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# Agro-Technology Sector

## IoT & Robotics





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The Israel Export and International Cooperation Institute (IEICI) is your premier gateway for doing business with Israeli companies. Established and funded by the government and the private sector, IEICI's expertise in technology and product scouting, joint ventures and strategic alliances with Israeli companies spans more than half a century. With expertise in Israel's leading Industries, IEICI offers access to relevant businesses and government resources and provides the information you need to connect, negotiate and do business.

This catalog demonstrates a sample of the Israeli abilities and know-how of the thriving Agro-technology sector, and as IEICI has an intimate acquaintance with the Israeli exporters, we are here to support and integrate you into this growing industry.

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## Spraying Drones

[www.agridrones.co.il](http://www.agridrones.co.il)

Agridrones specializes in developing and supplying tailor-made solutions using unmanned aircraft. The company develops, produces, and assembles the core components of its drones, and holds a permanent flight permit granted by the Civil Aviation Authority of Israel, allowing full commercial operation of the system. Agridrones has focused on developing a heavy drone configuration for agricultural and sanitary uses.

Agridrones successfully participated in the campaign led by the citrus board of Israel to control the Mediterranean fruit fly in citrus orchards, developing designated hardware and software tools in order to provide an optimal solution. The company is also working to control the false codling moth, a severe quarantine pest, through development of specific technology to implement the appropriate pesticide.



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**AGRIOT**

Smart Fertilization and Irrigation Recommendations <https://www.agriot.group/en/home>

AgrIoT is focused on providing accurate fertilizer and watering recommendations for a range of crop varieties on various scales through the use of big data, cloud infrastructure, and sensorless IOT technology, as well as advanced optics, digital image processing, and an agronomic decision support system (DSS).

The company's solution is based on managing fertilizer levels based on the nitrogen content in plant leaves, which is determined by measuring the greenness of the leaves. AgrIoT's product is designed to enable growers to send images from the field using a mobile application and to receive advice on fertilization and irrigation.



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## Early Pest Infestation Detection

[www.agrint.net](http://www.agrint.net)

Agrint has developed a sensing technology for the early detection of infestation threats in trees. The company's IoTree technology is based on sensors that provide early detection of pest activity regardless of the size of the tree or larvae. The company has adapted its sensor to detect the red palm weevil, an insect causing catastrophic damage to palm trees worldwide.

With Agrint's solution, each tree is outfitted with a durable, energy-efficient sensor that can detect the activity of red palm weevil larvae. The sensor is highly sensitive to the slightest movement of the larvae, even in their early stages of development, and sophisticated enough to filter out other noises that could lead to false alarms.

The sensors continuously measure and transmit the infestation status of every tree, with all of the gathered data stored on the Agrint platform, creating a constantly evolving trend analysis of the pests' behavioral patterns.



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Agricultural Intelligence Platform

[www.agritask.com](http://www.agritask.com)

AgriTask has developed, the world's most flexible agronomic platform, which is presently serving a great variety of crops at over 25% of major growers in Israel, and at some of the largest ag-corporates in the world: vegetables, field crops, orchards and citrus plantations, grape growers, greenhouse flowers, forestry nurseries, national pest protection projects of governmental organizations, field logistics of pulp companies, etc.

The system provides: a comprehensive view of any field and forecast information of interest at any stage in the agricultural production chain; flexibility in supervising mobile workers and their activities; real time monitoring of geo-spatial risk factors and customizable analyses of the aggregated data.



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## Crop Monitoring for Early Detection and Identification of Plant Diseases

<http://agro-scout.com/>

AgroScout develops an autonomous solution for detecting disease and pests in crops. AgroScout combines field imagery data gathered primarily from drones with external data such as weather information to detect crop diseases at an early stage.

The company uses the collected data, computer vision, and machine learning to provide a complete solution that accurately detects, identifies, and monitors diseases in the field and recommends future treatment. Its first application is designed for the potato market.



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## High-end, Multispectral Camera Solutions for Agriculture

<https://agrowing.com/>

Agrowing develops high-resolution, low-distortion multispectral camera solutions for agriculture. The company's patent-pending technology enables band image alignment at all times and eliminates the need for frequent hardware calibration.

Agrowing's technology overcomes the difficulties of synchronizing multi-camera imagery from fast-flying drones with a single camera, sensor, and shutter, enabling completely synchronized image acquisition. In addition, NDVI/Red-Edge and 3D modeling can be performed based on a single flight due to the low distortion of Agrowing's lenses.





