START-UP NATION CENTRAL: FINDER INSIGHTS SERIES

AGRITECH REPORT 2017

START-UP NATION CENTRAL

TEL AVIV: OCTOBER 2017

EXECUTIVE SUMMARY

The Israeli Agritech sector is attracting an increasing number of investors in Israel and across the globe.[1] In the first half of 2017, Israeli companies offering on-farm solutions raised $80M, 7% of global funding for such technologies. Smart Farming innovators raised $12.5M (5.9% of this subsector's global funding), and $26.5M more since the beginning of July.

In the past decade, the Israeli Agritech sector has produced a high number of new, technologically innovative companies addressing global agricultural issues, such as food insecurity and safety, manual labor shortages, and environmental strains. Of the more than 460 active Israeli Agritech companies, over 25% were founded in the last five years, and 50% were founded in the last ten years. This pattern is most pronounced in Israel's Smart Farming subsector: of its sixty companies, half were founded in the last five years.

The entire sector raised $97M in 2016, 3% of global funding in Agritech. Investments in 2017 through Q3 total $131M, exceeding year-2016 levels by 35%. Highly skilled founders lead the Israeli Agritech sector, many with backgrounds in other domains of the country's high-tech ecosystem. These managers and their teams constitute an 18,000-strong innovation workforce. Yet the average salary in the sector is 25% lower than that of the broader innovation ecosystem.

By leveraging innovation and talent in the high-tech ecosystem and building on decades of experience in overcoming agricultural challenges, Israeli Agritech is quickly developing new solutions to some of the world's greatest agricultural challenges. This influential sector, powered by a highly skilled yet relatively inexpensive labor force, is an opportunity for both investors and farmers.

1 A note on style: we capitalize the names of sectors and subsectors but leave technology types lowercase, e.g. "the Agritech sector," but "agritech innovation."

GLOBAL CONTEXT

The world is one generation away from reaching a population of ten billion, and the demand for food is rising proportionately. Each year agricultural sources must be more productive to answer the growing demand for food, a prospect beset with pitfalls. Rising income levels in low- and middle-income countries are prompting a shift in diet, from cereals to more resource-intensive produce, including meats, fruits, and vegetables. Current farming practices exhaust natural resources, and exacerbate deforestation, water scarcity, soil depletion, and pollution to both the earth and atmosphere. Once produce transfers through the increasingly complex supply chain, consumers are susceptible to life-threatening food-borne diseases. Compounded by the spread of transboundary pests, a decline in farm labor, and food losses, these conditions impede the Agriculture sector's ability to meet the rising food needs.[2]

The agricultural and food challenges facing the world are everyone's problem, not just those of developing countries. The effects of these challenges permeate national borders: for example, food insecurity correlates highly with armed conflict, and drives resultant international migration. The refugee crisis that Europe has inherited from the Syrian civil war and Afghanistan is owed substantially to unmitigated food insecurity.[3]

Agricultural technology (agritech) promises to overcome global agriculture challenges by means of digital, mechanical, and biochemical innovation. Sensors, communications, and data analytics empower farmers to make informed decisions about their crops, resulting in increased yields, as well as reduced water and chemical usages. Robotics and advanced machinery automate tasks, replacing manual labor. Gene-editing processes make breeding new crops with favorable traits more efficient. Growing systems for alternative-protein sources substitute resource-intensive meat production. Monitoring technologies ensure food safety from farm to table.

The global Agriculture market is estimated to be worth $3.2T,[4] yet the Agritech sector is a largely untapped source of business. Agritech companies commonly have a longer gestation period than other sectors, which may explain why VCs have been slow to invest in them.[5] But from 2012 to 2016, investment in the global Agritech sector has increased significantly, from $0.5B to $3.2B, and despite a decline in year-over-year growth in 2016, the total number of investment rounds grew by 10%.[6]

The USA's Agritech sector leads the world in both quantity and value of investments, despite a considerable slip in its share of deals worldwide since 2014, from 90% to 48%. Investors are shifting focus to Chinese and Indian agritech, which attract the highest amount of investment after the USA.[7] Yet Israel, whose space and population are dwarfed by those of the USA, China, and India, has produced an Agritech sector that ranks among the top five countries in number of deals.

THE LEGACY OF ISRAELI AGRICULTURE

In terms of agricultural innovation, Israel could be a role model for the world. Beginning half a century before its independence in 1948, and continuing ever since, the country has had to feed an ever growing population—no easy feat with a geographical landscape that comprises semi-arid land, combined with declining natural freshwater resources. Thanks to agricultural research and development strongly promoted by the government, renowned universities and research institutes, and innovative farmers, Israel has cultivated an ecosystem of agricultural expertise.[8] Scientists closely collaborate with farmers to invent cutting-edge collaborations, such as heat-tolerant tomatoes, drought-resistant cucumber seeds, and ultra-efficient drip irrigation. Israel has also achieved water self-sufficiency through a combination of education, policies, pricing, and technologies.[9]

Israel has always answered its own agricultural challenges, and in the process has created a large produce export industry. But the real comparative advantage of this small country with its proven agricultural know-how lies in exporting technology, often tested first by Israel's own farmers. Thanks to the combination of long-term experience and the expertise of the broader high-tech ecosystem, Israeli Agritech is particularly well-equipped to meet the needs of a global market that increasingly depends on sophisticated, data-driven solutions.

