Biodiversity, nutrition, development
Almond witches' broom phytoplasma in Lebanon:
a potential threat to all Mediterranean Countries?

Throughout history, the Mediterranean has been the theatre of agricultural development of major civilizations that used the native biodiversity of these regions to become the cradle of important cultures, traditions and history. Specifically, Lebanon, a country rich in stories of thriving agriculture and trade, has an agriculture always searching for innovative techniques for its development and export of goods. Almonds represent an important crop in most Mediterranean countries. Stone fruits, with almond occupying the largest acreage, represent the major fruit crops grown in Lebanon.

A lethal phytoplasma disease of almond, almond witches'broom (AlmWB), spread rapidly in Lebanon killing about a hundred thousand trees within 10 years.

This disease, caused by a bacterium, Candidatus Phytoplasma Phoenicium, caused the destruction of at least 40,000 plants only in the past 2 years. The disease has been studied by AVSI through a project financed by the Italian Cooperation which has long been committed to support agricultural development projects in the region. The threat of the disease has summoned a multifaceted challenge: a technical challenge for researchers, a social and economic challenge of the quality of life for farmers and a challenge for the environment and biodiversity.

The world of research and development cooperation, for a total of 25 technicians and researchers, worked together to understand the extent of disease, finding means of preventing the epidemic and searching for practical answers for farmers.

A scientific partnership was coordinated between prestigious Lebanese (American University of Beirut, Lebanese Agriculture Research Institute, University of Saint-Esprit de Kaslik and Lebanese University) and Italian (University of Milan and University of Turin) research institutes.

The project, in 12 months, involved 551 farmers, 910 orchards, regularly monitored, in 430 villages belonging to all the 26 Lebanese "Caza".

The monitoring led to the identification of the disease in about 40,000 plants. The issue was addressed by an innovative, integrated method, involving field monitoring, laboratory research and awareness training and information for farmers, thus shifting the focus of the project from solving an agricultural problem to dealing with the individual farmers and communities living "with" the problem.

Today, Lebanon is facing not only the economic impact of the disease but also serious socio-economic imbalances as well as important changes in terms of biodiversity, that is the loss of high nutritional value fruit that has always been present in the Mediterranean diet and a symbol of conviviality.

Experience shows that such complexity can not be resolved simply in terms of country but that the factors involved (biodiversity, nutrition, development and elements identified with the project) should be thought of and dealt implementing the same integrated methodology at a regional level.