



Generation Challenge Programme

Annual Research Meeting

16 - 20 September 2008

**PARALLEL SESSIONS (DETAILED) AGENDA**

Rama Gardens Hotel

Bangkok, Thailand



**SP1 PARALLEL SESSION AGENDA**  
**Tuesday, September 16th 2008**  
**14.00 – 18.00**  
Tulip 1 Room  
**Bangkok, Thailand**  
**Facilitator: Jean Christophe Glaszmann**

**Five years after**

- 14:00 – 14:10: Introduction** JC Glaszmann, 10 mins
- 14:10 – 15:00: SSR genotyping, summary of achievements and lessons learned**
- Data quality, Data resolution Theo van Hintum, 15 mins
  - Reference data validation Jean-François Rami, 10 mins
  - Discussion* 25 mins
- 15:00 – 15:45: Diverse molecular typing, summary of achievements and lessons learnt**
- DArT, RFLP, SSR, neo-diversity in sorghum Claire Billot/JC Glaszmann, 10 mins
  - Advanced genotyping in rice Ken McNally, 10 mins
  - Resequencing in ADOC Dominique This, 10 mins
  - Diversity at ATol gene in sorghum Jurandir Magalhaes, 5 mins
  - Discussion* 10 mins
- 15:45 – 16:15: Coffee break** 30 mins
- 16:15 – 17:00: Current methodological research**
- Genotyping data analysis**
- Further mining diversity Ken McNally (Ruaraidh Sackville Hamilton), 10 mins
  - Haplotype management Claire Billot/Gautier Sarah, 5 mins
  - Sampling markers and germplasm Fred van Eeuwijk, 10 mins
  - Discussion* 20 mins
- 17:00 – 17:30: Current phenotyping**
- Phenotyping a reference sample, the practicals**
- Lessons learned in various projects Hari Upadhyaya et al, 10 mins
  - Discussion* 15 mins
- 17:30 – 18:00: General discussion: Where do we go? How?** (JC Glaszmann, Facilitator)
- SP1-specific
    - Mining collections (methods, geo-diversity, ...)
    - Linkage disequilibrium assessment (how, how quick?)
    - Others
  - Connections to SP2, SP3, SP4, SP5

- Base-broadening
- Functional markers (how quick, how large, how fine?)
- Phenotyping (how quick, how large, how fine?)
- Others
- Product delivery
- Genetic stocks distribution (cf brainstorming session)
- Others



**SP2 PARALLEL SESSION AGENDA**  
**Tuesday, September 16th 2008, 14.00 - 18.00**  
 Tulip 2 Room  
**Bangkok, Thailand**  
**Facilitator: Rajeev Varshney**

14:00 – 14:05                      **Rajeev Varshney, GCP/ICRISAT, India**  
 (Agenda of meeting- Reviewing and discussions on different research themes of Subprogramme by giving a few examples – representative presentations on progress/plan of the project)

***Subtheme 1: Genomic resources and genome infrastructure***

14:05 – 14:20                      **Andrzej Killian, DArT Pty Ltd, Australia**  
 (DArT for generating genomic resources in less characterized species)

14:20 – 14:35                      **Roland Schafleitner, CIP, Peru**  
 (Development of genomic and genetic resource in sweet potato – GCP Wave I project)

14: 35 – 14:50                      **Nagendra Singh, NRCPB, India**  
 (Development of genomic resources in pigeonpea - linking of Indian Pigeonpea Genomics Initiative with Wave II commissioned project and TLII)

14:50 – 15:20                      Discussions on presentations/subtheme

***Subtheme 2: Comparative genomics***

15:20 – 15:35                      **David Bertioli, UCB, Brazil**  
 (Comparative genomics in legumes- SP2/SP3 project links with TLI and GLIP)

