

PRACTICAL DATA ANALYSIS FOR TREE BREEDERS

*An international tree
breeding course*

**29 October
to
2 November 2007**
Durban, South Africa

CSIR
our future through science

South Africa's Council for Scientific and Industrial Research (CSIR) invites you to attend a practical data analysis course for tree breeders, to be presented in Durban, South Africa, from 29 October to 2 November 2007.

The course will take place in the week following the International Union of Forest Research Organisations (IUFRO) conference, 'Eucalypts and diversity: balancing productivity and sustainability', which takes place from 22 - 26 October 2007 in Durban, South Africa (<http://www.iufrodurban.org.za/>).

OBJECTIVES OF THE COURSE

The course will enable participants to analyse data that is frequently encountered in a tree improvement programme. The course will cover a wide array of topics including (but not limited to) elementary trial design, analysis of variance, heritability estimates, genetic correlations, repeatabilities, selection using Best Linear Prediction (BLP) indices, genetic gains prediction as well as interpretation of results.

Course participants will gain both the theoretical background and practical exposure to data analysis. There will be a strong emphasis on practical analysis of field data. The course will not go into great theoretical depth and will focus on simple, practical models. Different situations to be covered include progeny and provenance trials, pure species and hybrids, families and clones.

Participants are encouraged to bring their own data for analysis. A workshop will be held on the last day where participants can discuss and analyse their own data.

Participants will receive a manual (in English) for future reference.

WHO SHOULD ATTEND?

All tree breeders / forest geneticists who want to acquire or improve their skills in basic tree improvement data analysis. Participants should have a working knowledge of quantitative genetics and mathematics/statistics.

The course will be presented in English. Interpreters will not be available.

COURSE CONTENT

- Elementary trial design - topics such as optimal plot size, choice of trial design (e.g. for provenance trials vs. progeny trials) and randomisation will be discussed. Focus will be on the most basic designs;
- Data capture and data editing - various practical editing methods will be explored;
- Correction for fixed effects;
- Standardisation of data;
- Analysis of Variance (ANOVA);
- Calculation of heritability based on ANOVA;
- Calculation of genetic correlations - correlations such as age-age, trait-trait and site-site will be discussed and calculated based on ANOVA;
- Estimation of genotype-by-environment interaction (GEI);
- Repeatability using ANOVA;
- Selection index. BLP for forward, backward and clonal selection. The focus will be on the application of the Matgen BLP programme;
- Genetic gains prediction - the focus will be on the G-assist programme.



WHO ARE WE?

The CSIR is the largest research organisation in South Africa. Over the past four decades the primary focus of the CSIR tree breeding research group has been the genetic improvement of eucalypt and pine species and hybrids for both pulp and solid wood products. The CSIR also develops tools and sound breeding techniques to optimise gain and accelerate breeding so as to maximise return on investment in breeding. For more information please visit our website www.csir.co.za/tree_improvement.

LECTURER

The course will be presented by Dr Steve Verry, a well known Quantitative Geneticist and Tree Breeder.



Steve Verry obtained his PhD in 1994 for his work on improving Best Linear Prediction for Tree Breeding. He has worked in forestry for the past 16 years and is currently a principal researcher and research group leader for the Tree Improvement group at the CSIR. Steve has been involved in a number of successful courses over the past 14 years, ranging from Tree Improvement courses, Tree Improvement for Managers, Data Analysis, BLP, to courses on Optimising Tree Breeding Strategies. These courses have drawn students from more than 32 different countries around the globe.

VENUE

CSIR offices Durban
359 King George V Avenue
Glenwood
Durban
South Africa

COURSE FEE

The course fee is R 7500 (note excl. VAT for South Africans). This includes a manual as well as course lunches and teas.

Please note that the cost of transport to the venue, accommodation, breakfasts and dinners is NOT included in the course fee.

ACCOMMODATION AND TRANSPORT

Please visit our course website (www.csir.co.za/tree_improvement) for more information on hotels and transport, or contact the course coordinator.

COMPUTERS AND CALCULATORS

Participants are requested to bring their own laptop computers. Considerable calculations will be done

during practical exercises and participants are requested to bring their own hand-held scientific calculators.

PROGRAMMES

Participants will be introduced to the following programmes:

- SAS;
- Matgen, a BLP package for unbalanced index selection in tree breeding;
- G-assist, a deterministic tool for genetic gains prediction.

Free copies of the programmes Matgen and G-assist will be available for use during the course. Should the participants wish to use the packages after the course, they will be able to purchase these programmes at a discounted rate.

REGISTRATION

Registration on-line at www.csir.co.za/tree_improvement or email the course coordinator at courses@csir.co.za.

Please register before 31 July 2007.

Cancellations before 31 July will be refundable subject to the deduction of a 10% administration fee. Cancellations after 31 July 2007 will not be refundable. However, you are welcome to send a substitute participant.

ENQUIRIES:

For more information, please contact the course coordinator at courses@csir.co.za.