Toward a functional-structural model of oil palm able to assist the evaluation of genetic differences between progenies for architecture and radiation interception efficiency

Raphael Perez, Jean Dauzat, Benoit Pallas, Hervé Rey, Gilles Le Moguedec, Sebastien Griffon, Evelyne Costes

To cite this version:

Raphael Perez, Jean Dauzat, Benoit Pallas, Hervé Rey, Gilles Le Moguedec, et al.. Toward a functional-structural model of oil palm able to assist the evaluation of genetic differences between progenies for architecture and radiation interception efficiency. 5th International Conference on Oil palm and environment (ICOPE), Mar 2016, Bali, Indonesia. hal-01837325

HAL Id: hal-01837325
https://hal.science/hal-01837325
Submitted on 5 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.
Find more sustainable and productive systems is a major challenge to fulfill increasing vegetable oil demand, including palm oil. Tackling climate changes requires bold and swift actions such as breeding of well-suited plant material and implementation of innovative growing practices. But, to this end, we need sound bases of what ideotypes must be for the future and what the proper practices should consist in. For addressing these questions, functional-structural modelling approach (FSPM) enables to explore the relationships between 3D structure of plants with their physiological functioning in relation to weather conditions, with the possibility to simulate virtual management practices such as pruning and pruning. The main assumption underlying this project is the possibility to enhance potential oil palm production optimizing plant architecture in relation to radiation use efficiency. The present study investigates two aspects of a FSPM study applied to oil palm: i) characterize architectural variability and reconstruct three-dimensional (3D) mock-ups of oil palm and ii) estimate light interception efficiency of different oil palm progenies from virtual stands.

### References

