## **Glossary:**

**Experiment**: A study designed to be conducted under controlled conditions. An experiment is generally aimed at comparing the effects of various alternative treatments, one of which is applied to each of a number of experimental units.

**Experimental unit**: The basic object upon which a study (usually an experiment) is carried out, for example, an animal, a tree, a sample of soil, a household, a patient in a clinical trial. Sampling Unit and Observational Unit are similarly defined, but tend to be applied to surveys and observational studies, respectively

*randomized block design* - an experimental design in which different treatments are distributed in random order in a block or plot

**Treatment**: Used in experimental design to define a treatment administered to a set of units levels - number of forms the factor can take are called the *levels* of the factor

**Treatment effect** ; The average **treatment effect** is a measure used to compare **treatments** in randomized experiments,

**Block**: A homogeneous grouping of experimental units or subjects in experimental design (also sometimes referred to as **Replicate**)

Replication: the repetition in a study of a treatment or other factor

Block effect; The average **block effect** is a measure used to compare **blocks** in randomized experiments,

**Factor**: A general term for a parameter in a statistical model generally used to describe a treatment with discrete levels

**factorial experiments** - of the possible different combinations of treatment levels are of to be studied then the experiment is called a *factorial* experiment

Main effect: The effect of one factor alone averaged across the levels of other factors.

**Interaction effect** - If the effect of one factor on a response variable depends on the level of another factor

**Error term**: The term in a statistical model allowing for extra random variation not accounted for by the parameters in the model itself. The term can also referred to as the residual term.

null hypothesis : is a term that often use to indicate the statistical hypothesis tested

Alternative hypothesis; Alternative to the null hypothesis

Model: Mathematical equation specified by theory

**ANOVA Table:** The results of the ANOVA are presented in an ANOVA table, which has columns labeled Sum of Squares , degrees of freedom, Mean Square, F-ratioand Sig.

**Test Statistics**: Quantity computed from sample data used to evaluate the plausibility of a restricted model

**F distribution**: A continuous probability distribution of the ratio of two independent random variables, each having a Chi-squared distribution, divided by their respective degrees of freedom. Its commonest use is to assign *P* values to mean square ratios in an analysis of variance.

**degrees of freedom**"- number of independent values in the final calculation of a statistic