



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY

# AGRITECH SECTOR HEAT MAP



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### ❖ Agritech as an Industry

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# WHAT IS AGRITECH?



(most popular sub-sectors  
for investment in 2020)



# GLOBAL AGRITECH LANDSCAPE



## 2020 Global Funding Breakdown



**~USD 30.5 billion**  
estimated total  
investment



**~3093**  
# of deals

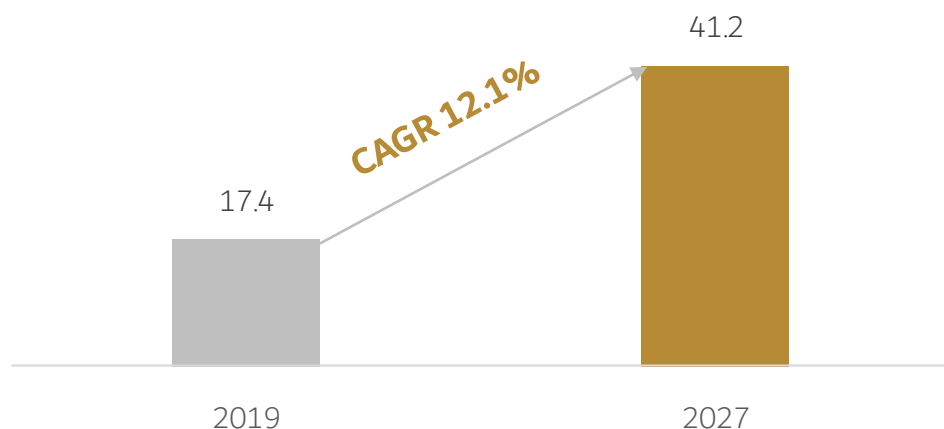


**~2789**  
# of investors



**USD 1.6 billion**  
Largest deal

## Global AgriTech Market Size (USD Billions)



## Top Countries for AgriTech Investment in 2020

Country Name	Investment (USD)	# of Deals
United States	13.2 billion	815
China	4.8 billion	115
India	1.8 billion	164
United Kingdom	1.1 billion	133
France	660 million	39
Israel	482 million	57



# GLOBAL TRENDS INFLUENCING THE GROWTH OF AGRITECH



Income growth in emerging economies led to increasing consumption of products of higher value such as meats and dairy products



World population is currently growing by approximately 81 million people each year, there will be nearly 10 billion people on Earth by 2050 - this translates into doubling global food production to meet the demand



Rising energy prices, production costs for most of the world's farmers, and adverse weather in a number of countries will reduce global production of certain foods. The COVID-19 pandemic has also highlighted the importance of finding alternative ways of growing, processing, transporting and selling food to consumers.



Rising societal and environmental concerns regarding traditional farming in the developed economies: there are diminishing land resources and climate change threats to produce quality feed and fodder



Innovative feed productivity: improved feeds, plant-based protein, resilient crop breeds; growth in productivity

## More Personal, More Local, More Connected, More Sustainable

**137%**

The level of investment in innovative food more than doubled from 2019 to 2020

**46%**

Global consumers who say locally sourced is more important now than it was in the past

