

Forage options for smallholder livestock in water-scarce environments of Afghanistan

Data Collection, Experimental Design & Data Analysis in Forage Trials Training Course

16 – 18 April 2018

ARIA Conference Room – Kabul, Afghanistan



Rational: The ACIAR forage project aims to improve the livelihoods of smallholder livestock farmers in the mixed crop-livestock areas of Afghanistan that have limited access to water. In particular, the project will increase the availability of feed resources through providing seeds of improved forage varieties and developing technical options for better integration and management of forage legumes in current cropping systems.

Course participants: MAIL (ARIA) staff.

Trainers: Dr Arash Nejatian (ICARDA, Dubai) assisted by Dr. Serkan Ates (OSU, USA); and Drs. Hassan Sawsan & Mounir Louhaichi (ICARDA, Amman).

Objectives: The objective of the workshop is to share knowledge on statistical concepts and methodologies for designing field experiments and biometrical techniques applied in agricultural (forage trial) research, and to provide an opportunity to ARIA staff/researchers to carry out statistical analysis of their data, and prepare a draft research manuscript for publication.

The Course topics: The training course will include both theoretical and practical training:

- 1- Introduction to statistical software for Windows and its use for management of data
- 2- Design and analysis of agronomic field trials: multi-factor experiments in RCB, split-plot experiments in RCB
- 3- Preparation of a draft manuscript for publication in an International journal.

Course requirement. Each participant should be equipped with a laptop in order to practice how data is being analysis. Ideally MS Excel and SPSS statistical software should be installed on each laptop.

Tentative Training Agenda

16 – 18 April 2018



Day # 1	Monday 16 April 2018
	<ul style="list-style-type: none"> • Opening and registration • Introduction to the course • Test (Level determination) • Identify the course objectives (work in-group) • Basics of Experimental design [Terminology, Requirements of a Good Experiment, Fisher's Principles of Experimentation] • Designing experiments in Randomized Complete Blocks, ANOVA assumptions, Analysis • Replications, treatment excel sheet, data handling and data management • Introduction to SPSS • Utilizing SPSS for generating descriptive statistics tables (practical & work in group)

Day # 2	Tuesday 17 April 2018
	<ul style="list-style-type: none"> • Review of day one materials (work in-group) • Using ACIAR Forage mixed trial (raw data) • Using SPSS for data entry and analyses (work in-group) <ul style="list-style-type: none"> ➢ Analysis of variance (ANOVA) and level of significant ➢ Teat of comparison of means <ul style="list-style-type: none"> - LSD - Waller-Duncan
Day # 3	Wednesday 18 April 2018
	<ul style="list-style-type: none"> • Review of day two materials (work in-group) • Review the forage data collected in Afghanistan and analysis data using SPSS (practical and work in group) • End of the course exam and course evaluation • Closing remarks and certificates