2 *The Future of Food and Agriculture—Trends and Challenges*, Food and Agriculture Organization of the United Nations (Rome: 2017) 135.

3 *At the Root of Exodus: Food Security, Conflict and International Migration*, World Food Programme (2017) 7, 24, 36, 49.

4 "Agriculture, value added (current US$)," The World Bank national accounts data, and OECD National Accounts data files, The World Bank Group (2017).

5 *From Agriculture to AgTech: An Industry Transformed Beyond Molecules and Chemicals*, Monitor Deloitte (2016) 5, 17.

6 *AgTech Investing Report: Year in Review 2016*, AgFunder (2017) 8.

7 Ibid. 34.

8 *Leveraging Agricultural R&D in Israel: Recommendations of the Interministerial Council for Leveraging Israel's Comparative Advantage in the Field of Agricultural Knowledge and Technology*, The National Economic Council of Israel, Prime Minister's Office (Jerusalem: 2012) 8 (Hebrew).

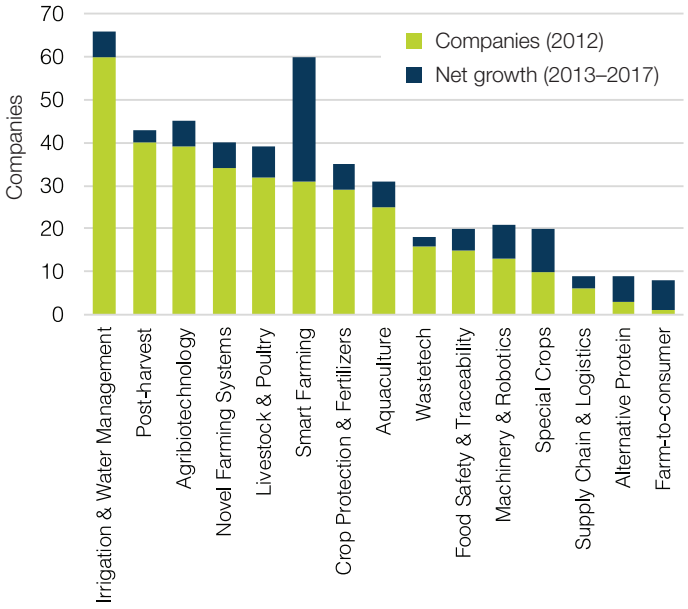
9 According to Dalit Ben-Zoor and Maxim Priampolsky, *Water Technology in Israel*, Bank Leumi le-Israel (March 2016), Israel reclaims 400 million cubic meters (80%) of its wastewater for reuse in agriculture—the highest percentage globally—and desalinates 587 million cubic meters of water (2, 3).

OVERVIEW OF ISRAELI AGRITECH TODAY

The Sector

Israel's Agritech sector consists of several established companies and many new ones. The roots of the sector are older than the state itself: twelve of Israel's largest Agritech companies were created before its independence in 1948. Several of them focus on irrigation and water management, but the group as a whole is diverse, like today's growing sector. Of the 460 active Agritech companies, over 25% were founded in the last five years, and 50% were founded in the last ten. More than 60% of those founded in the last five years have attracted funding for the early stages of development (mainly seed capital but also a few grants).[10]

Figure 1: Agritech sector growth (2013–2017)



We observe an evolution of Israeli Agritech's perennial subsectors—Irrigation & Water Management, Livestock & Poultry—together with the emergence of others, such as Smart Farming and Alternative Protein. Smart Farming is developing quickly, with 29 new companies over the last five years (94% growth), almost three times as fast as any other subsector, and constituting more than a quarter of all Agritech companies founded during this period (see Figure 1). Also of note is the growth of other subsectors: Farm-to-consumer, Alternative Protein, Special Crops, Machinery & Robotics, and Food Safety & Traceability. These developments reflect the growing needs of the world and the fact that more Israeli entrepreneurs are incorporating high-end technological solutions in agriculture to meet these needs, utilizing information, automation, and bio-engineering to increase productivity and control throughout the supply chain.