**62%**

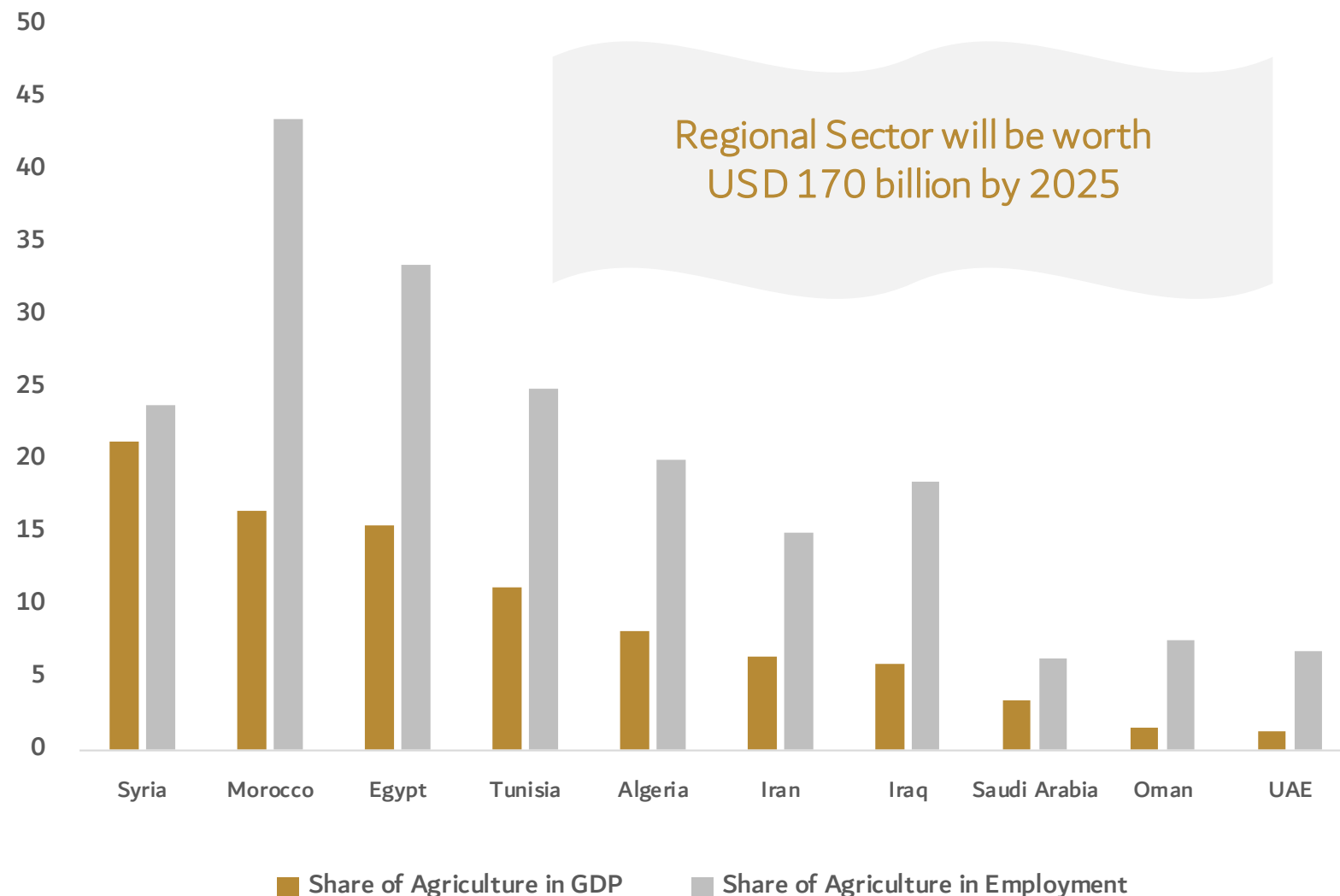
Global consumers who will make healthier choices in what they buy this year

**50%**

US consumers who identify "sustainability" with climate change mitigation and adaption



## MENA AGRITECH LANDSCAPE



### The MENA region is uniquely vulnerable to agriculture disruption

- It is currently 25% more expensive to produce food locally using new AgriTech technologies instead of importing it.
- Agriculture represents 13% of GDP in the MENA region but employs 28% of the population
- 83% of water use in MENA goes to agriculture, in contrast to the mere 4% devoted to industrial purposes
- According to the UN, 135 million people could lose their homes and livelihoods to desertification by 2030. Inhabitants of the MENA region are more vulnerable than most.
- Countries in the region represent the largest importers of cereal in the world today and import at least 50% of the food calories they consume.
- Half of Iran's farmland is on "poor quality" land, which has led farmers to invest in unsustainable groundwater pumping systems



