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Enhancing Cooperative Ecosystem for Building Regional Food Security

CICA June 2022

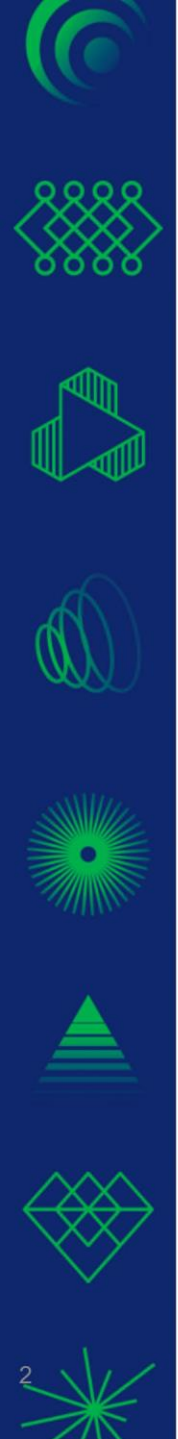
Michal Tsoran - Director of International Trade

Main points of my talk today

Coops Added value for food security



We the citizens of the world, are challenged, now, more than ever by the mutual need to feed the ever-growing population, in a world under severe anthropogenic stresses, and take care of the small remote communities.



Our resources are limited

The World in 2050



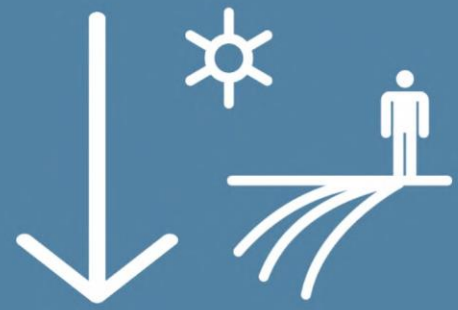
25%

less water than we need



20%

less arable land per person



4 Billion 0

מיליארד אדם בלבד יישאר על פני כדור הארץ

Main points of my talk today

Coops Added value for food security



I would like to dedicate my talk today to propose a resolution and offer expertise regarding these life-threatening topics based on 3 pillars:

- Agrotechnology
- Cooperative added value
- Education and future leadership

2% to 40%

My name is Michal Tsoran. I come from a small village in the periphery of Israel which is part of an organization of 270 communities called kibbutzim.

All these kibbutzim are less than **2 %** of the population in the country.

We are located far from metropolitan regions and far away from the capital of the Startup Nation, with small-scale education systems and inferior health services.

2% to 40%

Not where one would expect to have the best opportunity to thrive ...

and yet we provide more than 10 % of the industry manufacturing in Israel and 40 % of the agriculture and food production





Kibbutz Industries Association:

300 companies :

15.5 B\$ Sales
70% Export

274 Kibbutz
Communities,
200,000 members,
80% in periphery

10% of Israel's
manufacturing
product

4.5% R&D Expense

Exceling in
Aggrotech and
Food products

2%-40%

How can that be?

We are not "super farmers", and moreover,
we are significantly limited by water and
land.



Cooperative culture

The answer is that we are practicing a Cooperative culture of doing business and we utilized this cooperative ecosystem to be innovative, high-tech, and effective.

Cooperatives are known all over the world, and we have adopted this method to bring relevant and innovative Value chain.

Cooperative culture

We pool our resources together to invest in education, research and development. We use common infrastructure for effective post-harvest and utilities "Economy by Scale" to plan, distribute and develop new markets.

We finance our farmers and act as banking facilities for investments. In addition, we handle conflict and mitigate risks together and work together to influence legislation and government support.

Advantages Of The Coop Model



Common aspirations and goals



Shared Pools & Capital -
Economics of Scale



Sharing same demographic and
geographical challenges



Well organized on economic and
community levels, mitigating
regional conflicts

Regional COOP Enterprises

- Second Order coops
- Main segments: Industry and agriculture
- Organized: Flexible, vertically integrated, market oriented. Strategic planning and mitigating conflicts
Can establish and expand international relationships through
- centralized export and stable trade agreements
- Pooling resources for effective investment in Agritech solutions
Creating future leadership

The Human Factor

An additional significant pillar is the human factor: We have created entrepreneurial hubs in our regional ecosystem with industries and academia to develop future leadership.

