

The Office of the Chief Scientist
Ministry of Agriculture and Food Security:

Agricultural Research in Israel

Objectives background

In today's and mainly in the future complex climatic changes, demographic growth and energy context, agricultural research must deal with major issues on various scales to ensure food security. Preparing worldwide food availability and security by 2050, and promoting alternative agricultural practices that can respond to non-reversible climate change are challenges the entire world must face. In order to better address these missions, we suggest joining forces in promoting multidisciplinary synergistic research collaboration with Israel.

What do we like to achieve?

Food security should stand on four pillars:

- **Access** – refers to the ability to produce one's own food or buy it, which implies having the purchasing power to do so.
- **Availability** – Mainly in areas where food production does not meet population needs.
- **Food quality** – from a nutritional, sanitary, sensory and socio-cultural point of view. Food security integrates the notion of food safety.
- **Stability** – in terms of availability, accessibility and quality.

Achieving the goals of this proposed collaboration would strengthen these four pillars reducing hunger and creating a better and healthier society.

Israel, a desert nation, has been challenged by its arid geography and through the need has developed a range of technologies in agriculture, irrigation and water management including the purification of wastewater and desalination. Thus, brackish and recycled water resources are currently used in agriculture. Israeli experts and their innovative technology are in a position to help the world's developing nations face this urgent new challenge. Future international collaborative efforts with Israeli scientists will synergize the outcomes of research efforts to provide solutions for developed and less developed countries. We suggest that Israel will serve as universal experimental **beta-site** for implementing scientific research activities with the aim of providing novel answers for agricultural production in arid and non-arid areas.

Agricultural research in Israel is carried out by the public and the private sectors and is primarily funded by the public sector of which the **Ministry of Agriculture and Food Security (MOAG)**; provides the major share.

MOAG Chief Scientist's major goals are to identify agricultural problems in which knowledge gaps exist, to determine research goals aimed to bridge such gaps, to fund such research activity, to monitor research performance and to guarantee the implementation of the outcome for the benefit of the farmers, public and environment. Financial support is given for research programs within ministry units as well as to universities and other research centers.

The major subjects that are currently supported and controlled by MOAG Chief Scientist are:

- Agricultural biotechnology and its regulation
- Animal and Aquaculture production
- Coping with foreseen agricultural threats arising from possible future climate changes
- Economical, marketing and Food Security policy

- Food safety and quality
- Horticulture and ornamental improvement and production of new varieties for Local and export markets
- Irrigation and water management (potable; brackish; recycled; desalinated)
- Marketing driven R&D for new agricultural products
- Organic farming
- Pest management aimed at reducing the use of pesticides and herbicides
- Post harvest improvement of shelf-life and surface transportation of exported fresh agricultural products
- Reducing man-power needs by improved and innovative technologies
- Sustainable agriculture

In addition, MOAG Chief Scientist supports and controls the following subjects together with other funding agencies:

- Agricultural ecology and forestry
- Biodiversity and Gene Banks
- Improving agricultural-related energy use and production
- Plant functional genomics assisting future agriculture
- Production of new and innovated agricultural products by the private sector

Bilateral Cooperation in agricultural Research

Following official agreements signed between the State of Israel and other state partners, several mutually funded agricultural research programs have been carried out over the last years. The topics of the programs were jointly decided by both parties. Among the partner

states have been Italy, Germany and China. The chief Scientist of the Ministry of Agriculture is interested in further promoting more such scientific collaboration with more partners (depending on the availability of research funds on both sides) for the benefit of both countries.

The flow chart of steps needs to be performed before and after launching a bi-national research call:

- ❖ Signing an official agreement between states
- ❖ Establishment of a joined committee to identify mutual research goals for the benefit of both countries
- ❖ Allocating research budget, on both side, in order that each side can support it's scientists
- ❖ Launching a call for proposals based on the research topic identified and agreed
- ❖ Evaluation of the submitted research proposals mainly focusing on the synergism and advantages of the collaboration between the bi-national teams
- ❖ Funding the best proposals

It should be noted that any of our calls for research proposals is open for application by all scientists in Israel involved in agricultural research including all Israeli universities, research centers and The Agricultural Research Organization (ARO).

Summary:

To meet future challenges, new sciences, new partnerships and new modes of collaboration are needed. Optimization of agricultural production will require novelty, synergism and multidisciplinary research efforts. This proposed program of collaboration between Israel and other nations has it all with proven success stories of all potential players.