15:35 – 15:50	<b>Matthieu Conte, IRRI, Philippines</b> (Orthologous genomics tools- Phylogenomics, GreenPhyl and GOST– SP4 support tool)
15:50 – 16:10	Discussions on presentations/subtheme
16:10 – 16:30	Coffee break
<b><i>Subtheme 3: Gene discovery</i></b>	
16:30 – 16:45	<b>Ramil Mauleon, IRRI, Philippines</b> (Comparative analysis of gene expression profiles across crops- maize/rice)
16:45 – 15:55	Discussions on presentation/subtheme
<b><i>Subtheme 4: Marker/gene/ pathway validation</i></b>	
17:55 – 17:10	<b>Andrew Borrell, DPI, Australia</b> (Staygreen QTLs in sorghum- links with new project to be started under Challenge Initiative)
17:10 – 17:25	<b>Andy Pereira, VBI, USA</b> (Reverse genetics in rice for gene validation)
17:25 – 17:40	Discussions on presentations/subtheme
17:40 – 17:55	General Discussions (across subthemes)
17:55 – 18:00	Wrap-up ( <b>Rajeev Varshney</b> )



**SP3 PARALLEL SESSION AGENDA**  
**Tuesday, September 16th 2008, 14.00 - 18.00**  
Grand Ballroom 1  
**Bangkok, Thailand**  
**Facilitator: Philippe Monneveux**

**This year, the session will favor discussions and feedback from users.**

Each topic will be shortly introduced by the SPL(s) (5 minutes), then the group of Chairs will have 10-15 minutes to present their experience and initiate the debate (approx. 30 minutes). SPL(s) and Chairs will lead the discussion.

The topics for discussion are:

**Topic 1 (14:00 – 14:50) - Promoting the use of molecular markers in the South, expected impact and constraints**

*Chairs:* Daniel Fonceka (ISRA Senegal), Jean-Baptiste Tignegre (INERA Burkina-Faso) (examples of groundnut and cowpea)

**Topic 2 (14:50 – 15:40) - Validation projects: Constraints to development and implementation**

*Chairs:* Abdel Ismael (IRRI), Z. Seraj (Dhaka University, Bangladesh), M.A. Salam (BRRI Bangladesh) (example of rice)

*Coffee break: 15:40 -16.10*

**Topic 3 (16:10 – 17:00) - Building a phenotyping network, focusing on users needs**

*Chair: Glen Hyman*

**Topic 4 (17:00 – 17:50, jointly with SP5) - Crop platforms: Opinions from users**

*Chairs:* Dinesh Joshi (Barwale Foundation, India), Mathias Lorieux (CIAT), Marie-Noelle Ndjiondjop (WARDA) (example of rice in Asia and Africa)



**SP5 PARALLEL SESSION AGENDA**

**Tuesday, September 16th 2008**

**14:00 – 16:00: Grand Ballroom 2**

**16:00 – 17:00: Participants are invited to join other SP parallel sessions**

**17:00 – 17:50 (joint session with SP3): Grand Ballroom 1**

**Bangkok, Thailand**

**Facilitator: Carmen de Vicente**

**1) Capacity Building à la Carte (14:00 – 14:40)**

Introduction (5 min)

**Chiedozie Egesi** (10 min): Marker-aided development of nutritionally enhanced cassava for Nigeria

**Masdiar Bustaman** (10 min): Enhancing capacity of ICABIOGRAD in phenotyping and molecular analysis to develop elite rice lines suitable to Indonesian uplands

Discussion (15 min)

**2) Communities of Practice (14:40 – 15:20)**

Introduction (5 min)

**Theerayut Toonjinda** (10 min): Marker-Assisted Selection of Rice in the Mekong Basin

**Emmanuel Okogbenin** (10 min): A Cassava Breeding Community of Practice in Africa for Accelerated Production and Dissemination of Farmer-Preferred Cassava Varieties Resistant to Pests and Diseases

Discussion (15 min)

**3) Genotyping Support Service (15:20 – 16:00)**

Introduction (5 min)

**James Gethi** (10 min): Looking for new sources of drought tolerance in maize by combining introduced varieties with local germplasm

**S Senthilvel** (10 min): The experience of providing genotyping services to breeders through the GSS

Discussion (15 min)

**16:00 – 16:30 COFFEE BREAK**

**16:30 – 17:00: Participants are free to join other parallel sessions**

**17:00 – 18:00: (Joint session with SP3 in Grand ballroom 1): Crop platforms:  
Opinions from users**

*Chairs:* Dinesh Joshi (Barwale Foundation, India), Mathias Lorieux (CIAT), Marie-Noelle Ndjiondjop (WARDA) (example of rice in Asia and Africa)



**Brainstorm I  
Wednesday, September 17<sup>th</sup> 2008, 14:00-16:00  
Genetic Resources Supply Service (For function rooms see below)  
Facilitator: Jean Christophe Glaszmann**

It is the intention of the GCP to address the matter of product preservation and distribution.