Young people, our sons and daughters, from diverse cultures, developing AGGTECH and Precision Agriculture bring innovation and investors and prevent Negative Demographic trends and **Brain Drain in the area.**

The story of Kinneret innovation Agri-Hub: Ecosystem of local forces and organizations

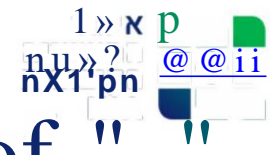
- The goal: improving the area's quality of life on all levels and creating high paying salaries for its members and a future for the next generation
- Built by the Regional Enterprises and the and the Regional college.
- New roles of innovation, finance, supply chain, conflict mitigation and business negotiation.
- 48 coops, Nearly Billion \$ sales, 14 new high-tech companies in two years, new industry zone.



Food Security Responsibility

So, to summarize this part, one could say that we are tiny, located in remote regions and don't have enough land and water.

Yet we are responsible for most of the Food Security and supplies of our country, and export to many more countries food and advanced Agrotechnology. We believe in sharing our values and capabilities by building cooperation and partnerships with communities, organizations, and countries around the world.



Test cases and examples : Agri-tech solutions of **our industries:**

- Drip Irrigation Technologies, water management and their crucial role in solving world hunger where water is scarce or polluted.
- Pest management and biological Pest control, avoiding the use of toxins and chemicals.
- Hydroculture, and Aqua- culture, making use of detached surfaces to avoid salty ground and water.
- Grain improvements, Crop handling and advanced packaging.
- Circular economy in agriculture to optimize supply chains.
- Utilizing high tech methods in Cattle and Heard farming with Bigdata and IOT to optimize meat and milk production.



Precision irrigation delivers water & nutrients
Directly to the root zone



Precision irrigation solutions



Main Control Unit powered by NetBeat™

Filters

Valves

Sprinklers

Connectors & Fittings

Unique Drippers & Drip lines

Remote Terminal Unit powered by NetBeat™

Sub-surface drip irrigation

Ramthal - The world's biggest community irrigation project

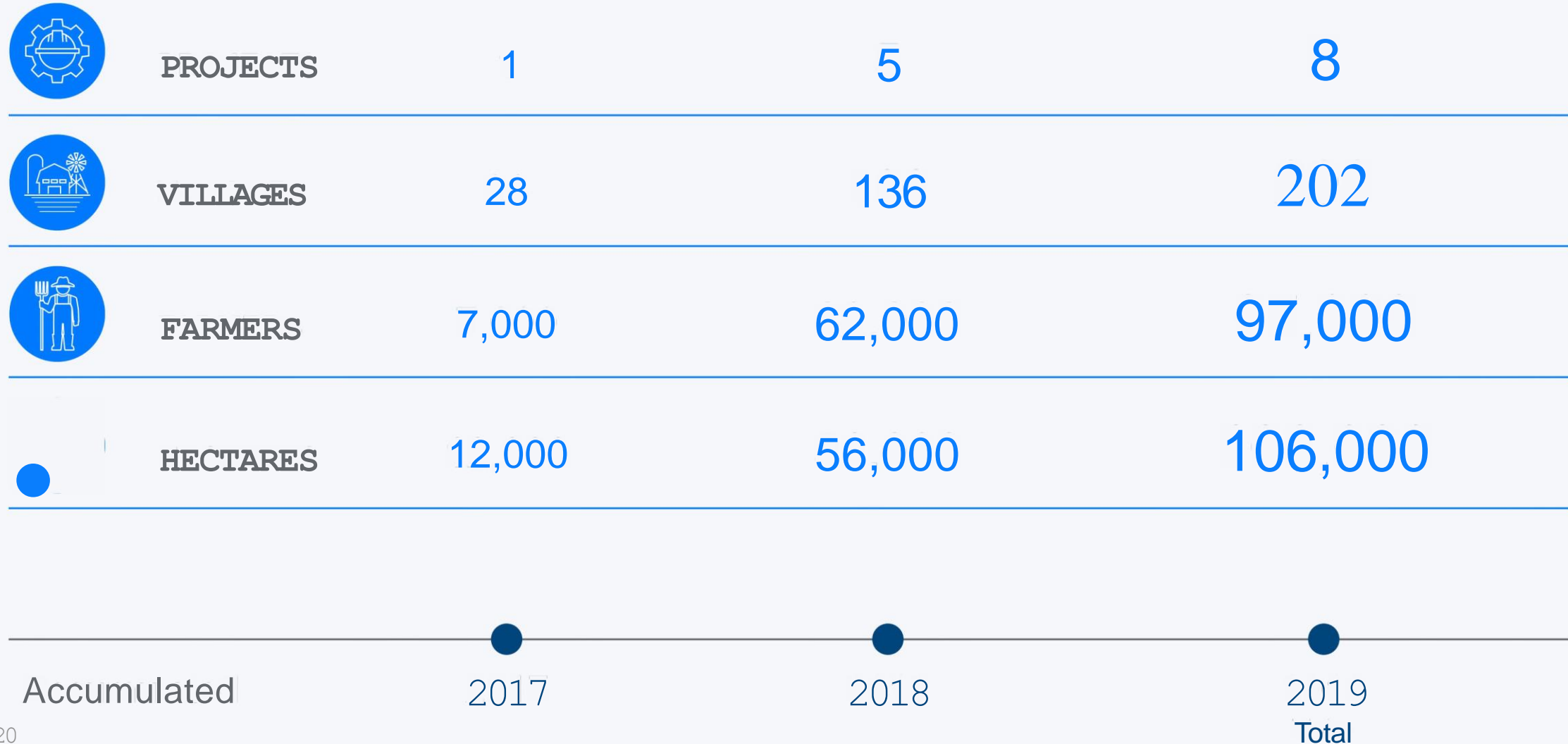
- 0 **Country:** India
- 0 **Year:** 2015
- 0 **Hectares:** 11,700
- 0 **Customer:** the Karnataka state government
- 0 **Challenge:** Modernize irrigation for 6,700 smallholders across 22 villages with limited water resource
- 0 **Services:** Bulk water supply, infield fully automated irrigation and fertigation systems, 5 years on-site training and capacity building
- 0 **Result:** Impacting the lives of thousands of people and changing the regional economy