Funding

In 2016, Israel placed among the top five countries in terms of number of investment rounds in Agritech. The sector raised $97M, or 3% of global investment capital; American Agritech investments, by comparison, amounted to 58% ($1.87B).[11] While the American sector's share of global VC overshadows that of Israel, when we consider population sizes, a modest inversion becomes apparent. In 2016, American Agritech raised $5.8 per capita; its Israeli counterpart raised almost double that (see Figure 2).[12] Israel's Agritech sector, though small in absolute figures, consistently attracts investor activity in higher intensity per capita than the USA. Furthermore, the differences between the past two years are smaller than the VC-per-capita comparison of the Israeli high-tech ecosystem vis-a-vis the American: in 2016 Israel's VC per capita was 2.4 times greater than that of the USA.[13] It therefore appears that not only does Israeli Agritech innovation command investor confidence, but its relative superiority is likely to grow in conformity to the Israeli ecosystem's wider lead among the world's innovation ecosystems.

With a quarter remaining in 2017, Israeli Agritech's total funding this year ($131M) has already surpassed the annual sums of the previous three, even while there have been (so far) fewer rounds than in the previous two (see Figure 3). Over the past four years, of the total $400M invested in Agritech, the vast majority of investment rounds were seed-stage, but B rounds have brought the sector the largest amount of funding (see Figure 4). The average C+ round has barely surpassed that of B rounds. Agritech companies' regular success obtaining early-stage investment shows that they present compelling innovation to investors, but that many have yet to demonstrate that they have the vast commercial potential that would precipitate additional rounds and larger amounts. This seems evident especially because of the small difference in size between the B and C+ rounds. Alternatively, the scarcity of B and C+ rounds, and the comparably small size of the C+ rounds, may simply indicate that such funding may not yet be readily available.[14]

10 This is the sole mention in this report of grants from sources other than Israeli incubators. The purpose of this unique reference is to show that many new Israeli Agritech companies have drawn financial support for their work. See footnote 17 for clarification about grants through the Israel Innovation Authority.

11 Global Agritech saw $3.23B in VC. *AgTech Investing*, AgFunder (2017) 8.

12 This comparison is based on our own calculations, which crossed VC data from Start-Up Nation Finder and from *AgTech Investing Report: Year in Review 2015*, AgFunder (Feb 2016) as well as *AgTech Investing*, AgFunder (2017) with population figures of Israel and the USA from 2014–2016 from The World Bank's online interactive tool. The comparison between Israeli and American Agritech is actually conservative, since AgFunder includes ~$1.29B (global) in Food eCommerce, which mainly contains technologies that we do not include in Israeli Agritech, e.g. grocery delivery services, meal kits.

13 This comparison is based on our own calculations, which crossed VC data from Start-Up Nation Finder and *Venture Pulse Q4 2016*, KPMG (Jan 2017) with country populations according to The World Bank (online interactive tool).

14 See note 5, above.

Israeli Agritech has proven particularly strong in on-farm technologies, solutions that interact with the farmer. The companies offering on-farm technology collectively raised $80M in H1 2017, or 7% of global investment capital in such solutions during this period.[15] This is a significant share even by international standards,[16] and reflects the growing global relevance of the Israeli sector specifically for farmers since the majority of Israeli Agritech focuses on on-farm solutions.

Breaking down the funding by subsector since 2014 (Figures 5 and 6), Smart Farming is in the lead, having raised $115M. Post-harvest comes in second at $66M, though this number is inflated by the total $50M raised over 2016 and 2017 by Aspect Imaging, a developer of compact, high-performance MRIs for medical, industrial, and post-harvest quality assurance applications, among others. Close behind are Food Safety & Traceability ($47M) and Agribiotechnology ($46M), followed by a long tail of domains that have raised comparatively small amounts.

Figure 2: Agritech investment per capita

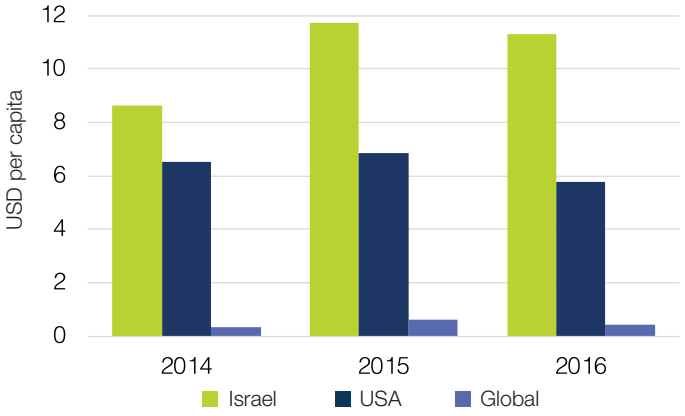


Figure 3: Israeli Agritech funding

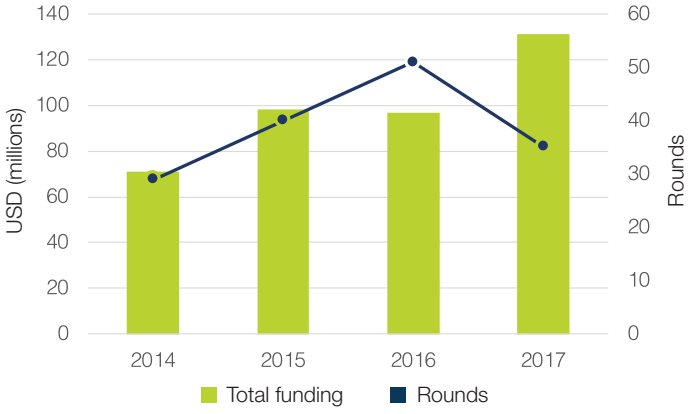


Figure 4: Average amount invested (2014–2017)