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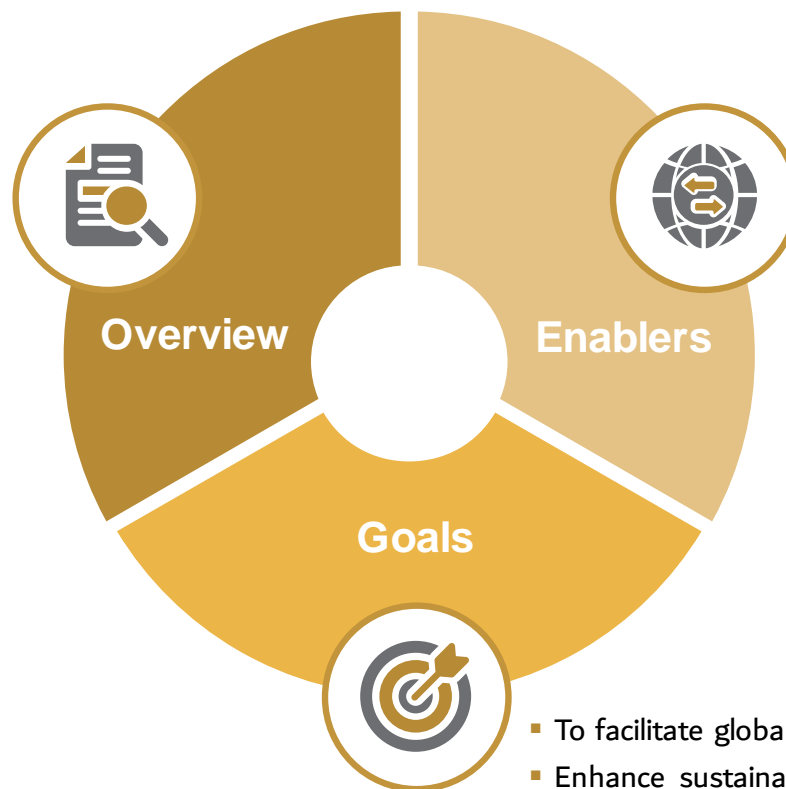
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- ❖ Agritech as an Industry
- ❖ **Growth outlook for AgriTech in UAE**
- ❖ Ecosystem for Investment in AgriTech in the UAE
- ❖ Key government stakeholders and industry associations in the UAE AgriTech Sector



# KEY AGRITECH DRIVER IN UAE IS NATIONAL FOOD SECURITY STRATEGY

- The 2051 Vision for the National Food Security Strategy is to be a world leading hub in innovation-driven food security
- Ranked 21 on the Global Food Security Index 2019, jumping ten tens points from 2018
- UAE aims to be ranked 9 by 2021, and ranked 1st by 2051,
- UAE aims to increase domestic production of strategic food items by +100 tons
- UAE aims to reduce water supply for agriculture from 8.2M in 2016 to 7.1M in 2036



- Build an effective food security governance model
- Establish and Implement a national R&D food Security Agenda
- Develop the National Food Security Database
- Build human capacity for food security functions
- Engage the community to shift food security notions and behaviors

- To facilitate global agri-business trade and diversify international food sources
- Enhance sustainable technology-enabled domestic food supply across the value chain
- Reduce food loss and waste
- Sustain food safety and improve nutritional intake
- Enhance capacity to respond to food security risks and crises

Source: UAE National Food Security Strategy, CBN, EuroNews, Gulf News





# THE UAE AGRITECH SECTOR HAS SEEN SIGNIFICANT GROWTH IN RECENT YEARS

## Recent sector growth

- **UAE agenda** to attract global companies to **establish advanced AgriTech ecosystem** benefit from globally competitive tax rates, advanced infrastructure, ability to handle large volume commodities, natural sunlight and **economic business hub geographical location**
- There are over **35,000 farms currently operating in the UAE**. Many use modern irrigation and hydroponic techniques to grow produce in minimal water and understand effects on crop yield
- In **2019, mainstream VC firms, Sequoia and Accel Partners invested in MENA agritech**, which attracted an investment of **approximately USD 300 million**



### 2019 was the best year for capitol flows in UAE AgriTech

- 2019 strong year for capitol flows with COVID-19 disrupting supply chain and **increased interest in localizing food production for the future**
- Vertical farming company AeroFarms will build the world's largest R&D Indoor Vertical Farm to conduct research and tackle challenges of desert agriculture at a new 8,200-square meter facility in Abu Dhabi
- UAE home-grown Madar farms will build the world's first commercial-scale indoor tomato farm to use only LED lights, located at Kizad
- Localized R&D and new tech using data to build predictive models in the areas of price-forecasting, pest attacks and yield estimation to attract investors

