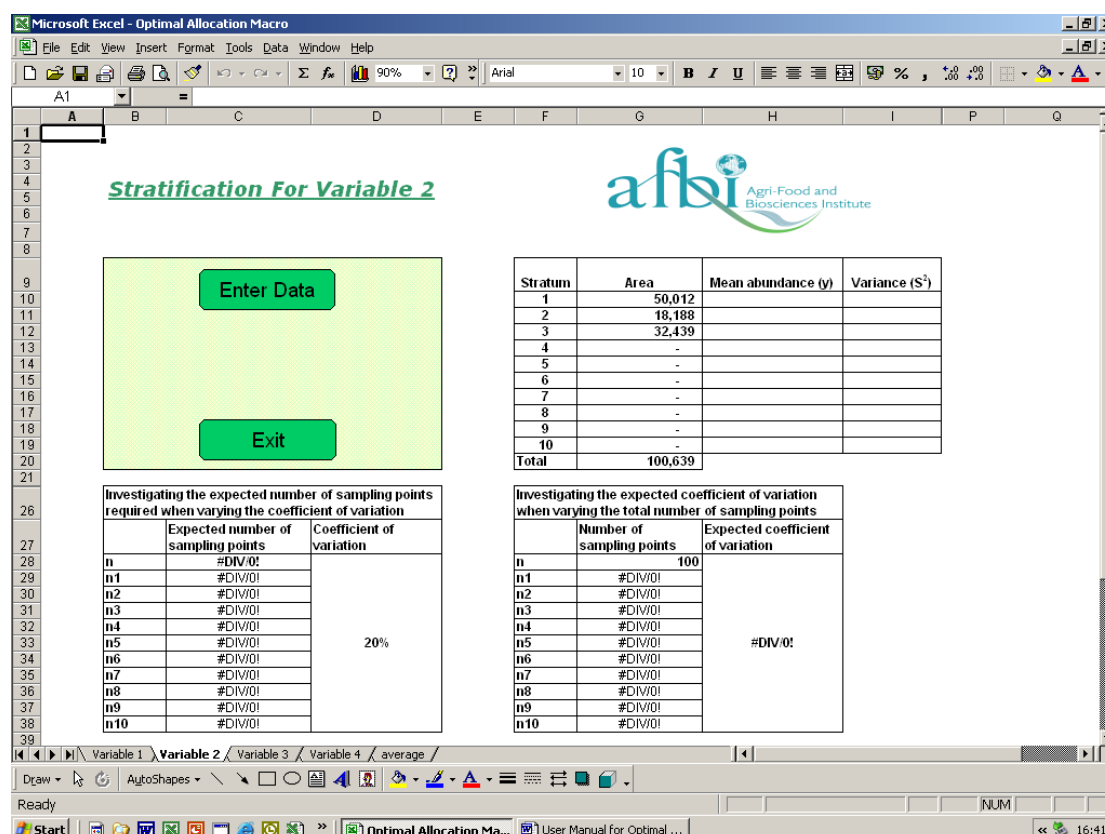


Figure 2: Window to enter data for more than one variable.

The mean and variance values for each stratum need to be entered for more than one variable on the worksheets 'Variable 2, 3 and 4'. Clicking the 'Enter Data' button uses a similar procedure as the macro used on the 'Variable 1' worksheet, however this time you are not asked for the Area value of each stratum. The Area values have already been brought in from the first worksheet. Once the button has been clicked, a message box will appear asking the user to enter the mean value of each stratum and then the variance value of each stratum. If at any point in the process the user

leaves the value '*blank*', then a message box will appear warning the user that no value has been entered. The user is then asked if the value is known. If the user selects '*yes*' then the message box will reappear asking for the value to be entered, if the user selects '*no*', then the macro will stop.

### **Exiting the Workbook**

On completion of entering data for the available variables and calculating the required number of samples and coefficient of variation, it is possible to exit the Workbook by clicking the '*Exit*' button. In doing so, the Workbook will close without saving any of the changes made.