Community irrigation projects



Netafim's community irrigation projects in India





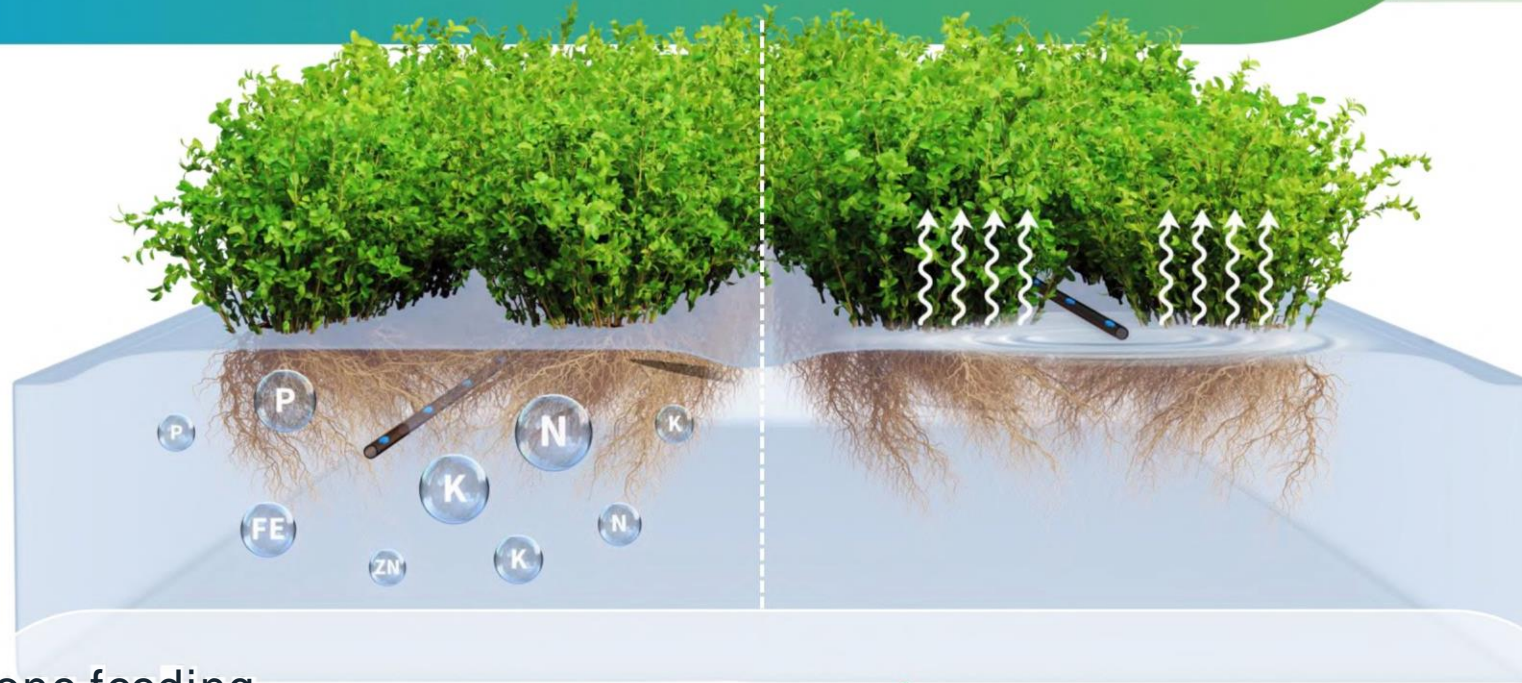
Drip irrigation as a sustainability tool



