



RESEARCH
PROGRAM ON
Livestock

More meat, milk and eggs by and for the poor

Training on Community Based Breeding Program, Breeding data management and analysis

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ICARDA, Addis Ababa, Ethiopia



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Training on Community Based Breeding Program, Breeding data management and analysis

1. Data management and analysis using R software

This training was organized in collaboration with Southern Agricultural Research Institute for the researchers working in different research centers under the institute. R software is a comprehensive statistical and graphical programming language and is a dialect of the S language. Mostly used for data analysis unlike other programming software like python and java used for designing software and window applications. R: initially written by Ross Ihaka and Robert Gentleman at Dep. of Statistics of U of Auckland, New Zealand in 1993. Since 1997: international "R-core" team of 15 people with access to common archive.

R is preferred to other software as it's

- free and open source software, allowing anyone to use and, importantly to modify it.
- Is a cross-platform - It runs on a variety of platforms including Windows, Unix and MacOS, and running on both 32 and 64 bit processors
- Most comprehensive statistical analysis package available
- Graphical capabilities are outstanding, provides a full programable graphics language that surpasses most other statistical and graphical packages
- It contains advanced statistical routines not yet available in other packages.

Objective:

- Understanding basics of data focused on breeding objective identification and analysis type
- Introduce R environment
- Use of R to analyze different type of data

Topics covered in the training

- R Overview - R and R studio
- How to install different R packages
- Data management using R
- Data analysis using in R on the following topics
 - ANOVA,
 - Correlation and regression analysis
 - Analysis of frequency data
 - logistic regression
 - Mann-Whitney test (U test), Kruskal Walis test)
 - Plotting using R

Participants: 40 (7 women)

Place: Hawassa

Duration:

2. Overview and implementation of community-based breeding programs, Data management and analysis using WOMBAT software

Introduction

This training was organized in collaboration with Ethiopian Biodiversity Institute (EBI) for the researchers working on community-based breeding programs in different areas of the country. Maintaining the genetic diversity of animal genetic resources is one of the mandate for EBI. The institute considered community-based breeding program as approach to maintain diversity and conserve animal genetic resources. To that end the institute have been implementing CBBPs on sheep, goat, cattle and chicken in different parts of the country. However, they identified lack of knowledge in implementing CBBPs as well as data analysis techniques to estimate breeding values to select best animals. Therefore, this training organized in collaboration with EBI based on the following objectives.

Objectives:

- To understand basic concept community-based breeding programs
- To understand CBBP implementation procedures
- Introduce use of WOMBAT to estimate animal breeding values

Topics covered in the training

- Basic principles of genetic improvement
- CBBP implementation procedures
- Animal identification and data collection procedures
- Data management and adjustment methods
- Data analysis using WOMBAT software
- Interpretation of results

Participants: 20

Place: Ethiopian Biodiversity Institute, Addis Ababa

Duration: Dec 18 to 19 2019