



Dear Friends,

When Israel was founded 70 years ago it was mainly agriculture-based. Fast forward to the 21st century, today the country is an Agriculture Technology (AgTech) powerhouse. Over the years, Israeli farmers and scientists have teamed with researchers throughout the world to establish new and innovative technologies to maximize efficiency, minimize waste and create greater output.

FieldIn is a successful AgTech Israeli startup founded by two young entrepreneurs. In a very short time, this company has disrupted the \$65 Billion global Agricultural Pesticide (AgPest) market with the dramatic results generated by the company's cutting-edge platform and landed contracts with some of the biggest companies in the industry.

In this edition of Doing Business in Israel, FieldIn's Co-Founder and CEO, Boaz Bachar tells us about the company's rapid growth, reflecting AgTech as one of Israel's strongest high-tech verticals, with more than 500 companies working in this space.

This edition also features some interesting high profile deals and transactions, an Electronic Nose Technology, which detects breast cancer with 95% accuracy as well as a cultural recommendation bursting with nostalgia.

With the football World Cup in Russia behind us, I hope you enjoy the rest of your summer. I will, therefore, sign off with some apt words by the famous British footballer Vinnie Jones: "Winning doesn't really matter as long as you win."

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Latest Transactions

IFF Acquires Israel's Frutarom for \$7.1 Billion

Vying for the industry's top spot with market leader Givaudan, International Flavors & Fragrances Inc. (IFF) buys Israeli Frutarom, the world's sixth-largest flavor and fragrance maker. Frutarom started as a maker of extracts and essential oils in 1933 and grew by acquisitions.

Philips Buys Israeli Cardiac Imaging Company EPD for \$292M

The Dutch technology giant will use the acquisition to increase its presence in the cardiac arrhythmia treatment market. Based in Caesarea, EPD has developed image-guided procedures for heart rhythm disorders. This technology has the potential to simplify navigation and treatment, immediately assess the treatment result and ultimately enhance procedure efficacy.

Canon Buys Israeli Video Analytics Firm Briefcam for \$90M

The deal marks the Japanese digital imaging giant's first purchase in Israel. Briefcam is the maker of widely used rapid video review, search and analysis technology. Canon said that Briefcam's innovative video content analytics solution will complement its network video solutions products portfolio.

Google Acquires Israeli Cloud Migration Startup Velostrata

Founded in 2014, Velostrata helps companies migrate from on-premises datacenters to the cloud. The purchase is seen as part of Google's efforts to build its cloud computing business. Terms of the deal were not disclosed.

Palo Alto Networks Buys Israeli EDR Vendor Secdo

Optimob develops automation and optimization technology for ad networks and publisher management. They created software for Seattle based Tune's HasOffers platform which enables performance marketers to optimize and automate their affiliate programs.

Facebook acquires Israeli co Redkix for \$100m

Redkix, Facebook's fifth Israeli acquisition, has developed an email platform that serves as an enterprise application streamlining an organization's email chat.

PayU Buys Israeli Payments Technology Company ZOOZ for \$80m

PayU, a subsidiary of Naspers (sometimes described as the PayPal of the developing world), acquired the Israeli company to support its expansion in high-growth markets. ZOOZ provides an API to merchants that let them accept a variety of payments depending on the market.



01 Focus Area



"We've Disintegrated a Major 'Black Hole' in Agriculture"

Founded by two young Israelis from families of farmers, FieldIn's disruptive data-based pest management system helps leading global agro companies use pesticides more efficiently and safely - leading to dramatic cost saving. The company's CEO sheds light on FieldIn's exponential growth and Israel's flourishing AgTech industry

While a falling apple inspired Isaac Newton's insight into the law of gravity, Boaz Bachar's muse for a game-changing move was an avocado. "My wife comes from a family of avocado growers. They acquired a set of highly sophisticated sensors for pest control but were frustrated with interpreting the data generated by this system. I saw there was a major gap that requires better data gathering as well as big data processing."