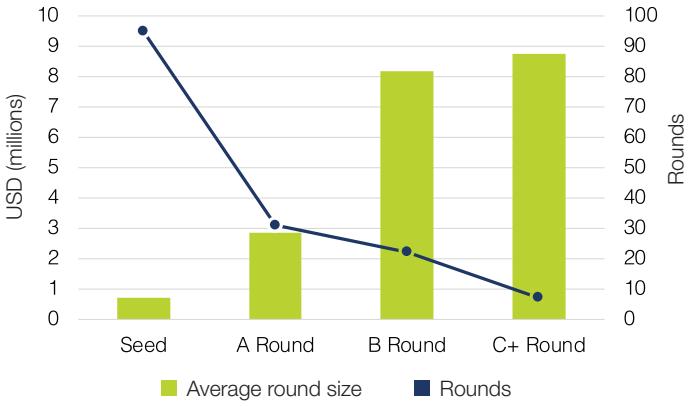


Figure 5: Funding (2014–2017)

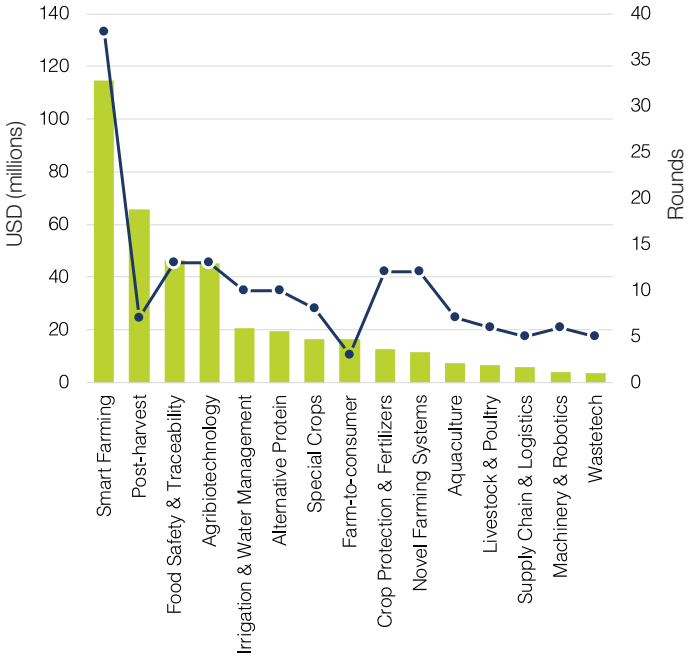
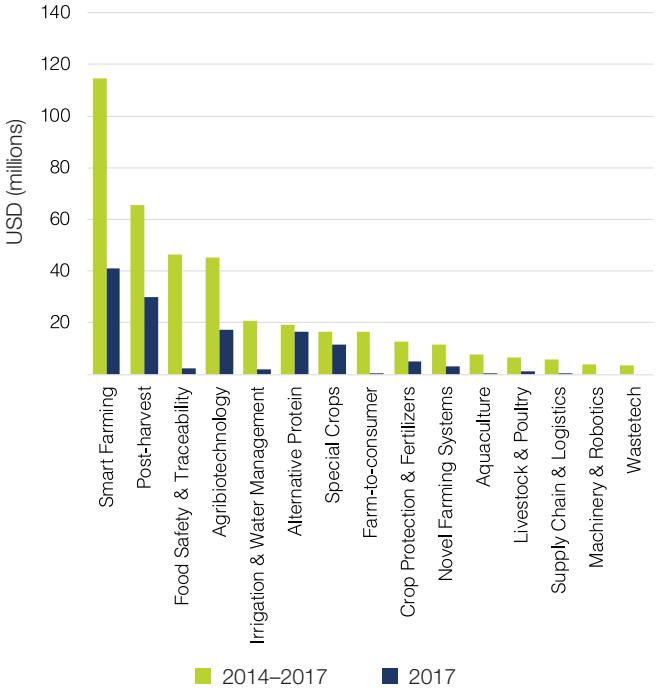


Figure 6: Funding by subsector



15 A large segment of the $80M obtained by Israeli on-farm agritech innovation was one company's $30M round in April.

16 See *AgFunder AgriFood Tech: Investing Report*, AgFunder (2017) 31. What we call "on-farm" agritech coincides with AgFunder's "farmtech."