One important kind of product is the genetic resources. These resources are meant to be characterised for many features by many people, and therefore need to be safely conserved, made available to the research community, and maintained genetically stable so that all results are comparable.

The question of who will do what, and under which format, to ensure conservation, distribution and sustainability of the genetic resources developed with GCP funds is critical.

Options related to this undertaking have to be discussed.

This brainstorming session will aim to serve this purpose. It will focus specifically on Reference sets of diverse germplasm, which constitute an important wave of products from activities in the first phase of the GCP.

Many of the discussions will also be useful for other types of products, to be considered later.

Six groups have been identified, to address the following six specific topics:

1. Reference germplasm set size: evolution of applications (*Grand ballroom 1*)
2. Service quality: components, feasibility, sustainability, measurement of success (*Grand Ballroom 2*)
3. Benefit sharing: providers, users, scientists, institutions, in relation to materials and data (*Executive 5*)
4. Accommodating genetic stocks in germplasm banks: interest, scope, value, constraints (*Tulip 1*)
5. Charging for germplasm: principle, modalities (*Tulip 2*)
6. Centralising vs de-centralising: tasks, roles, pros and cons (*Lilavadee*)



**Thursday, September 18<sup>th</sup> 2008, 10:45-13:00**

**World Café**

Grand ballroom

**TOPICS AND HOSTS**

The World Café is a simple yet powerful method for creating meaningful and cooperative dialogue around questions participants perceive to truly matter. The outcomes of the session will ultimately depend on you, the participants. The environment will be relaxed and informal, with the hosts steering discussions for each topic.

1. Induced crop mutants: Vital genetic and genomics resources (*Chikelu Mba*)
2. The role of small and medium-sized enterprises in realizing GCP's mission (*Dinesh C Joshi*)
3. Advantages and disadvantages of various genetic marker systems for marker-assisted breeding: What type of markers will better serve MAS? What is the optimal number? What is the optimal density? (*Jeff Ehlers*)
4. Integrating the old and the new crop improvement sciences (*Nsarellah Nasserlehaq*)
5. Regional hub lab for NARS: Is it necessary? (*Nollie Vera Cruz*)
6. Molecular breeding for developing countries: Is it worth it? (*Jean-François Rami, Robert Koebner*)
7. Diversity Array Technology for GCP crops (*Andrzej Killian*)
8. Next generation sequencing technologies (*Pablo Rabinowicz*)
9. Capacity-building in Phase II (*Stanley Wood*)
10. Can we manage drought phenotyping as a service? (*Glenn Hyman*)
11. NARS and breeders' needs driving GCP's Phase II: Dream or reality? (*Philippe Monneveux*)
12. Crop platforms: are they a good instrument to ensure impact after the GCP? If so, how? (*Mathias Lorieux*)
13. Should GCP consider a deeper engagement in advocacy? (*Theresa Fulton*)



**FIELD TRIPS**  
**Thursday, 18th September 2008**  
**Departure: 13:00 hrs (with packed lunch)**

ARM invitees who have opted to join the field trips on this open afternoon of Thursday 18<sup>th</sup> will visit one of following four sites:

**OPTION 1: Kasetsart University, Kampaengsaen Campus, Nakhon Pathom Province**  
*(Around 1.5 hr drive from Bangkok)*

This trip will include visits to the following three research units:

*Rice Gene Discovery Unit (RGDU):* RGDU was established in 2001 through the close collaboration between BIOTEC and Kasetsart University's Kamphaengsaen Campus. This unit focuses on the use of genomic technologies to develop genomic tools to discover genes that reveal important characteristics of rice, as well as making use of genes in molecular breeding programmes. More

*Center for Agriculture Biotechnology (CAB):* Located here is the Plant Molecular Genetic Laboratory. Research projects focus on the improvement of biological yield of field crops, the reduction of farming's dependence on synthetic chemicals, and the increase of production efficiency. More

*Plant Research Group:* The unit was established in 1985 as a result of a collaboration between BIOTEC and Kasetsart University Kamphaengsaen Campus. The unit has been assigned to carry out basic and applied research in plant biotechnology and genetic engineering.