This "Aha" moment led to the creation of FieldIn, one of the most globally renowned Israeli AgTech startups.

Founded in 2013 by Bachar and his partner Iftach Birger, FieldIn's platform is an end-to-end solution that helps growers make pest management more effective and safe. Every year, \$300 billion worth of produce is lost worldwide due to pests and diseases, and yet pest

management has been sort of a black hole: “No one across the value chain of a crop had any idea about the quality, safety and efficiency of chemical applications”, says Bachar. “We’ve created an unprecedented single, integrative solution for crop growers. Our platform provides them with visual insights and practical tools to manage every step of the pest control process. As a result, they use pesticide in a smarter and more efficient way that helps saving waste, spare mistakes and money.”

A Major Israeli Tech Vertical

AgTech (Agriculture Technologies) is growing rapidly worldwide- and especially in Israel. As late as 5 years ago most tech innovation in agriculture was narrowly concentrated in biotechnology and seed genetics and investment was relatively flat. “2013 was the breakout year following the acquisition of Climate Corporation by Monsanto for nearly \$1 billion”, explains Bachar, “After this deal many private equity funds and VCs became interested in AgTech, but they used to ask us questions about number of downloads and app registrations. They did not have a sense of our core business, the complexity of it and the great deal of patience required to realize the true value of AgTech solutions.” Another important factor in the ascent of AgTech has been the introduction of computing and telecommunications technologies (Big Data, Machine Vision, Internet of Things, AI, Analytics, etc.) into the traditionally-analog-based world of agriculture.

In Israel, AgTech is currently one of the strongest high-tech verticals, with more than 500 active companies



“We have actual ‘field experience’. Every button, feature and setting is 100% practical for crop growers. We can give them value within days – it usually takes years to prove you can reduce pesticide usage by 20%”

divided into 15 sub-domains of innovation addressing the entire agriculture supply chain. Israel’s agricultural technology is being used in many countries – helping cows produce more milk, growing crops in dry areas using micro-irrigation and bountiful other technologies. Israel’s expertise in the “Data Sciences” results in many “Precision Agriculture” companies, using data to increase yield, managing water use etc. Since 2016, the Smart Farming subsector has been leading in investment deals and value and currently represents 9% of global deals in this tech category.

When Tractors Become Smart

FieldIn uses precision agriculture for combating pests. “It works as follows”, explains Bachar: “We make the grower’s tractors or machinery smart. We outfit this machinery with a sensor that automatically monitors and records the whole spray process and its quality. The apps and sensors check the health of the crop, which kind and how many of the pesticides are used, in which way and where they are being used, quantity and pace, the weather and countless of other parameters”.

“Using insights based on big data, the ‘field scouts’ send

feedback to the people in charge. The central dashboard collects all the information and then, by using data analytics and artificial intelligence, reveals mistakes and alerts the controller if and where there is a problem, such as: sudden weather change or using a wrong pesticide error”.

“This Business Intelligence tool allows growers to improve yields, adapt faster to evolving pest resistance, and reduce costs while also reaping the environmental benefits of pesticide efficiency.” The average spraying operation, for example, costs around \$50 per acre. “If the spraying truck is driving too fast, the application will lose effectiveness and the money will be essentially wasted. The data which our system generates, creates value for the entire agricultural chain – from the farm worker to the packaging house and even the big retailers who seek to comply with regulations.”

“Our value comes from the ground up”

Bachar insists that a major factor in the company’s success is the staff member’s vast knowledge of the actual “culture” of agriculture: “We have actual ‘field experience’. About 30% of our people are professional agronomists who worked in fields and drove tractors. Every button, feature and setting is 100% practical for crop growers. They all use this tool on a day-to-day basis – On average, our clients log into the system 3 times a day and spend 6 minutes every time. This tool generates massive amounts of data on its own. The growers automatically receive reports that shock them and everything changes. We can give the grower value within days – it usually takes years to prove you

can reduce pesticide usage by 20%. Our value comes from the ground up, which makes this platform very attractive. So far no client has left us.”

