



# Component 3

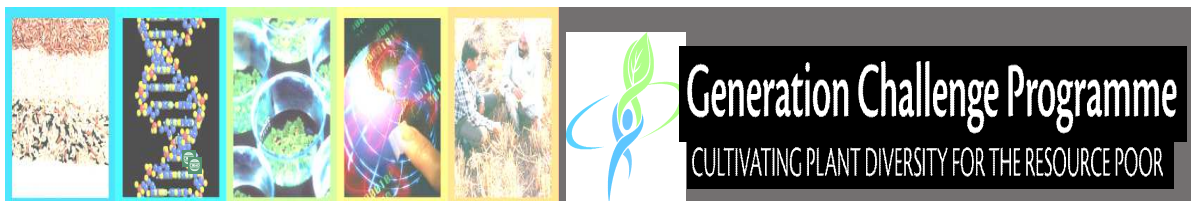
Model implementation

Parameter connection to physiological & genetic information

CIRAD  
CSIRO/UQ  
INRA  
(IRRI)

# Objectives

- Model adaptation (combination) to deal with desired process based trait response to drought
- Model parameter connection to physiological & genetic information
- Added value for assisting large scale phenotyping or breeding strategy?



# Session chaired by A. Heinemann (Embrapa)

C3

## I- One keynote

1:40pm: Keynote by Yves Gibon: “Metabolic Phenotyping and Plant Performance” (30min presentation, 15min discussion).

## II- Project results

2:25-pm K. Chenu, F. Tardieu, G. Hammer, S. Chapman, C. Welcker :

1- “Modelling the GE interaction for leaf and silk growth rates in maize: genetic analyses of time courses and responses to environmental conditions”.

2- “Modelling the GE interaction in maize: from organ to whole plant and yield”.  
(About 25min each presentation and 30 min discussion)



# Session chaired by Graeme Hammer (UQ)

C3

## III- Project results

8:30am: D. Luquet, M. Dingkuhn, N. Ahmadi - EcoMeristem applied to rice phenotyping

- “Modeling drought effects on rice with EcoMeristem: Feedbacks of water and carbohydrate relations on phenotypic plasticity”.
- “Model assisted phenotyping of a rice mapping population for morphogenesis regulation related QTL detection: proof of concepts”.
- “Model assisted phenotyping of morphogenetic process diversity within sativa rice”  
(15 min each; 30 min discussion)

## IV Debate

10:30am: debate chaired by G. Hammer. Process based trait phenotyping, connection to physiological & genetic information – added value of modelling vs. other technologies. where are we, where do we go?



## Publications in C3 (edited or submitted)

Chenu K, Chapman SC, Hammer GL, McLean G, Tardieu F. Short term response of leaf growth rate to water deficit (2007). Scale up to the whole plant level. An integrated modelling approach in maize. *On line - Plant Cell, Environment*.

D Luquet, A. Clément-Vidal, D. This D. Fabre, N. Sonderegger, M. Dingkuhn. Orchestration of transpiration, growth and carbohydrate dynamics in rice during a dry-down cycle (2008). Submitted in *Functional Plant Biology*.