Exits

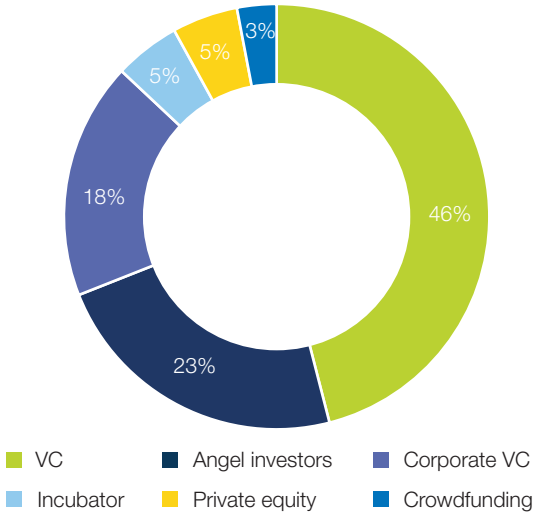
Sixteen exits (first-time deals) took place in the last four years, of which ten totaled over $600M and six were undisclosed. The majority of these were acquisitions, two were IPOs, and one was a reverse merger. Three deals were notable for their size: SCR, developer of cow-monitoring and milking systems, was acquired for $250M by Allflex in 2014 in a leveraged buyout; biopesticide company Stockton Group was acquired by the Hebang Group for $90M in 2015; and Aeronautics, a UAV and defense-systems company offering drone applications in Agriculture, raised $130M in an IPO in 2017.

Two secondary deals, both in Irrigation and Water Management, took place this year. One was the merger of water-treatment solution providers Emefcy (Israeli) and RWL Water (American), which formed Fluence Corporation, and the other was Mexichem's (Mexican) acquisition of 80% stake in drip-irrigation giant Netafim for $1.5B.

Investors

Over the past four years, Israeli Agritech has attracted funding from approximately 120 distinct investors—almost equally foreign and Israeli—only a handful of which are VC firms dedicated to Agritech. VCs, corporate VCs, and incubators together make up more than two thirds of the entities investing in the Israeli sector,[17] and of the large VC bloc, almost two thirds are foreign firms. In contrast, the second-largest investor group, angel investors, are mainly Israeli, followed by foreign corporate VCs and then the incubators, which are all Israeli (see Figure 7). Private-equity firms hardly figure in the sector, which reflects the relatively recent regeneration that Israeli Agritech has been experiencing over the past several years. Unsurprisingly, the group least represented among the investment sources is crowdfunding.

Figure 7: Investor breakdown by type

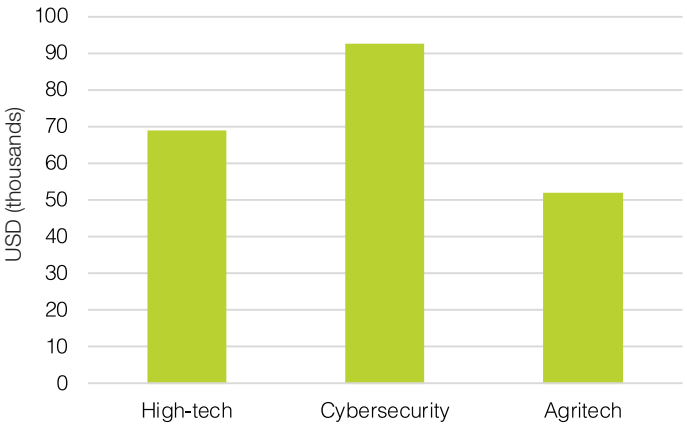


17 Israel is unique for its incubator investment model: VC firms invest in R&D-stage companies conjointly with grants from the Israel Innovation Authority, a public entity that oversees policy for Israeli innovation and helps strengthen the local ecosystem. Under the grant agreement, if the recipient company eventually generates revenue, it pays royalties to the IIA until the grant amount (with interest) is repaid. For this reason we include this uniquely Israeli type of grant in the report's investment figures, excluding all other grants.

Human Capital

According to the latest government data, the average salary in Israeli Agritech is almost 25% lower than that of the entire high-tech ecosystem (see Figure 8).[18] The difference reflects the comparative demand for skilled labor, which correlates with sector activity. For example, the average salary of Israel's lucrative Cybersecurity sector is 77% higher than that of Agritech. Currently, roughly 18,000 people are employed in Israeli Agritech companies,[19] and there are more than 1,700 students of agricultural sciences in Israel (600 of which are in graduate programs).[20] The steady supply of skilled human capital suggests that wages will stay reasonable for a while.