### Abu Dhabi launched a series of AgriTech incentive packages

- Launched by the Abu Dhabi Investment Office (**ADIO**) worth up to **USD 272B** for local and international AgriTech and other companies to build and grow a presence in Abu Dhabi
- Packages will be awarded within three key sub-areas: **precision farming and agriculture robotics, bioenergy (algae) and indoor farming**
- Part of the 'Ghadan 21' accelerator program to ensure food security, improve farming conditions in the UAE and globally and secure jobs for the future
- Generated over USD 450M in GDP contribution and create > than 2,900 jobs in the emirate by 2021

### ADIO invested USD 100M to build dedicated facilities for next generation agritech and desert agriculture

- **Abu Dhabi Investment Office (ADIO) has** allocated USD 100M to **partner with four agritech companies**: AeroFarms, Madar Farms, RNZ and Responsive Drip Irrigation (RDI) to attract high skilled labor
- **Companies will establish new R&D and production** facilities in the emirate. Furthermore, they will convert sand into farmland, solve complex global agriculture challenges and expand the profile of local food producers
- As part of a three-year program, ADIO has **allocated approximately 40% of the AgTech Incentive Programme funding in the first year**

Source: Gulf News; Arabian Business



# UAE AGRITECH SECTOR GROWTH POTENTIAL

Investments from venture capital firms in AgriTech startups are expected to exceed USD 500M by 2023



## Strong Momentum in Urban & Vertical Farming

- Emirates Flight Catering has built the world's largest vertical farm in Dubai. The project, worth USD 40 million, is a joint venture with Crop One Holdings.
- Furthermore, the largest indoor farm in the world, called GreenFactory Emirates, has been announced in the UAE. The project is estimated to cost USD 177 million and will be built in Abu Dhabi. It is a joint venture between GrowGroup IFS from The Netherlands and RainMakers Capital Investment LLC from Abu Dhabi. GreenFactory Emirates will produce 10,000 tons of fresh produce per year on a plot of 17.5 hectares and a cultivation area of 160,000 sqm.



## Broadening Investments from Research Parks to Aquaculture

- A USD 1.5 billion Dubai Food Park project was recently unveiled in the 51 million sqm Dubai Wholesale City.
- With USD 54 million invested to date in developing fish farms and hatcheries, Aquaculture is expected to become one of the country's "breakout industries".
- Atlantic salmon farming has now become a reality in the UAE with Fish Farm, a UAE-based aquaculture farm using the Recirculating Aquaculture System technology.



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## STARTUPS



**N.THING**



SMART ACRES

سمارت أكيرس



**AeroFarms®**

Farming Locally. Globally.



مزارع مدار  
madar farms



سلال  
**silal**

## INCUBATORS / HUBS

Dubai Food Tech Valley

**HUB71**



مجمع الشارقة للبحوث  
والتكنولوجيا والابتكار  
Sharjah Research Technology  
and Innovation Park

## EVENTS



6 - 8 DECEMBER 2021

## REGULATORS



GOVERNMENT OF DUBAI  
DEPARTMENT OF ECONOMIC DEVELOPMENT



UNITED ARAB EMIRATES  
MINISTRY OF CLIMATE CHANGE  
& ENVIRONMENT

الأمن الغذائي والمائي  
FOOD & WATER SECURITY



دائرة التعليم والمعرفة  
DEPARTMENT OF EDUCATION  
AND KNOWLEDGE

**DMCC**



هيئة البيئة - أبوظبي  
Environment Agency - ABU DHABI

## INVESTORS



شركة الاستثمار الوطنية  
NATIONAL INVESTMENT COMPANY



MUBADALA





## NOTABLE UAE AGRITECH STARTUPS

The UAE is home to only a couple dozen Agritech startups thus far, but the number is increasingly rapidly...



