

# **Introduction to Best Linear Unbiased Prediction (BLUP) A short course**

This course brings together geneticists and tree breeders from around the world who wish to be introduced to BLUP, or have a refresher course. BLUP is a statistical procedure used to optimally predict and rank the genetic value of individuals. The course covers the advantages and disadvantages of BLP, BLUP and other selection index techniques. Theoretical principles are combined with the practical and participants are empowered to apply the knowledge to breeding programmes.

## **OBJECTIVES OF THE COURSE**

- The course will introduce participants to the theoretical principles of best linear prediction (BLP) and best linear unbiased prediction (BLUP)
- The course will empower breeders with established tree breeding programmes and those who are planning to initiate programmes for the first time to implement the theory and use BLP and BLUP in their programmes.
- Participants will have the opportunity to network with participants from around the globe, thereby gaining valuable business and technical contacts in the industry.
- Participants will be exposed to some of the latest research results in the South African industry.
- Course participants will receive a comprehensive manual for future reference.

The course takes the form of lectures, discussions and practical exercises.

## **WHO SHOULD ATTEND?**

All tree breeders and quantitative geneticists who want to be introduced to, or have a refresher of, the theoretical principles of BLUP and be empowered to use BLUP in their breeding programmes, should attend. Those who are interested in the trends in the application of BLUP to Quantitative Trait Loci (QTL's), should also attend.

We recommend that participants should have some form of tertiary qualification and a working knowledge of mathematics and statistics.

The course will be presented in **English**.

## **COURSE CONTENT**

The course lectures and manual will cover the following main themes:

- An historic perspective of selection technology
- Statistics relevant to BLUP
- Genetic parameters
- Working with matrices
- Selection index theory
- What is Best about Best Linear Unbiased Prediction?
- BLP and BLUP models
- Gains and BLUP responses to different models and parameters
- Comparative studies
- Selection index and breeding strategies
- BLUP selection with Quantitative Trait Loci (QTL)
- Instability in BLP and BLUP

## **ENQUIRIES**

For more information, please contact the course coordinator between 08h00 and 16h00 (Central African time).

*E-mail:* courses@csir.co.za (Subject: BLUP)

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