



The Israel Export & International Cooperation Institute
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ISRAEL Agrotechnology Industry





Israel's Agrotechnology Industry

Background

Israel's agrotechnology industry is characterized by intensive research and development of innovative systems, rooted in the need to overcome local scarcities of water and arable land. The industry's growth arose from the close cooperation among researchers, extension agents, farmers and agriculture-related industries, cooperative efforts that led to breakthrough achievements. These in turn have fostered a market-oriented agribusiness that exports its agrotechnology solutions worldwide. The result is modern agricultural methods, systems and products in a country where more than half the area is desert.



Key Segments

Water and Irrigation



Israel is the world's most advanced user of agricultural irrigation, with half of all agricultural land under irrigation. Israel's highly innovative irrigation industry has earned a worldwide reputation, with more than 80 percent of this sector's product exported. Israel pioneered innovative irrigation technologies, systems and accessories, such as drip irrigation, automatic valves and controllers, media and automatic filtration, low discharge sprayers, mini-sprinklers and compensated drippers. The Israeli developed computer-controlled drip irrigation system saves huge quantities of water and also provides for the ability to supply fertilizers with the water ("fertigation"). Israeli irrigation systems are used worldwide.

Post-Harvest

Maintaining appearance and nutritional value is key to profitability, especially in a world where produce often travels thousands of miles before consumption. An Israeli fruit and vegetable rinsing appliance reduces fresh citrus losses from 15 percent to less than two percent.

By appropriate post-harvest treatment, including washing and cleaning, application of sanitizing and disinfestation materials, sorting by size and quality, and application of wax coatings and plant growth regulators where required, freshness can be maintained over long journeys. In addition, advanced, product-specific packaging helps preserve and protect produce, as do sophisticated modified atmosphere (MA) and controlled atmosphere (CA) cooling systems.



Greenhouses



The need to overcome the natural restrictions of soil, water and a harsh climate has led Israel to develop sophisticated greenhouse technologies that are particularly useful for high added-value crops. Greenhouse systems, including spectrum-optimized plastic films and heating, ventilation and structural systems, enable Israeli farmers to grow more than three million roses per hectare per season, and an average of 300 tons of tomatoes per hectare per season - four times the yield of those grown in open fields.

Dairy Farming

Israel's dairy industry has developed and employs advanced technologies that have transformed the industry. Average milk production has increased three times since the 1950s - from an annual average of 3,900 liters to more than 12,000 liters per cow. Exports include frozen semen, embryos for transplant, heifers, advanced milking and computerized feeding systems, consulting services and joint international project development.



Poultry Farming

Israel has developed innovations that contribute to higher production and making the work of poultry farmers more efficient.



- **Breeding:** Breeds developed in Israel are highly disease-resistant and adaptable to extreme climate conditions (high humidity & extreme heat). They are characterized by rapid growth, high egg production and low-fat meat.
- **Equipment:** Israel exports automatic egg collectors, poultry drinking systems, and durable plastic-slat flooring that improve henhouse hygiene.
- **Control systems:** Advanced control systems developed by Israel maintain optimal conditions in the henhouse under all climatic conditions. These systems maintain desired levels of humidity, heat, lighting, feed, ventilation and cooling 24 hours a day.



Aquaculture

Israel's semi-arid climate has encouraged intensive aquaculture. Fish farming is carried out in the open sea in floating cages, in manmade reservoirs and in ponds. Due to the scarcity of fresh water, fish farmers use closed water systems for intensive farming. In some cases water from the reservoirs is reused for irrigation. Israeli aquaculturists also breed a wide range of ornamental fish and marine plants, including coldwater fish, tropical fish and water lilies, mostly exported to Europe.



Seeds

Israeli seeds and seedlings are widely sought on the world market. Israeli scientists at research institutions and private companies work constantly to improve disease-resistant seed varieties that remain durable when stored and are suited to a variety of climatic conditions.

Some 40 percent of European tomato greenhouses use seeds of a long shelf-life hybrid that was developed and first produced in Israel. Other successful developments are seedless watermelon, disease-resistant squash, high-yield cucumbers, saucer-shaped yellow zucchini, a variety of hybrid cotton with longer and stronger fibers, naturally colored cotton, and high-yield crops requiring less water or that tolerate and even thrive in brackish water.



Mechanization

Israel manufactures and exports a variety of specialized agricultural equipment, including:

- Mobile celery packing plants
- Machinery for digging silage and mixing feed uniformly
- Poultry equipment (drinkers, automatic egg collectors, climate control systems, weigh scales)
- Air-blast sprayers that provide efficient cover of the tree for use in citrus groves and vineyards
- Flower bulb transplanters
- Fruit and vegetable packing-house machinery

Fertilizers

The area around the Dead Sea and other parts of Israel's south are rich in potassium, phosphorus and magnesium - minerals important to agriculture. Some of these resources are exported directly as raw materials, while others undergo local processing and compounding to enhance their usability and effectiveness, and to ensure that they meet international environmental standards for safety.

