

# COMBATING THE GLOBAL FOOD CRISIS

Growing More with Less Land, Water, and Manpower

## Worldwide Food Supply Challenges



Global population to reach **9.7B** by 2050

*"World Population Prospects," United Nations (2015),1*



Food production must increase by **70%**

*"Creating a Sustainable Food Future," World Resources Institute (2013), v.*



Increasing demand for **natural resources**



Land and water **scarcity** and **degradation**

*"The State of the World's Land and Water Resources for Food and Agriculture," WRI (2013).*



**Extreme** climate change



Destruction of crops and migration of **pests** and **diseases**

*"Climate Change and Food Security: Risks and Responses," Food and Agriculture Organization (2016).*



**Food loss and waste** throughout the supply chain



**30%** of global produce

*"Global Food Losses and Food Waste," FAO (2011).*



High carbon footprint of livestock (14.5% of human-induced GHG emissions)



environmental hazard

*"Tackling Climate Change through Livestock," FAO (2013).*

## Agriculture Industry Potential

**\$6.4T**

global industry

**8.5%**

of global GDP

**1.3B**

jobs worldwide

*"AgTech Investing Report: Year in Review 2014," Agfunder (2015).*

## Unique Strengths of Israeli AgTech

### Innovative methods and technologies

for growing more with less land, water, and labor

- **Precision Agriculture**—robotics and sensors, biomedical breeding protocols and genetic manipulation, big data analytics, computer vision, and automatic-decision support systems
- **Drip irrigation and fertigation systems**
- **Climate-controlled greenhouses**

### Ideal beta site

- **Diversity** of **four** climate zones
- **Easy to test** new agricultural methods in different soils, precipitation levels, and temperatures
- **Early adopter farmers:** culture of AgTech experimentation and implementation

### Legacy of Israeli innovation

**Resilient seeds**—40% of European tomato greenhouses use seeds of a long shelf-life hybrid that was developed and first produced in Israel

*"The Israeli AgriTech Sector," Bank Leumi (2015)*

**Efficient dairy farming**—world's most productive **cows:** 12,083 kg per cow in 2014 (compared to 10,097 in USA)

*Ari Rabinovitch, "Thanks to Innovative Dairy Tech, Israeli Cows Among World's Most Productive," Haaretz (2015)*

**Drip irrigation and water management**—75% of crops drip-irrigated (compared to only 5% globally)

*"Israeli Water Technology is a Blossoming Industry Helping to Solve the Global Water Crisis," Jewish Business News (2015).*

**Novel plants**—Cherry tomatoes, human-collagen-producing tobacco plants

## SUPPORTIVE SECTOR

### Research centers

**Governmental**—ARO-Volcani; **eight** regional agricultural R&D centers

**Academic**—Agriculture programs: Hebrew University, Weizmann Institute of Science, Technion, Ben-Gurion University

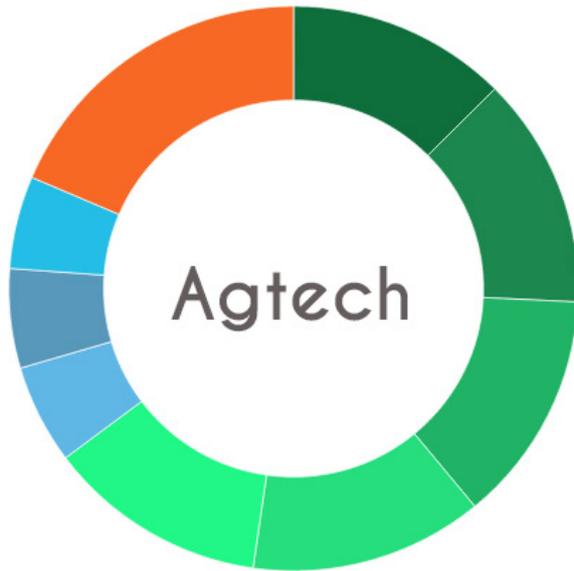
**Incubators**—Trendlines; Strauss (Kitchen)

**AgTech**-focused Israeli Venture Capitals—GreenSoil Investments, Pontifax AgTech

**MNCs (acquired Israeli companies, established R&D in Israel)**—Monsanto, Syngenta, Limagrain

## ISRAEL AGTECH COMPANIES BY SECTOR

250+ Start-Ups



### Notes:

**Plant-breeding** includes seeds, plant-genomics, and biotechnology

**Livestock** includes dairy, poultry, aquaculture, and veterinary

**Agrochemicals** includes plant-protection, fertilizers, and bio-solutions

**Postharvest** includes packaging, treatment, and storage solutions

**Foodtech** includes food ingredients, alternative protein, and food-e-commerce

## Success Stories



developed an automated, adaptive differential irrigation solution; raised \$9M in 2015 from Innovation Endeavors, Finistere Ventures, and GreenSoil Investments



invented drip irrigation in the 1960s; today controls 30% of drip irrigation global market



develops unique genomic multiplication breeding technology; raised a total of \$95M since established in 2007



specializes in dairy monitoring and management; acquired in late 2014 by Allflex for \$250M



develops computational technologies for plant genomics; collaborates with world-leading agricultural companies like BASF and Bayer

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Jeremie Kletzkin | [Jeremie@sncentral.org](mailto:Jeremie@sncentral.org) | [StartupNationCentral.org](http://StartupNationCentral.org)