

# Concept Note GenomeHarvest

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### ABSTRACT

This project builds on a few recent success stories of the Agropolis community in the production of crop reference genome sequences. These landmark achievements have opened new opportunities to better understand the organization and dynamics of these genomes to allow a more efficient exploitation of their diversity in breeding programs. However this brought up new challenges since the full exploitation of these opportunities requires development of new biomathematic / bioinformatic concepts, methods and tools. The objective of the proposed project is to federate plant geneticists / genomicists and bioinformaticians / biomathematicians to jointly address those challenges. We will focus on three main aspects related to the frequent inter(sub)specific events involved in the history of crops: 1) the complex/mosaic genomic architecture derived from multiple founder (sub-)species; 2) the impact of genome structure/composition on chromosome segregation and character transmission in plant breeding programs; 3) the impact of these genome structures on the expression of alleles, genomic segments or sub-genomes and further beyond on transmission of characters. The results and tools developed during the project will be made available through the South Green portal and its associated Genome Hubs and through training.

**Keywords :** Breeding, Biomathematics, Bioinformatics, Genetics, Genomics, Crop

**Year :** 2014

**Project number :** 1405-011

**Type of funding :** AAI

**Project type :** AAP

**Research units in the network :** DIADE GAFL IPME-PHIM LGDP

**Start date :** 2015-01-01

**End date :** 2015-03-06

**Flagship project :** no

**Project leader :** Angelique d'hont

**Project leader's institution :** CIRAD

**Project leader's RU :** AGAP

**Budget allocated :** 10000 €

**Total budget allocated ( including co-financing ) :** 10000 €

**Funding :** Labex