Figure 8: Average yearly salaries (2015)



We conducted a survey among Israeli Agritech companies to assess the skills of founders in the sector.[21] According to the results, over 95% of Israeli agritech innovators hold a university degree, 80% have a background in STEM, and 25% have combined their STEM education with studies in business and economics. 40% studied biological and biomedical sciences, 33% studied agriculture, and 20% studied computer science. 70% worked in high-tech prior to founding their companies. These founders also have leadership and management skills: 60% of them served as officers in the Israel Defense Forces.

ISRAELI AGRITECH INNOVATION

The following sections delve deeper into select domains of Israeli Agritech, which either exhibited a sharp increase in number of companies or attracted a significant share of the sector's funding. The solutions in these fields tackle the growing demand for nutritious food, the shrinking labor force, environmental depletion, food waste, and contamination.

Smart Farming

Since about two-thirds of the country is desert, Israel's Agriculture sector has had to cope with a limited amount of natural resources, growing more with less. More and more countries around the world are reaching their limits and face threats similar to those Israel has overcome. This is where Smart Farming technologies—data-driven solutions and high-performance hardware for increased resource efficiency and crop yield—are important.

It is common in Israel for innovators of one high-tech sector to apply their expertise to another, and this trend is reflected in the array of Israeli Smart Farming solutions. IoT systems, machine-learning algorithms, and big-data analytics are the objects of most Smart Farming companies' innovation. They deploy these technologies in platforms that analyze soil, water, and plant tissue, providing crucial information for farmers, who can then make precise, data-based decisions; in solar-powered, wireless sensors that enable crop/livestock monitoring and precision agriculture; in drone-mounted sensors for spectral analysis of the biophysical characteristics of a field; and in ultra-sensitive smart irrigation systems that assess crop conditions such as stem-diameter variation and recommend a watering schedule to the farmer. Israeli Smart Farming has produced full, digitized farm-management systems, enabling farmers to better control pests and track irrigation, pollination, and fertilization. Many of the solutions can be installed on location and at work within minutes.

A subset of Smart Farming companies is repurposing drone/UAV technology for crop mapping and supporting efficient distribution of fertilizers, pesticides, and irrigation.[22] One Nasdaq-listed company that traditionally innovates in Defense trialed its medium-sized UAV, designed originally for tactical long-endurance military missions, in an agritech application: surveillance of 40,000 acres of crops in an hour. Another Israeli solution departs from the common model of a single drone for spraying, deploying a modular swarm of autonomous drones, with one ground-based controller single-handedly overseeing treatment of vast plots of land.

18 Based on science and technology statistics from the Central Bureau of Statistics, which uses data from the Israel Tax Authority and National Insurance Institute of Israel. The data relates to the companies included in Start-Up Nation Finder and not the entire economy as measured by the Central Bureau of Statistics.

19 Ibid.

20 Reflects the 2015–2016 academic year. Merav Shaviv, Michal Ofir, and Vilna Karol, *The Higher Education System in Israel*, Council for Higher Education (Jerusalem: 2016) 31, 39 (Hebrew).

21 Results are based on the answers of forty distinct founders of different companies from across the Israeli Agritech sector. The founders are part of a wider audience consisting of VP-level professionals who were targeted in a survey that Start-Up Nation Central sent out to 460 companies in the sector. The responses were gathered between 31 August and 15 September.

22 We include in Smart Farming Israel's drone/UAV solutions that are deployed in agriculture. This kind of technology serves mainly decision support on the farm, whereas Machinery & Robotics usually relates to physical labor, throughout the supply chain.

Half of the sixty Smart Farming companies were founded in the past five years. Since 2014, Israeli Smart Farming has raised $115M in almost 40 rounds, most of which are seed and A rounds. In 2016, the companies raised $27M collectively, 7.4% of the $363M globally invested in related technologies.[23] During the first half of 2017, Smart Farming raised $12.5M, 5.9% of funding for the global subsector. So far in H2 the subsector has raised $26.5M more, so that the sum value of investments by Q3 2017 already exceeds the entirety of last year.[24] This reflects investors' growing perception of the promise of Israeli Smart Farming.

Machinery & Robotics

The Agriculture sector suffers from an increasing shortage of labor in many parts of both the developed and developing world. This problem is driven by a combination of factors, including an aging farmer population thanks to the urbanization of the younger demographic. To feed the growing world population, the global sector must increase food production without necessitating an increase in human labor. In addition to drones, the only solution is automation through sophisticated machinery and robotics.

Israeli solutions are supplementing human labor and boosting yield by inserting robots among crops and livestock. Israeli innovators have developed AI-based ground robots that pollinate tomatoes in greenhouses—keeping a record of treated plants—while self-sterilizing and cleaning to prevent crop disease. The sector also makes use of machine vision in robotic harvesters, which can identify crop ripeness, and be used for pruning, pollination, and monitoring. Israeli robotics is also enhancing post-harvest handling through automation of sorting, picking, packing, and quality control. One Israeli company specializes in hardware-independent robotic vision and automation for high-versatility production lines in Agriculture as well as other verticals. Its robotic system learns and mimics human or robot performance, removing the need to reprogram robots for different tasks. A small percentage of the companies in the sector focus on livestock, such as one company that offers an automated milking platform for medium- to large-size dairy farms.

