



# **EXCEL2013 STATISTICAL TRAINING WORKSHOP**

*Agricultural Research Council  
1134 Park Street, Hatfield – Pretoria, 0083*

## **Presenters:**

Nicolene Cochrane, Biometrician (012 427 9814)  
Cynthia Ngwane, Biometrician (012 427 9811)  
Eric Mathebula, Biometrician (012 427 9816)

## **Workshop Objective:**

The aim of this workshop is to assist students and researchers use Excel 2013 to create statistical field plans and to test for ANOVA assumptions. To calculate Student's t-LSD and assign a, b, c letters to non-significant ranges. To represent result in tables and graphs with LSD's added. Perform regression and correlation analysis. Using pivot tables to summarize data en to check data for coding errors.

To apply graphic's efficiently for different situations. The student will perform the above on hand and will also be given some exercises for the different topics discussed.

## **Content: Data Analysis with Excel 2013 as Basis – N Cochrane**

- 1) What you need to know to perform Data analyses
- 2) Activating Analysis Tools in Excel
- 3) Some limitations with Excel
- 4) Experimental Designs that can be analysed with Excel
- 5) Creating your own randomized field plan
  - For a Completely Randomized Design
  - For a Randomized Complete Blocks Design
  - Other field plans
- 6) Hypothesis testing in general
- 7) Performing a One-way Analysis of Variance (ANOVA)
  - Testing the assumptions for a valid ANOVA
  - Testing for typing and data errors – Data Filter and validation
  - Testing for normality in One-way design: Identifying outliers

- Descriptive Statistics : kurtosis and skewness
  - Histogram can help visualize the distribution of the standardized residuals
  - Testing for homogeneity of treatment variances
- 8) Performing a One-way ANOVA data analysis
- Calculating Student's t-LSD to compare treatment Means
  - Assigning a, b, c's to non-significant ranges
  - Drawing Bar Graphs with LSD Bar with values and a, b, c's added
- 9) Performing data analysis from a CRD and RBD with Sub-Samples.
- 10) Calculating Chi-Square to test for association and create graphs
- 11) Regression with Excel
- 12) Discussion on basic analysis with excel and comparing with other results

**Content: Pivot Tables with Excel2013 –TE Mathebula**

- 13) What is a Pivot Table?
- 14) What to know before using Pivot Tables
- 15) Understanding Pivot Tables
- 16) Examples

**Content: Graphics with Excel2013 – C Ngwane**

- 17) What is the purpose of using graphs
- 18) Bar charts, Pie Charts and Lines
- 19) Bar chart with more than one data
- 20) Bar/Line combined
- 21) 3D Charts
- 22) Spider Web

**Workshop Outcome:**

The student or researcher will be able to create their own experimental randomized field plans and be able capture data and setup an ANOVA table with degrees of freedom with Excel 2010. They will be able to test for assumption and the interpretation of ANOVA table. They will be able to use formulas, coping top to bottom and left to right etc. Also to draw graphs and tables of means with LSD added. The Student will also learn a lot of features that can be useful when using Excel.

**PLEASE TAKE NOTE: This is a one day course.  
PowerPoint slideshows will be given on a memory stick.  
Bring own laptop.**

**Quotation amount: Minimum of 10 attendants.  
Excel 2013 workshop = R800 + Tax per attendant.**