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## Beehive Monitoring to Increase Crop Yield

[www.beehero.io](http://www.beehero.io)

BeeHero is developing a platform that can predict beehive disorders and mitigate against colony collapse. By safeguarding the health and productivity of bees, farmers can benefit from dramatic increases in crop yield.

The company provides beekeepers with sensors that are installed inside the hives to collect in-hive data and environmental information, which is then analyzed with BeeHero's algorithms to predict beehives disorders. The system uses machine-learning technologies to build a recursive natural network that receives three types of inputs: hive state, environmental parameters, and the know-how of the commercial beekeeper.



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## AI Pollination Solution

<https://pollination.ai/>

Bumblebee is an AI pollination solution for crops in which pollination can limit yields, such as avocados, kiwis, almonds, blueberries, and cocoa. Bumblebee can enable growers to increase their revenue by enlarging yields in existing crops and improving fruit quality.

Bumblebee's vision is to provide an AI-based pollination solution that addresses each crop's pollination needs by mimicking the natural pollination process and enhancing it using technology.



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## Robot as a Service Platform for Autonomous Vehicles

[www.bwr.co.il](http://www.bwr.co.il)

Blue White Robotics provides an operation platform for autonomous systems, to efficiently plan and operate multiple tasks on the same location in big scale using air & ground autonomous systems fleets - UAV, drones and robotics.

Blue White Robotics enables an autonomous future by providing 'Robot as a Service' - complete solution for seamless & efficient adoption of autonomous technologies on a big scale. Our software platform enables to plan and operate multiple tasks on the same location using air & ground autonomous systems fleets - UAV, drones and robotics, effectively and safely.

BWR was established in 2017, by ex-IAF pilots and engineers with over 20 years of experience in unmanned and autonomous technologies.



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## Soil Sensor for Irrigation

[www.cropx.com](http://www.cropx.com)

CropX is an agriculture analytics company that has developed an adaptive irrigation service, which automatically optimizes irrigation, thereby delivering an increase in crop yield as well as water and energy savings for farms.

The company generates irrigation maps and automatically applies the right amount of water to different parts of the same field.



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Climate Control for Greenhouses

[www.drygair.com/](http://www.drygair.com/)

DryGair Energies offers a solution for maintaining constant temperature and humidity conditions in greenhouses. The company's solution is designed to help customers save energy, depend less on pesticides, contribute to a greener environment, and improve yield quality and quantity.

The DryGair dehumidifier enables growers to control the climate within the greenhouse while keeping it closed, and is easily integrated with and effective for a wide variety of crops.



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FARM DOG

App for Pest and Disease Management

<http://farmdog.ag/>

Farm Dog has developed a comprehensive, standardized system for pest and disease management that includes an in-field workflow tool and web dashboard supported by data analytics.

Farm Dog's app enables users to track pests, diseases, weeds, trap counts, and more. It provides georeferencing and photograph findings; logs field visits and sets reminders for special checkups; reminds farmers to return to past hotspots and visit neglected areas; and sends external reports directly from the field.



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Farm Management Platform

[www.fieldin.com](http://www.fieldin.com)

Fieldin has developed a platform that serves as a farm control center, providing specialty crop growers with visibility across all field operations. The company offers a variety of tools, ranging from a spraying module and scouting app to a harvest-tracking dashboard.

Fieldin's user-friendly dashboard reports a full range of field data points, monitoring tractors, implements, operators, and in-field sensors in order to provide managers with actionable data to improve production, transparency, and efficiency in the field.



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# FruitSpec.

Fruit Yield Estimation

[www.fruitspec.com](http://www.fruitspec.com)

FruitSpec offers a solution designed to provide accurate early-season fruit yield estimation. The company's solution is based on hyper-spectral machine-vision technology.

FruitSpec sensor pods mounted on both sides of a tractor scan the trees as the tractor moves along the orchard rows during regular activity. Applied computer vision automatically counts and estimates the number and size of the fruit. The customer – a grower or packing house – then receives reports regarding the precise fruit yield and size distribution at both the individual tree level and the overall area scanned.