- Cultivation of fruits and vegetables using hydroponics
- Funding: >USD 100 million



- Advanced plant-responsive irrigation technology
- Backed by ADIO; building an R&D facility and regional distribution center in Abu Dhabi



- Food source management and tech knowledge transfer for UAE-based farmers
- Launched by investment fund ADQ



- South Korea-based IoT-based crop monitoring system for vertical farms
- Funding: >USD 3.3 million



- Vertical farm startup based in New Jersey
- Backed by ADIO; building a 8,200 sqm R&D center in Abu Dhabi



- Hydroponics-based container farming; focused on increasing fresh greens production from 12 to 170 tons annually



- Vertical farm startup based in Dubai
- Backed by ADIO; building world's first commercial-scale indoor tomato farm to use only LED lights



- IoT-based precision farming services for farmers
- Backed by Hub71 and in5



- AI-based, real-time farm monitoring solutions
- Backed by Mohammed Bin Rashid Innovation Fund; based in Masdar City, Abu Dhabi



- Uses AI and acoustics to detect pests, especially red palm weevils
- Backed by Jordanian seed investor BeyondCapital



# UAE AGRITECH HUBS & INCUBATORS

Illustrative, non exhaustive



**DMCC**



**HUB71**



## Dubai Food Tech Valley

- Launched in May 2021 as a “major new food technology hub” for the emirate
- Will focus on vertical farming and other advanced agriculture technologies to bolster the UAE's food security.
- Will host 4 main clusters, including R&D facilities, an innovation center, a smart food logistics hub, and areas for vertical farming.
- Will be in a special economic zone

## DMCC

- Through a centralized marketplace, DMCC facilitates trade in agricultural products ranging from coffee to grains and spices
- The free zone also hosts innovative agritech companies as well as incubators for promising startups

## Sharjah Research Technology and Innovation Park

- Supports farmers and harnesses new technology to produce sustainable local food all year round
- Incentives for startups include lower business formation costs, high quality technology infrastructure, office space, and lab facilities for materials or chemical testing

## Hub71

- Flagship tech cluster in Abu Dhabi, focusing on the priority sectors including agritech, fintech, and AI
- The 2021 cohort altogether raised over \$75 million from various global investors
- Other incentives include...
  - ✓ >\$1 Billion endowment
  - ✓ Global partners including Mubadala, Microsoft and SoftBank Vision Fund
  - ✓ Access to capital providers, business enablers, and strategic partners
  - ✓ Runs corporate, incentive, accelerator and upskilling programs

## Negev Innovation Center

- Israeli VC firm Arieli Capital and the Ramat Hanegev Regional Council teamed up in May 2020 to establish an agriculture tech innovation center in southern Israel with an initial investment of USD 5 million
- Part of the center will include an agritech startup accelerator, with 5-10 startups in the initial cohort.
- They also entered into discussions with UAE officials about advancing desert agritech projects together.
- UAE officials are considering sending teams and delegations there to undergo training in innovative desert agriculture.



## KEY UAE AGRITECH EVENTS

Illustrative, non exhaustive



Backed by the UAE Office of Food Security, this annual global competition seeks to develop innovative solutions for food production and management in the UAE, as well as attract start-ups and university students with experience in urban farming from around the world.



- 5 day exhibition sees over 5000 exhibitors and 100,000 visitors from 200 countries.
- 2019 edition facilitated 6,700 individual trade meetings averaging USD 1 million in deals per participating company



- Launched in 2014, GFIA is the largest showcase of sustainable agritech in the MENA region
- Has sister events in Australia and Canada to reach global audiences



- Over 200 companies across 56 countries
- Over 1350 exhibitors



Government-sponsored exhibition focused on crop and animal farming, aquaculture, and animal health





