QUANTITATIVE METHODS IN PLANT BREEDING

A TWO WEEK COURSE

6th March – 17th March 2017

Statistics, computation and data handling, molecular genetics, population genetics, quantitative genetics, linkage analysis, genomic selection, association mapping, marker assisted selection

Tutor: Dr Ian Mackay

Quantitative Methods in Plant Breeding

This annual two week postgraduate level course, which we successfully ran for the first time in 2008, introduces participants to methods in quantitative genetics and statistics. Course content ranges from the well established, for example variety trial design and analysis, to more contemporary methods such as linkage disequilibrium mapping and genomic selection. Emphasis is on practical application of methods to breeding programmes with theory covered in sufficient depth to allow confident evaluation and application of methods to plant breeding programmes. The course provides an opportunity for participants to become familiar with the concepts and utilization of contemporary methods and software at all stages in the breeding process.

Who should attend?

Plant breeders and plant geneticists who have some background knowledge of statistics and quantitative genetics, but who wish to understand and be able to apply these methods more thoroughly. Post-graduate students working on the detection and analysis of genes controlling the inheritance of complex traits.

The course is limited to 24 participants.

Course content

Revision/refresher: Basic statistics and genetics

Statistics: Regression, ANOVA, statistical software

Trial design and analysis: Principles of good design, blocking, spatial analysis

The mixed model: Variance components, REML, BLUPs & BLUEs

Population genetics: Single and multiple locus disequilibrium

Quantitative genetics: QTL, selection theory, genotype x environment interaction

Linkage analysis: Genetic maps, alternative mapping populations

Association mapping: Population structure and methods for its control

Genomic selection: Application in plant breeding

Marker assisted selection: Strengths, weaknesses, methods

Software used includes: GenStat, R, Structure, MapDisto, R/QTL

Course Details

Duration
Week 1: Monday 6th March–Friday 10th March 2017.
Week 2: Monday 13th March–Friday 17th March 2017.

The course will start at 10.30 on Mondays and finish at 14.00 on Fridays to allow UK travel to and from Cambridge.

What's included
Course materials, refreshments, lunches, local excursions, a pub meal, the course dinner and transport from and to the hotels at Orchard Park.

Accommodation
Delegates should book their own hotel rooms. Three hotels with reasonable rates close to NIAB are:

Premier Inn Cambridge North, £70-80/night for B&B. Directly opposite NIAB and about 1.5 miles to the city centre.

Premier Inn A14, £70-80/night for B&B.

Travelodge Orchard Park, £30-60/night for B&B.

Hotels 2 & 3 are adjacent and about 2 miles from NIAB and the city centre. A bus route to the city centre is close. On course days we will organise transport from these hotels to NIAB and back again.

For the best rates we advise you to book rooms early using the websites www.premierinn.com and www.travelodge.co.uk.

Course Cost
Postgraduate student – £900; others – £1400.

Student Bursaries
We have three £300 bursaries to offer postgraduate students taking the course. To apply for a bursary we require a CV, a description of your current project and a supporting letter from your supervisor.

How to apply
Complete and return the accompanying form to "Helen Hancock, NIAB, Huntingdon Road, Cambridge CB3 0LE, UK" or by fax on +44 1223 277602. ***Please do not send bank or debit/credit card details by email***. The course is limited to 24 participants on a first come basis. Please book as early as possible as we are usually oversubscribed. The closing date for applications is ***3rd February 2017***.

Payment
We can accept payment by debit/credit card and UK cheque. Contact us if you want to pay by card over the telephone. We also accept overseas bank transfers; contact us for details.

Contact details
Please address any queries to **courses@niab.com** or by telephone to Helen Hancock on **+44 1223 342269**.

QUANTITATIVE METHODS IN PLANT BREEDING

Name		
Address		
Tel.	Fax	
Email		
PACKAGE		**COST**
Student	Course – £900	
Student	Do you wish to apply for a bursary? If yes, please provide the information requested.	Yes/No*
Others	Course – £1400	
	Total	
Signature **Date**		

PAYMENT

By cheque: Please make cheques payable to "NIAB Ltd."

By card: Please tick type of and provide details

American Express ☐ MasterCard ☐ Visa ☐
Maestro ☐ Delta ☐ Solo ☐

Name on Card

_____

Card Number

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Start Date _____ /_____ Expiry Date _____ /_____

Issue No. (Maestro/Solo ONLY) _____

Last 3 digits on signature strip on reverse of card

(compulsory field) _____

*If you are applying for a bursary, please send in your application and booking form asap. We will then contact you to confirm the outcome of your application. You need not pay anything until you have had this confirmation.

NIAB
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