In 2016 machinery, robotics, and drones raised $109M globally, whereas Israeli companies raised $2.2M.[25] This group represents only a small share of 2016 investments in the entire Agritech sector (3.4% globally, 2.3% in Israel). But the promise of Israeli machinery and robotics innovation is evident in the rate of newly established companies: five companies that develop robotic systems for fields and greenhouses were founded just in the last three years.

Agribiotechnology

Israeli Agritech's third-largest subgroup consists of companies that exploit biological processes for agriculture. More than half of these companies innovate in plant breeding or genetics, modifying traditional breeding methods and deriving new genetic analysis. Some of these companies offer platforms for gene discovery, analytics, selection, and editing, while others focus on biological inputs and treatments. Several of these companies have already attracted global players both within government bodies and the Agriculture sector. In July, one such Israeli company was chosen with ten others (Israeli and Indian)—the sole representative of Agritech—to present its solution to Prime Ministers Modi of India and Netanyahu of Israel. The Indian government has shown strong interest in solutions offered by Israeli companies. In 2016 Monsanto signed an exclusive licensing agreement with an Israeli company for RNA-guided gene targeting. Among Israeli Agritech's non-GMO solutions, one innovative company encourages selective breeding by focusing on plant roots, promoting only the high-performing, abiotic stress-tolerant plants in a group. Other bio-solutions include nanoparticle-based methods of transporting and delivering agrochemicals through plants, and mycorrhizal inoculants for improving 90% of all plant species' uptake of soil nutrients, thereby reducing fertilizer amounts and increasing crop yield, among others.

In 2016, global Agribiotechnology raised $719M, $16.7M (2.3%) of which went to Israeli companies, and the Israeli contingent is climbing: so far in 2017, companies in the sector have raised $22.4M.[26]

Alternative Protein

Companies in this globally emerging category all seek to reduce the dependence of an ever-growing population on traditional meat sources by developing sustainable alternative sources of protein. There are nine Israeli Alternative Protein companies, six of which were founded in the last three years. These companies innovate in one of three protein sources: plants, insects, or cultured meats. The Israeli innovators developing plant-based protein—e.g. from seaweed, chickpeas—are the best funded in Israeli Alternative Protein. Among the insect-based protein offerings in Israel, one company developed technology for establishing commercial grasshopper farms that leave a minimal water footprint and create almost no waste. Its grasshoppers are protein-rich, contain all essential amino acids, and have a neutral taste, meaning that their potential application in the global Food industry is quite substantial. Another Alternative Protein group of companies, crossing into foodtech, grows meat in cell cultures; they are currently developing poultry and bovine meat using regenerative technology.

23 This calculation is based on a comparison between our Israeli Smart Farming figures (excluding the drone/UAV companies and their funding) and AgFunder's 2016 reporting on Farm Management Software, Sensing and IoT, which does not include drone/UAV technology. *AgTech Investing,* AgFunder (2017) 17.

24 Idem. 34.

25 To accurately compare with AgFunder's most relevant category, Robotics, Mechanization & Other Farm Equipment (which includes drone/UAV technology), we included Israeli drone/UAV agritech in our figures. For the global figures, see *AgTech Investing,* AgFunder (2017) 18.

26 The Israeli figure includes companies innovating in bio-pesticides and bio-fertilizers, which we assign to an independent subsector, Crop Protection. Their inclusion aligns Israeli Agribiotechnology with comparable technology that underlies the global figures.

All of these companies have received external funding, $2.2M in 2016. For comparison with global numbers, we combined funding in Alternative Protein with Novel Farming Systems, amounting to $5.1M, 1.4% of global funding in these domains.[27] While most of the companies in Alternative Protein are in very early stages and have yet to prove that their technologies justify more funding, one company that cultivates a protein-rich vegetable using a proprietary hydroponic system raised $15M this year, boosting the number so far in 2017 to $16.7M.

Food Safety & Traceability

In spite of smarter farming, resource optimization, and alternative food sources, food worldwide is subject to contamination by harmful pathogens like salmonella, e.coli, and listeria. According to WHO, almost one in ten people annually worldwide becomes ill after consuming contaminated food, and 420,000 die.[28] Such contamination burdens healthcare providers and also deters tourism and trade.

Contamination can happen at any point in the supply chain. Israeli Agritech offers technologies to boost and enhance food safety throughout. There are twenty Israeli companies that innovate in food-production tracking, quality monitoring, contaminant detection, sterilization, as well as postharvest technologies that ensure produce quality in packaging and storage. One company, a winner in UNIDO ITPO's 2017 international agribusiness contest, offers a microbiological testing system that produces a high-resolution evaluation of fresh food within 45 minutes.