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Spray Less, Grow More

<https://greeneye.ag/>

Greeneye utilizes artificial intelligence and deep learning technology to revolutionize the pest control process in agriculture, transitioning from the current practice of broadcast and wasteful spraying of pesticides to precise and selective spraying. Greeneye developed proprietary precision spraying system, working in collaboration with Syngenta and large growers.



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## Holistic Sensing Solution for Greenhouse Farming [www.grofit-ag.com](http://www.grofit-ag.com)

grofit develops sensors and software for precision farming in greenhouses. Its IoT platform employs small, simple, low-cost sensor stations to measure key environmental and plant growth parameters such as air temperature, radiation, relative humidity, soil irrigation, fertilization, and more.

grofit is a spin-off of Syngenta, through which it has delivered its technology for several years.



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Satellite-based, sensorless Precision Irrigation <http://manna-irrigation.com/>

Manna Irrigation Intelligence is the leading precision farming company in Israel. The aim of precision farming is to optimize agricultural activities by achieving optimal input applications (fertilizer, pesticides and irrigation) in terms of location, dose and timing. Our work methods are based on Geographical Information Systems (GIS), GPS, remote sensing (aerial and satellite photography) and agricultural control systems. Manna Irrigation Intelligence is the link that bridges the gap between this elite technology and daily agricultural activity.

Four different fields, thus enabling a comprehensive, end-to-end solution of precision farming. This wide range of services facilitates the best match between the solutions and the field conditions, so that farmers can apply them based on real and defined requirements.



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**METOMOTION**

## Robotic System for Greenhouses

[www.metomotion.co](http://www.metomotion.co)

MetoMotion is developing a multipurpose robotic system to perform labor-intensive tasks in greenhouses in order to reduce the limitations and high costs associated with human labor in vegetable production. The company's first application is a robotic harvester for greenhouse tomatoes.

MetoMotion's robotic harvester is composed of an automatic guided vehicle (AGV), multiple robotic arms, an advanced vision system, and a proprietary harvesting component tailored to the specific vegetable. The system is being designed for easy operation and smooth integration into existing greenhouse practices. MetoMotion's systems can also be easily adapted to perform a range of greenhouse tasks, including harvesting additional vegetables, pruning, monitoring, and pollination.



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## Tensiometer-based Irrigation Systems

[www.tensiograph.com](http://www.tensiograph.com)

Mottes Tensiometers has developed a high-precision system for measuring and monitoring plant water consumption. The system utilizes remote sensing, cellular networks, and the internet to provide growers with accurate and reliable data about soil moisture tension and soil and air temperature. The results can be easily accessed through the company's web-based and mobile applications.



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Phytech Monitoring Technology for Crop Management

[www.phytech.com](http://www.phytech.com)

Phytech develops sensors to be placed on selected plants in order to continuously monitor micro-variations of stem diameter, which are scientifically proven stress indicators. Phytech applies patented algorithms that transform data into crop-specific plant status. Keeping plant status in the recommended range and avoiding stress leads to optimized production.

The company's apps help growers get a clear view of their plant needs and manage and optimize production based on real-time status and stress avoidance. The company offers a simple color-coded indicator, farmer-friendly interface, actionable recommendations, push alerts, irrigation planning tools, and weather and soil moisture data. No hardware installation or maintenance fees are required. Phytech currently supports almond, citrus, apple, pistachio, avocado, mango, corn, soy, hemp, cotton, stone fruit, and kiwi crops.



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## **Embedded Stem Water Potential Sensors**

[www.saturas-ag.com](http://www.saturas-ag.com)

Saturas develops a miniature sensor for assessing stem water potential. The sensor is implemented in an automatic system that optimizes irrigation, reduces water consumption, and increases fruit production and quality.

Embedded in tree trunks, vines, and plants, the sensors provide accurate information based on statistical analysis. The Saturas system consists of miniature implanted sensors, in-orchard communications and transponders, and a control unit.



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Crop and Tree Management System

[www.seetree.ai](http://www.seetree.ai)

SeeTree has developed an intelligence network that uses drones, machine-learning algorithms, and sensor technology to provide farmers with actionable analytics to help them monitor their crops and evaluate the strength of their trees. With SeeTree, farmers can make critical decisions based on accurate and consistent small- and large-scale data, connecting their actions to actual results in the field. The insights obtained from SeeTree help growers uncover problems, determine how to solve them, and assess the return on investment for each action taken.