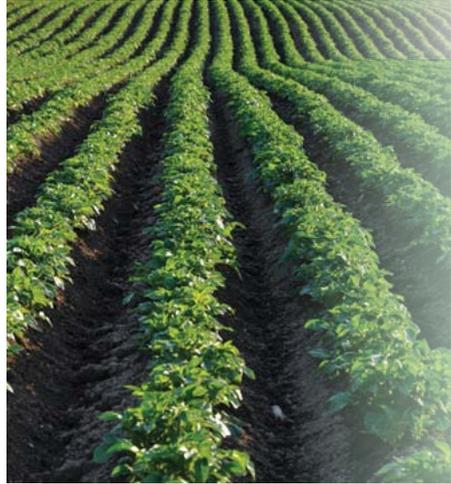


One of the remarkable Israeli developments is the application of fertilizers through buried drip-irrigators. These ensure that less mobile components such as phosphorous directly reach the roots. Another Israeli innovation is controlled-release fertilizers. These are coated with polymers to ensure slow, prolonged release and delivery via diffusion. Slow-release fertilizers allow better exploitation of the fertilizer and reduce groundwater pollution.



Plant Protection

Israeli companies manufacture and export pesticides and herbicides for controlling insects, fungi and weeds. Due to growing environmental awareness around the world, biological materials, which are non-pathogenic to both plants and humans, have been developed for treating diseases in plants. These biological materials are effective in treating diseases caused by pests, fungi, and viruses in a wide range of crops. In addition, Israeli agrotech experts have developed a defoliant for cotton plants and herbicides for early and specific treatment of weeds. Environmental concerns have also stimulated the development of methods to disinfect the soil using formaline as a substitute for methyl bromide.



Turnkey Projects, Consulting Services, and Know-How



Increasingly, Israeli agrotechnology companies are joining forces to supply turnkey projects for both crop and livestock development programs. Multiple skills, talents and experiences are enlisted to provide integrated solutions that encompass soil, water, additives, plant and livestock varieties, equipment and structures. The results are measured in increased yields produced at lower costs - a win-win situation in a world where resources are increasingly under stress.

Israeli Agrotechnologies in Developing Countries

Israel places special emphasis on cooperating with developing countries in a wide range of areas, including training, project development, joint research and exchange of experts. The hallmark of Israel’s international agricultural cooperation program is the country’s own professional and operational achievements: rural development, countering desertification, agricultural development in arid zones, and agro-ecological projects.

Through their participation in international cooperation projects, Israeli companies have gained rich experience and knowledge about the necessary technologies for agricultural and rural development projects in developing areas. Based on this knowledge, the Israeli agrotech industry has developed equipment specially adapted to farming (and farmers) in areas with substandard infrastructure and a harsh environment. These technologies include, among others, gravity drip-irrigation kits, grain storage solutions, and water





and energy management solutions, all of which have been deployed with overwhelming success. They help increase yields and improve the crops of small farmers, thereby improving their quality of life and preventing hunger in poor, underdeveloped areas. Though conceptually sophisticated, these technologies are designed and built for easy installation, operation and maintenance, without the need for field or technical support or expensive spare parts. Other benefits include their easy implementation in areas with low water supplies and simple or substandard infrastructure (no pumps or electric power) - or even in any backyard.

Agrotechnology transfers have been made in cooperation with governments, international organizations, agricultural institutes and NGOs. Israeli agrotech companies seek to strengthen their relations with international agencies in order to see wider deployment of current technologies and the development of new ones, both of which will help improve the quality of life of farmers in developing areas.

The Israel Export & International Cooperation Institute

The Israel Export & International Cooperation Institute, a non-profit organization supported by the government of Israel and the private sector, facilitates business ties, joint ventures and strategic alliances between overseas and Israeli companies. Charged with promoting Israel's business community in foreign markets, it provides comprehensive, professional trade information, advice, contacts and promotional activities to Israeli companies, and complementary services to business people, commercial groups, and business delegations from abroad.

The Agrotechnology Department provides foreign companies and organizations with information about Israeli agrotechnologies, helps establish contacts with the leading Israeli companies in the field and assists in planning a productive business trip to Israel.

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© June 2015

The Israel Export & International Cooperation Institute

Production: IEICI Media and Communication Division

Copywriting: Paul Ogden

Design: Studio Billet