

Thematic area**Farming Systems****Section I**

Topic 2 - Improving the sustainability of Mediterranean agro-ecosystems

**Budget**

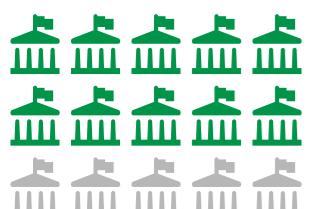
2.082.675,73 €

**Duration**

36 months

**Coordinating country**

Greece

Participating countries/ 6**Partners/ 10****Project****4/PLANT-B**

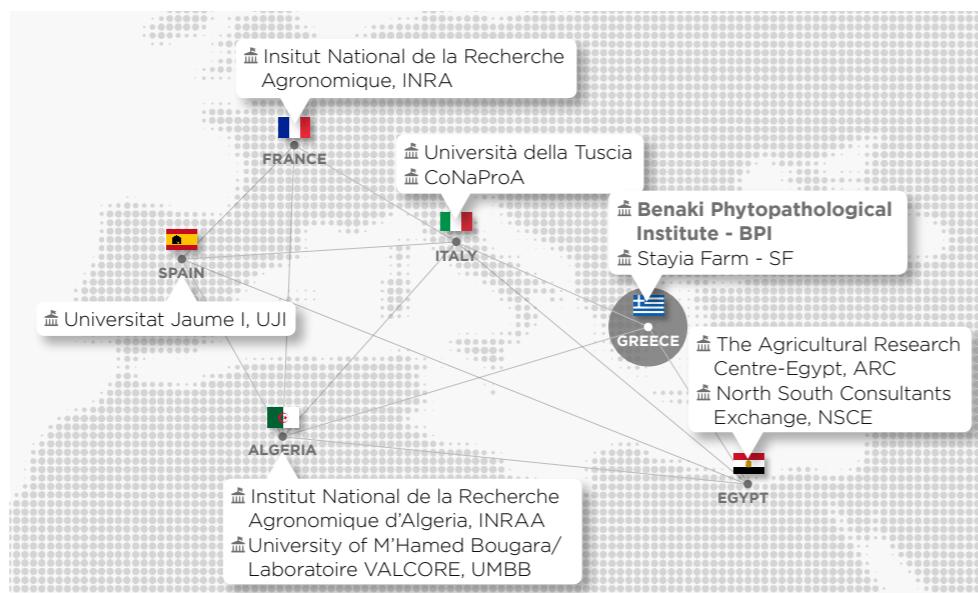
A sustainable mixed cropping-beekeeping system in the Mediterranean basin

Context

The impact of pesticide use in intensive agriculture and beekeeping on food safety but also on the environmental sustainability of these production systems is currently subject to scrutiny. Indeed, the numerous honeybee (HB) mortality cases, linked to contaminant residues found in dead bees and beehives, is a clear indicator of the high pressure affecting agro-ecosystems. A transition to modern IPM tools, technologies and practices that enable low pesticide inputs, is considered necessary to alleviate this pressure, while supporting food security and food safety. Furthermore, the adaptation of a mixed farming system in the Mediterranean region that combines citrus-AMPs-beekeeping could facilitate a more efficient use of land, optimize pollination services by HBs and benefit both the crop and beehive products. Such a farming system could also provide habitats for HBs and other insect pollinators during the off-flowering crop season, increasing the sustainability and biodiversity of the system and subsequently its resistance against climatic changes. Last but not least, valorisation from a productive point of view of endemic HB sub-species is very important because to date the worldwide beekeeping industry relies on a very few HB subspecies historically bred for aims that do not take into rightful account several emerging challenges which are seriously threatening this economically-relevant insect species.

Objectives

PLANT-B proposal aspires to improve sustainability and agronomic return of Mediterranean citrus agroecosystem and beekeeping combining them in a mixed farming system 'citrus-aromatic/medicinal plants-HBs', through certain objectives: a) provide new IPM tools against crop & HB pests, b) valorisation of well-adapted endemic HB subspecies to Mediterranean conditions with potential of resistance to major HB pests, c) development and optimization of the proposed farming system in the Mediterranean region,

**Coordinating institution**

Benaki Phytopathological Institute - BPI



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d) improvement of quality/safety traceability in honey produce, e) ascertain environmental and socio-economic sustainability of the new farming system, f) promotion of the new product(s).

Expected impacts

PLANT-B aims to produce concrete and positive impacts on the Mediterranean citrus-bee productive system by obtaining the following results: 1. will stand on low pesticide input in Citrus crop and associated beehives, succeeding productivity and economic return to farmers and beekeepers alike; 2. is expected to improve the present resources management of two stand-alone farming systems, citrus cropping and beekeeping, making them compatible in the same farm unit with mutual benefit (pollination, honey quality); 3. will integrate new ecological, agronomical and socio-economic knowledge to accredit qualities of an innovative sustainable and efficient farming system; 4. will develop a sustainable use of genetic resources of well adopted endemic HB races/ecotypes fitting the actual needs of beekeepers in different geographical and climatic contexts at present and in future.

Integrated management of agricultural and livestock system

Citrus Farming System



BIOTECH INNOVATION FOR PATHOGENIC AGENTS CONTROL

- ✓ Development of tools and strategies for the control of adversity in the citrus and beekeeping (IPM) sector
- ✓ Development and validation of a system of environmental impact assessment (IAP) for the protection of plants and bees pronuba activities in citrus orchards
- ✓ Enhancement of endemic subspecies of the western bee (*Apis mellifera L.*)
- ✓ Development of quality markers/traceability of citrus and aromatic honey