Bachar proudly says that “There’s not a single agricultural in Israel that doesn’t use our system. Everything happened in about 18 months – we started sales in Israel only in 2016, and sales in the U.S started only in Q3/2017.” FieldIn currently runs 40% of the Israeli citrus, vines, apples and almonds tree crop growers. The company has been rapidly expanding to the US, Europe and Africa. Their biggest market today is California, where it partnered with 3 of the 7 largest crop companies in the state: “We currently run about 7% of the almonds in California, representing 6% of almonds worldwide.” The company has landed major contracts with some of the biggest names in the industry, such as The Wonderful Company, the world’s largest grower of tree nuts. Bachar says that FieldIn is now overseeing nearly 100,000 acres for the California Company.

As part of FieldIn’s vision to make all AgPest activities data-driven, the company now runs, according to them, the largest and most comprehensive AgPest database in existence. Reaching critical-mass with more than 1 million sprayed acres monitored, FieldIn expects to cover 40 percent of the citrus and vine markets by the end of this year.

The Agro-Tech Space in Israel

 **500+**
Active startups

\$47M 
Investment in Israeli Smart
Framing startups in 2017

85% 
The increase in total investment
value between 2016-2017

 **39**
Deals in 2017

 **\$138M**
Funding in 2017





02 Israeli Innovation

An “Electronic Nose” Detects Breast Cancer with 95% Accuracy

Israeli scientists have recently developed a new non-invasive method to detect early breast cancer more accurately by using commercially available breath and urine tests.

The inexpensive electric nose device (n-nose) identifies unique breath patterns in women with breast cancer “with more than 95 percent average accuracy”. In addition, revamped statistical analyses of urine samples submitted both by healthy patients and those diagnosed with breast cancer yielded 85 percent average accuracy. The team of researchers from Ben-Gurion University of the Negev and Soroka University Medical Center in Beersheva believes this breakthrough may be used for other cancers in the future.

Breast cancer is the most commonly diagnosed cancer among women worldwide. Surviving breast cancer is strongly tied to the sensitivity of tumor detection, especially smaller, earlier tumors. Typical mammography sensitivity, which is 75% to 85% accurate, decreases to 30% to 50% accuracy in

women with dense breast tissue. Researchers say that diagnostic imaging detection currently used for smaller tumors has significant drawbacks. This new approach is non-invasive, accessible and may be easily implemented in a variety of settings.

For the study, breath samples were collected from 48 breast cancer patients and 45 healthy women who served as a control group. Urine samples were taken from 37 patients diagnosed with breast cancer based on physical or mammography tests prior to any surgery, as well as from 36 healthy women.

“We’ve now shown that inexpensive, commercial electronic noses are sufficient for classifying cancer patients at early stages,” said Prof. Yehuda Zeiri, a member of BGU’s department of biomedical engineering. “With further study, it may also be possible to analyze exhaled breath and urine samples to identify other cancer types as well.”



03 Cultural Bite

The Photohouse in Tel Aviv

Tel Aviv's oldest photo shop is a wonderful place to take an eye-opening trip down memory lane.

Established in 1940, this charming family-owned store in the heart of Tel Aviv has become a true city landmark. With monumental private archives of rare early-days Israel photos, Ben Peter, the store owner, preserves and curates over a million negatives all taken by his late grandfather Rudi Weissenstein.

Weissenstein traveled the length and breadth of the land and documented its development – from the momentous to everyday life. He captured celebrities and simple laborers, farmers and members of the urban bourgeoisie. His love for the country and the Zionist endeavor are demonstrated by the generosity and compassion evident in his images. Ben will be thrilled to share in great detail information and stories behind each photo.

Bursting with nostalgia, the Photohouse is a place full of inspiration, documenting Israel's impressive progress. It is a true treasure trove for those searching for a unique and original gift from Israel.

Visit the PhotoHouse Website