

# CultiVar - A coordinated Higher Education cursus in Plant Breeding with international outreach, and operative options for partners in Mediterranean/tropical countries

## OBJECTIVES

project intends to contribute to the general objective of training as well and as broadly as possible students to make them efficient plant breeders / breeding program leaders that enhance germplasm and release better adapted CultiVars worldwide. For this, we shall follow specific objectives:

- \* federate a coordinated offer for teaching and training in plant breeding, in adequation with needs and local competences, with international outreach. For this we shall provide benchmark on the needs in capacity-building and mobilise opportunities borne by local competencies for plant breeding education, in relation to stakeholders (private sector, CGIAR international centers, and a set of foreign partners in higher education and research);
- \* mobilize researchers' communities (UMR) to contribute materials on the best of their frontier research and their offer for training by research. For this we shall match these elementary contributions within the models of the existing curricula in higher education institutions from Montpellier (Montpellier SupAgro and Université de Montpellier) and in target partner institutions in Mediterranean and tropical countries (including North / West Africa, Vietnam), delivering academic credit units at the master and doctoral level. An element contributed can correspond to an elementary brick (RAB) or a submodule within an existing module in a curriculum, as well as an optional full-length module (RAM) open to several curricula. In order to develop innovative teaching elements, proposed by researchers in close relation to professionals in pedagogical sciences, on the model of project-based teaching, using case studies from the local research teams, answering expressed needs, academically validated, and supported by sustainable pedagogic material available on a dedicated platform (MOOCs, on-line material...);

- \* bridge plant breeding core business to strategic multidisciplinary reflections by the local institutions. For this we shall use various opportunities in the rich interactive context of Montpellier. Among others, we shall explore partnership with the UNESCO Chair on world's food system at Montpellier SupAgro in order to address questions related to priorities in plant breeding objectives and modes of action through seminars.

- \* strengthen the Agropolis capacity for deploying courses in partnership through diverse curricula in Montpellier and in selected regions, thanks to personal involvement of researchers who created RAMs, of Agropolis researchers who are located at

## RESULTS

In terms of results, 13 modules were implemented (table in Annex 2). A total of 39 sessions were organized over the three years. They mobilized more than 80 researchers, mainly from the main research units.

The thematic contents of the 13 modules covered the major current scientific and/or technological fronts around three main categories: phenotype analysis, genotype analysis and integrated approaches.

In addition to modules focused on a disciplinary field (anatomical phenotyping, epigenome) or a technology (NIRS), two of them adopting very interdisciplinary points of view could also be put into practice around "genome editing for agriculture" and "plants and humans, a shared history". A fourteenth theme was addressed, on the sustainable management of biotic stresses in plant breeding, in the form of three video clips produced and made available to students.

Foreign organizations, such as a USDA laboratory, the University of Arizona and the FAO, as well as CIRAD's legal support and development services and partners from the Semences Paysannes association, also participated. The website provides a description of each module for students.

The support for master students consisted on 11 fellowships (4 from Vietnam and 7 from Senegal), who received scholarships to study for a master in Montpellier for 2 years, and 10 French students supported to do their master 1 internship abroad. One student did not complete her master's degree, and at least six of the foreign students are currently pursuing a PhD. A deficit has been noted in terms of the number of modules, the transposition of modules to Southern partners and the general satisfaction of the students.

## PERSPECTIVES

The CultiVar project represents a real step forward in the world of research in its mission to mission of transmitting knowledge. The training of researchers in new pedagogical new pedagogical practices has been a real asset, and at the same time the project has created a favorable environment for testing new practices on the part of teachers. teachers.

The different cohorts of students have been exposed to and benefited from the latest the latest advances in plant breeding research, and they were immersed in a rich intercultural context that rich intercultural context that significantly improves their employability. significantly. In a new phase, it will be essential to work more in co-construction with partner countries so that this positive experience can institutions in Senegal and Vietnam. It will be necessary to take into account the specific needs of the partner countries in terms of training, to design a student recruitment process that allows for language