

Cereal Cultivars Innovations adapted to Organic Production : a new challenge

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To face and better manage the development of new varieties in a society calling for more and more transparency, the French National Agronomic Research Institute (INRA) has get involved in an ambitious reflexive programme about the question of “impacts, acceptability and management of varietal innovations”, engaging all its thematic research departments. New collaborations between social and technical sciences are promoted to produce, from exemplary case studies, generic concepts and tools to assess the different types of impact of a new variety.

Breeding and management of new genetic materials adapted to organic farming conditions constitute an appropriate theme to develop such an integrated process. A pluridisciplinary research team, associating plant breeders, soil scientists, ecologists, agronomists, economists, sociologists, in close collaboration with professionals, will try to assess both the agroenvironnemental and socioeconomic impacts of changes, by studying current dynamics around original durum wheat and rice cultivars adapted to organic production in different territories, especially in Camargue.

This action-research programme is built around thematic activities in relevant domains :

◆ Plant breeding

- Varietal types: to study the interest of mixed lines or populations compared to pure lines commonly used under conventional conditions, in order to ensure pathogene resistance durability.

- Breeding method : to find alternative breeding methods to increase and manage genetic variability, like recurrent and participatory breeding methods. Genealogical breeding method currently developed on cereals lead to a decrease in genetic variability because of the early and severe screening that is mainly done on too centralised trials.

◆ Agronomy

- to understand soil organic nitrogen dynamics
- to elaborate agronomic diagnosis to characterise each environment in order to better understand G x E Interactions.
- to manage cropping systems and rotations.

◆ Socio-Economy

- to assess social and economic factors of organic conversion by producers
- to analyse sociological and economical mechanisms of innovative collective action assuming economic practices embedded in social systems.

◆ Management

- to build a collective learning network at territorial level by linking different “roles” relative to the cultivar innovation project.
- to develop a co-breeding program involving producers

These thematic researches aiming at specific evaluation tools are combined with collective activities designed for a generic and pedagogic integration of results in a co-constructive interdisciplinary process.

Keywords: *Durum wheat, Rice, Organic Production, Participatory Plant breeding, Impact Assessment Interdisciplinarity.*