# KEY UAE AGRITECH INVESTORS

Illustrative, non exhaustive



Abu Dhabi Investment Office	Ghadan-21	Khalifa Fund	Kuwait's International Investment Company	Mubadala	Arab Authority for Agricultural Investment and Development
<ul style="list-style-type: none"> <li>In 2020, invested USD 100 million in 4 key agritech startups</li> <li>Companies were offered a package of cash and non-cash incentives including rebates of up to 75% on R&amp;D expenditure upon commercialization of solutions developed in Abu Dhabi.</li> <li>In 2020, launched a series of partnerships worth \$41 million with agritech companies</li> <li>Also offers financial support (rebates on investments, key cost centers, innovation cost, utility costs etc.) and non-financial support (land location, regulatory and strategic advice).</li> </ul>	<ul style="list-style-type: none"> <li>government launched a USD 272 million incentive package for Agritech firms.</li> <li>The scheme targets 3 agricultural segments to increase food production: precision farming (including agricultural robotics), bioenergy (such as producing algae for fuel), and indoor farming.</li> <li>Incentives include rebates up to 75% for R&amp;D costs, along with other fiscal and regulatory concessions</li> </ul>	<ul style="list-style-type: none"> <li>Established in 2007 with approximately USD 1 billion in funds</li> <li>Supports and develops SMEs in the Emirate of Abu Dhabi.</li> <li>Spending at least AED 88 million on agriculture sector; for example assisting 88 farms that use innovative water technology.</li> <li>Has vast network connections in UAE agricultural sector</li> </ul>	<ul style="list-style-type: none"> <li>A government-backed international investment company, looking for opportunities that can also be exported back to Kuwait.</li> <li>In 2020, invested USD 100 million into UAE-based agritech firm Pure Harvest Smart Farms. The investment is <b>the largest ever into agriculture technology in the Middle East, North Africa, Pakistan and Turkey.</b></li> </ul>	<ul style="list-style-type: none"> <li>Is investing in agribusiness startups and companies through new partnerships that will drive growth and enable sustainable, responsible and efficient production methods.</li> <li>Aquaculture is one of the most promising sub-sectors for Mubadala</li> <li>Also has major investment in a California-based vertical farming startup</li> </ul>	<ul style="list-style-type: none"> <li>Arab financial investment institution specializing in the field of agricultural investment in its Arab member countries.</li> <li>In 2019, the AAAID's assets amounted to approximately USD 1.3 billion.</li> </ul>





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# RELEVANT UAE REGULATORS FOR AGRITECH

Illustrative, non exhaustive



UNITED ARAB EMIRATES  
MINISTRY OF CLIMATE CHANGE  
& ENVIRONMENT

In charge of setting up aquaculture and farming businesses



GOVERNMENT OF DUBAI  
DEPARTMENT OF ECONOMIC DEVELOPMENT

Issues farming sector business licenses in emirate of Dubai



دائرة التعليم والمعرفة  
DEPARTMENT OF EDUCATION  
AND KNOWLEDGE

Local authority in charge of agriculture, food safety, food security and biosecurity in the Emirate of Abu Dhabi.

الأمن الغذائي والمائي  
FOOD & WATER SECURITY



Collaborates with the UAE Government Accelerators program on 10 initiatives that make entering into the agriculture sector easier including cost reductions for agricultural licenses, loan guarantees, and guidance on best agricultural practices.



Collaborates with other government agencies and private companies on projects related to food and water security

## AGRITECH DEVELOPMENT TEAM

- Established in 2020, the AgriTech Sector Development Team is made up of public and private sector stakeholders from the agricultural technology sector.
- The team's vision is to see the success of ground breaking AgriTech projects.
- Chaired by H.E. Mariam Almheiri, UAE Minister of State for Food Security
- Consists of working groups that examine the challenges of adopting technology in the food sectors for their respective fields, identifying issues related to relevant laws and policies and suggesting recommendations.
- Their feedback then goes directly to the Cabinet



## ADDITIONAL INDUSTRY RESOURCES



### GULF AGRICULTURE (MAGAZINE)

- ✓ A specialized English magazine that covers on a bimonthly basis all news relating to agriculture, horticulture poultry & livestock industry in the Gulf region.
- ✓ It is a B2B magazine where advertisers can market & promote their products in the Middle East, Europe & South East Asia most effectively.
- ✓ Agritech companies can advertise within its pages
- ✓ Innovations and initiatives are discussed frequently in magazine articles



### CROPLIFE AFRICA MIDDLE EAST

- ✓ A non-for-profit industry association representing the leading global manufacturers of pesticides, seeds and biotechnology products in its territory.
- ✓ Registered in Brussels in November 2002 and represents today more than 20 national associations across its region.
- ✓ Represents the innovators, developers, manufacturers, formulators and registrants of crop protection and ag-biotechnology products
- ✓ Industry resources include publications, instruction manuals, training courses, and more
- ✓ Has office in Abu Dhabi