Sustainability

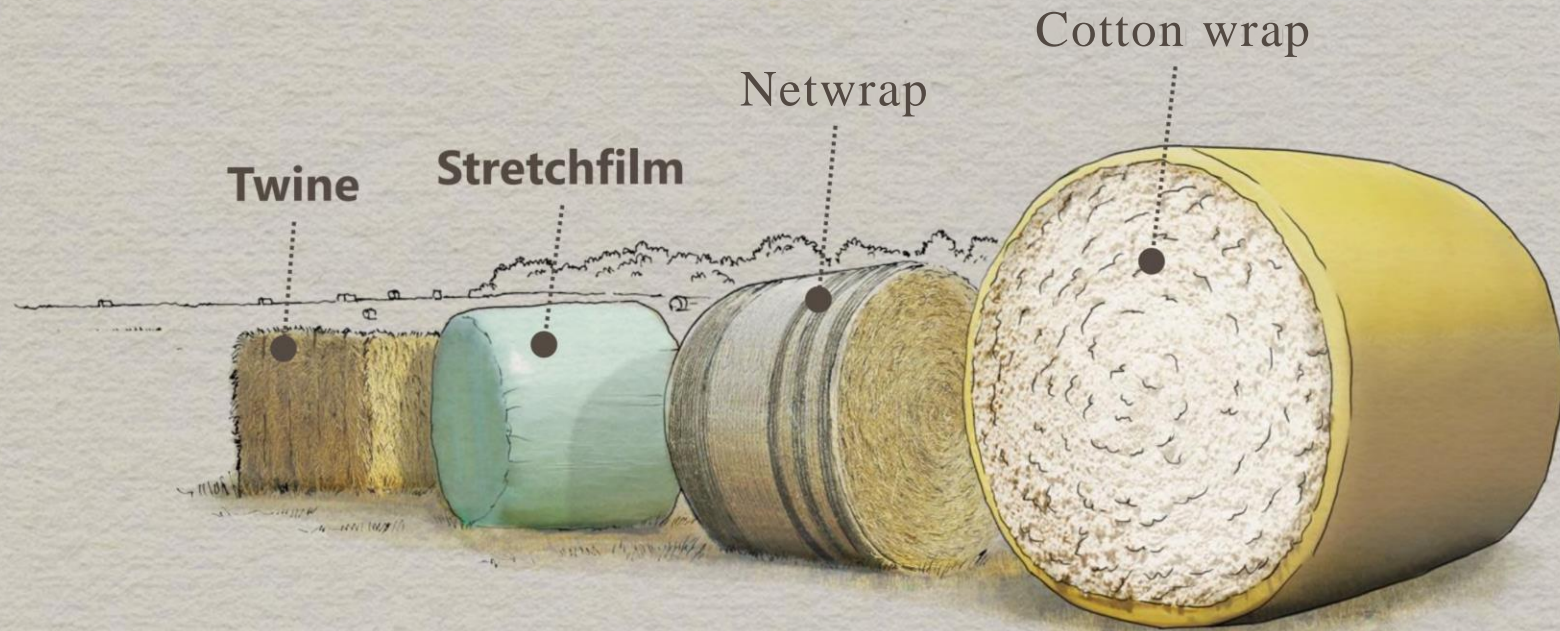
Circular economy

Advantages of Metzer Sub-surface with recycled water



- ✓ Direct root-zone feeding
- ✓ Precise irrigation according to the crop uptake
- ✓ No groundwater percolation
- ✓ Ability to operate machinery on soil surface
- ✓ Pollution free technology
- ✓ No odors
- ✓ No risk of contact with pathogens

