

## 8. GenomeHarvest

Mobilization of biomathematics/bioinformatics and genomics/genetics to characterize genome organization and dynamics as key pathways for crop plant improvement

### OBJECTIFS

The project aims to develop models, methods and tools that will allow, among other things, to address the frequent inter(sub)specific hybridization events that are observed in the history of cultivated plants, through a number of case studies. The strength of the project lies, among other things, in the diversity of the species studied (citrus, banana, rice, coffee, tomato, groundnut, sugarcane). One of the underlying objectives is to bring together scientists from different fields around these questions (mathematicians, bioinformaticians, geneticists, etc.). The dissemination of the new tools and methods will be done through training sessions for the members and partners of the project and for scientists from the South.

### ACTIONS

The program focuses on two aspects:

- Developing mathematical models and computational methods to characterize inter(sub)specific genomes of crop plants (WP2) ;
- Analyze the impact of genomic structure on chromosome transmission/recombination and gene expression (WP3).

### RESULTATS

Innovative bioinformatics methods have already been explored, improved and/or developed and are being exploited for the analysis of the structure and evolution of the genomes of a first circle of species of interest (rice, banana, citrus, coffee). These tools are integrated in bioinformatics platforms representing an important capital for the future. Several innovative results on the structure of the genomes of the first circle of species studied have been obtained and are being published.

In total, 2 post-doctoral fellowships, 4 theses and 8 internships (bachelor, M1 and M2), as well as an engineer CDD will have been financed completely or partially by the project.

Species studied: citrus, banana, rice, coffee, tomato, peanut, sugar cane.

**Responsable :** Angélique d'Hont et Manuel Ruiz (UMR AGAP, Cirad)

**Unité de recherche :** AGAP

**Date de démarrage :** 15/01/2016

**Date de clôture :** 15/10/2019

**Montant :** 2 865 000 dont un financement d'Agropolis Fondation de 500 000 euros

