

Breeding for economically and environmentally sustainable wheat varieties



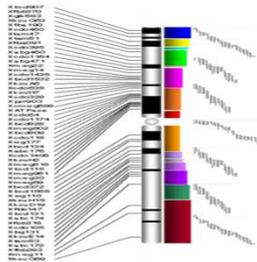
An ambitious project for a competitive and sustainable agriculture supported by the French initiative "Investments for the Future"

9 years (2011-2019)
 34 million € (total cost)
 A collaboration between 26 French partners
 International collaborations (CIMMYT, ICARDA, WISP project etc.)



An integrative approach from genomics to selection

BREEDWHEAT proposes to break barriers that have thwarted the translation of knowledge and molecular resources into breeding as well as the exploitation of genetic resources to enlarge the genetic diversity of the wheat gene pool. This will be achieved through:



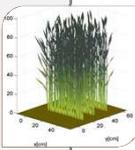
1- High throughput sequencing and genotyping, structural polymorphisms, target gene isolation

- Sequencing **chromosome 1B**/ whole genome resequencing for CNV detection
- 5500 genetically and physically mapped **markers**
- 33 million **SNP** data points



2- Genetics and ecophysiology of wheat adaptation to biotic and abiotic stress in the framework of sustainable agricultural systems and climate change

- Modeling** plant architecture and development
- Phenotyping** of 48'000 plots in 15 locations for :
 - yield
 - grain protein composition
 - resistance to fungal diseases (FHB, STB)
 - response to high temperature/drought
- Association genetics** for yield, quality, biotic and abiotic stress associated traits



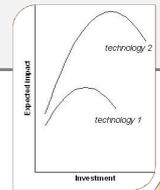
3- Characterization and exploitation of genetic variability to identify novel alleles for target traits and develop prebreeding material

- Genotyping** of 5000 accessions from INRA wheat genetic resources
- Adapted panels (250)** for abiotic and biotic stress genotyped and phenotyped
- Novel European Elite Germplasm** with improved stress tolerance



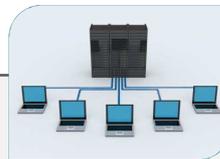
4- Development, comparison and socio-economic evaluation of innovative methods and cost efficient breeding platforms

- Development and comparison of **new breeding methods** in a real size selection program
- Definition and evaluation of **new ideotypes**
- Evaluation of **socio-economic impacts** of new breeding practices



5- Data integration and dissemination to end users

- Development of **new tools** to integrate new polymorphisms and **automate association studies**
- Creation of a **Breeder's oriented portal**



For more information

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www.breedwheat.fr