Nitrogen fixation and yield of grain legumes in saline Mediterranean zones

Fysame strengthened the links between basic investigations in SNF (Symbiotic Nitrogen Fixation) and finalised agronomic research in adverse conditions in the Mediterranean basin.

OBJECTIVE

Fysame aimed at improving grain-legume SNF (particularly under salinized environment) and at increasing the mean yield.

A multidisciplinary approach

Fysame relies on an interdisciplinary approach of agronomists, microbiologists, molecular biologists, plant breeders, agro-physiologists and agriculture practitioners of the FABAMED (Fixation d’Azote dans le BAssin MEditerranéen) cooperative networking of partners from Algeria, Egypt, Morocco, Tunisia, France, Germany, Italy and Spain. It has the following tasks:

- at the agronomic level, to survey saline zones for prospection of macrosymbiotic lines and microsymbiotic strains, and to assess selected symbioses through multilocal-plurinnual field trials;
- at the biodiversity level, to screen macrosymbionts for SNF tolerance to salinity, and for intraspecificity with microsymbiots, through cross inoculation trials with and without salinity;
- at the physiological level, to define optimal procedures for the above screenings, and to investigate SNF structures and functions associated with salt tolerance;
- at the genetic level, to utilise molecular biology tools to characterise the genetic diversity of symbiotic partners, and tag the genetic determinants of SNF tolerance to NaCl.

A contribution to food security and global change adaptation

Fysame is contributing to the challenges of food security and global change adaptation by:

- contributing to the new interest for rotation or intercropping of legumes with cereals;
- linking basic investigations and agro-ecosystems engineering in the Mediterranean basin;
- increasing from 0.7 to 1 t/ha the mean yield of grain legumes.

THE PARTNERS IN THE PROJECT Nitrogen fixation and yield of grain legumes in Mediterranean agro-ecosystems (Fysame) - 1996/2000:

- ENSA Alger; RRAA (Algérie);
- INRAT, INA, CDBC (Tunisie);
- INRAM, IAV Rabat, Université de Marrakech (Maroc); Université d’Oran et de Constantine; ARC, NRC (Egypte);
- CNR (Italie);
- CSIC, Universités de Séville et Pampelone (Espagne);
- Universités de Francfort et de Göttingen (Allemagne).

Contact: drevonjj@supagro.inra.fr

For more informations: www.montpellier.inra.fr