lama's main Products



Cotton Wraps

360° TamaWrap+ Technology



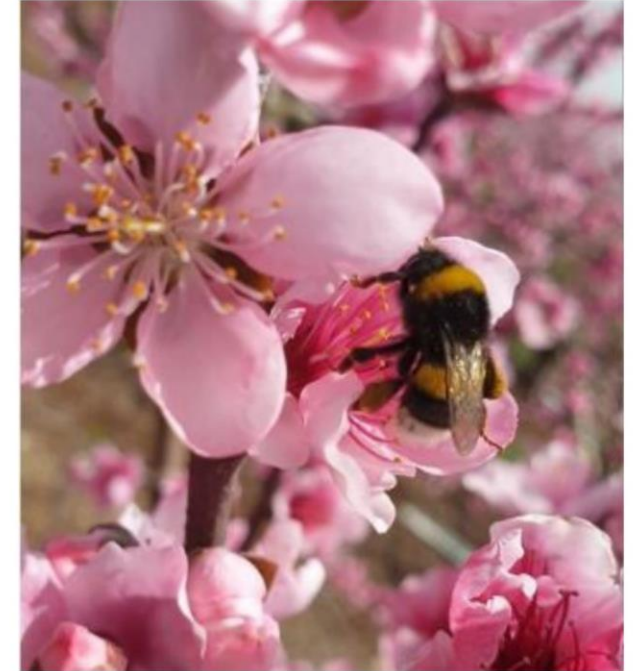
Solutions for hydroponic growers

Producing and supplying Troughs and Drainage gutters, enabling collection and recycling of the drainage water and nutrients, and providing solutions for farmers with saline and infected soil. used in greenhouses and outdoor, for growing Vegetables, Roses, Cut flowers, Herbs, Strawberries, other Berries and more



Mass rearing and use of beneficial insects and mites for agriculture.

- **BioBee** aim to reduce the use of harsh chemicals, creating a healthy and effective agriculture which is better for the environment, the grower and the consumer.
- **BioBee** Core activities are:
 1. Biologically based IPM (Integrated Pest Management)
 2. Natural Pollination with Bumble Bees (*Bombus Terrestris*)
 3. AI driven Artificial pollination



Agr@Scout

We collect agricultural data from fields in multiple ways
 We scientifically analyze these to produce detection and recognition of agri bio-risks
 We produce actionable reports with supply insights

We monitor, detect, and report on:

Crop-Intelligence

- Pest diagnostics** Prognosis, per plot.
- Anomaly** of multiple types of plant and field stress
- Stand count & canopy coverage** Detection & dynamic scouting



Supply-Intelligence

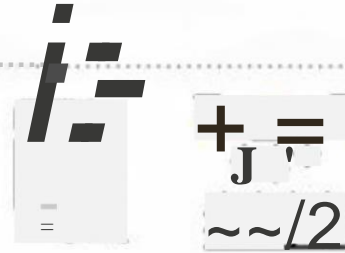
- for **Growers** : Better agronomic decisions
- for **Processors**: Better supply and procurement decisions



SUPPLY INTELLIGENCE SYSTEM

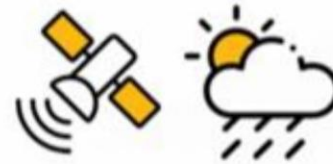
1

Growers globally use off-the-shelf drones and their own phones to collect the visual information



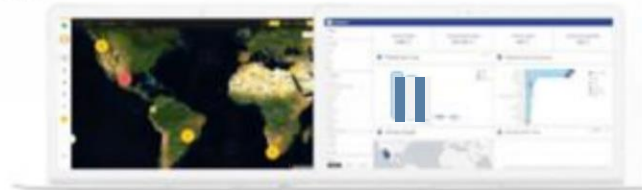
2

We fuse satellite, multispectral, and agronomic images into our agro data bank. Our visual technology detects field stress anomalies and verifies the findings with data



3

We produce insightful reports, and mobile and web dashboards on field-crops health and supply risks



Agr@Scout

SaaS cloud

- Image processing tech
- AI & ML algorithms
- Agro data bank (30M data points)
- Service apps for mobile



The Agritech Event

These technologies and many more will be presented on the **Agritech Event**, the international show and conference, dedicated to food security and Agritech solution, taking place in **Israel on May 2023**. You are all invited to come and explore the variety of solutions and technologies.



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Agritech

Platform for introducing Agrotechnology and Innovation to the world.

show &

International delegations of customers & investors, Show Case for Agritech Start-ups and companies.

conference

Agritech conference: Centre of Excellence for effective and innovative solution in Desert-tech and Aquaculture



Cooperative communities can bring Added value

There is a need to feed more mouth with less water and land. Cooperative communities can bring added value to small business and villages in remote areas if they can adapt to changes and use cutting edge technologies, joining forces to create Economy of scale.

We can contribute dramatically to the development of the AGGtech sector and achieve food security and prosperity in a resource-decreasing world

You are welcome to benefit from our experience!!

Thank You!

Blessings for health and prosperity

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