



HAL
open science

Integrating genetic information into an ecophysiological model: example of peach fruit quality

Bénédicte Quilot-Turion, Michel M. Génard

► **To cite this version:**

Bénédicte Quilot-Turion, Michel M. Génard. Integrating genetic information into an ecophysiological model: example of peach fruit quality. Indo French Symposium, Jan 2010, Lucknow, India. hal-02755910

HAL Id: hal-02755910

<https://hal.inrae.fr/hal-02755910>

Submitted on 3 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

INDO FRENCH SYMPOSIUM

GENOMICS AND BIOTECHNOLOGY OF FRUIT QUALITY: RECENT ADVANCES

January 18-20, 2010, Lucknow, India



Indo French Council for Promotion of Advance Research, India



National Botanical Research Institute, Lucknow, India



Ecole Nationale Supérieure Agronomique Toulouse, Tolosan, France

INTEGRATING GENETIC INFORMATION INTO AN ECOPHYSIOLOGICAL MODEL: EXAMPLE OF PEACH FRUIT QUALITY

B. Quilot-Turion*¹ & M. Genard²

UR1052¹ and UR1115², INRA, Avignon, France

Improving fruit quality raises major difficulties. To overcome these difficulties, an interdisciplinary approach has been developed which consists in forwards and backwards between modelling, ecophysiological analysis and quantitative genetics. We applied such an approach to peach fruit quality studying a population of 140 genotypes. The ecophysiological model predicts dry and fresh masses and total sugar concentration in fruit and stone in relation to environmental conditions. QTLs for all the model parameters were detected and co-locations between QTLs for quality traits and QTLs for parameters were observed. QTL results were used to predict, for any genotype of the studied population, the values of each parameter which were integrated into the ecophysiological model. The integration of genetic information into the ecophysiological model may help to solve G x E interactions and to predict the behaviour of plants from the population with any combination of alleles under any climatic scenario.