**OPTION 2: BIOTEC Central Research Unit**  
*(Around 45 mins. drive from Bangkok)*

Located in the Thailand Science Park, this is BIOTEC's largest in-house research unit, and has a core research programme focusing on food biotechnology, plant and animal biotechnology, tropical diseases and bio-resources assessment and utilisation. This tour will include visits to the following research institutes and laboratories:

*Genome Institute:* Genome Institute was established to focus on post-sequence, functional genomic questions. The major technical platforms of high-throughput sequencing, high-throughput proteomics, bioinformatics, and HPC (High-Performance Computing Service)

are integrated with programmes in molecular and cellular biology, and computational biology. Genome Institute houses Sequencing Laboratory, Proteomics Laboratory and Biostatistics and Informatics Laboratory, as well as providing DNA sequencing and related services through the Bioservice Unit and servicing genomic data through HPC and the Genomics Database Laboratory. Genome Institute currently houses the following genomic databases: Rice, Shrimp, Cassava, Spirulina and Thai SNP. It also plans to cover oil palm genome in the coming year.

*Plant Molecular Biology Laboratory Starch Biosynthesis:* The research projects in this lab focus on two important aspects of starch production in cassava: the sucrose partitioning pathway and the biosynthetic pathway of storage starches.

*Plant Physiology and Biochemistry Laboratory:* The aim of research here is to develop innovative technologies for novel products. The core research disciplines are physiology, biochemistry, tissue culture, cell culture and molecular genetics. More

**OPTION 3: Nakhon Sawan Field Crop Research Centre, Nakhon Sawan Province, Department of Agriculture, Ministry of Agriculture and Cooperation**

*(Around 2 hrs drive from Bangkok)*

This research station is located in the upper central region of Thailand. The research station harbours agricultural research, an experimental field and facilities for researchers working on corn and other related crops. The research station also carries out specific research projects needed by the country.

**OPTION 4: Pacific Seeds (Thai) Ltd., Saraburi province**

*(Around 1.5 hrs drive from Bangkok)*

Pacific Seeds (Thailand) was established in 1975 as a member of the Advanta group of companies. As a business unit of continental grain, hybrid corn, sorghum, forage sorghum and sunflower were introduced from Pacific Seeds in Australia. Quality, targeted research over many years has resulted in the breeding, production and marketing of seeds, which fulfill the needs of farmers, industry and food manufacturers. Those products were evaluated to identify elite hybrids for the Thai market.



**Brainstorm II**  
**Saturday, September 20<sup>th</sup> 2008, 08:30 – 10:30**  
**Molecular Breeding platform (MBP)** (*For function rooms, see below*)  
**Facilitator: Graham McLaren**

Brainstorming leaders will chair the following MBP-related topics, with the aim of acquiring as much feedback as possible from GCP scientists on the components considered most important for the platform, as well as how best to implement them:

1. Experimental design, data management and analysis for molecular breeding projects (**Fred van Eeuwijk**) (*Grand Ballroom 1*)
2. Decision support tools for molecular breeding (**Scott Chapman**) (*Grand Ballroom 2*)
3. Sharing crop information and required access to public data resources (**Thomas Metz**) (*Tulip 1*)
4. Marker service laboratories – access, turnaround, costs and quality (**Humberto Gomez**) (*Tulip 2*)
5. Phenotyping services – environments, grain and nutrition quality, metabolomics (**Vincent Vadez**) (*Lilavadee*)

The Chairs will lead their respective topics through a series of questions or subtopics considered to be of relevance.