Some Israeli companies that innovate in food safety operate in multiple sectors, tailoring their versatile core solutions to specific verticals. One such company has devised a pocket-sized microspectrometer for analyzing material composition. Useful also to Pharmaceuticals and traditional Manufacturing, in Agriculture the device instantly reads produce quality, ripeness, spoilage, and contamination, and reports nutrient analysis for animal feed. Another company has developed a low-power radio-transmission technology for breast-cancer screening, which it now applies also to monitoring for food safety, including dairy-contaminant detection at farms.

In the last four years and thirteen rounds, Food Safety & Traceability raised $47M, $22M of which (47%) was the B round raised by Vayyar, which specializes in imaging sensors. Investment in Israeli Food Safety & Traceability constituted 23% of global funding in that category in 2015. Last year, together with Supply Chain, the subsector raised $8.3M, 5% of global funding in these technologies. In this small contingent of the Agritech sector, individual companies' success in attracting investment has caused fluctuations in subsector-wide figures.

27 This combination of our subsectors enables comparison with AgFunder's 2016 reporting on Novel Farming Systems and Innovative Food, though it is conservative because AgFunder's Innovate Food category also covers non-protein ingredients, which are not included in the Israeli figures.

28 "Food Safety: Fact Sheet," World Health Organization (Oct 2017).

THE TIME IS NOW

Israel's population and land size is small relative to the USA, China, and India, yet the country has produced an Agritech sector that ranks among the top five countries in number of deals and receives a disproportionately large share of global Agritech funding, especially in on-farm technologies and Smart Farming. With a significant pool of highly skilled yet affordable labor, and an influx of expertise and technological innovation from academia and the high-tech ecosystem, there is still plenty of room to grow. As global agriculture challenges become ever pressing, farmers and agrobusinesses around the world are turning to Israeli Agritech for collaboration. Investors, too, are realizing the promise of deal flow, and the field is not yet crowded.

ABOUT START-UP NATION CENTRAL

Start-Up Nation Central connects companies and countries to the people and technologies in Israel that can solve their most pressing challenges. We are the authoritative source on and guide to Israel's innovation community.

We provide international clients with their first tangible point of association with the Israeli innovation ecosystem by designing highly customized contacts for government and business leaders, connecting them directly to the most relevant innovation. We have also created the largest and most up-to-date platform providing data and connectivity to over 5,500 Israeli companies across multiple industries and sectors.

METHODOLOGY

Definition

Agritech, an abbreviation of agricultural technology, refers either to engineered solutions to current or anticipated challenges and practices of the Agriculture industry, or to the sector of innovators and founders that develop such solutions.

Some aspects of agritech overlap conceptually with foodtech. We distinguish between these tech types on the basis of the associated stage in the Agriculture/Food value chain. Agritech generally refers to application to the primary stages: growing, harvesting, and handling agricultural produce. Certain Israeli solutions address stages in the value chain where it transitions from Agriculture to Food. We have evaluated each such case carefully to determine the appropriate sector association.

Data set

Amounts and definitions relating to Israeli innovation and entities accord with those of Start-Up Nation Finder. Companies considered for this report were founded by Israelis and pursue R&D activities in Israel, and are not service providers. As for non-Israeli Agritech, all figures are based on AgFunder's 2017 reports unless otherwise noted. Since we exclude debt and grants with no equity, whereas AgFunder includes them, all figures comparing Israeli to non-Israeli Agritech in this report are conservative calculations.

This report organizes Israel's Agritech sector into subsectors. Subsector division organizes the relevant companies into an inherently simplistic regimentation. In reality, some companies offer multifaceted technologies and therefore could be assigned to multiple subsectors. But for sake of deriving investment and tech trends, we associate each company with only one subsector, that which reflects the company's major focus. Figures representing numbers of companies and investments in Israeli Agritech and its subsectors are likewise exclusive, e.g. we do not associate one company with multiple subsectors (except when necessary for comparisons with global figures, in which case the repeated appearance is noted).

Funding

Refers to any equity transaction (e.g. VC, corporate, or angel investments; private equity in growth stage), but excludes full or major liquidity events (see Exits). In the cases where companies receive investments from incubators conjointly with grants from the Israel Innovation Authority, the latter are included in the funding amounts and are not specified. Fundraising amounts entail only the value invested in a given time period; even if a deal includes terms for future obligations, we do not include the pending conditions in the amounts listed in this report.

Some investment figures may include funding that does not appear to the public on Start-Up Nation Finder. These amounts reflect data that Israeli companies disclosed to Start-Up Nation Central in confidence, which they prefer remain inconspicuous while still factored into aggregates.

Exits

Refers only to first-time full or major liquidity events of companies, including M&As, buyouts, reverse mergers, and IPOs.

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For more information on the Israeli Agritech sector and the companies cited in this report, please visit:
finder.startupnationcentral.org

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