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## Analyzing Vegetation with UAS Technology

<https://sensilize.com/>

Sensilize combines smart image analysis with UAS technology to provide up-to-date agronomic information to agribusinesses. The company's user-friendly spatial decision-support system uses imagery to provide thorough information about vegetation.

The system is based on an autonomous UAS outfitted with Sensilize's Robin, which is composed of lightweight commercial multispectral sensors. The gathered data is rapidly processed in the cloud using Sensilize's expert interpretation services.



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Autonomous Swarm of Spraying Drones for Agriculture

[www.skyx.solutions](http://www.skyx.solutions)

Skyx is an agricultural robotics technology company enabling a modular swarm of autonomous drones for spraying. Skyx's Precision Agriculture Spraying Swarm is an autonomous solution that enables variable rate application in an unlimited number of hotspots in any shape or uniform coverage of the entire farmland.

Proprietary algorithms compile data about the terrain, crops, pesticides, imagery, and available machinery into pre-flight optimized mission planning, real-time auto-piloting and control, and post-flight analysis with reporting.



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## Enabling Autonomous Driving in Mapped and Geofenced Areas

[www.softride.tech](http://www.softride.tech)

SoftRide's goal is to automate tractor operation in orchards and vineyards, with a seamless, plug-and-play solution. SoftRide develops retrofit kits that can connect to any type of tractor that drives in an agricultural environment and transform it to drive autonomously. SoftRide is selling today its platform for the main use of spraying orchards and vineyards, where it can not only reduce the dependency on human labor, but also provide an accurate and reliable spraying.



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## Field Monitoring Technology

<http://supplant.me/>

SupPlant, an Agro Web Lab (AWL) Group brand, offers an online platform and smartphone application designed to collect real-time sensor data from farms and provide continuous, actionable feedback to farmers.

SupPlant uses wirelessly transmitted data from sensors in the field that monitor the weather and soil, as well as from specialized plant sensors that measure stem diameter, leaf temperature, fruit size, and more. With these sensors, SupPlant can monitor plants to identify changes in growth rate, detect stress situations resulting from lack of irrigation, and compute actual and potential evapotranspiration (ET) to determine how much to irrigate.



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**TARANIS**

## Complex Imagery Platform for Predictive Crop Monitoring

[www.taranis.ag](http://www.taranis.ag)

Taranis offers a precision intelligence platform for agriculture. Its solution enables farmers to monitor their fields, make informed decisions, and take appropriate action, helping them to increase their yields and cut costs.

The company applies deep learning to proprietary data sets, including submillimeter aerial imagery, field sensors, satellite imagery, weather forecasts, and data from its field-scouting app to predict and prevent crop disease and pest-based losses.



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## Fleet of Airborne Harvesting Robots for Orchards [www.tevel-tech.com](http://www.tevel-tech.com)

Tevel Aerobots Technologies combines a patented airborne robotics platform with sophisticated algorithms to create an autonomous concept for orchard management and harvesting. The company develops a fleet of airborne robots for picking, thinning, and pruning tasks in orchards, providing a holistic harvesting solution for farmers.

Tevel's artificial intelligence software enables fruit sorting at the source, using precise timing to pick the best fruit in the orchard. The company's solutions have the ability to access treetops and can work in complex terrain, such as narrow or mountainous plantations.



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Pionerering affordable handheld hyperspectral imaging

[www.unispectral.com](http://www.unispectral.com)

Unispectral develops an affordable and disruptive new optical MEMS filter component (sensor) to support computer vision handheld & mobile cameras and making the transition from seeing to sensing.

The Unispectral platform allow capturing spectral megapixel of agriculture images. Multispectral image data provide additional information on the specific vegetable, crop, etc. Using algorithmics and empirical-statistical methods the vegetable can be analyzed for specific conditions, such as, material content, water content, ripeness, contamination and structural information.

Unispectral cooperates (and calling for collaboration) with companies in the agriculture value chain to develop use-cases for the benefit the end-user farmers.



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**Viridix**

Soil Sensor for Irrigation

[www.viridix.com](http://www.viridix.com)

Viridix aims to reinvent soil sensing through the development of an innovative, scalable, affordable solution that has been acknowledged by top agriculture scientists and corporate entities.

The company's revolutionary, patent-pending soil moisture sensor measures the water potential available to the roots of the plant, which is considered the gold standard of measurement in fertigation. The sensor itself acts as a real plant and can be mounted on different platforms, with no electricity or network needed for operation.